FINAL ◦ APRIL 2020

Environmental Impact Report for the Lower Klamath Project License Surrender Volume III

State Clearinghouse No. 2016122047

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

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Final Environmental Impact Report for the Lower Klamath Project License Surrender

Volume III

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April 2020

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The Lower Klamath Project License Surrender Final Environmental Impact Report is being made available to the public in accordance with the California Environmental Quality Act.

Visit Lower Klamath Project License Surrender Project Web Site (**https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.shtml**) where you can view and download an electronic copy of the Final EIR.

To receive future email notifications regarding the Lower Klamath Project, please subscribe to the "Lower Klamath Project License Surrender" email subscription list under "Water Rights".

Instructions on how to sign up for the State Water Board's Email Subscription List are outlined below:

- Visit the State Water Board's email subscription website: **http://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.shtml#rights**
- Provide your name and email in the required fields.
- In the categories below the email and name fields, select "Water Rights," then "Lower Klamath Project License Surrender."
- Click on the "Subscribe" button.
- An email will be sent to you. You must respond to the email message(s) to confirm your membership on the selected list(s).

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2012 KHSA EIS/EIR	Klamath Facilities Removal EIS/EIR
2013 BiOp Flows	Flows described in the NMFS and USFWS 2013 Joint Biological Opinion
2019 BiOp Flows	Flows described in the NMFS 2019 and USFWS 2019 Biological Opinions
2R	Two Dam Removal Alternative
3R	Three Dam Removal Alternative
7DADM	7-Day Average Daily Maximum
ADT	Average Daily Traffic
AADT	Annual Average Daily Traffic
AB	Assembly Bill
AF	Acre-feet
amsl	Above mean sea level
AN	Above Normal
ASTM	American Society for Testing and Materials
BAAQMD	Bay Area Air Quality Management District
BiOp	Biological Opinion
BOD	Biochemical Oxygen Demand
BLM	Bureau of Land Management
BMI	Benthic Macroinvertebrates
BMPs	Best Management Practices
BN	Below Normal
^{o}C	Degrees Celsius
CAAQS	California Ambient Air Quality Standards
CaCO3	Calcium carbonate
CalEPA	California Environmental Protection Agency
CALFIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association

CARB	California Air Resources Board
CCHAB	California Cyanobacteria Harmful Algal Bloom
CDFW	California Department of Fish and Wildlife
CDOC	California Department of Conservation
CEF	Coho Enhancement Fund
cells/mL	Cells per milliliter
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
cfs	Cubic feet per second
CH_4	Methane
CHHSL	California Human Health Screening Level
CNDDB	California Natural Diversity Database
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CRHR	California Register of Historical Resources
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
CY	Cubic yards
D	Dry
DDW	Division of Drinking Water
DEIR	Draft Environmental Impact Report
DMMP	Dredged Material Management Program
DOC	California Department of Conservation
DOI	Department of the Interior
DPS	Distinct Population Segment
DRE	Dam Removal Entity
DWR	California Department of Water Resources
EC	Existing conditions
EDR	Environmental Data Sources, Inc.

EDRRA	Evaluation of Dam Removal and Restoration of Anadromy
EDT	Ecosystem and Diagnosis Treatment
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
ENSO	El Niño Southern Oscillation
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESU	Evolutionarily Significant Unit
°F	Degrees Fahrenheit
FCH	Fall Creek Hatchery
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
g DW/m^2	grams, dry weight per square meter
GCM	Global Circulation Model
GHG	Greenhouse Gas
GWP	Global Warming Potential
HCP	Habitat Conservation Plan
HFCs	Hydrofluorocarbons
HGMP	Hatchery Genetic Management Plan
HPMP	Historic Properties Management Plan
IBI	Index of Biological Integrity
IDP	Inadvertent Discovery Plan
IFR	Institute for Fisheries Resources
IG	Iron Gate
IMIC	Interim Measures Implementation Committee
IM	Interim Measure
IPCC	Intergovernmental Panel on Climate Change
KBRA	Klamath Basin Restoration Agreement

KBRA Flows	Flows described in the Klamath Basin Restoration Agreement
KDR	Klamath Dam Removal
KDRM	Klamath Dam Removal Model
Ke	Light extinction
KHP	Klamath Hydroelectric Project
KHSA	Klamath Hydropower Settlement Agreement
Km	Kilometer
KOP	Key Observation Point
KPFA	Klamath Power Facility Agreement
KRRC	Klamath River Renewal Corporation
KRWQM	Klamath River Water Quality Model
L	Long-term
LiDAR	Light Detection And Ranging
LOS	Levels of Service
LVPP	Looting and Vandalism Prevention Program
MCV	A Manual of California Vegetation
MDL	Method Detection Limit
MDT	mean daily temperature
mgd	Million gallons per day
mg/L	Milligram per liter
mi	Mile
mm	Millimeters
mm^3/L	Millimeters cubed per Liter
MRL	Method Reporting Limit
msl	Mean Sea Level
MW	Megawatts
MWh	Megawatt-hours
MWMT	Maximum Weekly Maximum Temperatures
NAAQS	National Ambient Air Quality Standards
NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act

NESHAP	National Emission Standards for Hazardous Air Pollutants
NH	No Hatchery Alternative
NH_3	Ammonia
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NNE	Nutrient Numeric Endpoints
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
North Coast Regional Board	North Coast Regional Water Quality Control Board
NOx	Nitrogen oxides
NP	No Project Alternative
NPAB	Northeast Plateau Air Basin
NPS	National Park Service
NRC	National Research Council
NRHP	National Register of Historic Places
NWS	National Weather Service
O_3	Ozone
ODEQ	Oregon Department of Environmental Quality
ODFW	Oregon Department of Fish and Wildlife
ODOT	Oregon Department of Transportation
OEHHA	Office of Environmental Health Hazard Assessment
ORV	Outstandingly Remarkable Values
OWRD	Oregon Water Resources Department
PAH	Polycyclic Aromatic Hydrocarbon
PBDE	Polybrominated Diphenyl Ether
PCB	Polychlorinated Biphenyl
PCE	Primary Constituent Elements
PCFFA	Pacific Coast Federation of Fisherman’s Association
PDO	Pacific Decadal Oscillation
PEL	Probable Effect Level
pg/g	picogram per gram

PLM	Polarized Light Microscopy
PM	Particulate Matter
PM_{10}	Particulate Matter that is 10 micrometers or less in diameter
$PM_{2.5}$	Particulate Matter that is 2.5 micrometers or less in diameter
PNA	Plant Nutrient Availability
PO_4	Orthophosphate
PP	Proposed Project
PR	Partial Removal Alternative
RBM-10	River Basin Model-10
RES	Resources Environmental Solutions, LLC.
RM	River Mile
RMA-11	Resource Modelling Associates Model 11
ROD	Record of Decision
ROG	Reactive Organic Gases
RSET	Regional Sediment Evaluation Team
RV	Recreational Vehicle
SAR	Smolt-To-Adult Ratio
SCAPCD	Siskiyou County Air Pollution Control District
SCAQMD	South Coast Air Quality Management District
SEF	Sediment Evaluation Framework
SEV	Severity Index
SF	Steady Flow Response
SF_6	Sulfur Hexafluoride
SGMA	Sustainable Groundwater Management Act
SL1	Screening Level 1
SMAQMD	Sacramento Metropolitan Air Quality Management District
SONCC	Southern Oregon/Northern California Coast
SRH-1D	Sedimentation and River Hydraulics sediment transport model
SSC	Suspended Sediment Concentration
State Water Board	State Water Resources Control Board

SO_2	Sulfur Dioxide
s.u.	Standard units
SVAPCD	San Joaquin Valley Air Pollution Control District
SWPPP	Stormwater Pollution Prevention Plan
TAC	Toxic Air Contaminant
TCR	Tribal Cultural Resource
TCRMP	Tribal Cultural Resources Management Plan
THPO	Tribal Historic Preservation Officer
TMDL	Total Maximum Daily Load
TMP	Traffic Management Plan
TN	Total Nitrogen
TP	Total Phosphorus
TSS	Total Suspended Solids
UKBCA	Upper Klamath Basin Comprehensive Agreement
ug/L	Micrograms per liter
ug/kg	Micrograms per kilogram
USACE	United States Army Corps of Engineers
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VOC	Volatile Organic Compound
VRM	Visual Resource Management
VSS	Volatile Suspended Solids
WHO	World Health Organization
WOP	Without Project
WSR	Wild and Scenic River
WY	Water Year

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1 INTRODUCTION

The Klamath River Renewal Corporation (KRRC) has applied to the Federal Energy Regulatory Commission (FERC) to decommission and remove the four Lower Klamath Project dams and associated facilities to create a free-flowing Klamath River and provide for volitional fish passage in the Klamath River.

The State Water Resources Control Board (State Water Board) is the Lead Agency responsible for complying with the California Environmental Quality Act (CEQA)[1] for the Lower Klamath Project License Surrender (Proposed Project). This final Lower Klamath Project Environmental Impact Report (Final EIR) has been prepared in conformance with CEQA. This Final EIR encompasses three numbered volumes and recirculated portions of the Draft EIR. Volume I and Volume II of the EIR were issued on December 27, 2018 as the Draft EIR and include the following sections:

Volume I

- Section 1 − Introduction
- Section 2 − Project Description
- Section 3 − Environmental Setting, Potential Impacts, and Mitigation Measures
- Section 4 − Alternatives
- Section 5 − Other CEQA Considerations

Volume II

- Technical Appendices Appendix A through Appendix X

Recirculated portions of the Draft EIR were issued on December 21, 2019, and replace the air quality, greenhouse gas emissions, and energy portions of Draft EIR Volume I and Volume II.

Volume III of the EIR includes public comments on Draft EIR Volume I and Volume II and the recirculated portions of the Draft EIR; responses to public comments; and revisions to the Draft EIR and recirculated portions to address public comments. Revisions to Draft EIR Volume I and Volume II are presented in Volume III Attachment 1, consistent with CEQA Guidelines section 15088 (d). Revisions to recirculated portions of the Draft EIR are presented in Volume III Attachment 2, consistent with CEQA Guidelines section 15088 (d).

[1] Public Resources Code, sections 21000 et seq.

All three numbered volumes of the EIR and the recirculated portions of the Draft EIR can be found on the Lower Klamath Project License Surrender Project Web Site (https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/low er_klamath_ferc14803.shtml).

2 PUBLIC COMMENTS AND RESPONSES

2.1 Summary of Written and Oral Comments

The Lower Klamath Project Draft EIR, Volumes I and II, was released on December 27, 2018, for public review and comment. All forms of written comments were accepted, including emails and letters. In addition, the State Water Board conducted four public meetings in Northern California in February 2019, which allowed the public the opportunity to provide oral comments on the Draft EIR, Volumes I and II. All comments on Draft EIR, Volumes I and II that were received by February 26, 2019 are summarized and responded to in Section 2.3 and Section 2.4. All comments on the Draft EIR were given full consideration.

The air quality, greenhouse gas emissions, and energy portions of the Draft EIR, Volumes I and II were recirculated on December 21, 2019. All comments on the recirculated portions of the Draft EIR were received by February 6, 2020 and all comments were given full consideration. All forms of written comments were accepted during the comment period on the recirculated portions of the Draft EIR, including emails and letters. Comments that address the recirculated portions of the Draft EIR are responded to in Section 2.5.

A total of 441 comment letters and oral comments from approximately 108 commenters were received on the Draft EIR, Volumes I and II and recirculated portions of the Draft EIR from state and local agencies as well as Native American Tribes, organizations, and individuals.

Table 2-1. Summary of Written Comments on the Lower Klamath Project Draft EIR, Volumes I and II Organized by Commenter Affiliation.

Commenter Affiliation, Name	Commenter Identification	Page
State Agencies		
CAL FIRE, Mike Hebrard	SA4	2-138
California Department of Fish and Wildlife, Tina Bartlett, Jeffrey Stoddard, Tiffany Manko	SA3	2-139
Local Agencies		
Board of Harbor Commissioners of the Crescent City Harbor District, James Ramsey	LA5	2-145
City of Crescent City, Blake Inscore	LA7	2-146
City of Yreka, Steven Baker, Don Henion	LA8	2-147
County of Siskiyou, Ashley J. Remilllard	LA9	2-193
Del Norte County Board of Supervisors, Taylor Carsley, Lori L. Cowan	LA6	2-276
Humboldt County Board of Supervisors, Rex Bohn, Hank Seemann	LA4	2-282

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Humboldt County Department of Health, John H. Moseman IV	LA10	2-283
Native American Tribes		
Hoopa Valley Tribe, Tom Schlosser	TR17	2-284
Karuk Tribe, Alex Watts-Tobin	TR22	2-288
Karuk Tribe, Chairman Attebery	TR18	2-289
Quartz Valley Indian Reservation, Crystal Robinson	TR20	2-322
Shasta Indian Nation, Chair Janice Crowe, Sami Jo Difuntorum	TR23	2-341
Shasta Nation, Chairman Roy Hall	TR24	2-345
Yurok Tribe, Vice Chairman Franklin Joseph Myers, Michael Belchik	TR19	2-351
Organizations		
American Rivers, Mark Busto	ORG48	2-366
American Rivers, California Trout Incorporated, Trout Unlimited, Sustainable Northwest, Steve Rothert, Curtis Knight, Brian Johnson, Greg Block	ORG27	2-366
Endangered Habitat League, Dan Silver	ORG35	2-369
Friends of Del Norte, Eileen Cooper	ORG36	2-369
Institute for Trade, Standards and Sustainable Development, Inc., Lawrence Kogan	ORG44	2-370
Klamath River Renewal Corporation, Laura Zagar, Mark Bransom	ORG47	2-394
League of Women Voters, Andrew Muse-Fisher, Helen Hutchinson, Rollin Richmond	ORG25	2-442
Mount Shasta Bioregional Ecology Center, Arielle Halpern	ORG26 ORG40	2-444
Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, Conrad Gowell, Jake Crawford, Mark Sherwood, Kurt Beardslee, Jamie Glasglow, Hans Cole, Charles Gehr, Jack Stanford, and Matt Stoecker	ORG33	2-445

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Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, World Salmon Forum, Jake Crawford, Conrad Gowell, Mark Sherwood, Kurt Beardslee, Jamie Glasgow, Yvon Chouinard, Hans Cole, Charles Gehr, Jack Stanford, Matt Stoecker, and Bruce McNae	ORG34	2-447
Oregon Wild, Doug Heiken	ORG32	2-471
Pacific Coast Federation of Fishermans Association, Glen Spain	ORG29	2-479
PacifiCorp Energy, Tim Hemstreet, Mark Sturtevant	ORG46	2-499
Patagonia Works, Thomas R. Wilmoth, Kennon Meyer	ORG42 ORG45	2-1073
Save California Salmon, Save the Klamath Trinity Salmon, Regina Chichizola	ORG41	2-1095
Sierra Club, John Livingston	ORG43	2-1100
Siskiyou County Water Users Association, Richard Marshall, Rex Cozzalio	ORG30	2-1101
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Whale and Dolphin Conservation, Colleen Weiler	ORG28	2-1174
Individuals (Last Name, First Name)		
[No last name given], Aaron	IND63	2-1190
[No last name given], Barry	IND82	2-1191
[No last name given], Dennis	IND163	2-1191
[No last name given], Trinity, Ari, and Adam	IND198	2-1192
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Shell, Christopher	IND121	2-1511
Shields, Thomas	IND226	2-1512
Shin, Donald	IND189	2-1513
Shoop, Carter	IND107	2-1514
Sieber, Michael	IND338	2-1514
Sievert, Jane	IND424	2-1515
Silver, Dan	IND137	2-1516
Simon, James	IND428	2-1516
Sinclair, Kimberly	IND275	2-1517
Skenes, Joshua	IND395	2-1519
Skinner, R.B.	IND305	2-1519
Slightom, Bruce	IND102	2-1519
Smaldino, Eric	IND205	2-1521
Smith, Harry	IND438	2-1521
Smith, Karri	IND387	2-1522
Solway, Sean	IND257	2-1523
Sommer, Karen	IND315	2-1523
Sosnove, Nancy	IND331	2-1524
Sowell, Margaret	IND361	2-1524
Spaller, William	IND183	2-1525
Spurr, Jeffrey	IND420	2-1526
Stanley, Brent	IND88	2-1526
Stauss, Arthur	IND78	2-1527
Steffan, Fred	IND219	2-1528
Steinhart, John	IND64	2-1529
Stewart, James	IND427	2-1529
Stokes, John	IND402	2-1530
Street, Bill	IND84	2-1531
Suarez, Alicia	IND69	2-1531
Swan, Tim	IND218	2-1532
Sway, Scott	IND259	2-1533
Teakle, Ken	IND380	2-1533
Tomlinson, Michael	IND337	2-1534
Tone, Jerry	IND414	2-1535
Tontz, Rick	IND296	2-1535

Commenter Affiliation, Name	Commenter Identification	Page
Toretta, Tom	IND209	2-1536
Torre, Robert	IND284	2-1537
Toth, Rob	IND267	2-1537
Trafican, Jeffrey	IND418	2-1539
Triska, Mark	IND352	2-1540
Tucker, Scott	IND258	2-1540
Turner, Eli	IND202	2-1541
Turner, Todd	IND211 IND212	2-1542
Umeda, Marc	IND362	2-1543
Van De Hey, Abigail	IND65	2-1543
Vincent, Bruce	IND103	2-1544
Volk, Grant	IND442	2-1544
Vorik, Dmitriy	IND176	2-1545
Waite, Ryan	IND265	2-1550
Walden, Charlene and James	IND109	2-1550
Wangerin, Joyce	IND394	2-1554
Ward, Charles	IND114	2-1554
Warner, Patrick	IND316	2-1555
Waters, Brian	IND91	2-1556
Webb, David	IND159 IND160	2-1556
Weber, Eugene	IND208	2-1558
Weddle, Pat	IND318	2-1558
Weeder, Julie	IND391	2-1559
Weidenfeld, Jessica	IND411	2-1560
Weiner, Andrew	IND72	2-1560
West, Richard	IND298	2-1561
Westberg, Paul	IND312	2-1562
Whelan, Bruce	IND96	2-1562
White, Adam	IND66	2-1563
Whitton, James	IND426	2-1564
Williamson, Peter	IND307 IND308	2-1565
Wilson, Eric	IND203	2-1565
Windflower, Lisa	IND369	2-1566
Wong, James	IND425	2-1567
Worcester, Chris	IND118	2-1567
Wrisley, Gregg	IND440	2-1568
Wrisley, Michael	IND342	2-1569
Wyro, John	IND401	2-1569

Commenter Affiliation, Name	Commenter Identification	Page
Yyeki, William	IND181	2-1570
Zampino, Jerry	IND413	2-1570
Zufelt, Steven	IND237	2-1571

Table 2-2. Summary of Written Comments on the Lower Klamath Project Draft EIR, Volumes I and II Organized by Commenter Identification Code.

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
State Agencies		
SA3	California Department of Fish and Wildlife, Tina Bartlett, Jeffrey Stoddard, Tiffany Manko	2-139
SA4	CAL FIRE, Mike Hebrard	2-138
Local Agencies		
LA4	Humboldt County Board of Supervisors, Rex Bohn, Hank Seemann	2-282
LA5	Board of Harbor Commissioners of the Crescent City Harbor District, James Ramsey	2-145
LA6	Del Norte County Board of Supervisors, Taylor Carsley, Lori L. Cowan	2-276
LA7	City of Crescent City, Blake Inscore	2-146
LA8	City of Yreka, Steven Baker, Don Henion	2-147
LA9	County of Siskiyou, Ashley J. Remilllard	2-193
LA10	Humboldt County Department of Health, John H. Moseman IV	2-283
Native American Tribes		
TR17	Hoopa Valley Tribe, Tom Schlosser	2-284
TR18	Karuk Tribe, Chairman Attebery	2-289
TR19	Yurok Tribe, Vice Chairman Franklin Joseph Myers, Michael Belchik	2-351
TR20	Quartz Valley Indian Reservation, Crystal Robinson	2-322
TR22	Karuk Tribe, Alex Watts-Tobin	2-288
TR23	Shasta Indian Nation, Chair Janice Crowe, Sami Jo Difuntorum	2-341
TR24	Shasta Nation, Chairman Roy Hall	2-345

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
Organizations		
ORG25	League of Women Voters, Andrew Muse-Fisher, Helen Hutchinson, Rollin Richmond	2-442
ORG26 ORG40	Mount Shasta Bioregional Ecology Center, Arielle Halpern	2-444
ORG27	American Rivers, California Trout Incorporated, Trout Unlimited, Sustainable Northwest, Steve Rothert, Curtis Knight, Brian Johnson, Greg Block	2-366
ORG28	Whale and Dolphin Conservation, Colleen Weiler	2-1174
ORG29	Pacific Coast Federation of Fishermans Association, Glen Spain	2-479
ORG30	Siskiyou County Water Users Association, Richard Marshall, Rex Cozzalio	2-1101
ORG32	Oregon Wild, Doug Heiken	2-471
ORG33	Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, Conrad Gowell, Jake Crawford, Mark Sherwood, Kurt Beardslee, Jamie Glasglow, Hans Cole, Charles Gehr, Jack Stanford, and Matt Stoecker	2-445
ORG34	Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, World Salmon Forum, Jake Crawford, Conrad Gowell, Mark Sherwood, Kurt Beardslee, Jamie Glasgow, Yvon Chouinard, Hans Cole, Charles Gehr, Jack Stanford, Matt Stoecker, and Bruce McNae	2-447
ORG35	Endangered Habitat League, Dan Silver	2-369
ORG36	Friends of Del Norte, Eileen Cooper	2-369
ORG38	Trout Unlimited, Cindy Noble, Jason Lindberg, Michael Caranci, Patrick Kallerman, Charlie Schneider, Christy Fischer, Erik Young, Bob Blankenship, Trevor Fagerskog, James Polfer, Sam Davidson	2-1173
ORG41	Save California Salmon, Save the Klamath Trinity Salmon, Regina Chichizola	2-1095
ORG42 ORG45	Patagonia Works, Thomas R. Wilmoth, Kennon Meyer	2-1073
ORG43	Sierra Club, John Livingston	2-1100

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
ORG44	Institute for Trade, Standards and Sustainable Development, Inc., Lawrence Kogan	2-370
ORG46	PacifiCorp Energy, Tim Hemstreet, Mark Sturtevant	2-499
ORG25	Klamath River Renewal Corporation, Laura Zagar, Mark Bransom	2-394
ORG26 ORG40	American Rivers, Mark Busto	2-366
Individuals		
IND63	[No last name given], Aaron	2-1190
IND64	Steinhart, John	2-1529
IND65	Van De Hey, Abigail	2-1543
IND66	White, Adam	2-1563
IND67	Bliss, Alexander	2-1256
IND68	Khartchenko, Alexander	2-1402
IND69	Suarez, Alicia	2-1531
IND70	O'Dowd, Alison	2-1469
IND71	Shank, Amelia	2-1510
IND72	Weiner, Andrew	2-1560
IND73	Benkert, Andy	2-1251
IND74	Muzzio, Andy	2-1455
IND75	Nomellini, Angela	2-1466
IND76	Self, Ann	2-1509
IND77	Rogers, Anna	2-1492
IND78	Stauss, Arthur	2-1527
IND79 IND80	Cantwell, Austin	2-1266
IND81	Schug, Axel	2-1506
IND82	[No last name given], Barry	2-1191
IND83	Ryan, Bill	2-1496
IND84	Street, Bill	2-1531
IND85	Rosenberg, Bob	2-1495
IND86	Gee, Brad	2-1320
IND87	Burnett, Brenda	2-1262
IND88	Stanley, Brent	2-1526
IND89	Babb, Brian	2-1206
IND90	Kohlman, Brian	2-1406
IND91	Waters, Brian	2-1556
IND92	Antoniw, Brittany	2-1201
IND93	Cheek, Bruce	2-1274
IND94	Cuningham, Bruce	2-1282
IND95	Dau, Bruce	2-1287

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND96	Whelan, Bruce	2-1562
IND97	Campbell, Bruce	2-1264
IND98	Forsythe, Bruce	2-1317
IND99	Mace, Bruce	2-1428
IND100	Nourish, Bruce	2-1467
IND101	Olitzky, Bruce	2-1471
IND102	Slightom, Bruce	2-1519
IND103	Vincent, Bruce	2-1544
IND104	Shadden, Bryan	2-1509
IND105	Baker, Carli	2-1222
IND106	Robb, Carol	2-1490
IND107	Shoop, Carter	2-1514
IND108	Humphreys, Chad	2-1388
IND109	Walden, Charlene and James	2-1550
IND110	Hammerstad, Charles	2-1350
IND111	McKinley, Charles	2-1438
IND112	Plopper, Charles	2-1484
IND113	Goodwin, Charles	2-1332
IND114	Ward, Charles	2-1554
IND115	Armstrong, Chris	2-1202
IND116	Barger, Christian	2-1225
IND117	Lima, Chris	2-1425
IND118	Worcester, Chris	2-1567
IND119	Romberger, Christian	2-1494
IND120	Bucklin, Christine	2-1261
IND121	Shell, Christopher	2-1511
IND122	Hammerstad, Chuck	2-1350
IND123	Schaaf, Cody	2-1499
IND124	Bamberger, Cole	2-1225
IND125	Raffel, Corey	2-1486
IND126	Cohen, Corrina	2-1276
IND127	Ashmun, Craig	2-1205
IND128	Kroeker, Curtis	2-1417
IND129	Greyraven, Cynthia	2-1343
IND130	Myers, Cynthia	2-1456
IND131 IND155	Schadlich, Daisy	2-1500
IND132	Goldsmith, Dan	2-1331
IND133	Hauser, Dan	2-1352
IND134	Johnson, Dan	2-1392
IND135	Casas, Dan	2-1270
IND136	Preskenis, Dan	2-1484
IND137	Silver, Dan	2-1516

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND138 IND139	Johnson, Daniel	2-1393
IND140	Niebruegge, Dave	2-1463
IND141	Beste, David	2-1253
IND142	Boggess, David	2-1256
IND143	Callow, David	2-1263
IND144	Distad, David	2-1289
IND145	Hohler, David	2-1358
IND146	Hrobuchak, David	2-1360
IND147	Johnson, David	2-1393
IND148	Koch, David	2-1405
IND149	Lonergan, David	2-1426
IND150	Holloway, David	2-1359
IND151	Neal, David	2-1457
IND152	Nilsson, Tim and Debbie	2-1464
IND153	Eckersley, April	2-1297
IND154	Kent, Bart and Mary Cunningham	2-1400
IND156 IND157 IND158 IND177	Hull, Danny	2-1361
IND159 IND160	Webb, David	2-1556
IND161	Pace, Felice	2-1471
IND162	Gehring, Delbert	2-1320
IND163	[No last name given], Dennis	2-1191
IND164	O'Callaghan, Dennis	2-1468
IND165	Henderson, Peggy	2-1353
IND166	Pagones, Dennis	2-1476
IND167	Murphy, Dennis	2-1452
IND168	Lahti, Derald	2-1422
IND169	Campbell, Derek	2-1264
IND170	Englert, Lissa	2-1298
IND171	Farrell, Devin	2-1300
IND172	Brink, Diane	2-1259
IND173	Newton, Jerry and Linda	2-1461
IND174	Neuman, Dick	2-1460
IND175	Klein, Dorothy and Rodney	2-1405
IND176	Vorik, Dmitriy	2-1545
IND178	Ebert, Carl and Linda	2-1294
IND179	Campbell, Don	2-1265
IND180	Schmidt, Bill	2-1500
IND181	Yyeki, William	2-1570

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND182	Jons, Don	2-1393
IND183	Spaller, William	2-1525
IND184	Shaw, William	2-1511
IND185	Meamber, Sheila and Don	2-1440
IND186	Makshanoff, William	2-1429
IND187	Lapcevic, William	2-1422
IND188	L. Martin, William	2-1421
IND189	Shin, Donald	2-1513
IND190	Krivan, William	2-1408
IND191	Ballinger, Doug	2-1223
IND192	Joost, William, Jr.	2-1397
IND193	Hagen, William	2-1346
IND194	Johnson, Drake	2-1394
IND195	Mattson, William	2-1434
IND196	Filice, Ed	2-1303
IND197	Bramley, William	2-1258
IND198	[No last name given], Trinity, Ari, and Adam	2-1192
IND199	Rood, Edson	2-1494
IND200	Dryg, Edward	2-1291
IND201	Larson, Edward	2-1423
IND202	Turner, Eli	2-1541
IND203	Wilson, Eric	2-1565
IND204	Segelke, Trevor	2-1508
IND205	Smaldino, Eric	2-1521
IND206	Muller, Trevor	2-1452
IND207	Heneveld, Trevor	2-1355
IND208	Weber, Eugene	2-1558
IND209	Toretta, Tom	2-1536
IND210	Sedlock, Evan	2-1507
IND211 IND212	Turner, Todd	2-1542
IND213	Moitoza, Franklin	2-1449
IND214	Enders, Todd	2-1298
IND215	Feller, Fred	2-1301
IND216	Devine, Timothy	2-1288
IND217	Pendergast, Fred	2-1480
IND218	Swan, Tim	2-1532
IND219	Steffan, Fred	2-1528
IND220	Humphreys, Tim	2-1389
IND221	Rusert, Frieda	2-1496
IND222	Nickelson, Thomas	2-1462
IND223	Goff, Gabreil	2-1330
IND224	Mcgee, Thomas Sr.	2-1436

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND225	Roff, Gabriella	2-1491
IND226	Shields, Thomas	2-1512
IND227	Maniatis, Terez	2-1430
IND228	Pryor, Geoff	2-1485
IND229	Counts, Thomas	2-1279
IND230	Burdon, Thomas	2-1261
IND231	Allen, Thomas	2-1197
IND232	Mar, Terry	2-1431
IND233	Miller, Susan	2-1446
IND234	Kaar, Susan	2-1398
IND235	Cunningham, Storm	2-1282
IND236	Alsop, Stewart	2-1198
IND237	Zufelt, Steven	2-1571
IND238	Nelson, Steven	2-1459
IND239	Merlone, Steven	2-14432-1435
IND240	Kwok, Steven	2-1421
IND241	Hager, Steven	2-1347
IND242	Graff, Steven	2-1332
IND243	Schramm, Steve	2-1505
IND244	Netti, Steve	2-1460
IND245	Flannes, Steve	2-1312
IND246	Cavellini, Steve	2-1271
IND247	Parry, Stephen	2-1479
IND248	Most, Stephen	2-1451
IND249	Black, Stephen	2-1253
IND250	Bartlett-Ré, Stephen	2-1227
IND251	Arnold, Stephen	2-1203
IND252	Ohara, Stanley	2-1470
IND253	Perry, Stan	2-1481
IND254	Becker, Stacy	2-1250
IND255	Abidi, Shayda	2-1194
IND256	Gustafson, Sharon	2-1345
IND257	Solway, Sean	2-1523
IND258	Tucker, Scott	2-1540
IND259	Sway, Scott	2-1533
IND260	Schoettgen, Scott	2-1504
IND261	Lee, Scott	2-1424
IND262	Bohannan, Scott	2-1257
IND263	Ballinger, Scott	2-1224
IND264	Nelson, Sarah	2-1459
IND265	Waite, Ryan	2-1550
IND266	Kosh, Ryan	2-1407

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND267	Toth, Rob	2-1537
IND268	Gierak, Richard and Chris Stein	2-1321
IND269	Bacigalupi, Jerry	2-1206
IND270 IND271	Krizo, David	2-1409
IND272	Krizo, Jacqui	2-1411
IND273	Mikeska, Jeff	2-1445
IND274	Carpenter, John	2-1267
IND275	Sinclair, Kimberly	2-1517
IND276	Blaich, Ryan	2-1254
IND277	Parcell, Ruth	2-1478
IND278	Ramp, Rudy	2-1488
IND279	Martin, Rosada	2-1433
IND280	Murphy, Ronald	2-1454
IND281	S., Ron	2-1497
IND282	DeWter-Durham, Robin	2-1289
IND283	Fujimura, Robert	2-1318
IND284	Torre, Robert	2-1537
IND285	Reynolds, Phil	2-1489
IND286	Piziali, Robert	2-1483
IND287	Menard, Robert	2-1442
IND288	Kryger, Robert	2-1419
IND289	McClintock, Robert	2-1435
IND290	Flanagan, Robert	2-1312
IND291	Hickox, Robert	2-1355
IND292	Ferroggiaro, Robert	2-1303
IND293	Adams, Robert	2-1196
IND294	Fischer, Mark and Lisa	2-1304
IND295	Chacon, Robert	2-1273
IND296	Tontz, Rick	2-1535
IND297	Raddue, Rick	2-1486
IND298	West, Richard	2-1561
IND299	Kuhwarth, Richard	2-1420
IND300	Draeger, R.B.	2-1291
IND301	Johnson, R.B.	2-1396
IND302	McCalister, R.B.	2-1435
IND303	Lorenson, R.B.	2-1427
IND304	Hamann, R.B.	2-1348
IND305	Skinner, R.B.	2-1519
IND306	Flynn, Pierce	2-1314
IND307 IND308	Williamson, Peter	2-1565
IND309	Michaelides, Peter	2-1445

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND310	Douglas, Peter	2-1290
IND311	Crosby, Peter	2-1281
IND312	Westberg, Paul	2-1562
IND313	Boero, Paul	2-1252
IND314	Lester, Paul	2-1424
IND315	Sommer, Karen	2-1523
IND316	Warner, Patrick	2-1555
IND317	McKernan, Patrick	2-1438
IND318	Weddle, Pat	2-1558
IND319	Jepson, Oliver	2-1391
IND320	Ihara, Nancy	2-1389
IND321 IND322 IND323	Grant, Nora and Clancy	2-1334
IND324	Anderson, Ni-Galth	2-1200
IND325	Caudana, Nicole	2-1270
IND326	Bauer, Nick	2-1228
IND327	Salle, Nicholas	2-1498
IND328	Anderson, Nicholas	2-1199
IND329	Palmer, Neil	2-1477
IND330	Cook, Nathan	2-1278
IND331	Sosnove, Nancy	2-1524
IND332	Person, Molly	2-1482
IND333	Forster, Mitchell	2-1316
IND334	Rogers, Mike	2-1493
IND335	Hill, Michelle	2-1356
IND336	Marta, Michele	2-1433
IND337	Tomlinson, Michael	2-1534
IND338	Sieber, Michael	2-1514
IND339	Metzler, Michael	2-1444
IND340	Mees, Michael	2-1442
IND 341	Marsden, Michael	2-1432
IND342	Wrisley, Michael	2-1569
IND343	Moran, Michael	2-1451
IND344	Bland, Michael	2-1255
IND345	Bailey, Michael	2-1222
IND346	Nguyen, Megan	2-1462
IND347	Peck, Medwin	2-1480
IND348	Clark, Matthew	2-1275
IND349	Andrus, Matt	2-1200
IND350	Raivio, Matt	2-1487
IND351	Jansen, Marty	2-1390
IND352	Triska, Mark	2-1540

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND353	Kennedy, Mark	2-1400
IND354	Hineser, Mark	2-1357
IND355	Flo, Mark	2-1313
IND356	Dana, Mark	2-1283
IND357	Cederwall, Mark	2-1272
IND358	Adler, Marjorie	2-1196
IND359 IND360	McGrew, Marisa	2-1437
IND361	Sowell, Margaret	2-1524
IND362	Umeda, Marc	2-1543
IND363	Kiefer, Marc	2-1404
IND364	Hogue, Marc	2-1357
IND365	Ellis, Lynn	2-1297
IND366	Luby-Prikot, Lukas	2-1427
IND367	Montes, Luis	2-1450
IND368	Beardsmore, Loy and John	2-1228
IND369	Windflower, Lisa	2-1566
IND370	Friedman, Linda	2-1317
IND371	Connolly, Leo	2-1277
IND372	Kress, Larry	2-1407
IND373	Keegan, Kyle	2-1399
IND374	Piimauna, Kevin	2-1483
IND375	Fee, Kevin	2-1301
IND376	Maier, Kenny	2-1429
IND377	Johnson, Kenneth	2-1395
IND378	Imatani, Kenneth	2-1390
IND379	Haupt, Kenneth	2-1351
IND380	Teakle, Ken	2-1533
IND381	Carter, Ken	2-1269
IND382	Briscoe, Laura and Ken	2-1259
IND383	Barlow, Kelly	2-1226
IND384	Halvorson, Keith	2-1348
IND385 IND386	Bentz, Keith	2-1251
IND387	Smith, Karri	2-1522
IND388	Growney, Karen	2-1345
IND389	Krupinski, K	2-1419
IND390	Durack, Justin	2-1293
IND391	Weeder, Julie	2-1559
IND392	Haselden, Julie	2-1350
IND393	Ford, Julie	2-1315
IND394	Wangerin, Joyce	2-1554
IND395	Skenes, Joshua	2-1519

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND396	Schweitz, Joshua	2-1506
IND397	Israel, Joshua	2-1390
IND398	Asel, Josh	2-1204
IND399	Paoluccio, Joseph	2-1478
IND400	Covault, Jonnel	2-1280
IND401	Wyro, John	2-1569
IND402	Stokes, John	2-1530
IND403	Murphy, John	2-1453
IND404	McMorrow, John	2-1440
IND405	Kalinowski, John	2-1398
IND406	Gross, John	2-1344
IND407	Fochetti, John	2-1315
IND408	Ferguson, John	2-1302
IND409	Arnold, JoEllen	2-1203
IND410	Salkas, Jim	2-1498
IND411	Weidenfeld, Jessica	2-1560
IND412	O'Brien, Jess	2-1468
IND413	Zampino, Jerry	2-1570
IND414	Tone, Jerry	2-1535
IND415	Krohn, Jerry	2-1418
IND416	Bender, Jerry	2-1250
IND417	Bernard, Jeffry	2-1252
IND418	Trafican, Jeffrey	2-1539
IND419	Muscatine, Jeffrey	2-1454
IND420	Spurr, Jeffrey	2-1526
IND421	Howard, Jeff	2-1360
IND422	Gallegos, Jeff	2-1319
IND423	Bright, Jeff	2-1258
IND424	Sievert, Jane	2-1515
IND425	Wong, James	2-1567
IND426	Whitton, James	2-1564
IND427	Stewart, James	2-1529
IND428	Simon, James	2-1516
IND429	Naughton, James	2-1457
IND430	Haufler, James	2-1351
IND431	Collins, James	2-1277
IND432	Apodaca, Jacob	2-1201
IND433	Campbell, Jack	2-1266
IND434	About, JR	2-1192
IND435	Pagliaro, Ignacio	2-1475
IND436	Manning-Brown, Helen	2-1430
IND437	Clapp, Heather	2-1275
IND438	Smith, Harry	2-1521

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
IND439	Rogers, Hamilton	2-1492
IND440	Wrisley, Gregg	2-1568
IND441	Nelson, Greg	2-1458
IND442	Volk, Grant	2-1544
IND443	McLaren, Graham	2-1439
IND444	Dow, Gordon	2-1291
IND445	Graham, Glenn	2-1333
IND446	Anderson, Glen	2-1198
IND447	Cotsirilos, George	2-1279
IND448	Burton, Don	2-1263
IND449	Charles, Cindy	2-1273

[1] Comments were coded in the order that they were received and thus the commenter identification codes may skip numbers in this table. Please refer to Table 2-3 for additional commenter identification codes associated with oral comments.

Table 2-3. Summary of Oral Comments on the Lower Klamath Project Draft EIR, Volumes I and II Organized by Commenter Identification Code.

Commenter Affiliation and Name	Commenter Identification [1]	Page
Yreka - February 5, 2019		
State Agencies		
Office of Assemblymember Brian Dahle, Bruce Ross	SA1-ORAL	2-1575
California State Assemblymember, Kevin Kiley	SA2-ORAL	2-1575
Local Agencies		
County of Siskiyou, Board of Supervisors, Brandon Criss	LA1-ORAL	2-1580
County of Siskiyou, Wayne Hammar	LA3-ORAL	2-1576
Native American Tribes		
Karuk Tribe, Alex Watts-Tobin	TR2-ORAL	2-1585
Karuk Tribe, Robert J. Super	TR1-ORAL	2-1585
Karuk Tribe, Sammi Jo Goodwin	TR5-ORAL	2-1587
Karuk Tribe, Taylor Tupper	TR4-ORAL	2-1587
Karuk Tribe, Vikki Preston	TR3-ORAL	2-1590
Shasta Nation, Betty Hall	TR21-ORAL	2-1597

Commenter Affiliation and Name	Commenter Identification [1]	Page
Organizations		
California Trout Incorporated, Andrew Braugh	ORG3-ORAL	2-1576
Environmental Protection Information Center, Rogue Climate, Allie Rosenbluth	ORG1-ORAL	2-1584
Klamath River Renewal Corporation, Matt Cox	ORG14-ORAL	2-1585
McCloud Watershed Council, Angelina Cook	ORG4-ORAL	2-1594
Mid Klamath Watershed Council, Devin Finegan	ORG9-ORAL	2-1595
Pacific Coast Federation of Fishermans Association, Glen Spain	ORG12-ORAL	2-1597
Salmon Recovery Funding Board, Monica Harle	ORG16-ORAL	2-1599
Salmon River Restoration Council, Stefan Dosch	ORG20-ORAL	2-1600
Siskiyou County Water Users Association, Richard Marshall	ORG18-ORAL	2-1604
Klamath Riverkeeper, Andrew Marx	ORG49-ORAL	2-1584
Individuals		
Andrews, Esther	IND3-ORAL	2-1606
Banzali, Francine	IND24-ORAL	2-1607
Chichizola, Malcolm	IND62-ORAL	2-1607
Chichizola, Regina	IND44-ORAL	2-1608
Corcoran, James	IND28-ORAL	2-1610
County of Siskiyou, Board of Supervisors, Lisa L. Nixon	IND60-ORAL	2-1583
Cozzales, Rex	IND45-ORAL	2-1610
Fischer, Stephen	IND51-ORAL	2-1614
Foster, John	IND31-ORAL	2-1615
Grunbaum, Jon	IND32-ORAL	2-1615
Hendricks, Nicholas	IND40-ORAL	2-1615
Jones, Marva	IND37-ORAL	2-1615
Joseph, Patricia	IND42-ORAL	2-1615
Joseph, Thomas	IND53-ORAL	2-1615
Khart, Al	IND1-ORAL	2-1584
Kramer, Richard	IND46-ORAL	2-1621
Mackintosh, Don	IND18-ORAL	2-1626
Meamber, Sheila and Brett, and Krista Grassi	IND49-ORAL	2-1626
Meamber, Don	IND19-ORAL	2-1626
Reynolds, Chrissie	IND11-ORAL	2-1621
Schmidt, Bill	IND7-ORAL	2-1651
Silva, Veronica	IND61-ORAL	2-1651
Staats, Jenny	IND29-ORAL	2-1653

Commenter Affiliation and Name	Commenter Identification [1]	Page
Still, Nita	IND41-ORAL	2-1653
Tibbetts, Isabella	IND27-ORAL	2-1655
Utley, Chloe	IND10-ORAL	2-1651
Warner, Grace	IND25-ORAL	2-1657
Arcata - February 6, 2019		
Local Agencies		
County of Humboldt, Steve Madrone	LA2-ORAL	2-1659
Native American Tribes		
Yurok Tribe, Frankie Joe Myers	TR7-ORAL	2-1674
Yurok Tribe, Joe James	TR6-ORAL	2-1675
Yurok Tribe, Mike Belchik	TR8-ORAL	2-1676
Yurok Tribe, Toby Vanlandingham	TR9-ORAL	2-1677
Organizations		
Del Norte Economic Development Corporation, Eli Naffah	ORG11-ORAL	2-1661
Environmental Protection Information Center, Native Rights Council, Amber Jamieson	ORG2-ORAL	2-1659
Friends of Del Norte, Eileen Cooper	ORG10-ORAL	2-1663
Friends of the Eel River, Scott Greacen	ORG19-ORAL	2-1663
Green Party of Humboldt County, Move to Amend, Kelsey Reedy	ORG13-ORAL	2-1665
Klamath River Renewal Corporation, Dave Meurer	ORG7-ORAL	2-1665
Pacific Coast Federation of Fishermans Association, Institute for Fisheries Resources, Vivian Helliwell	ORG21-ORAL	2-1671
Pacific Coast Federation of Fishermans Association, Regina Chichizola, Malcom Chichizola	ORG17-ORAL	2-1669
Pacific Coast Federation of Fishermans Association/HEMA, Dave Bitts	ORG6-ORAL	2-1665
Green Party of Humboldt County, Erik Rydberg	ORG50-ORAL	2-1663
Seventh Generation Fund for Indigenous Peoples, Inc., Carlrey Arroyo	ORG51-ORAL	2-1663

Commenter Affiliation and Name	Commenter Identification [1]	Page
Individuals		
Benson, Craig	IND12-ORAL	2-1674
Lincoln, Bernadette	IND5-ORAL	2-1681
Lowry, K'neK'neK'	IND33-ORAL	2-1682
Lowry, Merry	IND39-ORAL	2-1682
Luckey, Donna	IND20-ORAL	2-1683
Martin, Rosada	IND47-ORAL	2-1683
McCovey, Jene	IND59-ORAL	2-1684
Mees, Meriel	IND38-ORAL	2-1684
Nelson, Denver	IND16-ORAL	2-1682
Ohman, Scott	IND48-ORAL	2-1684
Pace, Felice	IND23-ORAL	2-1691
Paniak, Walter	IND54-ORAL	2-1689
Ryerson, Diane	IND17-ORAL	2-1691
Silvaggio, Anthony	IND13-ORAL	2-1681
Wagenaur, Brian	IND14-ORAL	2-1691
Orleans - February 7, 2019		
Native American Tribes		
Karuk Tribe, Craig Tucker	TR12-ORAL	2-1696
Karuk Tribe, Josh Saxon	TR11-ORAL	2-1699
Karuk Tribe, Kathy McCovey	TR10-ORAL	2-1696
Karuk Tribe, Leaf Hillman	TR13-ORAL	2-1700
Karuk Tribe, Sinead Talley	TR14-ORAL	2-1706
Organizations		
Klamath Justice Coalition, Dana Colegrove	ORG5-ORAL	2-1696
Klamath River Renewal Corporation, Dave Meurer	ORG8-ORAL	2-1705
Mid Klamath Watershed Council, Mitzi Wickman	ORG15-ORAL	2-1706
Individuals		
Chichizola, Regina	IND43-ORAL	2-1706
Dosch, Stefan	IND50-ORAL	2-1706
Eckert, David	IND15-ORAL	2-1709
Englert, Lissa	IND35-ORAL	2-1712
Kertzman, Eileen	IND21-ORAL	2-1712
Kinney, Isaac	IND26-ORAL	2-1712
Myers, Jesse	IND30-ORAL	2-1715
Reise, Blythe	IND8-ORAL	2-1716
Robbi, Marc	IND36-ORAL	2-1717
Short, Barbara	IND4-ORAL	2-1719
Stender, Laura	IND34-ORAL	2-1719

Commenter Affiliation and Name	Commenter Identification [1]	Page
Stoats, Stormy	IND52-ORAL	2-1722
Sacramento - February 15, 2019		
Native American Tribes		
Yurok Tribe, Joelene McCovey	TR15-ORAL	2-1726
Yurok Tribe, Melissa Eidmar	TR16-ORAL	2-1727
Organizations		
Auburn Dam Council, Ken Payne	ORG22-ORAL	2-1723
Klamath River Renewal Corporation, Matt Cox	ORG23-ORAL	2-1724
Trout Unlimited, Samuel Sedillo	ORG24-ORAL	2-1725
Individuals		
Bacigalupi, Debbie	IND55-ORAL	2-1723
Feher, Rick	IND57-ORAL	2-1734
Hendrick, Veronica	IND450-ORAL	2-1734
Jones, Marva	IND56-ORAL	2-1734
Joseph, Thomas	IND58-ORAL	2-1740

[1] Comments were coded in the order that they were received and thus the commenter identification codes may skip numbers in this table. Please refer to Table 2-1 and Table 2-2 for additional commenter identification codes associated with written comments.

Table 2-4. Summary of Written Comments on the Lower Klamath Project Recirculated Portions of the EIR Organized by Commenter Affiliation.

Commenter Affiliation (Commenter Last Name, First Name)	Commenter Identification	Page
Local Agencies		
County of Siskiyou, Paul S. Weiland	RE-8	2-1742
Native American Tribes		
Yurok Tribe, Joseph L. James, Chairman	RE-2	2-1753
Organizations		
Fly Fishers International, C. Mark Rockwell	RE-12	2-1755
Klamath River Renewal Corporation, James G. Moose	RE-11	2-1756
Native Fish Society, Kevin P. Bundy	RE-16	2-1771
Native Fish Society, Mark Sherwood	RE-1	2-1786
Sierra Club, John Livingston	RE-9	2-1787
Siskiyou County Water Users Association, Rex Cozzalio	RE-7	2-1789
Individuals		
Alderton, Janet	RE-14	2-1797
Beardsmore, Loy and John	RE-10	2-1797
Gierak, Richard	RE-15 RE-17	2-1816
Krizo, Jacqui	RE-3	2-1816
Marquis, Tor	RE-5 RE-6	2-1817
Reynolds, Chrissie	RE-4	2-1818
Ward, Brian	RE13	2-1820

Table 2-5. Summary of Written Comments on the Lower Klamath Project Recirculated Portions of the EIR Organized by Commenter Identification Code.

Commenter Identification[1]	Commenter Affiliation (Commenter Last Name, First Name)	Page
Local Agencies		
RE-8	County of Siskiyou, Paul S. Weiland	2-1742
Native American Tribes		
RE-2	Yurok Tribe, Joseph L. James, Chairman	2-1753
Organizations		
RE-1	Native Fish Society, Mark Sherwood	2-1786
RE-7	Siskiyou County Water Users Association, Rex Cozzalio	2-1789
RE-9	Sierra Club, John Livingston	2-1787
RE-11	Klamath River Renewal Corporation, James G. Moose	2-1756
RE-12	Fly Fishers International, C. Mark Rockwell	2-1755
RE-16	Native Fish Society, Kevin P. Bundy	2-1771
Individuals		
RE-3	Krizo, Jacqui	2-1816
RE-4	Reynolds, Chrissie	2-1818
RE-5 RE-6	Marquis, Tor	2-1817
RE-10	Beardsmore, Loy and John	2-1797
RE-13	Ward, Brian	2-1820
RE-14	Alderton, Janet	2-1797
RE-15 RE-16	Gierak, Richard	2-1816

[1] Comments were coded in the order that they were received and thus the commenter identification codes may skip numbers in this table. Please refer to Table 2-4 for additional commenter identification codes associated with written comments on recirculated portions of the Draft EIR.

2.2 Master Responses

Certain topics associated with the Lower Klamath Project EIR received numerous public comments, or received multiple comments that depend on shared background information or analysis. For these topics, the State Water Board has developed a set of master responses to reduce the amount of repetition necessary in Volume III, to provide useful context to common comments, and to ensure that responses to public comments are consistent across a large number of comments. As appropriate, the responses to comments on the Draft EIR and the recirculated portions of the Draft EIR include a reference to the master responses using a short code. The master responses short codes and titles are presented below, by topic area.

2.2.1 General Master Responses

GEN-1 Dam Removal Support and Opposition

The State Water Board acknowledges that there are many people who support dam removal and there are many people who support the dams remaining in place. Although statements expressing a project or policy preference are noted, a response is not required under CEQA in the absence of a comment on a significant environmental issue (e.g., the identification and analysis of potential significant impacts of the Lower Klamath Project on the environment, the identification of alternatives to the Lower Klamath Project, or the manner in which significant impacts can be mitigated or avoided) (CEQA Guidelines sections 15088(a), 21002.1 (a)). The EIR acknowledges in Volume I Table ES-2 on page ES-23 and in Volume I Section 2 *Proposed Project* (page 2-21) that during the Siskiyou County Advisory Election Vote on November 2, 2010 (Measure G), approximately 79 percent of voters expressed their opinion and voted “No” to dam removal, while 22 percent voted “Yes”. It further discusses that a range of parties have entered into an agreement predicated on dam removal.

GEN-2 Comment Included as Part of the Record

Many comments received by the State Water Board expressed personal opinions, histories, or experiences with the Klamath River Basin and/or Lower Klamath Project dams and associated facilities, including the reservoirs. A response to these comments is not required under CEQA because these comments do not raise a significant environmental issue (CEQA Guidelines, section 15088). Regardless, these comments are included as part of the record and will be considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Further, the Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project’s underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four

Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

2.2.2 CEQA Requirements Master Responses

CEQ-1 Coordination Between CEQA and NEPA Lead Agencies

Some comments assert that the EIR is not in compliance with California Environmental Quality Act (CEQA) Guidelines section 15222 or is otherwise deficient in its coordination with federal environmental review by the Federal Energy Regulatory Commission (FERC), under the National Environmental Policy Act (NEPA). These comments do not raise a significant environmental issue requiring response under CEQA Guidelines section 15088. However, the State Water Resources Control Board (State Water Board) is providing additional information on the relationship between NEPA and CEQA in a FERC hydroelectric relicensing context.

CEQA Guidelines, Article 14, sections 15220, et seq., address ways to avoid unnecessarily duplicating efforts for projects that require review under both NEPA and CEQA. In this case, the Klamath River Renewal Corporation (KRRC) filed a water quality certification application with the State Water Board prior to the decision by FERC to start review under the National Environmental Policy Act. When, as in this case, CEQA review occurs before NEPA review ends, Article 14 recommends preparing a joint NEPA/CEQA document and combining environmental review procedures – but Article 14 also acknowledges that this may not be possible. (See Cal. Code Regs., tit. 14, §§ 15222, 15226, 15228.) FERC's rules include a broad "ex parte communication" ban that prevents FERC staff from talking about the substance of a license application except with notice on a formal record. FERC interprets these rules to preclude communications required for preparation of joint documents if the agency they are communicating with is a party to the licensing proceeding. See Statement of Administrative Policy on Separation of Functions (2002) 101 FERC 61, 340; FERC Order 607-A (2000), FERC Order 607 (1999). The State Water Board is a party to FERC licensing proceedings in order to be able to protect the state's interest in water quality. The State Water Board has developed a Memorandum of Understanding with FERC to reduce redundancy and delays in environmental review of hydroelectric licensing projects prior to application submittal and FERC's implementation of an ex parte communication bar. However, in light of the communications bar currently in place, the coordination required for a joint document is not possible.

The State Water Board provided FERC notice of its intent to prepare a CEQA document and the notice of preparation (NOP). Additionally, the State Water Board has provided updates on the CEQA process at semi-annual meetings with FERC. FERC has elected not to provide comments on the document. However, the State Water Board anticipates that the information developed in the EIR will be helpful in the NEPA process for the Proposed Project in light of the similarity between the two environmental review statutes, and because the EIR was informed by two previous NEPA documents (the 2007 FERC EIS for relicensing of the Klamath Hydroelectric Project and the 2012 Klamath Hydropower Settlement Agreement Environmental Impact Statement/Environmental Impact Report (KHSA EIS/EIR) for Klamath facilities removal).

CEQ-2 Federal Power Act Preemption of State and Local Authority

A number of comments raise concerns or questions about how the EIR addresses the preemption of state and local authority under the Federal Power Act.

Some comments suggest that the State Water Board should treat certain state or local agencies as responsible agencies and that it is premature or otherwise inappropriate to consider other state or local agencies' authority preempted. Several comments raise concern with the EIR's discussion of Recommended Measures and the feasibility of mitigation measures that are outside of the State Water Board's water quality certification authority. Some claim that the EIR's Recommended Measures (which the EIR analyzes but does not describe as feasible mitigation measures due to Federal Power Act preemption) are actually feasible despite preemption. For example, some comments state that the EIR must consider Recommended Measures feasible due to state or local authority or because it is reasonable to expect the Federal Energy Regulatory Commission (FERC) or another federal agency to enforce them. Similarly, some commenters have suggested that some Recommended Measures are feasible because they may be required in federal permits, particularly under the Endangered Species Act (ESA).

Other comments state that some Mitigation Measures described in the EIR are not actually feasible because they are outside of State Water Board authority. This Master Response first discusses the scope of Federal Power Act preemption. It then discusses the how the EIR applied that principle to responsible agencies and to Recommended Measures and Mitigation Measures.

Federal Power Act "Field Preemption"

As explained in Volume I Section 2.8 *Intended Uses of the EIR* (pages 2-110 and 2-111), the Federal Power Act gives FERC broad authority to regulate power production facilities in a manner that FERC "occupies the field" of power regulation. This means that there is no authority for state- or local-level regulation except where there is an exception to the general rule of preemption (see for example Volume I Section 2.8, page 2-110). Both the United States Supreme Court and the Ninth Circuit Court of Appeals have clarified the broad preemptive reach of the Federal Power Act vis-à-vis state authority in hydropower licensing decisions, emphasizing that elimination of state authority is part of implementing Congress' comprehensive plan for power development.

California v. FERC (1990) 495 U.S. 490; *First Iowa Coop. v Power Comm'n* (1946) 328 U.S. 152; *Sales-Hydro v. Maughn* (9th Cir. 1993) 985 F.2d 451. Similarly, the California Court of Appeals for the Third District has acknowledged the broad preemptive reach of the Federal Power Act. *Karuk Tribe of Northern California v. California Regional Water Quality Control Board, North Coast Region* (2010) 183 Cal.App.4th 330.

The Federal Power Act's "field preemption" applies to hydropower licensing decisions – such as the KRRC's decommissioning application – unless there is an exception to the preemption. One exception from the Federal Power Act's "field preemption" is state water quality certification under Clean Water Act Section 401. *PUD No. 1 of Jefferson Co. v. Washington Department of Ecology* (1994) 511 U.S. 700. While the state's water quality authority is broad, it does not extend beyond water quality-related matters. *Id.* The State Water Board is not aware of any other exceptions to preemption that would apply here, as the facilities are privately-owned, single-use hydropower facilities.

Effect of Federal Power Act preemption on responsible agencies

Under CEQA, a lead agency is the public agency with the "principal responsibility for carrying out or approving" a project. Pub. Resc. Code, § 21067. A responsible agency under CEQA is a state or local agency, other than the lead agency under CEQA, that has "responsibility for carrying out or approving a project." Pub. Resc. Code, § 21069. Thus, a responsible agency must have responsibility for or authority over the project. As discussed above, the Federal Power Act preempts the field of hydropower regulation, leaving no room for state or local agencies to exert authority. As noted, the applicable exception to this broad preemption of state authority over the Proposed Project is water quality certification under Clean Water Act Section 401. The State Water Board is the California agency charged with implementing Section 401 of the Clean Water Act for FERC-licensed hydroelectric facilities. Since the exception to FERC preemption under Clean Water Act Section 401 is only for water quality certification, the authority of other agencies remains preempted, and other agencies cannot have the responsibility over the project that would make them "responsible agencies" under CEQA.

Regardless of preemption, the State Water Board has noticed the State Clearinghouse for distribution and notified state and local agencies in the same manner as if state authority were not preempted. (See CEQA Guidelines, §§ 15082, 15085, 15086.) The State Water Board has sought agency input through an expansive scoping, comment and engagement process that provides the same opportunities for state and local input to the analysis as if agencies were able to exert authority over the project. This consultation with state and local agencies allows the document to be informed by the wealth of expertise in state and local agencies that exists regardless of Federal Power Act preemption, and fulfills the purpose of responsible agency consultation, even though it is not foreseeable that other agencies will need to rely on the document for their own

discretionary actions. State and local agencies had the opportunity to participate – and have engaged –in the CEQA process in the same manner as responsible agencies, including comments and input on the scope of review, materials for consideration, potential impacts, potential mitigation measures, and significance of potential environmental impacts. The State Water Board expects that this information will be valuable not only to the State Water Board, but also to the KRRC in implementation and to FERC in its license surrender process.
As noted by commenters, FERC has a policy encouraging licensees to adopt "good neighbor" agreements regarding power facilities that can provide an ability for licensees to engage with local authorities and comply with local standards and regulations. However, such "good neighbor" agreements do not contract the scope of preemption or provide state agencies with permitting authority and its accompanying requirement to comply with CEQA as either a lead or a responsible agency.

Additionally, commenters have raised two examples of dam removal proceedings in which FERC has required licensees to obtain limited local permits. In both instances, those permits were required as part of water quality certification. *Arizona Public Service Co*., 109 FERC 61036, 61149 (2004); *Wisconsin Electric Power Co.* 94 FERC 61038; see also *Wisconsin Electric Power Co*. 96 FERC 61009, pp. 5-6 [clarifying that the requirement to obtain a permit from the Land and Water Management Division of the Michigan Department of Environmental Quality and a county soil erosion and sedimentation control permit were 401 water quality certification requirements]. Siskiyou County presented these examples of "FERC requiring compliance with all local permitting in other dam removal contexts." However, these examples do not require compliance with all local permitting – rather, the decisions incorporate the terms of water quality certification. The cases cited do not indicate that FERC has either the authority or the intention to allow state or local agencies to exert control over their license outside of the exception to preemption in Clean Water Act Section 401.

Effect of Federal Power Act preemption on mitigation measures
CEQA requires that mitigation measures be "fully enforceable through permit conditions, agreements, or other legally-binding instruments." CEQA Guidelines Section 15126.4(a)(2). As discussed above, because of preemption under the Federal Power Act, the only state or local permit that will be issued is for state water quality certification.

Broad state substantive requirements for water-quality-related impacts may be incorporated into the water quality certification. *PUD No. 1 of Jefferson Co. v. Washington Department of Ecology* (1994) 511 U.S. 700. Therefore, the CEQA document can evaluate measures to mitigate water-quality-related impacts as enforceable mitigation measures. For example, the state requirements to consult with trustee agencies of, and mitigate impacts to, the aquatic ecosystem can be incorporated into the water quality certification. However, for the EIR to evaluate a mitigation measure outside of the State Water Board's water quality

certification authority, it must be otherwise enforceable, i.e., the subject of a federal permit, an agreement or other legally-binding instrument.
Commenters refer to several state environmental and health protection laws as potential sources of authority for mitigation measures, and request that the EIR disclose these measures and these authorities, or reconsider recommended measures as enforceable mitigation measures in light of these authorities. However, application of state laws unrelated to water quality and outside the parameters of water quality certification is preempted.

Recommended Measures
The State Water Board understands that KRRC is currently in discussions with various state and local agencies to develop agreements regarding other resource protection measures (see, e.g. KRRC Comment Letter ORG47-2). However, because these measures are not yet final, it would be premature to consider these to be enforceable mitigation measures. Doing so would mislead readers as to the finality and enforceability of potential steps to protect the environment. Instead, the EIR discloses and evaluates Recommended Measures in order to provide decisionmakers and the public with information on measures that – while not currently enforceable – have potential to be implemented. By describing Recommended Measures, the EIR discloses both the availability of measures to protect the environment and the lack of an enforcement mechanism for such measures. This provides information regarding available steps to protect the environment that could be developed (e.g., through enforceable good neighbor agreements), even though it is currently not possible to rely on those measures in assessing the impacts of the Proposed Project. Generally, the Recommended Measures stem from some mixture of recommendations from agencies with specific expertise, from submittals by the applicant, or from common industry practice. In addition to providing information for "good neighbor" agreement efforts, disclosure and analysis of these measures can serve as a recommendation for adoption by FERC or the KRRC outside of a formal agreement with a state or local agency.

Federal Authorities: Federal Power Act, Endangered Species Act, and Bald and Golden Eagle Protection Act
Some comments recommend analyzing all Recommended Measures as enforceable under FERC authority. Some comments also recommend analyzing new measures that could similarly be enforceable under the FERC license. As noted above, under the Federal Power Act, FERC is granted broad authority over all aspects of the Proposed Project and has the authority to require mitigation measures. FERC has not, however, indicated which mitigation measures it intends to require, and is not bound to mitigate effects to a level of less than significant by state standards. Instead, FERC applies a "public interest" standard to license proceedings requesting surrender, providing for safety, disposition of facilities, and a level of environmental protection it considers appropriate. While FERC does allow third parties to comment on its license surrender proceedings, there is no reason to believe that an ability to comment provides a reasonable

basis on which to find that a recommended term will be adopted and thereby become enforceable. Therefore, the existence of FERC authority alone is insufficient certainty for enforcement of a mitigation measure, or for presenting a recommended measure as an enforceable mitigation measure.

In addition to FERC's broad authority, the United States Fish and Wildlife Service (USFWS) conducts Endangered Species Act permitting for hydropower projects.[2] This Endangered Species Act permitting authority includes permitting for terrestrial species not covered under the State Water Board's water quality certification authority. Measures that the USFWS includes in permitting are, therefore, enforceable even without a nexus to water quality. There are indications that USFWS Endangered Species Act permits would impose many of the measures described in Volume I of the EIR as Recommended Terrestrial Measures 1 through 12, because, as noted in the EIR, most of these measures were developed in consultation with KRRC, CDFW, USFWS, and other species experts, and also because the measures largely reflect generally-accepted best practices. Therefore, for species listed under the federal Endangered Species Act, the EIR has been revised to add new Mitigation Measures TER-6 and TER-7 requiring the KRRC to consult with the USFWS and/or CDFW, regarding impacts to listed species, and to obtain necessary permits to protect these species. However, the USFWS Endangered Species Act review and permitting is only for federally protected species, while the recommended terrestrial measures address potential impacts to a broader range sensitive species including species listed at under the California Endangered Species Act and other federal and state programs to identify species requiring special protections. Thus, even with the additional protection of federal permit conditions, the types of actions in the recommended measures are not enforceable for all sensitive species. Therefore, the EIR continues to disclose and evaluate recommended measures. Additionally, USFWS issues any necessary permits under the Bald and Golden Eagle Protection Act for FERC orders on hydropower projects. As Recommended Terrestrial Measure 11 (addressing specific measures for the protection of Bald and Golden Eagles) is within USFWS's permitting authority and was developed in consultation with the USFWS, there is sufficient certainty

[2] As noted by commenters discussing preemption, the National Marine Fisheries Service (NMFS) also conducts federal Endangered Species Act permitting. However, as NMFS' permitting is specific to aquatic species, and impacts to aquatic species are already considered to be enforceable (via the water quality certification) and as NMFS is a federal agency (and therefore not a CEQA responsible agency), NMFS authority does not require further discussion in this comment response. Similarly, some comments discussing preemption have specifically noted the Army Corps of Engineers' authority over projects affecting navigable waterways. As the EIR already considers protection of waterways to be enforceable (via the water quality certification) and as the Army Corps of Engineers is a federal agency (and therefore not a CEQA responsible agency), these comments are not further addressed here.

that the USFWS will require the measure or equally protective conditions. It is also worth noting that a substantial portion of bald eagles' diet consist of fish (Knight et al. 1990). California's wildlife beneficial use[3] includes protecting water quality impacts to bald eagles, and such protections can be included in a water quality certification. This provides an additional layer of certainty for mitigation of potential impacts to bald eagles. Recommended Measure 11 has been revised to be a Mitigation Measure and is updated in Volume III Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities – Recommended Terrestrial Measure 11 – Bald and Golden Eagle*. As disclosed in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* (pages 3-546 and 3-547), implementation of the actions described in Recommended Terrestrial Measure 11, now Mitigation Measure TER-7, would reduce the potential impact to bald and golden eagles to no significant impact with mitigation. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities– Recommended Terrestrial Measure 11 – Bald and Golden Eagle* for revisions to Mitigation Measure TER-7.

The grey wolf, a federally endangered species, is protected under the USFWS Endangered Species Act. Because Recommended Terrestrial Measure 8 addresses specific measures for the protection of gray wolves, USFWS was consulted and confirmed that these measures are generally as accepted best practices (Heather Beeler, USFWS, pers. comm, September 2019). Recommended Terrestrial Measure 8 has been revised to be a Mitigation Measure and is updated in Volume III Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities*. The measure, at the request of the USFWS (Heather Beeler, USFWS, pers. comm, September 2019), includes coordination with CDFW biologists and accessing the CDFW gray wolf activity map to inform potential overlap between the wolf and the LKP to evaluate further measures to prevent impacts. Implementation of the actions described in Recommended Terrestrial Measure 8, now Mitigation Measure TER-6, would reduce the potential impact to gray wolf to no significant impact with mitigation. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for revisions to Mitigation Measure TER-6.

[3] As discussed in Volume I, Section 3.2.3 *Water Quality – Significance Criteria*, and in Table 3.2-2, California water quality standards include the designation of the beneficial uses of the state's waters. Use of the waters by wildlife is one such beneficial use.

Other Recommended or Mitigation Measures

PacifiCorp has suggested that Tribal Cultural Resource Mitigation Measures are not enforceable because they are outside the scope of the State Water Board's water quality certification authority. The KRRC participated in tribal consultation on development of Tribal Cultural Resource Mitigation Measures and has agreed to implement the measures. Additionally, the KRRC has proposed these measures as part of the FERC licensing proceeding. Thus, these measures are enforceable under the requirements of CEQA Guidelines Section 15126.4 (a)(2), because the KRRC has agreed to them.

PacifiCorp has further suggested that the aspects of Mitigation Measure GEO-1 that specify measures to avoid or minimize the impacts of slope instability on structures, and roads are outside of water quality certification authority, even though aspects of the mitigation measure related to slope stabilization to avoid and minimize sediment discharges to water are within such authority. Please note that Mitigation Measure GEO-1 has undergone minor modifications. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 for the final Mitigation Measure GEO-1. Mitigation Measure GEO-1 addresses the potential for mass wasting (e.g., shallow and deep-seated landsliding), and it requires monitoring for slope instability and measures to address slope instability, including a specific requirement to address slope instability that affects structures and roads. The specific requirements to address instability associated with structures and roads are appropriate to include in a water quality certification because, should mass wasting at the reservoir rim occur during drawdown, it would be important to undertake the actions included Mitigation Measure GEO-1 to avoid and reduce future sediment discharges, and because efforts to protect, repair, or replace the associated structures and/or roads can result in construction-related water quality impacts. Additionally, the KRRC has agreed to implement the mitigation measure. Therefore, the measure is appropriate as a mitigation measure both because it is enforceable in the water quality certification and because KRRC has agreed to implement the measure (please refer to Volume III Section 2.3.4 comment ORG47-51 and L. Zagar, Perkins Coie as KRRC representative, pers. comm., March 2020).

Some commenters asserted that Recommended Measure TR-1, which involved preparation of a Traffic Management Plan (TMP) to address potentially significant traffic impacts from construction activities related to dam removal, should be made an enforceable condition of the water quality certification. The Draft Environmental Impact Report (Draft EIR) included TR-1 among its Recommended Measures because at the time the Draft EIR was being prepared KRRC had not yet committed to preparing a TMP that met clearly discernable standards. On December 3, 2019, KRRC submitted a revised water quality certification application in which it committed to preparing a TMP that adhered to specific state and federal requirements, including the Caltrans California Manual on Uniform Traffic Control Devices (MUTCD), Caltrans Traffic Management Plan

Guidelines, Oregon Department of Transportation (ODOT) Supplement to the MUTCD, ODOT Traffic Control Plans Design Manual, ODOT TMP Project Level Guidance Manual, Caltrans and ODOT's respective Highway Design Manuals, among others. These recent commitments by KRRC in its revised water quality certification application would render TR-1 an enforceable term of the water quality certification. It is therefore appropriate to reclassify TR-1 as a mitigation measure.

The text of the Final EIR has therefore been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1.
Note that this change results in corresponding revisions to multiple findings regarding the significance of potential traffic impacts. The Draft EIR found that implementation of Recommended Measure TR-1 would reduce Potential Impacts 3.22-1 through 3.22-5 to a less than significant level, but nonetheless concluded that these impacts would be significant and unavoidable based on the fact that Recommended Measure TR-1 was not within the State Water Board's enforcement authority. Because preparation of a TMP in accordance with Mitigation Measure TR-1 now would be an enforceable term in the water quality certification, Potential Impact 3.17-1, Potential Impact 3.21-7, and Potential Impacts 3.22-1 through 3.22-5 have been revised to reflect that implementation of Mitigation Measure TR-1 would reduce these impacts to a less than significant level.

CEQ-3 Definition of 'Substantial' As Used in EIR Significance Criteria

Some comments assert that the EIR should uniformly define the term 'substantial' as used in the significance criteria identified for each environmental resource area analyzed in the EIR. EIRs identify and focus on the significant environmental effects of the proposed project (CEQA Guidelines section 15126.2). A "significant effect on the environment" means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance" (CEQA Guidelines section 15382). CEQA does not require an EIR to deviate from the common English language usage of the word 'substantial' to mean of considerable importance, size, number, and/or amount (Dictionary.com 2019, Lexico 2019); considerable in quantity, significantly great; being largely but not wholly that which is specified (Merriam-Webster 2019). For the analysis of potential impacts in the Lower Klamath Project EIR, significance criteria are identified for each environmental resource area, as described in Volume I Section 3.1 *Introduction* (pages 3-1 and 3-2) and presented in each of the 22 environmental resource areas analyzed in the EIR and the cumulative effects analysis. To the extent that identified significance criteria can be expressed quantitatively, either the 'significance criteria' subsection for each resource area and the analysis of cumulative effects does so explicitly, or the details are provided in the 'impact analysis approach' subsection that appears immediately following the identification of significance criteria. If it is not possible to identify defensible quantitative significance criteria, or if such criteria would otherwise be inappropriate for a particular analysis, then qualitative thresholds of significance are presented and discussed instead. Together, the stated significance criteria and impact analysis approach subsections for each environmental resource area and the cumulative effects analysis provide the necessary clarity and disclosure regarding any particular use of the word ‘substantial’ in determining significance for the environmental effects analyzed in the Lower Klamath Project EIR.

Lastly, lacking any specific identification of a problem with an impact analysis in the EIR due to use of the term ‘substantial’, the repeated assertion that term ‘substantial’ must be redefined or uniformly defined at each usage in the EIR does not constitute substantial evidence regarding the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384).

CEQ-4 Klamath River Basin Compact

Multiple commenters have raised concerns regarding the relationship between the Federal Energy Regulatory Commission (FERC) decommissioning process and the California Environmental Quality Act (CEQA) process on the one hand, and the Klamath River Basin Compact (Compact) and the Klamath River Compact Commission (Commission) on the other. These comments do not raise concerns regarding the potential effects of the Proposed Project on the environment or on the measures available to mitigate them. However, the EIR provides the below additional information in light of confusion regarding the perceived role of the Compact and the Commission created by it.

The Klamath River Basin Compact is an agreement entered into by the states of California and Oregon, and ratified by the United States Congress in 1957. Like other interstate river compacts, the Compact is intended to address the equitable distribution of interstate waters. It also sets forth several other terms, including terms addressing pollution and terms referencing hydropower. These three topics included in the Compact are discussed in more detail below.

- **Equitable Distribution of Interstate Waters:** The Compact affirms the validity of existing water appropriations, and clarifies that it does not affect the rights of tribes. The Compact sets forth guidelines and use priorities for the future appropriation of waters in the Klamath River Basin – here, ‘future’ means appropriations initiated after the 1957 effective date of the Compact. Up to certain irrigation acreage limits, such future appropriations for domestic and agricultural purposes in the Upper Klamath Basin take priority over future appropriations for other purposes in the Klamath Basin in California, or for any use outside of the Klamath River Basin. Future diversions in the Upper Klamath Basin are also subject to export and return-flow restrictions and additional terms. The Compact further establishes the framework for a Klamath River Compact Commission to administer the Compact. The Compact does not, as some comments assert, allocate water for the Shasta Valley, Butte Valley, or Iron Gate Hatchery. Rather, it sets up a framework for future water allocations between the states and in alignment with prioritizing municipal and irrigation use – especially in the Upper Klamath Basin – over other future uses. The water allocation terms of the Compact are self-executing and do not require Commission action. Further, the Compact does not require the continued exercise of any water rights.

- **Pollution Abatement and Control:** The Compact acknowledges that interstate pollution may affect the beneficial uses of the Klamath River, and it affirms the states' intentions to address such pollution. Each state is charged with the primary responsibility for the control and abatement of interstate pollution. In the event of conflicts regarding interstate pollution, each state's water pollution control agency may file a complaint to the Klamath River Compact Commission. The Commission can then investigate, confer, and recommend actions to abate such pollution. If appropriate action does not occur in a reasonable time, the Commission may then hold hearings that can result in enforceable abatement orders. Additionally, the Commission may coordinate with states and agencies on standard-setting and rulemaking.
- **Hydroelectric Power:** The Compact has miscellaneous other provisions, including a declaration that each state's planning for distribution and use of water in the Klamath River Basin will have an objective of efficient and economic use of available power head to lower the cost of irrigation water deliveries and drainage pumping. This declaration of objectives is relevant to state planning for water distribution and use, and to implementation of such plans. It does not mandate particular actions regarding the Lower Klamath Project facilities or in water quality certifications. The Compact also specifically affirms state authority over regulation of discharges from hydroelectric facilities.

The Compact explicitly affirms the primacy of state action in addressing pollution, hydroelectric-related discharges, and water diversion and use. The Commission is granted specific authorities relating to Compact implementation and resolving conflicts that arise under the Compact, but nothing in the Compact requires the Commission – of its own accord – to take any specific action regarding allocation of water, pollution abatement, or the operation or removal of hydroelectric facilities. Nor does it suggest that the Commission is intended to supplant the role of states. Neither the Compact nor the Commission limit the authority of the states to issue water quality certifications under Section 401 of the Clean Water Act.

The Commission is not acting here with respect to the Proposed Project, and so it cannot be a proper lead agency under CEQA. The State Water Board is the agency charged with issuing water quality certifications in California, and it is the only state agency with a discretionary approval in light of federal preemption. As the state agency with a discretionary action before it, the State Water Board is the appropriate lead agency to prepare the CEQA analysis.

2.2.3 Klamath River Flow Related Master Responses

HYD-1 Consideration of Klamath River Flows under the 2019 BiOp Operations Criteria for the Klamath Irrigation Project

The Lower Klamath Project Draft EIR considered the potential effects of dam removal using the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) Joint Biological Opinion operations criteria for the Klamath Irrigation Project (2013 BiOp Flows) to represent existing hydrology. This was appropriate because the 2013 BiOp Flows were the standard to which the USBR Klamath Irrigation Project operated at the time of the Notice of Preparation for the Lower Klamath Project EIR (i.e., December 22, 2016). After the issuance of the Lower Klamath Project Draft EIR on December 27, 2018, the applicable biological opinion and the operational flow requirements for the Klamath River changed in March 2019, when the new biological opinions were issued by NMFS (2019) and USFWS (2019a). The 2019 Biological Opinion flows (2019 BiOp Flows) are now the current operational flow requirement for the Klamath River.

The Final EIR analyzes both sets of biological opinion flows, with the 2019 BiOp Flows serving as a second CEQA baseline and representing flows under newly defined existing conditions. Inclusion of two baselines (existing condition and 2019 BiOp Flows hydrology regimes) in the Lower Klamath Project EIR is consistent with CEQA Guidelines section 15125 (a). It also simplifies the process of addressing a previously un-analyzed hydrology regime in a large and complex document by first rigorously comparing the new set of flows (2019 BiOp Flows) to the originally modeled flows for dam removal scenarios (KBRA Flows), as well as to the originally modeled flows for scenarios where the dams remain in place (2010 BiOp Flows). Then, based on the outcome of those comparisons (see below), the EIR adds consideration of the 2019 BiOp Flows to the consideration of the 2013 BiOp Flows in the resource-specific impact analyses (previously circulated in the Draft EIR).

The comparison of the 2019 BiOp Flows to the KBRA Flows, which is relevant to the Proposed Project and alternatives where dams are removed, is presented in Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*. This comparison indicates that modeled 2019 BiOp Flows are within the range of modeled KBRA Flows 99.0 percent of the time at Keno Dam and 99.9 percent of the time at Iron Gate Dam. The comparison of the 2019 BiOp Flows to the 2010 BiOp Flows, which is relevant to alternatives where the dams remain in place, is presented in Volume III Attachment 1 Section 4.2.1.1 *No Project Alternative – Introduction – Alternative Description*. This comparison indicates that modeled 2019 BiOp Flows are within the range of modeled 2010 BiOp Flows 99.9 percent of the time at Keno and Iron Gate dams.

Therefore, the Draft EIR has been revised to add consideration of the 2019 BiOp Flows alongside consideration of the 2013 BiOp Flows in the below sections. Given the similarity of the 2019 BiOp Flows to the other flow regimes analyzed in the Draft EIR, these revisions do not constitute significant new information (CEQA Guidelines section 15088.5 (a)).

<u>Volume I</u>

- Executive Summary
- Section 3 *Environmental Setting, Impacts, and Mitigation Measures*
  - Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*
  - Section 3.2 *Water Quality*
  - Section 3.3 *Aquatic Resources*
  - Section 3.6 *Flood Hydrology*
  - Section 3.8 *Water Supply/Water Rights*
  - Section 3.11 *Geology, Soils, and Mineral Resources*
  - Section 3.20 *Recreation*
  - Section 3.24 *Cumulative Effects*
- Section 4.2 *No Project Alternative*
  - Section 4.2.1.1 *Alternative Description*
  - Section 4.2.2 *Water Quality*
  - Section 4.2.3 *Aquatic Resources*
  - Section 4.2.5 *Terrestrial Resources*
  - Section 4.2.6 *Flood Hydrology*
  - Section 4.2.8 *Water Supply/Water Rights*
  - Section 4.2.11 *Geology, Soils, and Mineral Resources*
- Section 4.4 *Continued Operations Alternative*
  - Section 4.4.1.1 *Alternative Description*
  - Section 4.4.2 *Water Quality*
  - Section 4.4.3 *Aquatic Resources*
  - Section 4.4.8 *Water Supply/Water Rights*
  - Section 4.4.11 *Geology, Soils, and Mineral Resources*
- Section 4.5 *Two Dam Removal Alternative*
  - Section 4.5.1.1 *Alternative Description*
  - Section 4.5.3.4 *Aquatic Resources*
- Section 4.6 *Three Dam Removal Alternative*
  - Section 4.6.1.1 *Alternative Description*
  - Section 4.6.3.4 *Aquatic Resources*

<u>Volume II</u>

- Appendix C *Water Quality Supporting Technical Information,* Section C.1.2
- Appendix E *An Analysis of Potential Suspended Sediment Effects on Anadromous Fish in the Klamath Basin*, Section E.2

- Appendix S *Recreation Supporting Technical Information*, all sections

The 2019 BiOp-related revisions for the aforementioned sections are presented in Volume III Attachment 1.

2.2.4 Water Quality Master Responses

WQ-1 Role of Lower Klamath Project Dams/Reservoirs with Respect to Overall Water Quality

Multiple comments assert that the Lower Klamath Project dams improve water quality, making the water cleaner as it is travels through the reservoirs and into the Klamath River downstream of Iron Gate Dam. Several comments reference visual observations as evidence that the dams improve water quality, suggesting that the commenter is concerned about turbidity. Some comments refer specifically to the settling of suspended material (like algae and sediment) in the relatively calm reservoir environment. Some comments refer to historical accounts of low flows and poor water quality (e.g., taste, odor, and visual quality) as evidence of the asserted beneficial water quality impact of the hydroelectric dams. These include accounts based on personal memory and on pre-dam period writings.

Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* for a general summary of the effects that Lower Klamath Project hydroelectric facilities and operations have on Klamath River water quality, including changes in water temperature, dissolved oxygen, phytoplankton (suspended algae), nutrients, suspended sediment (turbidity), and periphyton (attached algae). Figure 3.2-2 illustrates the general seasonal influence of reservoirs formed by large dams, such as Copco No. 1 and Iron Gate reservoirs, on water quality parameters. The specific influence of the Lower Klamath Project dams and reservoirs on water quality parameters in the Klamath River are summarized in Volume III Attachment 1 Section 3.2.2 *Water Quality – Environmental Setting* and further detailed in Volume III Attachment 1 Appendix C *Water Quality Supporting Technical Information*.

As described in Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments*, Potential Impacts 3.2-5 and 3.2-6, and Volume III Attachment 1 Appendix C, Section C.2 *Suspended Sediments*, and shown in Figure C-13, suspended material from upstream sources (including Upper Klamath Lake) settles out within the Keno Impoundment/Lake Ewauna in Oregon upstream of the Lower Klamath Project reservoirs, with approximately 50 percent of organic suspended material (measured as total suspended sediments [TSS]) settling out between the mouth of Link River (RM 253.1) and Keno Dam (RM 233.4) based on May to October TSS measurements from 2000 to 2005. Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* (and Volume III Attachment 1 Appendix C, Section C.2

Suspended Sediments) also describe how additional settling of suspended sediment occurs in the Lower Klamath Project reservoirs on an annual basis, even as algal blooms in the Lower Klamath Project reservoirs during the phytoplankton growth season (May to October) can seasonally increase organic suspended material in the reservoirs and the Klamath River downstream of Iron Gate Dam to Seiad Valley (Figure C-14). Further, Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413) provides data supporting the assertion that Upper Klamath Lake is not the main source of the toxin-producing blue-green algae (cyanobacteria) *Microcystis aeruginosa* to the Klamath River downstream of Iron Gate Dam; instead, the most likely sources are Copco No. 1 and Iron Gate reservoirs.

Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Volume III Attachment 1 Appendix C, Section C.3 *Nutrients* describe the net annual decrease in nutrients in the Klamath River due to settling of suspended materials and associated nutrients in the reservoirs as well as the seasonal nutrient fluctuations downstream of Iron Gate Dam due to seasonal releases of nutrients from reservoir sediments when anoxic conditions associated with thermal stratification occur in reservoir bottom waters.

Seasonal changes in water quality due to thermal stratification within Copco No. 1 and Iron Gate reservoirs are summarized in Volume III Attachment 1 Section 3.2.2 *Water Quality –Environmental Setting* and further detailed in Volume III Attachment 1 Appendix C *Water Quality Supporting Technical Information* under the individual water quality parameter sub-sections. Figure C-1 highlights the seasonal variations in water temperature within Copco No. 1 and Iron Gate reservoirs, including the formation and breakdown of thermal stratification, while the seasonal variations in dissolved oxygen in J.C. Boyle, Copco No. 1, and Iron Gate reservoirs during the period the reservoirs are thermally stratified are shown in Figure 3.2-4 and Figures C-29, C-30, C-31, and C-32. Seasonal variations in pH within Copco No. 1 and Iron Gate reservoirs during thermal stratification are shown in Figure 3.2-4 and in the Klamath River from upstream of Copco No. 1 Reservoir to downstream of Iron Gate Dam are shown in Figures C-38 and C-39. Seasonal and longitudinal trends in nutrients at Klamath River sites upstream and downstream of the Lower Klamath Project reservoirs are shown in Figures C-24 and C-25 and highlight how nutrients vary during and after thermal stratification in the reservoirs. Seasonal and longitudinal trends in chlorophyll-*a* and algal toxins in the Klamath River and the Lower Klamath Project reservoirs are discussed in Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins*, with chlorophyll-*a* longitudinal trends shown in Figure 3.2-5.

Please refer to Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-422) for information on the seasonal trends in phytoplankton and periphyton in the Klamath River from upstream of

J.C. Boyle Reservoir to downstream of Iron Gate Dam. Overall, Volume III Attachment 1 Sections 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* through 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Volume III Attachment 1 Appendix C *Water Quality Supporting Technical Information* provide data on the Lower Klamath Project's adverse impacts to water quality by: 1) increasing the water residence time (days to weeks) in Copco No. 1 and Iron Gate reservoirs and warming summer and fall water temperatures downstream of Iron Gate Dam; 2) exhausting dissolved oxygen in reservoir bottom waters and waters released to the downstream river; and 3) seasonally releasing nutrients stored in reservoir bottom sediments such that nutrients become more available during late summer and fall to support large blooms of toxin-producing blue-green algae (cyanobacteria) that are transported into the downstream river, as well as river periphyton (attached algae) that harbor parasites and potentially cause high levels of fish disease.

As described in Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, the amount of flow in the Klamath River is determined by the operation of the Klamath Irrigation Project and the applicable biological opinion(s) to meet the needs of listed species and maintain full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. The Proposed Project does not include any changes to the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s), so historical observations of low flows and associated poor water quality are not anticipated to reoccur due to removal of the Lower Klamath Project Dams.

Overall, the comments' references to cloudy, 'dirty' water from upstream, and clear, 'clean' water samples from downstream of the Lower Klamath Project dams, and to historical observations of low flows and poor water quality prior to installation of the dams, as proof of water quality improvements due to the dams are unpersuasive. The assertions do not recognize changes in flow regulation since historic accounts or, the more comprehensive set of water quality parameters affected by the Lower Klamath Project dams and operations, as supported by the data and analyses presented in the EIR and summarized above.

WQ-2 Potential for Lower Klamath Project Dams/Reservoirs to Cool River Water During Summer and Fall

Several comments assert that the Lower Klamath Project dams beneficially cool or have the potential to cool Klamath River water downstream of Iron Gate Dam during summer and fall, which would benefit fish. Comments note examples of other dams that provide cool water for fisheries, including Shasta Dam on the Sacramento River in California and Lost Creek Dam on the Rogue River in Oregon. Existing water temperature data and numeric models described in Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Environmental Setting –*

Water Temperature, including Figure 3.2-3, demonstrate that the Lower Klamath Project dams cool the Klamath River water downstream of Iron Gate Dam in the spring by approximately 1.8°F to 4.5°F (approximately 1°C to 2.5°C), and warm the Klamath River water downstream of Iron Gate dam in the late summer and early fall by 4°F to 18°F (approximately 2°C to 10°C). Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* for a discussion of why reservoirs and hydroelectric project operations affect water temperature, including Figure 3.2-2 that depicts how seasonal thermal stratification occurs in these waterbodies.

Unlike Shasta Dam on the Sacramento River (California), Lost Creek Dam on the Rogue River (Oregon), or other deep reservoirs that support coldwater fisheries just downstream of the dam by releasing cold water from low level outlets, the location of dam outlets in Copco No. 1 and Iron Gate dams cannot be adjusted to access large volumes of cool water in the bottom of the reservoirs on a reliable basis spanning the several month-long reservoir stratification period. This is because summertime bottom waters in Copco No. 1 and Iron Gate reservoirs are of limited volume and poor water quality (e.g., low dissolved oxygen concentrations), and J.C. Boyle and Copco No. 2 reservoirs do not strongly stratify and thus do not provide a pool of cool water in the summer.

Please refer to Volume I *Alternatives – Continued Operations with Fish Passage – Water Quality – Water Temperature* Potential Impact 4.2.2-1 (pages 4-103 to 4-108) for a discussion of why there is currently no reasonable proposal to operate the Lower Klamath Project to reliably cool summer and fall water released from Copco No. 1 and Iron Gate dams, or to achieve the water temperature allocations in the Klamath total maximum daily loads (TMDLs), with the Lower Klamath Project dams remaining in place.

Please refer to Volume III Attachment 1 Section 3.2 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-2 for a discussion of why dam removal under the Proposed Project would cause water temperatures in the Klamath River downstream of Iron Gate Dam to align better with historical anadromous migration and spawning periods, warming earlier in the spring, and cooling earlier in the fall compared to existing conditions, and how this action would rapidly and substantially contribute to Klamath River TMDL compliance.

WQ-3 Adequacy of Modeling for Sediment Deposits and Suspended Sediments During Reservoir Drawdown

Some commenters assert that the suspended sediment modeling conducted by the United States Bureau of Reclamation (USBR) for the 2012 KHSA EIS/EIR does not adequately represent conditions under the Proposed Project. Some of the specific concerns raised include that the estimated mass and/or volume of the reservoir sediment deposits based on reservoir sediment samples collected in 2006 and 2009 is uncertain and will change in the future when the dams would be removed, that the current Proposed Project involves a faster reservoir drawdown rate than was originally modeled, that the process of sediment jetting was not included in the 2012 project description, and that the models may not represent the hydrology that will occur during dam removal. These commenters express concern that if the suspended sediment modeling approach is not applicable to the Proposed Project, that related impact analyses (e.g., inorganic and organic contaminants) also are not adequately characterized in the EIR.

Please refer to Volume I Section 2.7.3 *Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown*, specifically page 2-65, for a discussion of the volume and weight of sediment for each reservoir as estimated in 2009, the estimated volume as of 2020 taking into account ongoing annual sediment deposition, and a discussion of why the uncertainty in the sediment volume estimates does not affect the analysis of sediment erosion potential for the reservoirs. Table 2.7-11 (page 2-68) presents the estimated amount of sediment in the Lower Klamath Project reservoirs in 2020 and explains in a footnote that between 2020 and 2021 (i.e., dam removal year 2 when drawdown would primarily occur), the sediment volume present behind the dams would increase by approximately 81,300 cubic yards in Copco No. 1 Reservoir and approximately 100,000 cubic yards in Iron Gate Reservoir based on estimates of annual sedimentation rates for each reservoir. The increase in sediment volume between 2020 and 2021 would be an order of magnitude less than the uncertainty of the 2020 total sediment volume estimates, so the range of model results using the 2020 sediment volumes would still be applicable to the Proposed Project.

Please refer to Volume I Section 2.7.3 *Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown*, specifically page 2-66, for a discussion of why the rate of reservoir drawdown and the Klamath River Renewal Corporation's proposal for sediment jetting would not substantially affect existing projections of reservoir sediment deposit mobility in the Lower Klamath Project reservoirs during drawdown. This section also explains how in a dry hydrologic year, reservoir pool levels can be drawn down steadily and relatively quickly, resulting in a shorter period of interaction between the flow and sediment deposits, and thus less overall sediment erosion. In a wet hydrologic year, the reservoir pool may experience cycles of drawdown followed by periods of refilling during high flow events, resulting in longer period of interaction between the flow and the sediment deposits, and thus more overall sediment erosion. Please note that the sediment transport model developed by USBR (2012a) for analyzing dam removal scenarios for the Lower Klamath Project was run for 49 water years in the available hydrology record (1961 through 2009), a timespan which includes very dry, dry, normal, wet, and very wet year types, including multiple extreme drought years (i.e., 1977, 1981, 1991, 1992, 1994, 2001, 2005) of similar magnitude to that which occurred more recently (i.e., 2013−2015), and occurrences of back-to-back drought years (i.e., 1990−1992, 2001−2005) (Figure WQ-3-1 and Figure WQ-3-2).

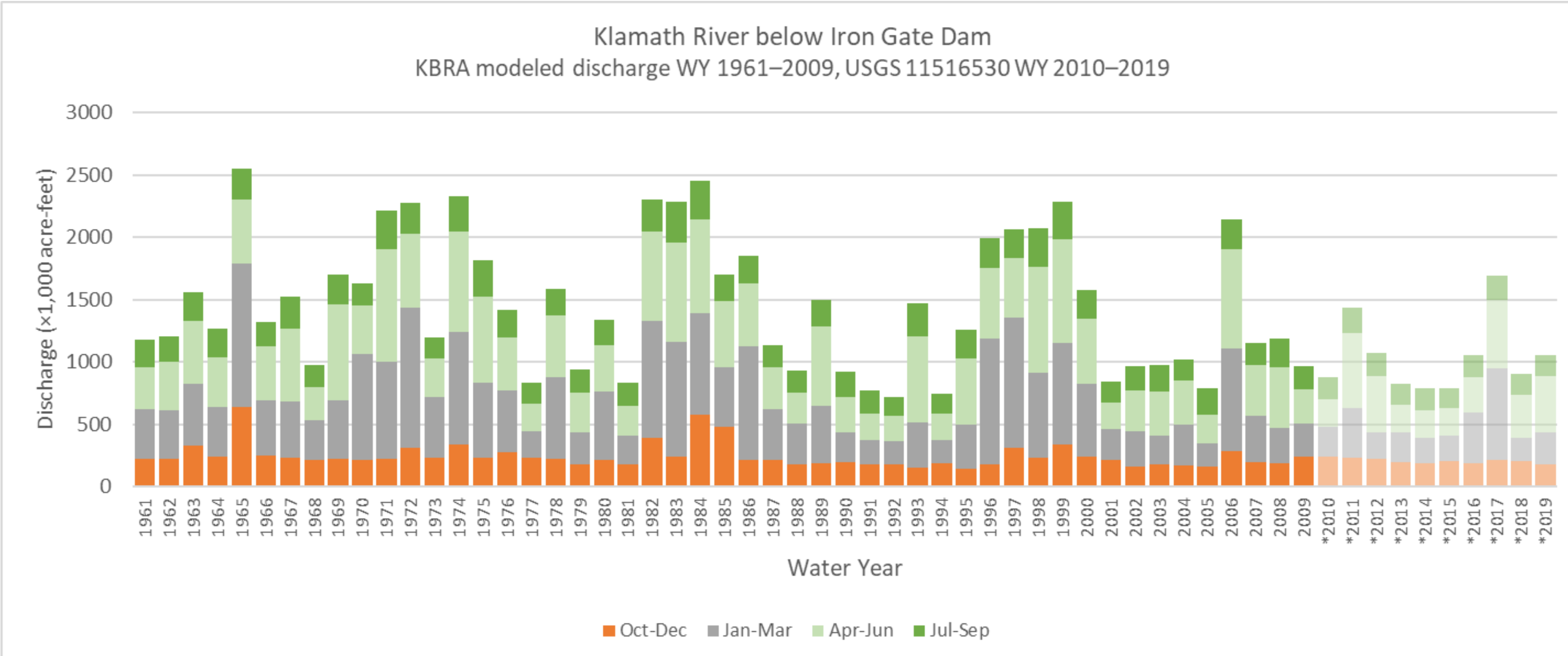

Figure WQ-3-1. Klamath River below Iron Gate Dam KBRA modeled discharge for water years (WY) 1961−2009 used in the USBR (2012a) sediment transport modeling for dam removal analyses and actual flows for WY 2010−2019 (USGS Gage No. 11516530). Water years outside of the hydrology record used in the USBR (2012a) sediment transport modeling are shown with an asterisk and in lighter shading for comparison.

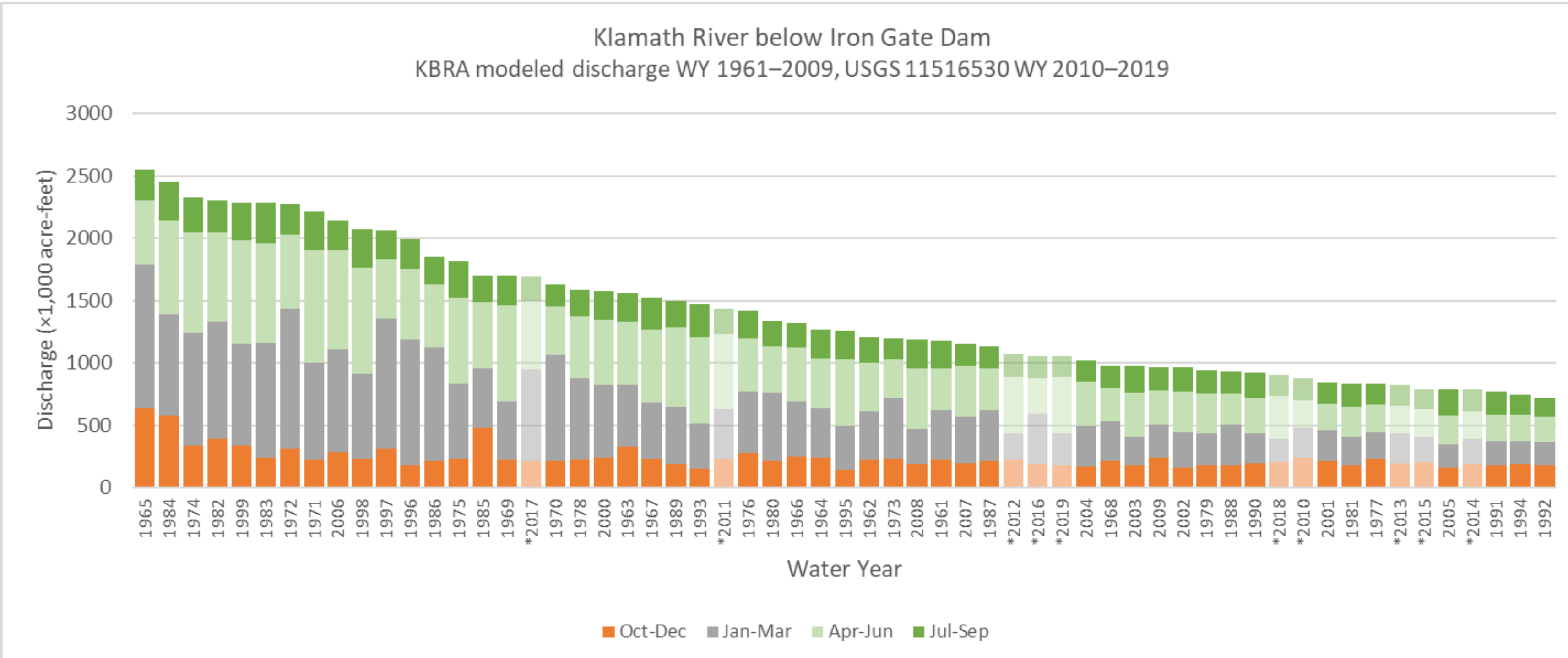

Figure WQ-3-2. Klamath River below Iron Gate Dam KBRA modeled discharge for water years (WY) 1961−2009 used in the USBR (2012a) sediment transport modeling for dam removal analyses and actual flows for WY 2010−2019 (USGS Gage No. 11516530). Water years outside of the hydrology record used in the USBR (2012a) sediment transport modeling are shown with an asterisk and in lighter shading for comparison.

Please refer to Volume III Attachment 1 Section 3.2.4.2 *Water Quality –Impact Analysis Approach – Suspended Sediments* for a discussion of why an adequate analysis of the Proposed Project does not require new suspended sediment modeling despite differences in the reservoir drawdown rates compared with conditions previously modeled by USBR.

Please refer to Volume III Attachment 1 Potential Impact 3.2-3, for an analysis of potential for increases in suspended sediments due to release of sediments currently trapped behind the Lower Klamath Project dams, including detailed consideration of the higher rate of reservoir drawdown and the process of sediment jetting.

WQ-4 Time Period of Water Quality Data

Several commenters assert that the data relied upon for the water quality analysis are too old to adequately assess existing conditions of the project area, specifying that total phosphorus, total nitrogen, dissolved oxygen, pH, inorganic and organic matter, sediment contaminants, and aquatic biota contaminants data are all over ten years old and do not represent the current environment.

Please refer to Volume III Attachment 1 Section 3.2.2 *Water Quality – Environmental Setting* and Volume III Attachment 1 Appendix C *Water Quality Supporting Technical Information* for a general summary of the water quality data collected from 2000 through 2017. Water quality data from 2012 through 2017 are discussed along with water quality data from 2011 or earlier in numerous places throughout Volume III Attachment 1 Section 3.2.2 *Water Quality – Environmental Setting* and Volume III Attachment 1 Appendix C *Water Quality Supporting Technical Information*, and associated citations are provided to the numerous reports that have been published compiling and/or analyzing these water quality data. Interim Measure 15 (IM 15) baseline and public health water quality data collected at multiple locations in the Klamath River from the Link River Dam to the Klamath River Estuary along with locations in the Lower Klamath Project reservoirs is documented in Watercourse Engineering, Inc. (2011a, 2011b, 2012, 2013, 2014, 2015, 2016), and these data are frequently utilized in the EIR. The list of reports published after 2012 considered in the EIR containing water quality data from 2012 to 2017, analysis of water quality data from 2012 to 2017, or analysis of historical water quality data (potentially including data from 2012 to 2017) that provide more recent insight into water quality conditions in the Klamath River include the following:

Asarian, E., and J. Kann. 2013. Synthesis of Continuous Water Quality Data for the Lower and Middle Klamath River, 2001–2011. Prepared by Kier Associates, Eureka, California and Aquatic Ecosystem Sciences, LLC, Ashland, Oregon for the Klamath Basin Tribal Water Quality Work Group.

Asarian, J. E., Y. Pan, N. D. Gillett, and J. Kann. 2015. Periphyton assemblages and associated environmental conditions in the Klamath River 2004 -2013.

Prepared by Riverbend Sciences, Portland State University, and Aquatic Ecosystem Sciences, LLC. for the Klamath Basin Tribal Quality Group.

E&S Environmental Chemistry, Inc. 2017. Results of cyanobacteria and microcystin monitoring in the vicinity of the Klamath Hydroelectric Project. Technical Memorandum. Prepared by E&S Environmental Chemistry, Inc. for PacifiCorp, Portland, Oregon.

Gibson, M. 2016. 2010-2015 Klamath River Blue-Green Algae Summary Report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

Hanington, M. 2013. 2012 Klamath River continuous water quality monitoring summary report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

Hanington, M. and K. Torso. 2013. 2012 Klamath River nutrient summary report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

Hanington, M., and K. Ellien. 2013. 2013 Klamath River continuous water quality monitoring summary report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

Hanington, M. and S. Stawasz. 2014. 2013 Klamath River nutrient summary report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

Hanington, M. and R. Cooper-Carouseli. 2014. 2014 Klamath River nutrient summary report. Final Report. Prepared by Yurok Tribe Environmental Program: Water Division, Klamath, California.

HVTEPA. 2013. Water Quality Monitoring by the Hoopa Tribal Environmental Protection Agency 2008-2012. Prepared by the Hoopa Tribal Environmental Protection Agency in cooperation with Kier Associates. Hoopa Valley Tribal Environmental Protection Agency, Hoopa, California.

Kann, J. 2014. Evaluation of cyanobacteria and cyanobacterial toxins with reference to selection of water quality criteria for the Karuk Tribe of California. Technical Memorandum. Prepared by Aquatic Ecosystem Sciences, LLC, Ashland, Oregon for the Klamath Tribe of California, Natural Resources Department, Orleans, California.

Kann, J., C. Bowman, L. Bowater, G. Johnson, and S. Raverty. 2013. Microcystin bioaccumulation in Klamath River salmonids; 2010 Study Results (Updated 6-12-2013). Technical memorandum. Prepared by Aquatic Ecosystem

Sciences for the Karuk Tribe Department of Natural Resources, Orleans California.

Karuk Tribe of California. 2013. 2013 Water quality assessment report: Klamath River, Salmon River, Scott River, Shasta River, and Camp Creek. Prepared by Karuk Tribe of California, Water Quality Program, Department of Natural Resources, Orleans, California.

KRRC (Klamath River Renewal Corporation). 2018. Draft water temperature data collection at Shovel Creek. Prepared by KRRC, San Francisco, California for State Water Resources Control Board, Sacramento, California.

Oliver A. A., R. A. Dahlgren, and M. L. Deas. 2014. The upside-down river: Reservoirs, algal blooms, and tributaries affect temporal and spatial patterns in nitrogen and phosphorus in the Klamath River, USA. Journal of Hydrology 519: 164–176. http://dx.doi.org/10.1016/j.jhydrol.2014.06.025

Otten, T. G., J. R. Crosswell, S. Mackey, and T. W. Dreher. 2015. Application of molecular tools for microbial source tracking and public health risk assessment of a Microcystis bloom traversing 300 km of the Klamath River. Harmful Algae 46: 71–81. http://dx.doi.org/10.1016/j.hal.2015.05.007.

Otten, T. 2017. Application of genetic tools for improved cyanobacterial bloom monitoring in the Klamath River system: Implications for public health monitoring. Prepared by Bend Genetics, LLC., Sacramento, California.

PacifiCorp. 2013. Final dataSonde data from below Iron Gate Dam. Water quality preliminary raw data collected with a YSI 6600 DataSonde on the Klamath River downstream from Iron Gate Dam (RM 193.1) from January 1 thru December 31, 2013. Collected by PacifiCorp, Portland, Oregon. http://www.pacificorp.com/es/hydro/hl/kr.html# [Accessed on 11 December 2018].

PacifiCorp. 2014. Final dataSonde data from below Iron Gate Dam. Water quality preliminary raw data collected with a YSI 6600 DataSonde on the Klamath River downstream from Iron Gate Dam (RM 193.1) from January 1 thru December 31, 2014. Collected by PacifiCorp, Portland, Oregon. http://www.pacificorp.com/es/hydro/hl/kr.html# [Accessed on 11 December 2018].

PacifiCorp. 2015. Final dataSonde data from below Iron Gate Dam. Water quality preliminary raw data collected with a YSI 6600 DataSonde on the Klamath River downstream from Iron Gate Dam (RM 193.1) from January 1 thru December 31, 2015. Collected by PacifiCorp, Portland, Oregon. http://www.pacificorp.com/es/hydro/hl/kr.html# [Accessed on 11 December 2018].

PacifiCorp. 2016. Final dataSonde data from below Iron Gate Dam. Water quality preliminary raw data collected with a YSI 6600 DataSonde on the Klamath River downstream from Iron Gate Dam (RM 193.1) from January 1 thru December 31, 2016. Collected by PacifiCorp, Portland, Oregon. http://www.pacificorp.com/es/hydro/hl/kr.html# [Accessed on 11 December 2018].

PacifiCorp. 2017. Final dataSonde data from below Iron Gate Dam. Water quality preliminary raw data collected with a YSI 6600 DataSonde on the Klamath River downstream from Iron Gate Dam (RM 193.1) from January 1 thru December 31, 2017. Collected by PacifiCorp, Portland, Oregon. http://www.pacificorp.com/es/hydro/hl/kr.html# [Accessed on 11 December 2018].

Sullivan, A. B. and S. A. Rounds. 2016. Modeling water quality, temperature, and flow in Link River, South-Central Oregon. U.S. Geological Survey Open-File Report 2106- 1146. http://dx.doi.org/10.3133/ofr20161146.

Watercourse Engineering, Inc. 2013. Klamath River baseline water quality sampling, 2012 Annual Report. Prepared for the KHSA Water Quality Monitoring Group.

Watercourse Engineering, Inc. 2014. Klamath River baseline water quality sampling, 2013 Annual Report. Prepared for the KHSA Water Quality Monitoring Group.

Watercourse Engineering, Inc. 2015. Klamath River baseline water quality sampling, 2014 Annual Report. Prepared for the KHSA Water Quality Monitoring Group.

Watercourse Engineering, Inc. 2016. Klamath River baseline water quality sampling, 2015 Annual Report. Prepared for the KHSA Water Quality Monitoring Group.

YTEP. 2014. Aug 5-6, 2014 Microcystin Results. Yurok Tribe Environmental Program (YTEP) Memorandum. Prepared by Yurok Tribe Environmental Program, Klamath, California.

YTEP. 2015. July 28 & 29 BGA Results. Yurok Tribe Environmental Program (YTEP) Memorandum. Prepared by Yurok Tribe Environmental Program, Klamath, California.

While many of the studies and models developed for the 2012 KHSA EIS/EIR (and included in this Lower Klamath Project EIR) use data from 2000 through 2011, data from 2012 through 2017 were also reviewed and included in the overview of existing water quality conditions and considered in this Lower Klamath Project EIR analyses of potential water quality impacts. Further, comparisons of more recent and historical water quality data indicate that adding more recent available water quality data to existing model and/or analysis results would not materially change anticipated water quality parameter responses to dam removal. For example, in Volume III Attachment 1 Appendix C, Section C.1.2.1 *Iron Gate to Salmon River* (page C-5) the Klamath River water temperature trends at monitoring sites between Iron Gate Dam and the confluence with the Salmon River between 2001 and 2012 are specifically compared with the water temperature trends between 2013 and 2015 and, as described in the appendix, water temperature trends are consistent from 2001 through 2015. As such, Potential Impact 3.2-1 uses an analysis of existing water temperature data along with previous water temperature modeling results based upon historical data (i.e., pre-2013) to evaluate the potential for short-term and long-term alterations in water temperatures due to conversion of the reservoir areas to a free-flowing river. Assessments of available suspended sediment, nutrient, dissolved oxygen, pH, chlorophyll-*a*, and algal toxin data from 2013 through 2017 are used along with historical data (i.e., 2012 or earlier) in EIR discussions of the range of variation in water quality parameters over time, especially for chlorophyll-*a* and algal toxins (see Volume III Attachment 1 Appendix C in their respective sections and Klamath River reaches).

As further clarification, Figure WQ-4-1 and Figure WQ-4-2 (below) present graphical comparisons of the available IM15 water temperature, dissolved oxygen, pH, total phosphorous, and total nitrogen from 2000 through 2017 at the Klamath River monitoring site downstream of Iron Gate Dam (approximately RM 192.75), demonstrating that the range of historical (i.e., 2012 or earlier) and more recent (i.e., 2013 to 2017) total nitrogen and total phosphorus concentrations are similar. Please note that the IM15 data through 2015 was generally considered in Appendix C. Figure WQ-4-1 shows the IM15 water temperature, dissolved oxygen, pH, total phosphorous, and total nitrogen data for the period before and after 2012, with the mean values shown as a black line and the 95 percent confidence bands around the mean shown in cyan. The 95 percent confidence bands indicate that there is a 95 percent probability that the mean value would occur within the band. While there are differences between the means before and after 2012 downstream of Iron Gate Dam, those differences are small relative to the range of values for the water quality parameters. Additionally, the 95 percent confidence bands for the means before and after 2012 partially overlap for all water quality parameters, indicating that the mean values for each individual water quality parameter before and after 2012 are likely to be statistically the same and the difference in the mean values before and after 2012 is only due to the water quality being sampled periodically.

Figure WQ-4-2 also presents the IM15 data, but this figure displays an estimate of seasonal water quality variation downstream of Iron Gate Dam from 2000 to 2017, by using a non-parametric smoothing regression line with a time-step of three months (each season is approximately three months long). The associated 95 percent confidence bands are shown in cyan and they are calculated for the pre-2012 and the post-2012 IM 15 data to characterize how water quality varied seasonally during these two periods. No IM 15 data were reported during 2006, so the seasonal water quality trends in the three months before and the three-months after 2006 are based on limited data and do not likely represent the longer-term trends. As highlighted by Figure WQ-4-2, the seasonal variations in water temperature, dissolved oxygen, pH, total phosphorus, and total nitrogen are generally similar between pre-2012 and post-2012 periods, with most post-2012 variations in water quality parameters also within the range of pre-2012 variations. Seasonal pH trends during 2013 and 2014 downstream of Iron Gate Dam tended to peak higher than those pre-2012, but the seasonal pH trends in subsequent years (i.e., 2015 to 2017) were generally similar to those pre-2012.

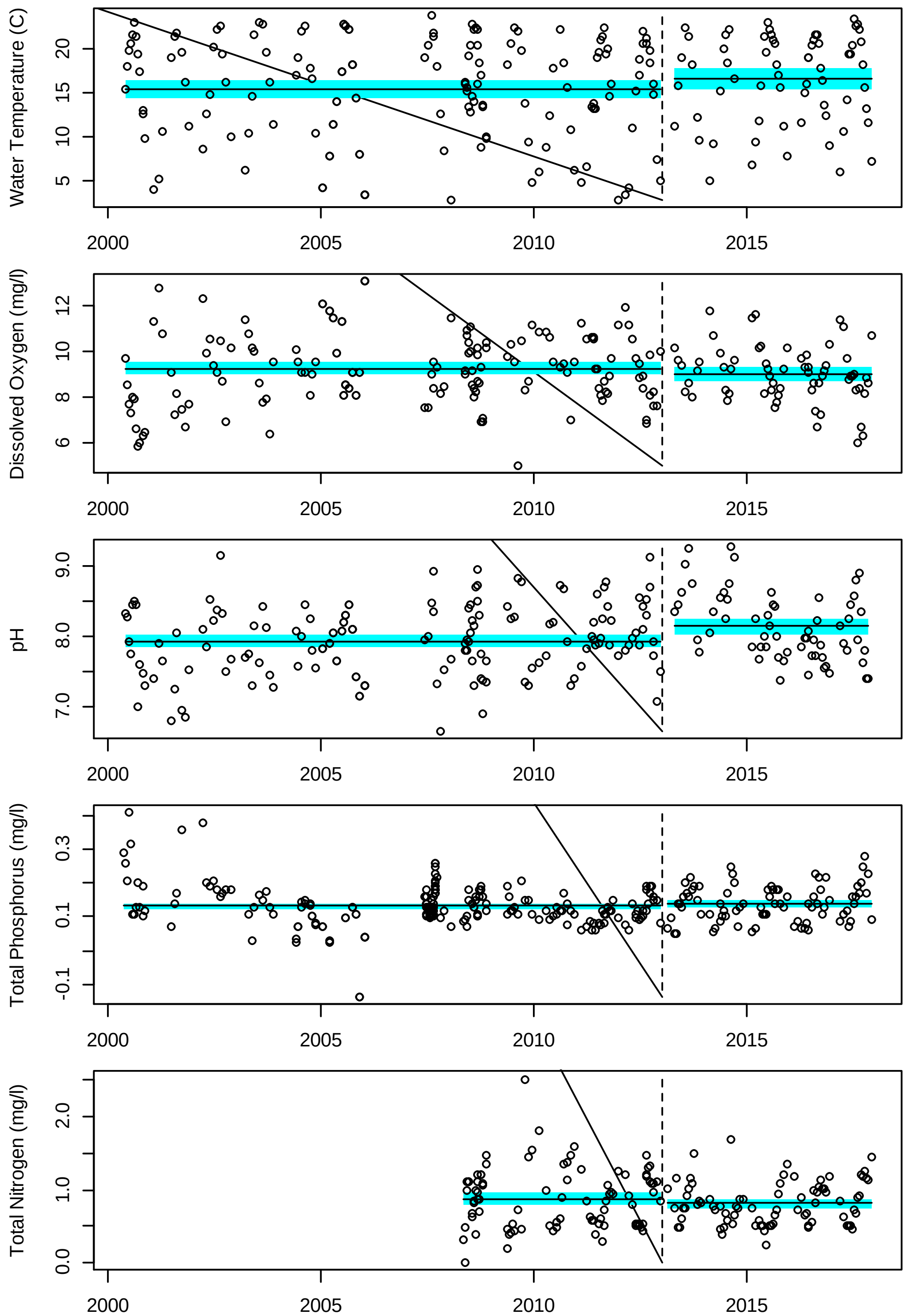

Figure WQ-4-1. Interim Measure 15 Data at the Klamath River Monitoring Site Downstream of Iron Gate Dam (Approximately RM 192.75) from 2000 to 2017 Along with the Mean Values and 95 Percent Confidence Bands (in cyan). Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

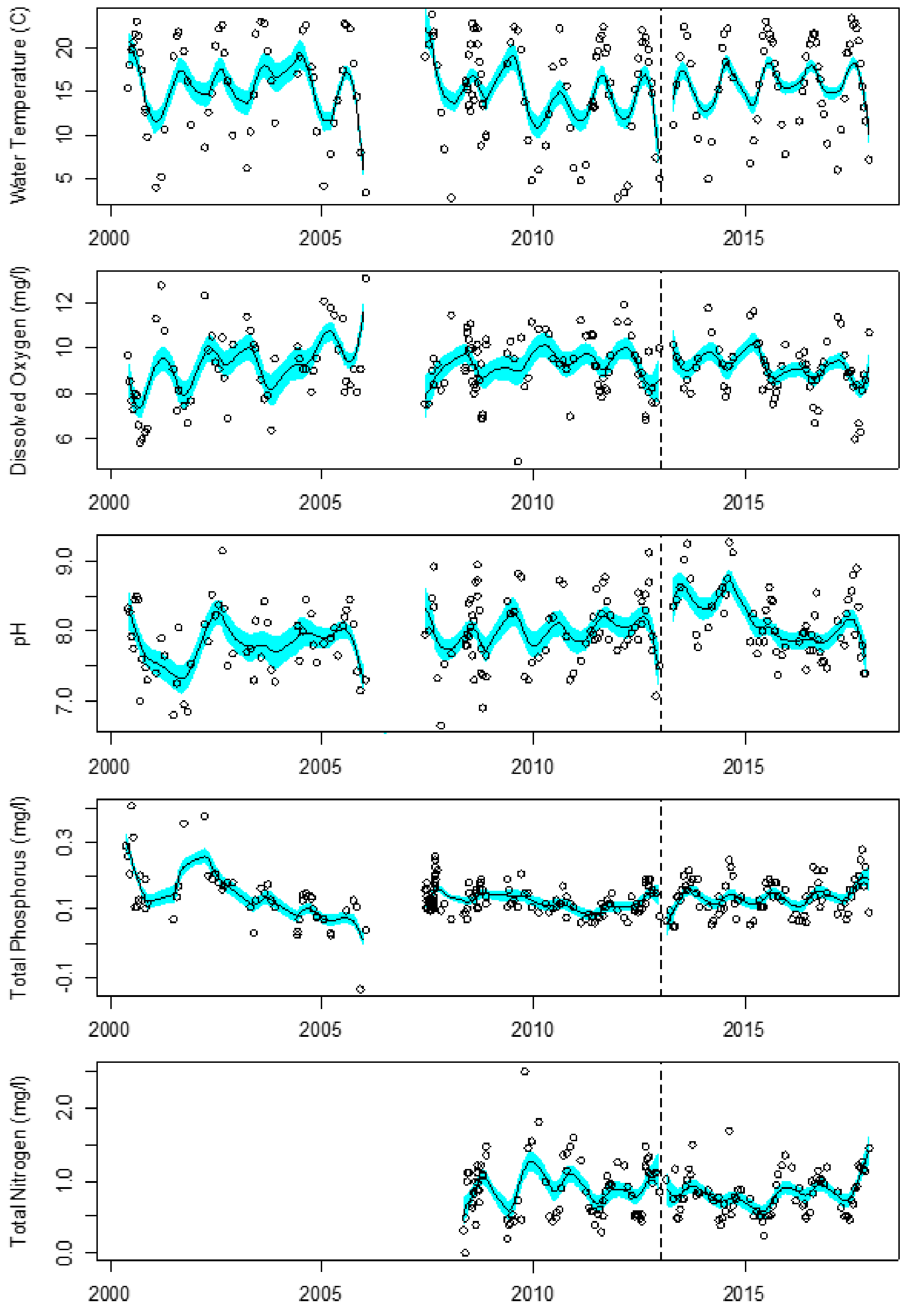

Figure WQ-4-2. Interim Measure 15 Data at the Klamath River Monitoring Site Downstream of Iron Gate Dam (Approximately RM 192.75) from 2000 to 2017 Along with a Non-parametric 3-month Smoothing Regression Curve Representing the Seasonal Water Quality Trends and the Associated 95 Percent Confidence Bands (in cyan). Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

Insofar as the data are available and applicable to the reaches being evaluated, the potential impacts to water quality under the Proposed Project are analyzed using the synthesis of the historical (i.e., 2012 or earlier) and more recent (i.e., 2013 to 2017) water quality data, modeling using historical data (e.g., Klamath River TMDL [total maximum daily loads] model of pH), modeling using historical data supplemented with additional analysis based on current conditions (e.g., variations in modeled suspended sediment concentrations [SSCs] during drawdown due to modifications in drawdown rates), and/or new modeling (e.g., short-term dissolved oxygen decreases in the Klamath River during reservoir drawdown assuming an initial dissolved oxygen saturation at Iron Gate Dam of zero).

In the EIR water quality data summary and analysis (Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants*, Volume III Attachment 1 Appendix C, Section C.7 *Inorganic and Organic Contaminants*, and Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants*), existing inorganic and organic contaminant data in the Lower Klamath Project reservoirs and Klamath River monitoring sites were compared with more recent available screening levels; there are no readily available inorganic or organic sediment contaminant data from the reservoirs after 2010 or for Klamath River monitoring sites after 2013. However, concentrations of inorganic and organic contaminants in the reservoirs or the Klamath River are not expected to vary significantly after 2010 or 2013 respectively. The State Water Board is unaware of any new sources of inorganic or organic contaminants due to climate or local land-use alterations that would alter the concentration of contaminants accumulated in Lower Klamath Project reservoir sediments since 2010. Additionally, the sediment that will have accumulated in the reservoirs between 2010 and the projected year of dam removal (2021) ranges from approximately 11 to 21 percent of the total sediment volume, so potential deposition of contaminants between 2010 and dam removal would have a limited influence on the overall contaminant concentration that would occur during and after dam removal. Concentrations of contaminants in aquatic biota are related to concentrations of contaminants in the water column and sediment, so no substantial change in the water column or sediment contaminant concentrations would be expected to result in a substantial change in aquatic biota contaminant concentrations. Lastly, the comments expressing concern regarding the time period for the sediment contaminant data reported in the EIR do not provide substantial evidence regarding the potential for any new data of this type. Overall, the inorganic and organic contaminant data summarized in Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* and Volume III Attachment 1 Appendix C, Section C.7 *Inorganic and Organic Contaminants* are representative of existing conditions and the analysis of this data in Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* sufficiently characterizes the potential impacts under the Proposed Project and the alternatives.

WQ-5 Inclusion of Klamath River TMDL Model in the EIR Analysis

Commenters express several concerns related to the use of the Klamath River TMDL models in the EIR analysis. Some commenters assert that the model assumption that all waters entering the state of California are fully compliant with applicable Total Maximum Daily Loads (TMDLs) results in an overestimate of the effects of dam removal on TMDL target constituents since it is not likely that TMDLs would be met at the Oregon-California state line when the dams would be removed. Several commenters also assert that the Oregon and California TMDL modeling results are flawed; the EIR does not adequately summarize the disagreement about the TMDL modeling approach; the EIR does not provide substantial evidence supporting the use of the TMDL model results in the EIR analysis; and the Oregon TMDL was withdrawn.

The EIR addresses how and why certain models, including the applicable California and Oregon TMDL models, are considered in the analysis of the Proposed Project and the alternatives. Volume III Attachment 1 Section 3.2.4 *Water Quality – Impact Analysis Approach* explains that the EIR water quality impact analysis relies on multiple numeric models, including the California Klamath River TMDL model, because no single existing numeric model captures all of the water quality conditions anticipated for and encompassed by the Proposed Project (see also Volume II Appendix D, Section D.1).

Volume III Attachment 1 Section 3.2.4 *Water Quality – Impact Analysis Approach* states that the California Klamath River TMDL model stemmed from a significant five-year effort by the North Coast Regional Water Quality Control Board (North Coast Regional Board) in collaboration with PacifiCorp and working jointly with the U.S. Environmental Protection Agency (USEPA) Regions 9 and 10 and the Oregon Department of Environmental Quality. That work was subject to extensive peer review and public comment before adoption by the North Coast Regional Board. It was further reviewed and subject to additional public comment before being approved unanimously by the State Water Board. It was then subsequently reviewed and approved by USEPA in December 2010. This information is fully consistent with the definition of “substantial evidence” under CEQA Guidelines Section 15384.

The Oregon Klamath River TMDL model was developed by the Oregon Department of Environmental Quality in cooperation with the North Coast Regional Board, PacifiCorp, and USEPA Regions 9 and 10, and also underwent peer review and public comment prior to its adoption. Results from this model are not analyzed directly in the Lower Klamath Project EIR because the Klamath River reaches to which this TMDL applies are in Oregon. However, key concerns with respect to the Oregon TMDL model are included in the summary below because the output from this model sets the upstream boundary condition for the California Klamath River TMDL model at the Oregon-California state line. Consistent with CEQA Guidelines Section 15151, the following minor modification has been made to Section 3.2.4 *Water Quality – Impact Analysis Approach* to summarize the main points of disagreement among the experts regarding the Klamath TMDL models:

"Key concerns with respect to the California and Oregon TMDL models, which were raised during the respective public comment processes, include concerns regarding how the natural condition was determined, how model uncertainty was considered in the analysis, and need for additional years of data for calibration of the model. As discussed in North Coast Regional Board (2010) Appendix 10 *Public Comments & Responses*, the North Coast Regional Board found the uncertainty associated with the Klamath TMDL models to be minimal relative to the magnitude of the source load reductions needed to meet water quality standards in both Oregon and California and that any additional analysis would bring diminishing returns for determining implementation actions for the basin. The North Coast Regional Board indicated that if updates to the California model demonstrate that TMDL allocations and targets should be adjusted, the Regional Water Board staff would propose changes to the TMDL. To date, no such changes have been proposed. The North Coast Regional Board also provided extensive documentation describing the development of the modeled natural condition and indicated that the year chosen for developing the model and establishing the TMDL was selected because it included periods of critical low flow and poor water quality conditions, consistent with the margin of safety requirement and the goal of developing environmentally conservative allocations. While the Oregon portion of the model was calibrated using two model years, there were not sufficient data to evaluate the California portion of the model for the second year. The North Coast Board indicated that adding more model years to the model development process would not significantly change the model parameters, given the within-year variability in the Klamath River system (North Coast Regional Board 2010)."

The Oregon Klamath River water temperature and nutrient TMDLs were reissued in 2019. Oregon Department of Environmental Quality made minor modifications to the tributary inflow water temperatures for the natural conditions baseline model scenario, as well as minor modifications to point source water temperatures for the allocation scenario. Because the Oregon water temperature TMDL (ODEQ 2010) and the Oregon water temperature TMDL (ODEQ 2019) present modeling results using different averaging functions of water temperature, the exact range of differences between water temperature model outputs cannot be compared between the two versions of the model. However, general seasonal trends in water temperature with distance downstream in the Upper Klamath River are consistent with those analyzed in the EIR, and the EIR's conclusion that conditions under the Proposed Project would better align with the California Thermal Plan's prohibitions and move waters within the hydroelectric reach towards TMDL compliance (see discussion under Volume III Attachment 1 Potential Impact 3.2-1) would not be altered by revisions to the water temperature portion of the Oregon TMDL (ODEQ 2019). Oregon Department of Environmental Quality also reissued the Klamath River nutrient TMDL (ODEQ 2019), which updated the ammonia analysis, modified the requirements of water treatment facilities operated in the Upper Klamath Basin from an annual to a seasonal wasteload allocation, and specified allowable reductions in dissolved oxygen from the natural conditions baseline. These changes would have no effect on the analysis of potential impacts of the Proposed Project or alternatives on total nitrogen in the EIR. While these changes would increase total phosphorus concentrations in the spring at the Oregon-California state line, which could increase the potential for seasonal periphyton growth in the Hydroelectric Reach under the Proposed Project, as well as associated increases in daily maximum pH, this would not alter the EIR's conclusion that the potential for establishment and growth of periphyton or specifically nuisance periphyton within the Hydroelectric Reach from Copco No. 1 Reservoir to Iron Gate Dam would be significant and unavoidable in the long term (see discussion under Volume I Potential Impact 3.4-4).

Volume III Attachment 1 Section 3.2.4 *Water Quality – Impact Analysis Approach* also acknowledges limitations of the TMDL models in analyzing the impact of the Proposed Project, because of its assumption of full TMDL implementation for both the dams-in and dams-out scenarios. The EIR recognizes that the mechanisms for implementation and the timing required to achieve future TMDL compliance are speculative. Despite this assumption, the Klamath River TMDL model results are still a useful source of information with respect to the EIR analyses, particularly in light of the TMDL models' inclusion of a "natural condition". The EIR appropriately includes the TMDL models in the EIR analysis, along with a suite of other available facts and credible information.

Please refer to Volume III Attachment 1 Section 3.2.4 *Water Quality – Impact Analysis Approach* for a general discussion of how TMDL model results are considered in the analysis of potential water temperature impacts, potential nutrient impacts, potential dissolved oxygen impacts, and pH impacts due to implementation of the Proposed Project. The section also discloses that the TMDL output was not used for analysis of chlorophyll-*a*. The TMDL model does not provide output for, and is thus not utilized in the EIR analysis of, suspended sediments, algal toxins, or inorganic and organic contaminants.

In analyzing the potential impacts to various parameters, the EIR further contextualizes the use of the Klamath TMDL models in light of the assumption of full compliance and the other information available. For example, for water temperature, Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-1 describes how the Klamath TMDL models are useful for determining the dominance of Lower Klamath Project removal in achieving a water temperature response, in light of the comparatively negligible impact of other upstream temperature point sources. This is helpful context, despite the disclosure that the models' assumption of compliance does not reflect the existing condition. Similarly, for dissolved oxygen, Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-10, explains that the dissolved oxygen mechanism modeled for the Klamath River TMDLs would be the same even if model inputs for dissolved oxygen were changed from the TMDL compliance values to concentrations less than existing conditions (i.e., worse dissolved oxygen baseline); thus, the general trends indicated by the Klamath TMDL models output are still informative for conditions where full TMDL compliance has not occurred. The EIR provides similar context for nutrients and pH, and in all cases where the TMDL model output is used, the results are considered with respect to general trends only and they are used along with the results of other available numerical model output.

WQ-6 Potential Contaminants in Sediments

Several commenters have expressed general concern regarding the impact of contaminants in reservoir sediments, including concern that the release of reservoir sediments could cause contamination of the Klamath River. Some comments assert that sediment sampling to date has been inadequate because it has not extended deep enough into the sediments to be accurate. Comments express concern that release of sediments with certain contaminants, including poly-chlorinated biphenyls (PCBs), lead, mercury, and dichlorodiphenyltrichloroethane (DDT), would not comply with California laws. Other comments express concern that the human health risk assessment is not adequate.

Please refer to Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* for a general summary of the inorganic and organic contaminants measured in the Klamath River waters, the reservoir sediments, and aquatic biota. Please also refer to Volume III Attachment 1 Appendix C, Section C.7 *Inorganic and Organic Contaminants* for further details about the inorganic and organic contaminants measured in the Klamath River waters, the reservoir sediments, and aquatic biota. Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* includes the chemicals of potential concern detected in reservoir samples, sediment toxicity test results for benchmark benthic indicator species, and comparisons of detected chemical concentrations with USEPA and California Environmental Protection Agency (CalEPA) human health screening levels to assess human health risk as well as with National Oceanic and Atmospheric Administration (NOAA), U.S. Fish and Wildlife Service (USFWS), and Oregon Department of Environmental Quality (ODEQ) ecological screening levels to assess ecological health risk. As explained in Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants, Sediment Contaminants*, on-site geologists verified that sediment cores collected during

2009 and 2010 reached the reservoir-deposited/pre-reservoir sediment boundary to characterize the inorganic and organic contaminants throughout the entire depth of the existing reservoir sediments. Thus, the depth of the samples was sufficient.

Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 for the evaluation of the potential impacts of human exposure to inorganic and organic contaminants in reservoir sediments due to the release of these sediments during dam removal and exposure to these sediments during and following dam removal. Human exposure is assessed for both direct contact with reservoir sediments and subsistence eating of fish or shellfish exposed to inorganic and organic contaminants in reservoir sediments using USEPA and CalEPA screening levels that are conservatively protective of human health and available screening level values to assess whether contaminants would bioaccumulate to unhealthy levels for humans who eat them.

Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-14 for the evaluation of the potential impacts of freshwater and marine aquatic exposure to inorganic and organic contaminants in reservoir sediments due to the release of these sediments during dam removal and exposure to these sediments during and following dam removal.

WQ-7 Algal Toxicity

Several comments assert that algae in the Iron Gate and Copco No. 1 reservoirs and the Klamath River do not cause health problems. The comments base this statement on the commenters' personal experience swimming in the lake and river during the summer without resulting health problems or their understanding that people, dogs, cattle, and wildlife interact with water in the river and lakes during summer months without any associated deaths. Some comments express mistrust of state water quality postings explaining the potential harmful, deadly effects of algal toxins on human and animal health. Others note that blue-green algae is a natural health supplement.

While is it true that some types of blue-green algae (e.g., "spirulina" which includes the species *Arthrospira platensis* and *Arthrospira maxima*) are used as a dietary food supplement, it is also true that some blue-green algae species (including spirulina) produce algal toxins (also referred to as cyanotoxins). As stated in Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins*, while exposure to cyanotoxins can in extreme cases cause death to exposed organisms including humans, chronic exposure symptoms include a number of forms of physical irritation and sickness (e.g., visual disturbance, nausea, vomiting, muscle weakness) such that a lack of reported deaths associated with exposure to seasonal cyanotoxins in the

Klamath River and/or the Lower Klamath Project reservoirs does not represent substantial evidence demonstrating that there is no potential risk to public health due to the presence of cyanotoxins. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Volume III Attachment 1 Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a* for a summary of the potential health impacts of exposure to cyanotoxins citing credible studies by national, federal, and state agencies including the World Health Organization (WHO), the United States Environmental Protection Agency (USEPA), and the California Office of Environmental Health Hazard Assessment (OEHAA). These sections also present algal toxin concentrations measured in the Lower Klamath Project reservoirs and the Klamath River from 2005 to 2016. As noted in these sections, cyanotoxins (e.g., microcystin) are produced only periodically and by only specific species of blue-green algae [cyanobacteria] (e.g., *Microcystis aeruginosa*) found in the Lower Klamath Project reservoirs and the Klamath River. Other species of algae and blue-green algae present in the Lower Klamath Project reservoirs and the Klamath River may not produce cyanotoxins or may not produce them at high enough levels to cause health impacts for humans, dogs, cattle, and/or wildlife.

Please also refer to Volume I Section 3.4 *Phytoplankton and Periphyton* (pages 3-389 to 3-440) for a discussion of the phytoplankton and periphyton communities in the Klamath River, including diatoms, green algae, and blue-green algae [cyanobacteria]. As described in Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (page 3-392 to 3-403), algae like diatoms and green algae are generally considered to be beneficial to the ecosystem, but algal blooms primarily composed of the blue-green algae species *Aphanizomenon flos-aquae, Anabaena flos-aquae*, and *Microcystis aeruginosa* in the Lower Klamath Project reservoirs and the Klamath River are the cause of water quality or human health concerns since these blue-green algae species are associated with the release of cyanotoxins on a seasonal basis.

2.2.5 Aquatic Resources Master Responses

AQF-1 Removal of Lower Klamath Project Reservoirs and Lost River and Shortnose Sucker Populations

Several comments assert that removal of the Lower Klamath Project reservoirs will eliminate Lost River and shortnose sucker populations in those reservoirs, resulting in take of a fully protected species under California Fish and Game Code.

Please refer to Volume III Attachment 1 Section 3.3 *Aquatic Resources*, Potential Impact 3.3-13 for a summary of the anticipated effects of removing the Lower Klamath Project reservoirs on Lost River and shortnose sucker populations. The EIR notes that the reservoir habitat for these species would be removed and evaluates the effect of this loss on the populations. As described in Potential

Impact 3.3-13, the Lost River and shortnose suckers in Copco No. 1 and Iron Gate reservoirs are considered by the USFWS (2012) as “sink populations”, citing Moyle (2002) and NRC (2004). These sucker groups are not likely to be self-sustaining due to a lack of access to spawning habitat, which results in low recruitment (i.e., success of juveniles living to adulthood). Buettner et al. (2006) conclude that since little or no reproduction occurs downstream from Keno Dam, and there is no potential for interaction with upstream populations, these sucker groups are not considered to substantially contribute to the achievement of conservation goals or recovery for these two species. This finding is also consistent with the findings of Hamilton et al. (2011) and NRC (2004). In addition, and as described in Potential Impact 3.3-13, Assembly Bill Number 2640 (Wood 2018) added Section 2081.11 to the Fish and Game Code to allow the take of both sucker species resulting from impacts attributable to the decommissioning and removal of the Lower Klamath Project and associated facilities, consistent with CDFW take provisions. Finally, Potential Impact 3.3-13 describes that the Proposed Project includes measures to conduct genetic testing of the sucker populations prior to dam removal, and to relocate individual suckers.

AQF-2 Fate of Hatchery Operations

Several comments express the concern that under the Proposed Project, and alternatives that involve removal of Iron Gate Dam, the term of hatchery operations should extend until successful recolonization of both Chinook and coho has occurred and not be limited to eight years of operations. Additionally, comments asserted hatchery production goals as listed in the Proposed Project should be increased. Conversely, other comments express the opinion that hatchery production should be eliminated, or that the No Hatchery Alternative be selected as the preferred alternative.

As discussed in Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries*, Iron Gate Hatchery was built to mitigate for the loss of spawning and rearing habitat resulting from the construction of Iron Gate Dam. Under the Proposed Project and alternatives that would remove Iron Gate Dam (i.e., Partial Removal, Two Dam Removal, Three Dam Removal, and No Hatchery alternatives), the Iron Gate Hatchery facilities located at the base of Iron Gate Dam, including the adult fish ladder and holding tanks at the toe of the dam, would be removed. Similarly, removal of Iron Gate Reservoir would eliminate the cold-water supply and aerator for the hatchery. With the exception of the No Hatchery Alternative, under alternatives that remove Iron Gate Dam, portions of Iron Gate Hatchery located downstream near the confluence of Klamath River and Bogus Creek would remain in place or would be altered, including conversion of two of the existing raceways to adult holding tanks, and construction of a new spawning facility, so that more limited operations could continue at the facility for eight years following dam removal (please also refer to

Volume I Section 2.7.6.1 *Proposed Project – Hatchery Operations – Iron Gate Hatchery* [pages 2-77 to 2-80]).

The EIR does not evaluate an alternative or mitigation measure of extended (beyond eight years) hatchery operations for two primary reasons. First, such an alternative or mitigation measure would not reduce an identified significant impact to fisheries associated with implementation of the Proposed Project. The EIR's analysis indicates that the Proposed Project is likely to result in long-term benefits to fish populations. (See Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*). Secondly, there is currently no feasible plan for extended operations, as contemplated under CEQA Guidelines, sections 15126.4 and 15126.6. No funding source for the considerable cost of hatchery operations after eight years has been identified. The hatchery operator and owners have not proposed to continue operations themselves or to pass on operations to a different entity with the capacity to operate the hatcheries. Additionally, long-term operation of the hatchery or hatcheries outside of the larger restoration project of dam removal would potentially require additional water treatment actions and facilities modifications for which there is no identified plan or funding source. In light of the lack of identified funding or plan for continuation of facilities operation after eight years, the EIR assumes a cessation of operations: however, it is worth noting that neither the EIR nor the water quality certification requires elimination of hatchery operations. Should the population improvements anticipated in the EIR prove to be incorrect, or should hatchery operation be called for as an appropriate response to address circumstances unrelated to the Proposed Project, CDFW or another entity or group of entities could seek to overcome the above-described technical and financial barriers to continue hatchery operations beyond the eight years proposed by the Project. Such a decision would not be barred by either the current EIR or the water quality certification but would be subject to additional environmental review.

Similar to comment recommendations to evaluate hatcheries' operations beyond eight years, the recommendation to increase production goals beyond those identified in Volume I Section 2 *Proposed Project* Table 2.7-13 (page 2-80) would not reduce an identified significant impact of the Proposed Project. Additionally, water supply analysis suggests that there would be water supply limitations at Iron Gate Hatchery that would prohibit increased production over the goals proposed. KRRC (2017) conducted an analysis of water supply needs and associated production at the Iron Gate Hatchery during and following dam decommissioning under the Proposed Project and identified and evaluated four potential options to supply water to the hatchery in its current location. KRRC concluded that a direct Klamath River water diversion was not feasible due to suspended sediment concentrations and summer water temperatures. Further, KRRC found that groundwater sources are limited to a supply of approximately five or ten cfs to the hatchery, and that even such amounts would require additional evaluation. Additionally, the investigation did not indicate that supplies from Fall Creek and Bogus Creek would be sufficient to meet higher production goals. For additional discussion of the limits of water supply from Bogus Creek, please also see Vol. III, *Potential Impact 3.3-23 Effects on anadromous salmonid populations due to short-term and long-term Bogus Creek flow diversions for the Iron Gate Hatchery*. Please note that the diversion from Fall Creek analyzed in KRRC 2017 for use at Iron Gate Hatchery is now proposed for hatchery use at Fall Creek Hatchery (FCH).

With regard to increased production, nothing in the EIR or Section 401 water quality certification prohibits a reevaluation of production numbers at a later date in the future, should additional water sources or new information become available. Such a change would be subject to additional environmental review.

In response to comments expressing the view that hatchery production should be eliminated, or that the No Hatchery Alternative should be selected as the preferred alternative, please note that Volume I Section 4.7 *No Hatchery Alternative* (pages 4-301 to 4-323) analyzes the No Hatchery Alternative, and finds no significant impacts on aquatic resources due to the elimination of hatchery production.

This alternative would also eliminate potentially significant short-term water quality impacts related to hatchery operation on Fall Creek (Potential Impact 3.2-17). As described in Potential Impact 3.2-17, the temporary exceedances of the water quality standards for temperature at Fall Creek Hatchery are expected to be small (-0.5 – 2.2° F) and to occur intermittently, rather than constantly. Any temporary exceedances of the dissolved oxygen standards resulting from Fall Creek Hatchery are expected to be infrequent under the Proposed Project.

Though the EIR finds no significant impact to aquatic resources due to the elimination of hatchery production, the elimination of hatchery produced fall-run Chinook salmon and coho salmon under this alternative would likely result in a reduction in adult returns in post-dam removal years for an indeterminate period of potentially one to five years (i.e., short-term), before the benefits of dam removal are realized. The potential for the reduction in fish available for tribal harvest results in a potentially significant short-term impact on the Klamath Riverscape as a tribal cultural resource (Potential Impact 3.12-9). The lack of access to fish has profound effects for many tribal people in the Klamath Basin (see e.g., Sowerwine et al. 2019, Mozingo 2017).

In contrast, under the Proposed Project, returns to the newly accessible habitat and hatchery returns would occur in the short-term. Please note that the EIR differentiates between an increase in abundance of naturally produced fall-run Chinook salmon, and an increase in total adult returns (which could include adults produced from either hatchery or natural production). The elimination of hatchery produced fall-run Chinook salmon and coho salmon under the No Hatchery Alternative is predicted to result in a faster increase in *naturally* produced salmon, mostly because there would be no competition or other impacts from hatchery produced fish. However, under the Proposed Project, both hatchery returns and natural returns from newly accessible habitat would occur in the short-term. Thus, the *total* adult returns from naturally produced and hatchery released production are anticipated to be greater in the short-term than natural production alone. The combined production under the Proposed Project is anticipated to increase the rate of reintroduction of fall-run Chinook salmon and coho salmon into newly accessible habitat, with the hatchery-origin strays into the new habitat becoming part of the new natural fish population. This increase in population as well as the hatchery production itself are anticipated to provide increased resiliency to unforeseen environmental disturbance or other threats to the populations (NMFS 2017b), and more rapid realization of the other benefits of increased habitat access to these populations. Further, it is worth noting that the coho salmon hatchery is managed under a Hatchery Genetic Management Plan HGMP to address any potential negative genetic impacts of hatchery operations and has been deemed necessary to protect the remaining genetic resources of the Upper Klamath River Population unit (PacifiCorp and CDFW 2014). NMFS (2016) reported that, "The implementation of the HGMP is a positive step toward meeting viability targets for the Upper Klamath population unit, the diversity stratum, and the ESU." Both naturally produced and naturalized hatchery strays will increase the natural population available to recolonize newly accessible habitat following dam removal.

One of the environmental objectives of the proposed Project is to *timely* "advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation."

Thus, on balance, the Proposed Project is the environmentally superior alternative.

Please note that the EIR's evaluation of the proposed production goals and operations as well as a No Hatchery Alternative brackets a range of production goals and operations that can be relied upon in developing an initial Hatchery Operations Plan, or as part of future adaptive management decisions in light of the expected repopulation of new habitat or other factors influencing salmon in the Klamath Basin.

AQF-3 Chinook Salmon Abundance for Harvest

Several comments express concern that a reduction in hatchery operations for fall-run Chinook salmon under the Proposed Project could reduce harvest for salmonids, including for commercial, recreational, and tribal harvests. Some comments question the EIR's analysis of the combined long-term effect of reintroduction and reduced hatchery production, and its potential effects on harvest, while others express support for the analysis.

Please refer to Volume III Attachment 1 Section 3.3 *Aquatic Resources – Potential Impacts and Mitigation* Potential Impact 3.3-7 for analysis of predicted escapement of fall-run Chinook salmon following reduced hatchery production under the Proposed Project, and Potential Impact 3.12-9 for additional discussion of the effect of anticipated changes in fall-run Chinook salmon abundance (including reduced hatchery production) on tribal fisheries. These sections include revised averages of the predicted impact on fall-run Chinook returns that take the differences in smolt and yearling production goals into account. The revised analysis indicates that the average reduction in adult returns will be 3,552, rather than 7,120 as estimated in the draft EIR. The revised analysis does not change significance determinations. Volume I Section 5.4.1.1 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Commercial Fishing* (pages 5-5 to 5-7) and Volume I Section 5.4.1.2 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Ocean Sport Fishing* (page 5-7) provides a discussion of the potential economic effects of the Proposed Project for commercial and ocean sport fishing.

As described in Volume 1 Section 2.1 *Proposed Project – Project Objectives* (page 2-1), one of the primary objectives of the Proposed Project is to advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation. Overall, the EIR finds that implementing the Proposed Project would further that objective. Dam removal would improve and expand spawning and rearing habitat for salmon on the Klamath River, improve water quality, reduce the incidence of disease, and restore more natural variation in the flow regime in the areas currently affected by Lower Klamath Project, all of which would benefit salmon populations over the long term.

As described in Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* and Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, the EIR acknowledges that fewer hatchery adults are likely to return starting in post-dam-removal-year three, and that there is uncertainty as to the rate at which these stocks would be replaced through increases in wild-spawned salmonids and expected improved survival of both hatchery and wild fish in light of the Proposed Project. The EIR ultimately finds that dam removal would benefit the fish population in the long term, and would not significantly reduce fish populations – including fish available for harvest – in the short term (Potential Impact 3.3-7, Potential Impact 3.12-9).

Overall, multiple lines of evidence discussed in the EIR (both quantitative and qualitative), including consideration for the uncertainty in predicting adult abundance following the Proposed Project (which is discussed in Master Response AQF-8), support a prediction of increased fall-run Chinook salmon abundance available for commercial, recreational, and traditional cultural uses of salmon.

The multiple lines of evidence evaluated in the EIR include the following:

- limited duration of expected suspended sediment effects from dam removal;
- expected improved survival for both wild and hatchery-spawned juvenile salmonids after dam removal, based on improved water quality conditions and reduced disease;
- continued hatchery operations for eight years post-dam-removal;
- quantitative fish population modeling output from multiple studies;
- multiple overview studies, including Expert Panel consideration, indicating that dam removal is likely to result in increased anadromous fish abundance;
- availability of additional high-quality spawning and rearing habitat; and
- available observations in other watersheds of rates of recolonization after dam removal projects and other major habitat accessibility events.

Please note that potential effects from implementing a project that are solely social or economic in nature – such as reduced income from fisheries harvests – are not environmental impacts that must be analyzed under CEQA (please also refer to Volume I Section 5.4 *Social and Economic Factors Under CEQA* [pages 5-3 to 5-12]). Economic and related social effects form the core of some commenters concerns. Because these issues are a profound concern for affected communities, this response summarizes the results of an analysis conducted by the United States Bureau of Reclamation (USBR) for development of the 2012 KHSA EIS/EIR. In summary, USBR found that commercial fishing landings would increase in the long-term following dam removal because salmon would have access to more habitat upstream of Iron Gate Dam, which would increase salmon abundance that would also be likely to increase fishing revenues. Increased salmon populations would also attract more ocean recreational fishing, which would be likely to increase spending in the regional economy (USBR 2012c). Dam removal would increase fish harvest for subsistence, cultural practices, and commercial uses, and it would be likely to provide economically beneficial opportunities for Native American Tribes residing on the Klamath River, as described in Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* Potential Impact 3.12-9. These conditions are also likely to result in increased opportunities and revenue for recreational fishing guides.

AQF-4 Historical Abundance of Salmonids

Several comments assert that historical salmonid abundance was low in the Klamath River, or that historical abundance of salmonids upstream of Iron Gate Dam was low, or that no anadromous fish occurred upstream of the current location of Iron Gate Dam. Some comments make assertions about particular species of salmonids. Other comments assert that strong salmon runs were found upstream of the current Hydroelectric Reach. These comments do not address the EIR's analysis of the Proposed Project's and project alternatives' respective potential impacts on salmonid abundance as compared to baseline conditions.

The EIR was developed to analyze environmental impacts from the KRRC's Proposed Project as well as alternatives to the KRRC's Proposed Project and does not include a comprehensive history detailing the physical extent of each anadromous fish species in the Klamath Watershed. Available data on historical abundance of salmon in the Klamath River watershed prior to Lower Klamath Project construction is summarized in the Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species*, specifically Table 3.3-2.

AQF-5 Disease Risk Upstream of Iron Gate Dam

Several comments assert that disease risk will increase upstream of Iron Gate Dam under the Proposed Project, and that the EIR does not provide an accurate prediction of disease risk or use best available information for the analysis.

Factors that Influence Development of a Nidus

As described in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, the current infectious nidus (reach with high infectivity) for *C. shasta* and *P. minibicornis* is located in the Klamath River downstream of Iron Gate Dam, where returning adult spawners congregate. As summarized in this section, the current infectious zone and high parasite loads below Iron Gate Dam are the result of a synergistic effect of numerous factors that occur downstream of Iron Gate Dam, and result in a observed high incidence of disease in the Klamath River from the confluence with the Shasta River downstream to Seiad Valley (FERC 2007, Hamilton et al. 2011, Bartholomew and Foott 2010). These factors include: (1) close proximity of myxospore-shedding carcasses (high concentration of carcasses); (2) abundant polychaete populations that are found in atypically stable habitats; (3) disease-suitable water temperatures (greater than 59°F) during periods when juvenile salmonids are present; and (4) low flow variability (Bartholomew and Foott 2010). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Bartholomew and Foott (2010) report that it is uncertain what threshold density of salmon carcasses is required to maintain infection in polychaetes, and suggest that when returning adult salmon migrate past Iron Gate Dam into upriver tributaries to spawn there may be a reduction in myxospore availability in the current nidus downstream of Iron Gate Dam. PacifiCorp cites Foott et al. (2016) to claim that the concentration of carcasses does not influence the formation of a nidus, pointing to the Foott et al. (2016) finding that relatively few, very highly infected, adult Chinook carcasses are capable of fully seeding polychaete populations in the river reaches. However, Foott et al (2016) experimentally tested the effect of removing carcasses from the river after spawning on future disease transmission – their work did not examine the effect of reduced congregations of spawners on the formation of a nidus. Foott et al. (2016) recommended that mitigation measures should focus on the reduction of polychaetes or increased flows rather than the labor-intensive effort of removing carcasses. The study did not conclude that spawning congregations do not contribute to the formation of a nidus.

Consistent with Foott el al (2016) recommendations, removal of the Lower Klamath Project dams under the Proposed Project would disrupt polychaete microhabitat conditions. Dam removal is expected to reduce polychaete populations (Stocking and Bartholomew 2007, Bartholomew and Foott 2010) and presumably reduce infection rates within polychaete populations both in the short and long term (Hetrick et al. 2009).

Additionally, implementation of the 2019 BiOp flows (see Master Response HYD-1), coupled with implementation of the Proposed Project, would increase flushing flows above the 2016 existing conditions baseline, which relied on the 2013 biological opinion flows that did not include a flushing flow requirement. These flushing flows would be managed with the intent of mobilizing bedload sediments to disrupt the periphyton intermediate host of the polychaete.

PacifiCorp also cites the summaries of Som and Hetrick (2016) and the results from 2016 monitoring reported by Bartholomew et al. (2017) to note that highest prevalence of mortality from disease has shifted over the years from Beaver Creek (RM 163.4) downstream to Seiad Valley (RM 132.7). PacifiCorp contends that this suggests that congregations of spawners do not contribute to the formation of a nidus. However, in contrast to PacifiCorp’s contention, Bartholomew and Foott (2010) state that the spatial overlap of both carcasses resulting from large spawning congregations and polychaetes is a key factor in predicting where parasite abundance would increase. Furthermore, the formation of a nidus between the Shasta River and Indian Creek could be explained by a high concentration of spawning adult salmon within the same river reach, since a high concentration of spawning adult salmon creates carcasses that provides myxospores the ability to infect the dense polychaete populations in the reach downstream of Iron Gate Dam.

In addition, Som and Hetrick (2016), summarized results examining a range of potential variables for myxospore concentration. Som and Hetrick (2016) cited “a decade of monitoring” and the work of Foott et al. (2016), to conclude that Iron Gate Hatchery and Iron Gate Dam influence the current concentration of adult carcasses upstream of the Shasta River confluence. Som and Hetrick (2016) explain that the high concentration of adult salmon that return to the Iron Gate Hatchery area congregate below the dam due to homing and the elimination of upstream migration due to Iron Gate Dam. Congregation of adult salmon below

Iron Gate Dam contributes the bulk of myxospores due to adult spawners' close proximity to each other, a concentration of fish carcasses, and the stable river substrate that provides polychaete habitat allowing myxospores to continue the parasites life cycle within the nidus.

Bartholomew et al. (2017) reported lower infection at all monitoring sites in 2016, particularly from Beaver Creek and other upstream locations, which they attribute to the effectiveness of high flows that occurred in March 2016 and resulted in decreased polychaete densities at the upstream sites. Bartholomew et al. (2017) suggest that polychaetes displaced from reaches downstream of Iron Gate Dam during the high magnitude, short duration flood in March 2016, settled out further downstream resulting in the relatively high polychaete densities detected at the Orleans site. Bartholomew el al. did not conclude that congregations of adult Chinook salmon are not contributors to the formation of a nidus, as suggested by PacifiCorp.

In summary, none of the sources cited in the comments indicate that the EIR erred in identifying and analyzing multiple factors relating to the formation of reaches of high disease transmission, including crowding and its relation to migration barriers.

Risk of Nidus Forming Upstream of Iron Gate Dam

As discussed in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, it is unlikely that a new infectious nidus would be created upstream following implementation of the Proposed Project. The likelihood of the synergistic factors described above in *Factors that Influence Development of a Nidus* (AQF-5) developing upstream of Iron Gate Dam would be reduced (Hamilton et al. 2011). Close proximity of myxospore-shedding carcasses would be reduced because salmonid carcasses would be more likely to be dispersed over a greater area in the watershed upstream of Iron Gate Dam as well as downstream of Iron Gate Dam, than currently occurring under existing conditions (Foott et al. 2012, Som and Hetrick (2016), suitable water temperatures (greater than 59°F) would be reduced, and flow variability would be increased.

The Federal Energy Regulatory Commission (FERC) has determined that restoring access to reaches upstream of Iron Gate Dam for anadromous fish would allow adult fall-run Chinook salmon to distribute over a greater length of the river, reducing crowding and the concentration of disease pathogens that currently occur in the reach between Iron Gate Dam and the Shasta River (FERC 2007). Under the Proposed Project, the hatchery would reduce production numbers, and then ultimately cease operations, reducing the number of adult spawners returning to the site of the current nidus by post-dam removal year 3, and then further by post-dam removal year 11 (Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries*).

At this time, Iron Gate Dam is both the limit of anadromy, and the site of the fish hatchery.

Nidus Risk Downstream of Keno Impoundment/Lake Ewuana

As discussed in Volume III Attachment 1 Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Quality*, the Keno Impoundment/Lake Ewuana has the potential to be a habitat barrier during most years for fall-run Chinook during July through October due to poor water quality. In light of this, NMFS and USFWS had prescribed fish passage measures for the Keno Impoundment/Lake Ewuana to be implemented during periods of poor water quality as part of the previous relicensing efforts for the then PacifiCorp owned Klamath Hydroelectric Project (DOI 2007). Currently, fish passage around the Keno Impoundment/Lake Ewana at times of poor water quality is not proposed under the Proposed Project. Comments have suggested that if fish passage were not provided around the Keno reach, fall-run Chinook salmon could congregate downstream of Keno Impoundment/Lake Ewuana thereby creating the crowding conditions related to increased fish disease transmission. However, as discussed in the Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, if fish passage were not provided at Keno Impoundment/Lake Ewuana, likely fewer fall-run Chinook salmon would migrate past this location, and therefore fewer smolts would return from reaches above Keno. This means that fewer returning adults would have a natal cue to migrate past this location, and so congregations of adult fall-run Chinook salmon would be less likely to gather downstream of Keno Dam. In contrast, downstream of Iron Gate Dam, thousands of adults return to the hatchery, and congregations annually occur during the fall.

Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to provide additional information regarding the potential for a fish disease nidus to form upstream of Iron Gate Dam (including at Keno Impoundment/Lake Ewuana) under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions.

Nidus Risk Within the Sprague River

Regarding the potential for a disease nidus upstream of Keno Dam, it appears that historically, spawning concentrations of Chinook salmon in the Upper Klamath Basin were located primarily in the Sprague River (Lane and Lane Associates 1981). However, there is no information indicating that high densities of polychaetes historically occurred in the Sprague River (Foott et al. 2012), there are not fish passage obstacles or other factors leading to large congregations of adults, and water temperatures are low (< 59ºF). Thus, the synergistic factors that currently contribute to an infectious nidus for emigrants below Iron Gate Dam and near the Iron Gate Hatchery are unlikely to occur just downstream of Keno Impoundment/Lake Ewuana under the Proposed Project or farther upstream.

Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to provide additional information regarding the potential for a fish disease nidus to form in the Sprague River under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions.

Periphyton Growth and Polychaete Habitat

Comments also assert that under the Proposed Project increased periphyton[4] growth downstream of Keno Dam in the Hydroelectric Reach would increase habitat for the polychaete intermediate host of *C. shasta* and *P. minibicornis* and citing Bartholomew et al. (2017) as evidence of high polychaete density in that reach. Other comments note that the J.C. Boyle Bypass Reach also has a high density of periphyton. Some comments assert that the Draft EIR does not consider increased habitat for polychaetes as a potential for increased disease risk upstream of Iron Gate Dam.

Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* considers factors under the Proposed Project anticipated to result in a potential for increased periphyton growth, as well as factors anticipated to result in a reduction in periphyton growth. The EIR acknowledges that some of the Proposed Project's anticipated effects (such as the elimination of lotic reservoir habitat) would tend to support increased periphyton growth in the Hydroelectric reach. Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* also discloses that other anticipated effects of the Proposed Project would reduce periphyton growth from existing conditions by removing adverse environmental effects of continued operations of the Lower Klamath Project and restoring more natural conditions such as bedload transport processes and natural temperature regimes. Overall, the EIR finds that under the Proposed Project additional periphytic growth including *Cladophora* is anticipated within the Hydroelectric Reach, which would continue to provide habitat for the intermediate host of *C. shasta* and *P. minibicornis*. This anticipated increase in the intermediate host in the Hydroelectric Reach is one of the considerations the EIR evaluates in discussing the risk of formation of a new nidus upstream of Iron Gate Dam. As noted above, this is one factor in a multi-factor causation that can contribute to nidus formation and as implementation of the Proposed Project removes several other factors needed for formation of a nidus, it is not anticipated that an increase in periphyton in the Hydroelectric Reach would result in the formation of a nidus upstream of Iron Gate Dam.

[4] Periphyton is a complex mixture of algae, cyanobacteria, heterotrophic microbes, and detritus that is attached to submerged surfaces in most aquatic ecosystems.

Flushing Flows

As described in Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, 2017 court-ordered flushing flows were required downstream of Iron Gate Dam between February 2017 and March 2019, with the intent of reducing disease in the Lower Klamath River by mobilizing bedload sediments to disrupt the polychaete intermediate host that lives within periphyton mats. As described in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, under the Proposed Project, if a nidus were to form within newly accessible upstream habitat (as discussed above), flushing and emergency dilution flow releases as required by the 2017 court order may be required from a new upstream location to achieve the same ecological benefits (i.e., disruption of nidus).

After the issuance of the Lower Klamath Project Draft EIR on December 27, 2018, the applicable biological opinion and the operational flow requirements for the Klamath River changed again in March 2019, when the new biological opinions were issued by NMFS (2019) and USFWS (2019a), which continue the requirements for surface flushing flows. The 2019 BiOp Flows are now the current operational flow requirement for the Klamath River.

Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to clarify how the 2019 BiOp Flows would likely affect the potential for a new infectious nidus to form downstream of Keno Dam. The addition of 2019 BiOp flows do not change the significance determinations of the EIR. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for revisions regarding BiOp flow requirements.

Migration Distance and Actinospore Exposure Duration

Comments also assert that juvenile salmon spawned and reared upstream of Iron Gate Dam would be exposed to actinospores for a longer period of time than salmon spawned and reared downstream, since the migration distance to the Klamath River Estuary is greater. Actinospores are a life history stage of the parasite released by the polychaete host – these actinospores can then infect salmonids. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* discusses the available scientific data on actinospore exposure of juvenile salmonids and resulting disease risk.

Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to discuss actinospore exposure upstream of Iron Gate Dam. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions.

While migration distance and time for salmonids accessing historical habitat upstream of Iron Gate Dam would be greater than under the current conditions, environmental conditions resulting in disease infection are a result of several variables in addition to migration distance, as discussed in more detail in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites,* and in *Factors that Influence Development of a Nidus* (AQF-5) above.

AQF-6 Disease Risk Downstream of Iron Gate Dam

Several comments assert that disease risk will not improve downstream of Iron Gate Dam under the Proposed Project, while other comments express support for the EIR's conclusion that the Proposed Project is likely to reduce disease risk, and that the Proposed Project is urgently needed to improve survival of salmonids produced in the Klamath River Basin. Some comments point to declines in disease rates in 2017 and 2018, and/or to recent information on the number of infected carcasses necessary to seed a stream reach, to suggest that the Proposed Project will not reduce disease risk downstream of Iron Gate Dam.

As discussed in detail in Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Diseases and Parasites* and Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, fish diseases that may affect fish in the Klamath Basin include the external protozoan parasite *Ichthyophthirius multifis* ("Ich") and the bacterial pathogen *Flavobacterium columnare* ("columnaris disease"). There is increasing evidence to suggest that disease levels are adversely affecting freshwater production of Chinook and coho salmon in the Lower Klamath River, particularly during periods of high ocean productivity. Additional fish diseases periodically result in substantial mortality for Klamath River salmonids – including most prominently diseases resulting from infection by two parasites from a class of parasites called "myxozoa" *Ceratomyxa shasta (C. shasta)* and *Parvicapsula minibicornis (P. minibicornis)*. These parasites require two hosts – one salmonid, and the other a type of worm called a polycheate that lives in stable river sediments, and particularly prefers habitats created by attached algae that forms matts, like *Cladophora*. High infection rates have been documented in emigrating juvenile Chinook and coho salmon, primarily by one or both of these myxozoan parasites. Steelhead can become infected as well, though steelhead are generally resistant to *C. shasta*. Fish health studies have consistently documented high infection incidence in the Klamath River during the spring and summer. Infection by *C. shasta* has been identified as the most significant disease for juvenile salmon in the lower Klamath River and salmon that become are not likely to survive to adulthood. FERC (2007) concluded that dam removal would enhance water quality and reduce the cumulative water quality and habitat effects that contribute to disease-induced fish kills in the Klamath River downstream of Iron Gate Dam. In general, improvements to water quality, increased bedload mobility (i.e., scour of stable substrate), diversity of flows, water temperature regimes unaltered by reservoir storage, and reduced planktonic drift from reservoirs with dam removal would alleviate many of the conditions conducive to salmon disease downstream of Iron Gate Dam.

This master response summarizes the key factors that affect disease risk downstream of Iron Gate Dam, which are detailed in the EIR, including the location of the infectious nidus, trends in the prevalence of infection, polychaete population resilience to flow-mediated disturbance, and water temperature and disease risk downstream of Iron Gate Dam.

Location of Infectious Nidus

As described in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites, and AQF Master Response 5* the current infectious nidus (portion of the Klamath River with high infectivity) for *C. shasta* and *P. minibicornis* can vary among years, but is primarily located in the Klamath River downstream of Iron Gate Dam, often in the reach from the confluence of the Shasta River to Seiad, where returning adults spawners congregate. The current infectious nidus and high parasite loads downstream of Iron Gate Dam are the result of a synergistic effect of numerous factors, some of which result from the presence of Iron Gate Dam and operations of the Lower Klamath Project, including close proximity of myxospore-shedding carcasses (concentration of carcasses), abundant polychaete populations that are found in atypically stable habitats, suitable water temperatures (greater than 59°F) during periods when juvenile salmonids are present, and low flow variability (Bartholomew and Foott 2010).

Please also see further discussion in Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites*, which provides further explanation of the connection between the atypical stability of the river channel downstream from Iron Gate Dam since dam construction, and the corresponding favorable habitat for the polychaete worm host, which, in turn, likely increases the parasite load to which the fish are exposed.

Removing the Lower Klamath Project dams would improve flow variability, increase substrate mobility, reduce seasonally warm water temperatures in key juvenile outmigration periods, and reduce planktonic food sources for polychaetes, disrupting these factors that favor polychaetes and *C. shasta* and *P. minibicornis* infection (Hetrick et al. 2009). Dam removal would also remove a major barrier to fish migration and reduce the concentration of spawners and carcasses that presently occurs downstream from the dam and contributes to disease. Greater dispersal of salmon spawners (and thus their carcasses) would reduce their proximity to dense populations of polychaetes.

As described in Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites,* FERC's analysis

(FERC 2007) concluded that restoring access to reaches above Iron Gate Dam for anadromous fish would allow adult fall-run Chinook salmon to distribute over a greater length of the river, reducing crowding and the concentration of disease pathogens that currently occur in the reach between Iron Gate Dam and the Shasta River. The effect of carcass density on infection risk is discussed in additional detail in Master Response AQF-5. Additionally, FERC (2007) concluded that restoring natural sediment transport processes would likely contribute to the scour of periphyton downstream from the current location of Iron Gate Dam, and deposited gravel and sand would provide a less favorable substrate for periphyton because of its greater mobility during high flow events than the existing armored substrate. The reduction in periphyton would provide less habitat for the polychaete intermediate host of *C. shasta* and *P. minibicornis*, which is predicted to reduce the infection rate of juvenile salmonids downstream from Iron Gate Dam (FERC 2007).

Trends in Prevalence of Infection (POI)

Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* discusses available data on infection rates for fish disease and parasites in the Klamath River. The section has been revised to incorporate fish infection information from True et al. (2017) and Voss et al. (2018) as cited by commenters. Please see Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

However, contrary to some comments' assertions, existing data is insufficient to identify a declining trend in fish disease. Voss et. al. (2018), and True et. al. (2017) do not conclude that there has been a significant decline in infection rates or suggest that disease is no longer a substantial limitation to salmonid production in the Klamath River. The lower disease numbers after years of much higher disease rates are within the variability of the past decade, and do not warrant a shift in the EIR's approach to analyzing disease dynamics. Following surface flushing flows in 2019, POI in juvenile Chinook salmon captured in the Klamath River in the reach from Shasta to Scott River confluences ranged from 60 percent in late April to 80 percent in early May (USFWS 2019b).

Polychaete Population Resilience to Flow-Mediated Disturbance

Several comments cite Malakauskas et al. (2013) and Shea et al. (2016) to assert that polychaete populations likely exhibit high resilience to flow-mediated disturbance, and that the flows that may be necessary to induce scour and disrupt polychaete habitat are above flow thresholds that are expected to be achieved following implementation of the Proposed Project. As discussed in Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites*, the highest densities of polychaetes have been observed in areas with stable substrates (Bartholomew and Foott 2010). The mobilization of particles on the bed of the channel downstream from Iron Gate Dam depends directly upon the size of the substrate and magnitude of peak flows. The greater the flows, the larger the particles likely to be moved, and the smaller the particles, the lower the flows required for mobilization. As assessed by Shea et al. (2016), under existing conditions with dams in place, sediment supply is reduced, flow variability is decreased, and conditions supporting the persistence of polychaetes are more prevalent (Shea et al. 2016).

The study cited by comments (Malakauskas et al. 2013) does not provide support for the suggestion that the relatively high flows that may be needed to scour polychaete habitat under current conditions are above thresholds of flows that are expected to be achieved under the Proposed Project. Furthermore, restoring natural sediment supply under the Proposed Project would reduce the threshold flow required to achieve effective surface flushing flows in the reach immediately downstream of Iron Gate Dam. While the Proposed Project itself does not substantially affect flows, it would contribute to the frequency with which flows result in bed mobilization.

Malakauskas et al. (2013) performed flume experiments to evaluate flow requirements for dislodging polychaetes. Their results highlight the resilience to flow-mediated disturbance, but the authors do not conclude that disruption is ineffective. Rather, their findings indicate that substrate size has a great influence of resilience of polychates to disruption (smaller particles, greater susceptibility), and that when sheer velocities are sufficient, polychaetes are dislodged. The authors speculate that dislodged polychaetes have high survival in the short-term but are more susceptible to predation, and to settling in suboptimal habitat, thus decreasing their longer-term survival.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to include recent work by Malakauskas et al. (2013) as discussed above. Please see Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

Water Temperature and Disease Risk Downstream of Iron Gate Dam

PacifiCorp and other commenters have asserted that water temperature changes under the Proposed Project would increase disease risk downstream of Iron Gate Dam and claim that the DEIR does not appropriately examine the potential for increased spring temperatures to exacerbate *C. shasta* infection prevalence.

The EIR includes a broad discussion of the effects of water quality (including water temperatures) on disease risk based on available scientific data. As discussed in Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Diseases and Parasites*, the water quality conditions that may increase fish stress levels (thereby reducing fitness and increasing risk of disease infection) include: (1) increased water temperatures in the late summer and fall; (2) swings in DO, pH, and ammonia levels associated with algal blooms in Lower Klamath Project reservoirs; and (3) effects of exposure to elevated levels of the algal toxin microcystin produced during intense blooms of blue-green algae (cyanobacteria) in Copco No. 1 and Iron Gate reservoirs, which may also result in direct mortality. Of these water quality factors; water temperature is the most directly studied and also is likely to have the greatest direct effect on disease transmission: it was also the parameter raised specifically in the comments this master response addresses. Thus, this master response focuses on water temperature-related disease risk, with the overall improvements expected from other parameters as background context. Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* discusses increased risk of disease transmission with warmer water, and that dam removal would mean cooler temperatures in the late summer and fall, but slightly warmer temperatures during spring and early summer. Based on existing scientific assessments (e.g., FERC 2007, Bartholomew and Foott 2010), it appears that a reduction in temperature during late summer and fall would have the overall effect of reducing disease rates despite a slight increase in water temperatures during early spring.

Volume III Attachment 1 Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* considers the potential that the presence of the Lower Klamath Project dams reduces fish stress during the spring by delaying the increase in water temperature. However, Bartholow et al. (2005) suggests that earlier warming of the river system may trigger juvenile salmonids rearing within the mainstem Klamath River to outmigrate earlier, which would allow them to avoid prolonged exposure to disease factors that are in part caused by the Lower Klamath Project dams.

Similarly, FERC concluded that more rapid cooling of river temperatures in the fall may also allow fall-run Chinook salmon in the mainstem to spawn earlier in the fall than observed under existing conditions with the Lower Klamath Project dams in place. More rapid cooling of river temperatures in the fall would likely result in earlier emergence and growth (for mainstem spawners), and encourage earlier emigration (FERC 2007). This is consistent with findings that accumulated temperature units are more important predictors of migration of juvenile Chinook salmon than flow or photoperiod (duration of day receiving sunlight) (Sykes et al. 2009). A predicted earlier outmigration in response to elevated water temperatures in the spring is also supported by a vast body of literature relating to increased growth rates and thermal response of emigrating salmonids (Hoar 1988). Many emigrants would avoid the unsuitably warm water temperatures that currently occur in late spring to midsummer in most years. This post-emergence growth and outmigration dynamic is predicted for all salmonids migrating in the mainstem Klamath River, regardless of whether they originated within tributaries or the mainstem Klamath River. Under the dam removal scenarios analyzed in the EIR, these emigrants would thus minimize their exposure to disease.

AQF-7 Bedload Sediment and Aquatic Habitat

Several comments assert that under the Proposed Project deposition of bedload sediment in the river reaches downstream of Iron Gate Dam would be detrimental to aquatic resources.

Bedload sediment is sediment that moves along the riverbed. The EIR assesses the potential for dam removal to release coarse sediment stored behind the dams to the Middle and Lower Klamath River, where it could be deposited on the riverbed and adversely impact aquatic habitat in the Middle and Lower Klamath River. For a discussion of how the EIR analyzes the potential impacts of fine sediment related to dam removal, please refer to Master Response GEO-1.

As described in Volume III Attachment 1 Section 3.3.5.2 *Aquatic Resources – Potential Impacts and Mitigation – Bed Elevation and Grain Size Distribution*, Volume II Appendix F *An Analysis of Potential Bedload Sediment Effects on Anadromous Fish in the Klamath Basin*, Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-265 to 3-776), and USBR (2012a), the reservoirs created by the Lower Klamath Project dams have trapped most of the fine sediment (silt and clay sized material) and all of the coarse sediment (sands, gravels, and cobbles) from upstream sources since their construction.

Interception of coarse sediment by the dams has caused the bed material in both riffle and pool sections downstream from the dams to be less mobile than it would be under natural conditions, creating conditions that increase the risk of fish disease (please refer to Master Responses AQF-5 and AQF-6), and that reduce salmonid spawning gravel quality. The presence of the dams has reduced the bed mobility of gravels and cobbles in the Klamath River between Copco No. 1 Reservoir and Cottonwood Creek (USBR 2012a).

AQF-8 Uncertainty in Fall-run Chinook Salmon Production and Recolonization

Several comments assert that the EIR does not adequately address uncertainty associated with fall-run Chinook salmon production and recolonization under the Proposed Project.

Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for a discussion of the best available and most current scientific and factual data on the likely response of fall-run Chinook salmon to the Proposed Project. In this section, the EIR states that no particular fall-run Chinook population change in abundance associated with dam removal is certain. In light of the uncertainty, the EIR predicts the *likelihood* of *increased* fall-run Chinook abundance under the Proposed Project based on multiple lines of evidence, including:

- limited duration of expected suspended sediment effects from dam removal;
- expected improved survival for both wild and hatchery-spawned juvenile salmonids after dam removal, based on improved water quality conditions and reduced disease;
- continued hatchery operations for eight years post-dam-removal;
- quantitative fish population modeling output from multiple studies;
- multiple overview studies, including Expert Panel consideration, indicating that dam removal is likely to result in increased anadromous fish abundance;
- availability of additional high-quality spawning and rearing habitat; and
- available observations in other watersheds of rates of recolonization after dam removal projects and other major habitat accessibility events.

The EIR does not solely rely on any one particular source.

As discussed in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, quantitative modeling of fall-run Chinook salmon populations predicts that the Proposed Project would increase Chinook salmon abundance. Modeling of dam removal and existing conditions by Oosterhout (2005) suggests that dam removal would substantially increase Chinook fall-run spawners over a 50-year period relative to other management scenarios. Additional population capacity and modeling efforts support this conclusion (Huntington 2006, Dunsmoor and Huntington 2006, Hendrix 2011, Lindley and Davis 2011).

Of the available models, the Hendrix (2011) life-cycle model (Evaluation of Dam Removal and Restoration of Anadromy [EDRRA]) approach is considered the most intensive and robust model undertaken to date, because it explicitly addressed the Proposed Project, used stock-recruitment data from the Klamath River, explicitly incorporated variability in watershed and ocean conditions, and notably, presented variance estimates of uncertainty. In the development of this model, Hendrix analyzed a time series of spawner and recruitment data from 1979 to 2000 in the Lower Klamath Basin (STT 2005) and used the results of this analysis to forecast future productivity of Chinook salmon in the Lower Klamath River Basin. Therefore, results of the EDRRA model implicitly incorporate varying ocean and freshwater conditions encountered in the Klamath Basin and nearshore ocean environment that influenced survival Chinook salmon historically.

As described in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, results of the model indicate that there is a substantial uncertainty in

Chinook salmon stock recruitment dynamics, resulting in uncertain escapement and harvest abundance forecasts. Despite this uncertainty, modeling results indicate that the Proposed Project would result in higher abundances of Chinook salmon relative to the No Project Alternative. The median numbers of adult spawners that return to the Klamath Basin are predicted to be higher under the Proposed Project than under existing conditions. Harvest is also predicted to be greater under the Proposed Project, and the probability of low escapement leading to fishery closures is less under the Proposed Project as compared with existing conditions. Finally, model simulations predict that there is approximately a 75 percent probability that there would be higher escapement, and approximately a 70 percent probability of higher annual harvest, under the Proposed Project as compared with existing conditions.

In addition to quantitative modeling results (Hendrix 2011), FERC (2007), Hetrick et al. (2009), and Hamilton et al. (2011) synthesized available information and concluded that increased habitat access following dam removal would result in an increase in the abundance of Chinook salmon population in the Klamath River Watershed.

The Expert Panel Reports are an important part of the diverse and extensive scientific record for the Klamath Basin. The Expert Panel reports, while acknowledging that there is a degree of uncertainty in their findings and identifying several challenges to restoration of fishery resources in the Klamath Basin, conclude an increased probability of successfully restoring Chinook, coho, and steelhead runs with dam removal.

The U.S. Fish and Wildlife Service (USFWS) convened the Expert Panels to review, evaluate, synthesize, and provide scientific assessments regarding the likely trajectories of fish populations with and without implementation of dam removal and other restoration actions. The Expert Panels provided valuable independent reviews in addition to the various studies, reports, and scientific information considered in this EIR. Having the Expert Panel reports as a part of the robust analyses considered when preparing the EIR provides increased confidence in the EIR findings regarding fish and fisheries.

In addition to quantitative and qualitative predictions of fall-run Chinook salmon abundance, Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 summarizes observations of fall-run Chinook salmon recolonization following dam removal in other watersheds. Recolonization success and rate is a function of fish straying into newly available habitats (Pess 2009). Typical stray rates for Chinook salmon are around six percent (Hendry et al. 2004), and 95 percent of strays migrate less than 20 miles from their natal area (Quinn and Fresh 1984, Quinn et al. 1991). However, following major changes in environmental conditions (e.g., dam removal, high SSC), salmonid stray rates have been observed to increase. The time period of colonization (historical or new habitat) has been reported to occur within months to years, and most typically within one to two decades (Withler 1982, Bryant 1999, Burger et al 2000, Glen 2002, Pess et al. 2003, Milner et al. 2008, Kiffney et al. 2009). Recolonization was observed for fall-run Chinook salmon within months of removal of Condit Dam on the White Salmon River, Washington (Allen et al. 2016). Fall-run Chinook salmon were observed to recolonize habitat upstream of the former location of the Elwha Dam within the first year of dam removal, and within five years of dam removal a majority of returning adults were spawning in newly accessible habitat upstream of the former dam location (Weinheimer et al. 2018).

As explicitly described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, there is uncertainty in the response of fall-run Chinook salmon to the Proposed Project, as captured by the variance in predicted increases in abundance modeled by Hendrix (2011) and others. However, the preponderance of evidence considered by the Expert Panels and summarized in the EIR, and the observations of fall-run Chinook salmon recolonization following dam removal in other watersheds, support a prediction for increased fall-run Chinook salmon in the Klamath River under the Proposed Project.

AQF-9 Threshold for Impacts to Aquatic Species

Several commenters assert that the Draft EIR does not accurately assess the magnitude of impacts from the Proposed Project on coho salmon. They contend that substantial impacts are not accurately reflected in the threshold for a significant impact maintaining that the 50 percent reduction in the abundance of a year class is too high to use as a threshold, and that lesser impacts on coho salmon would still be substantial and should be considered a significant impact.

As discussed in Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria*, significance criteria thresholds used in the EIR are consistent with Appendix G of the CEQA Guidelines (California Code of Regulations title 14, section 15000 et seq.). Analysis of coho salmon and other focal species in the EIR considers any impact that substantially reduces the abundance of a year class to be a significant impact. As described in Section 3.3.2.1 Aquatic Species [coho salmon], Williams et al. (2006) described nine population units of coho salmon in the Klamath Basin to support recovery planning for the listed coho salmon SONCC ESU. Analysis of coho salmon in the EIR considers impacts and benefits for each of the nine population units in the Klamath Basin separately but makes a significance determination for all population units combined within the Klamath Basin to be consistent with the approach to assessing other aquatic species populations, and to be consistent with the NMFS 2014 Southern Oregon/Northern California Coast (SONCC) Recovery Plan, which assesses all of the coho salmon in the Klamath River Basin as part of the same ESU. The EIR engages in a multi-factored analysis – both numeric and qualitative – to evaluate the significance of potential impacts to the species populations. This includes consideration of factors such as species life history, spatial distribution, population trends and variability, behavior, disease susceptibility and trends, and hatchery production for the species.

There is not a requirement under CEQA guidelines to establish a quantitative threshold for "substantial." In the EIR a numeric threshold of 50 percent was included as a number above which an aquatic species impact would necessarily be substantial.

Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria* has been revised to clarify that a reduction of less than 50 percent could also potentially be substantial, depending on a multifactored analysis. Please see below and refer to Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria* for the revisions.

"In the short term, effects of the Proposed Project would be significant if they:

- Substantially reduce the abundance~~(greater than 50 percent reduction)~~ of a year class for aquatic species, based on a comprehensive analysis that includes numeric analysis where available, qualitative analysis, and other relevant information. Any reduction of 50 percent or greater of a year class is necessarily a substantial reduction."

"In the long term; five years after removal of all dams, effects of the Proposed Project would be significant if they:

- Substantially reduce the abundance ~~(greater than 50 percent reduction)~~ of an adult population or year class for aquatic species, in any one generation, based on a comprehensive analysis that includes numeric analysis where available, qualitative analysis, and other relevant information. Any reduction of 50 percent or greater of a year class is necessarily a substantial reduction."

AQF-10 Potential Impacts to Fish of Sediment Release Due to Dam Removal

Several comments express concern regarding the volume of sediment that would be released under the Proposed Project, and the potential impacts of this release on fish in the Klamath River.

As discussed in Volume III Attachment 1 Section 3.3.5.1 *Aquatic Resources – Potential Impacts and Mitigation – Suspended Sediment* and Section 3.3.5.2 *Aquatic Resources – Potential Impacts and Mitigation – Bed Elevation and Grain Size Distribution*, there would be the following two major impacts on fish due to release of the stored fine reservoir sediment deposits: 1) short-term (dam removal year 1, dam removal year 2, and post-dam removal year 1) increase in suspended sediment concentrations (SSCs) in the Klamath River; and 2) short-term increase in the fine sediment content of the Klamath River bed material primarily from directly below Iron Gate Dam to the Klamath River confluence with Cottonwood Creek, as well as backwater areas and eddies. The estimated concentrations of suspended sediment in the Middle and Lower Klamath River downstream from the Hydroelectric Reach due to dam removal are discussed in Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation –Suspended Sediment* Potential Impact 3.2-3. The elevated short-term SSCs resulting from dam removal are expected to be significantly above background levels downstream of the dams only for several weeks to months during and following reservoir drawdown.

There are three reasons why substantially elevated SSCs in the Klamath River are anticipated to be limited to this period. First, the majority of the erodible sediments are expected to erode during the reservoir drawdown period. Second, the KRRC is proposing a comprehensive revegetation plan for the reservoir footprint areas anticipated to stabilize the remaining sediment deposits with a goal of 90 percent ground cover within five years. Test plot evaluations conducted since publication of the Draft EIR indicate that this goal is achievable (KRRC 2019c). Finally, physical testing of reservoir sediments indicates that reservoir sediments become less erodible once dried (USBR 2012d). Drying of sediments is expected to occur within several months of sediment exposure depending on precipitation, at which point sediment resistance to erosion increases dramatically (see also Volume I Potential Impact 3.11-3).

Potential impacts on fish due to increases in SSCs in the Klamath River are expected to be greatest during the first year following dam removal, as detailed in Volume III Attachment 1 Section 3.3.5.1 *Aquatic Resources – Potential Impacts and Mitigation – Suspended Sediment* and Volume II Appendix E. Appendix E describes a modeling analysis of the potential impacts of suspended sediment on focal fish species under existing conditions, the Proposed Project, and the No Project Alternative. USBR used available data to characterize SSCs under existing conditions as information to model potential impacts. The type of model is an SRH-1D 2.4 sediment transport model. Using this model, USBR considered multiple drawdown scenarios for the Lower Klamath Project reservoirs (USBR 2012c). Application of the SRH-1D 2.4 to the analysis of SSCs during and following reservoir drawdown is considered “conservative,” because the model uses SSCs averaged laterally across the river channel (i.e., from river bank to river bank), whereas in actuality there are likely to be portions of the channel that exhibit lower concentrations of SSCs (e.g., along channel margins) that would potentially provide refuge for fish during periods of elevated SSCs. The approach therefore assumes a less-likely, greater-fishery-impact scenario, in light of the model limitations. Please see Master Response GEO-1 for further discussion of model selection including implications of applying a more precise two-dimensional model to assess the effects of dam removal on sediment transport and deposition downstream of Iron Gate Dam. Use of a more simplified model with conservative assumptions provides sufficient information regarding the potential extent of fisheries impacts.

Regarding the potential for impacts due to an increase in the amount of fine sediment present in the riverbed during and following dam removal, the likely physical impacts are described in Volume III Attachment 1 Section 3.3.5.2 *Aquatic Resources – Potential Impacts and Mitigation – Bed Elevation and Grain Size Distribution*. Volume II Appendix F addresses effects to fish as the result of anticipated bed material changes resulting from dam removal.

Overall, the EIR describes potential deleterious effects from fine and course sediment changes during the first year after dam removal, but the long-term benefits to fish would outweigh the short-term impairments from the Proposed Project.

For additional information regarding fine sediment erosion, transport, and deposition under the Proposed Project, please refer to Master Response GEO-1.

AQF-11 Coho Native Status in the Klamath River

Several comments have asserted that coho salmon are not native to the Klamath River, with some pointing to evidence that there have been stocking efforts in the past as an indication that the species did not occur prior to the stocking.

Coho salmon within the Klamath Basin are included within the Southern Oregon/Northern California Coast (SONCC) coho salmon ESU (NMFS 1997a); an inclusion that is predicated on coho salmon being native to the Klamath Basin. In addition, coho salmon in the Klamath Basin have been listed by the California Fish and Game Commission as threatened under the California Endangered Species Act (CESA) (CDFG 2002a), which is also predicated on coho salmon being native to the Klamath Basin.

Historical distributions of anadromous fish in the Klamath River are described in Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species*. Credible scientific information describes the native North American range of coho salmon as extending from Alaskan coastal waters to the central California coast (Evermann and Clark 1931, Shapovalov and Taft 1954, Fry 1973, Moyle 1976, Sandercock 1991). This description is widely accepted by fishery biologists and ichthyologists. Brown and Moyle (1991) found records of the historic occurrence of coho salmon in 52 streams from the Smith River near the Oregon border to the Big Sur River on the central Coast. The largest concentration of wild coho occurs in the Eel River watershed (Brown and Moyle 1991), located just south of the Klamath Basin. The National Research Council (NRC) (2004a; 2008) lists coho salmon as a native species which occurred throughout the Klamath River and its tributaries at least up to the Oregon border. Hamilton et al. (2005) reports coho salmon in the Klamath were historically distributed upstream at least to the vicinity of Spencer Creek.

The fact that the Klamath River and tributaries: (1) are contiguous with documented historical coho rivers and streams both north and south of the Klamath River; (2) contain no natural barriers that would prevent their migration into the upper reaches and tributaries such as the Scott and Shasta rivers; (3) have physical attributes that would have produced suitable coho habitat in the past (e.g., gradient, morphology, and, in some cases like the Shasta River, spring sources that provide perennial flow); and (4) still contain suitable coho salmon habitat, is additional evidence that native coho salmon inhabited the Klamath River and its tributaries prior to any stocking.

Additionally, please note that the CEQA requires the Lead Agency to respond to comments on significant environmental issues related to the Public Draft EIR (CEQA Guidelines section 15088(a)). Although CEQA does not compel any further response to this type of comment, the above master response is provided to demonstrate the State Water Board's acknowledgement that there is continued concern regarding this issue despite the lack of evidence to support it.

AQF-12 KHSA Expert Panel Reports

Several comments assert that the Expert Panel Reports developed for the Klamath Hydroelectric Settlement Agreement (KHSA) highlight uncertainty in the outcome of the Proposed Project and the uncertainty is not acknowledged in the Lower Klamath Project EIR analyses.

The original KHSA terms sought legislation to grant the U.S. Secretary of the Interior the authority to make a "Secretarial Determination" regarding whether removing the J.C. Boyle, Copco No. 2, Copco No. 1, and Iron Gate dam complexes was in the public interest and would advance salmon restoration. The Expert Panel Reports were developed for the Secretarial Determination process. These reports, while acknowledging that there is a degree of uncertainty in their findings and identifying several challenges to restoration of fishery resources in the Klamath Basin, conclude an increased probability of successfully restoring Chinook, coho, and steelhead runs with dam removal. The Expert Panel Reports is one of many reference materials used in development of the EIR.

The U.S. Fish and Wildlife Service (USFWS) convened the Expert Panels to review, evaluate, synthesize, and provide scientific assessments regarding the likely trajectories of fish populations with and without implementation of dam removal and other restoration actions. The Expert Panels provide valuable independent reviews in addition to the various studies, reports, and scientific information considered in the science review process for the KHSA 2012 EIS/EIR and the Secretarial Determination Report. Further, having the Expert Panel reports as an additional set of analyses for consideration with respect to the Lower Klamath Project provides increased confidence in the Lower Klamath Project EIR findings regarding fish and fisheries. Please see Volume III Attachment 1 Section 3.3.6 *Aquatic Resources – References* for a list of all references used in developing Section 3.3 *Aquatic Resources*.

AQF-13 Ocean Conditions

Several comments noted that ocean conditions can have detrimental effects to anadromous salmonid populations in the Klamath River and that restoration of anadromous salmonid populations needs to consider ocean conditions.

Ocean conditions do play an important role in anadromous salmonid survival and productivity, as do several other factors, such as the condition of out-migrating juvenile salmonids (smolts) and freshwater habitat. Lawson (1993) used a conceptual model of declining freshwater habitat quality and cyclic ocean conditions to show that freshwater habitat is most critical during periods of depressed ocean survival and that improvements in ocean conditions can mask declines in freshwater habitat. Naturally functioning watersheds (freshwater environment) are important for wild salmon populations to persist.

Variable ocean conditions form part of the existing condition, which the Proposed Project is not anticipated to change. The Lower Klamath Project EIR considers ocean conditions while focusing on the effects of the Proposed Project on freshwater habitat conditions. The EIR addresses the influence of ocean conditions on anadromous salmonids in Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Salmonids*. In addition, the influence of ocean conditions is included in the analysis of potential impacts on focal species in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. Most notably, Potential Impact 3.3-7 includes the results of a population dynamics model (Hendrix 2011) that explicitly incorporated variability in ocean conditions when predicting the effects of dam removal consistent with the Proposed Project on fall-run Chinook salmon abundance.

2.2.6 Phytoplankton and Periphyton Master Responses

PAP-1 Influence of Upstream Sources of Algae and Associated Algal Toxin

Several commenters assert that toxic algae and associated algal toxins (e.g., microcystin) from upstream sources, including Upper Klamath Lake and Keno Reservoir, are not appropriately addressed in the EIR. Commenters express concern that toxic algae and associated toxins could be transported through the Hydroelectric Reach and downstream into the Middle and Lower Klamath River if the dams were to be removed. The commenters also assert that the Lower Klamath Project dams sequester or hold back the toxic algae, preventing its transport to the river downstream of the Lower Klamath Project dams.

Please refer to Potential Impact 3.2-6 for analysis of the potential for downstream transport of algal-derived (organic) suspended material due to the lack of interception and retention by the Lower Klamath Project dams. During the phytoplankton growth season (May through October), algal-derived (organic) suspended material is estimated using measurements of "Total Suspended Solids" (TSS) in the EIR since this is the primary component of TSS during this time of year. Under this approach, TSS includes all phytoplankton[5] as well as toxic blue-green algae. Accordingly, the analysis of TSS in the EIR evaluates the seasonal (May through October) transport of phytoplankton, including toxic algae, from upstream of the Lower Klamath Project reservoirs into the Hydroelectric Reach and the Middle and Lower Klamath River. As discussed in Potential Impact 3.2-6, the majority of the interception and retention of TSS that originates in Upper Klamath Lake during the late spring through early fall occurs in the Keno Impoundment/Lake Ewauna, which is upstream of the Hydroelectric Reach and will not be affected by the Proposed Project.

In addition to TSS measurements showing a downstream decrease in transport of phytoplankton, Appendix C, Section C.6.2.1 *Iron Gate Dam to Salmon River*, Figure C-54, shows microcystin concentrations measured between Keno Dam (i.e., RM 233 in Figure C-54) and the upstream end of Copco No. 1 Reservoir (i.e., RM 206.4 in Figure C-54) typically decrease with distance downstream in the Klamath River and microcystin concentrations in the Klamath River between Keno Dam and the upstream end of Copco No. 1 Reservoir are generally far less than the microcystin concentrations measured in the Klamath River downstream of Iron Gate Dam (i.e., RM 189.7 in Figure C-54). The consistently low microcystin levels above Copco No. 1 Reservoir along with genetic analyses of blue-green algae in Copco No. 1 and Iron Gate reservoirs indicate that microcystin measured in Copco No. 1 and Iron Gate reservoirs and downstream of Iron Gate Dam is being primarily produced by local *Microcystis aeruginosa* populations in Copco No. 1 and Iron Gate reservoirs. Section 3.2.5.6 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a* provide additional details on the genetic and toxins analyses of *Microcystis aeruginosa* in the Klamath River and the Lower Klamath Project reservoirs. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

The KHSA Interim Measure 15 (IM 15) microcystin data collected at multiple locations in the Klamath River and the Lower Klamath Project reservoirs from 2005 to 2015 are presented throughout Section 3.2.5.6 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a* and portions of Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting*, with Figure C-54 specifically showing the overall range of microcystin concentrations at individual monitoring locations by year from 2012 to 2015. To provide additional context, Figure PAP-1 below presents a time-series plot of the IM 15 microcystin data measured in the Klamath River between Keno Dam and the upstream end of Copco No. 1

[5] Defined in the EIR as aquatic microscopic organisms, including algae, bacteria, protists, and other single-celled plants, that obtain energy through photosynthesis and float in the water column of still or slowly flowing waters such as lakes or reservoirs.

Reservoir and downstream of Iron Gate Dam from 2008 through 2017, including all the data shown in Figure C-54 of the EIR as well as IM 15 data from Klamath River water quality sampling annual reports published after the issuance of the Notice of Preparation, which was issued on December 22, 2016. Figure PAP-1 further highlights how microcystin concentrations in the Klamath River between Keno Dam and the upstream end of Copco No. 1 Reservoir are usually far less than microcystin concentrations measured at the Klamath River monitoring site downstream of Iron Gate Dam. Public health microcystin monitoring data from within the Lower Klamath Project reservoirs were not plotted in Figure C-54, so these data also are not plotted in Figure PAP-1.

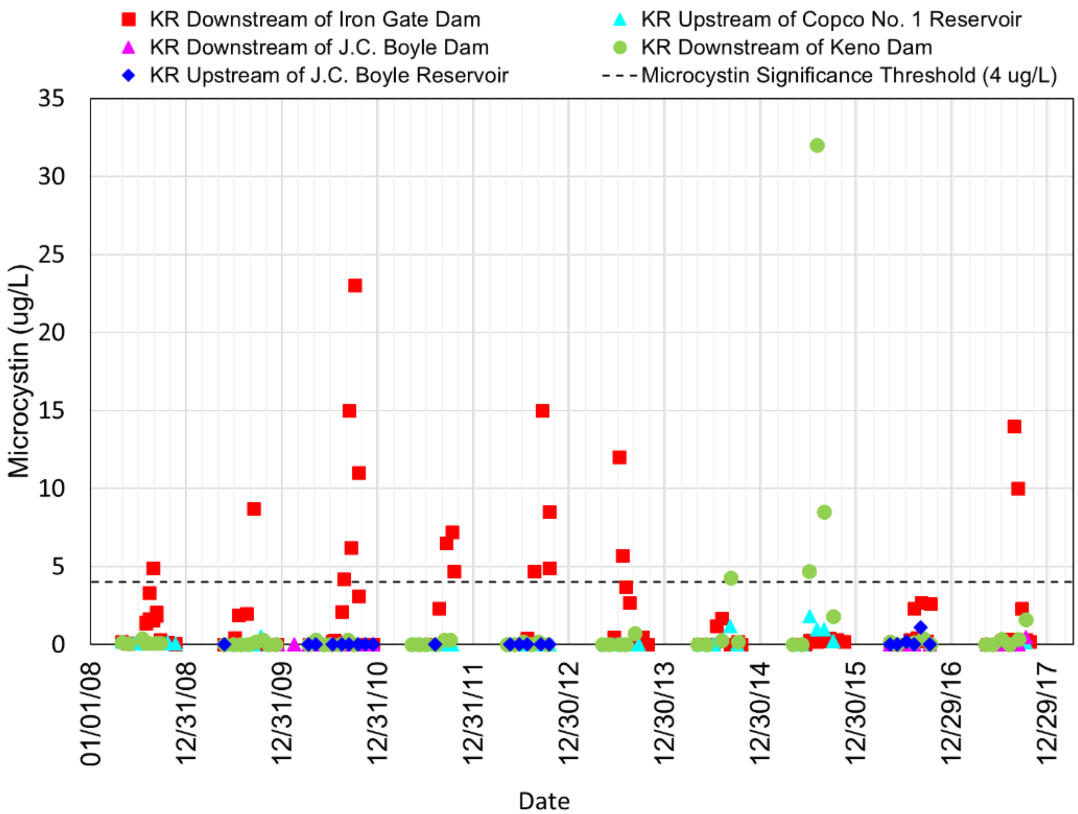

Figure PAP-1. Microcystin concentrations at monitoring sites in the Klamath River between Keno Dam and the upstream end of Copco No. 1 Reservoir along with downstream of Iron Gate Dam from 2008 through 2017. Source: PacifiCorp 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

Data presented in Figure PAP-1 indicate that microcystin concentrations measured just downstream of Keno Dam exceeded the microcystin threshold of significance (4 ug/L) during two of the ten years plotted (20 percent), while microcystin concentrations measured at Klamath River monitoring sites from upstream of J.C. Boyle Reservoir to upstream of Copco No. 1 Reservoir did not exceed the microcystin threshold of significance in all 10 years of data. The decreases in microcystin concentrations in the Klamath River moving from Keno

Dam to upstream of Copco No. 1 Reservoir are likely due to degradation of the microcystin chemical in the free-flowing Klamath River reaches downstream of Keno Dam. In contrast, microcystin concentrations at the Klamath River monitoring site downstream of Iron Gate Dam exceeded the microcystin threshold of significance once or more in seven of the ten years (70 percent), supporting the conclusion that microcystin is being produced in Copco No. 1 and Iron Gate reservoirs.

The magnitude of phytoplankton and associated algal toxins transported into the Hydroelectric Reach from upstream sources would not be affected by dam removal since the Proposed Project would not alter conditions in the Klamath River upstream of J.C. Boyle Reservoir. The EIR analysis indicates that, absent any change in conditions in the Upper Klamath Basin, the same magnitude of phytoplankton (in the EIR this is typically referred to as algal-derived [organic] suspended material, TSS during the months of May through October, or biovolume) and associated algal-derived (organic) suspended material, nutrients, chlorophyll-*a*, and algal toxins measured between Keno Dam and J.C. Boyle Reservoir under existing conditions would be transported into the Hydroelectric Reach if the Lower Klamath Project dams were removed. Volume I Section 3.4.2.3 *Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413) summarizes the existing phytoplankton conditions in the Klamath River between Keno Dam and J.C. Boyle Reservoir, including existing conditions for the toxin-producing blue-green algae *Microcystis aeruginosa*. Transport of the particular type of phytoplankton that produces the toxin microcystin (i.e., *Microcystis aeruginosa*) would continue to be limited under the Proposed Project, since this type of phytoplankton is infrequently detected between Keno Dam and J.C. Boyle Reservoir under existing conditions. Note that there were no measured detections of *Microcystis aeruginosa* in the Klamath River downstream of Keno Dam (approximately RM 238.4) or upstream of J.C. Boyle Reservoir (approximately RM 233.4) during 2002 to 2004, as shown in Figure 3.4-12 (page 3-409) and further documented in Kann (2006), cited in Volume I Section 3.4.2.3 *Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413).

As discussed in Volume I Section 3.4.2.1 *Phytoplankton* (pages 3-392 to 3-403) and Volume I Section 3.4.2.3 *Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413), the majority of blue-green algae cells being transported into the Hydroelectric Reach under existing conditions are the nitrogen-fixing blue-green algae *Aphanizomenon flos-aquae* and *Anabaena flos-aquae (Dolichospermum flos-aquae)*. *Aphanizomenon flos-aquae* has not been documented as a microcystin producing algae, and it is widely assumed that *Anabaena flos-aquae* is not responsible for the detected concentrations of microcystin in the phytoplankton and periphyton Area of Analysis because the measured amount (i.e., biovolume) of *Anabaena flos-aquae* is typically much less than that of *Microcystis aeruginosa* under existing conditions. Thus, similar to existing conditions, transport of these two types of blue-green algae into the Hydroelectric

Reach under the Proposed Project would not likely be the dominant source of microcystin to the Klamath River.

For those phytoplankton cells that do not settle out in the Keno Impoundment/Lake Ewauna, travel through the turbulent free-flowing reaches between Keno Dam and the upstream end of J.C. Boyle Reservoir under the Proposed Project would mechanically break apart colonies and cells such that they are no longer viable as intact blooms. As discussed in Potential Impact 3.2-6, mechanical breakdown of phytoplankton cells would continue in the turbulent reaches between J.C. Boyle and Copco No. 1 reservoirs, similar to existing conditions. The EIR analysis conservatively assumes that there would be no mechanical breakdown of phytoplankton cells in the new, free-flowing reaches of the Klamath River that replace J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate reservoirs, which results in a slight relative long-term increase in algal-derived (organic) suspended materials under the Proposed Project (Potential Impact 3.2-6). Long-term increases in algal-derived (organic) suspended material under the Proposed Project are slight relative to existing conditions since the large, episodic increases in phytoplankton cells during in-reservoir blue-green algae blooms under existing conditions would be eliminated by dam removal and the anticipated increases of algal-derived (organic) suspended material would be well below the algal-derived (organic) suspended material produced in Copco No. 1 and Iron Gate reservoirs under existing conditions.

Combining information presented in Potential Impact 3.2-6 and Volume I Section 3.4.2.3 *Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413), there could potentially be a small increase in algal-derived (organic) suspended materials moving into the Middle and Lower Klamath River primarily due to transport of *Aphanizomenon flos-aquae* and *Anabaena flos-aquae (Dolichospermum flos-aquae)* cells that do not settle out in the Keno Impoundment/Lake Ewauna, but the elimination of in-reservoir blue-green algae blooms that occur under existing conditions would decrease the biovolume and transport of *Microcystis aeruginosa* cells and associated microcystin toxin into the Middle and Lower Klamath River. Overall, the potential slight increase in the transport of *Aphanizomenon flos-aquae* and *Anabaena flos-aquae (Dolichospermum flos-aquae)* cells along with a decrease in transport of *Microcystis aeruginosa* cells and associated microcystin toxin would have a less-than-significant impact on toxic algae concentrations in the Klamath River downstream of the Hydroelectric Reach. Potential Impact 3.2-12 also provides an analysis of the changes in algal toxins that would occur due to dam removal under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impacts 3.2-6 and 3.2-12.

Overall, the existing data indicate that the magnitude of algal toxins that would be transported into the California portion of the Hydroelectric Reach under the Proposed Project would be less-than-significant (i.e., less than the significance threshold of 4 ug/L). The elimination of the slow-moving reservoir environment that currently supports seasonal growth of toxin-producing nuisance blue-green algae and periodically high concentrations of algal toxins (i.e., greater than 4 ug/L microcystin) would result in an overall decrease in the frequency of high algal toxin concentrations being transported into the Middle and Lower Klamath River downstream of Iron Gate Dam and this would be a beneficial effect of the Proposed Project compared to existing conditions.

Lastly, please also refer to Volume I Potential Impact 3.4-2 (pages 3-428 to 3-433) for further analysis of the alterations in the spatial extent, temporal duration, transport, or concentration of nuisance and/or noxious phytoplankton blooms and concentrations of algal toxins due to dam removal and elimination of reservoir habitat.

In summary, transport of phytoplankton, including blue-green algae, and associated algal toxins into the Hydroelectric Reach from upstream under the Proposed Project would be similar to existing conditions but, measurements of blue-green algae species between Keno Dam and J.C. Boyle Reservoir indicate transport of toxigenic *Microcystis aeruginosa* and associated algal toxin (i.e., microcystin) into the Hydroelectric Reach would be limited and unlikely to exceeded the microcystin threshold of significance (4 ug/L). Seasonal algal blooms and elevated microcystin concentrations in the Lower Klamath Project reservoirs along with *Microcystis aeruginosa* and microcystin concentrations measured downstream of Iron Gate Dam are primarily due to *Microcystis aeruginosa* growth within the slow-moving, calm Copco No. 1 and Iron Gate reservoirs rather than transport from upstream of the Hydroelectric Reach. While algae would continue to enter and be transported through the Hydroelectric Reach from upstream (similar to existing conditions), dam removal under the Proposed Project would eliminate the slow-moving habitat in calm Copco No. 1 and Iron Gate reservoirs that supports seasonal algae blooms and so would decrease transport of *Microcystis aeruginosa* and microcystin concentrations downstream of Iron Gate Dam. The conservative analysis used in the EIR assumes that there would be no breakdown of algae within the free-flowing Hydroelectric Reach under the Proposed Project, such that there would be potential for a slight relative long-term increase in algal-derived (organic) suspended material downstream of Iron Gate Dam because the reservoirs would no longer settle out algal-derived (organic) suspended material that is transported into the Hydroelectric Reach; however, such increases would be well below that produced by algae blooms in Copco No. 1 and Iron Gate reservoirs under existing conditions.

PAP-2 Phytoplankton and Periphyton Response to Nutrient Alterations

Several commenters assert that phytoplankton and periphyton growth downstream of the Lower Klamath Project dams would increase after dam removal due to increases in available nutrients, based on the belief that the dams would no longer trap nutrients originating from the Upper Klamath Basin.

Potential Impact 3.2-8 provides analysis of the alterations in nutrients in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment that would occur under the Proposed Project due to the lack of interception and retention by the dams and the conversion of the reservoir areas to a free-flowing river. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including clarifications to Potential Impact 3.2-8. Analysis of the nutrient interception and retention within Copco No. 1 and Iron Gate reservoirs using the Klamath River TMDL model output from calendar year 2000 determined that the annual (i.e., January to December 2000) modeled total phosphorus (TP) retention rate was approximately 6 percent of the incoming TP for Iron Gate Reservoir and approximately 1 percent for Copco No. 1 Reservoir, while the modeled total nitrogen (TN) retention rate was approximately 18 percent of the incoming TN for Iron Gate Reservoir and 4 percent for Copco No. 1 Reservoir. While the Klamath TMDL model results indicated that there was an overall annual nutrient retention, the monthly modeling results showed seasonal releases of nutrients, especially during reservoir turnover in late fall/early winter, with Iron Gate Reservoir releasing approximately 2 to 40 percent of incoming TP during late summer/fall and approximately 4 percent of incoming TN during winter and Copco No. 1 Reservoir releasing approximately 2 to 26 percent of incoming TP during late summer/fall and into winter months and approximately 3 to 14 percent of incoming TN during winter months (North Coast Regional Board 2010, Appendix 3).

In addition to the Klamath River TMDL model analysis of nutrient retention in the reservoirs, mass-balance nutrient budgets of the two reservoirs using approximately biweekly nutrient data from May 2005 through December 2007 have been used to estimate the nutrient interception and retention within Copco No. 1 and Iron Gate reservoirs (Asarian et al. 2009). Please note that estimates of annual nutrient retention in the reservoirs cannot be directly compared between the Klamath River TMDL model analysis discussed above and in Potential Impact 3.2-8 and the mass-balance nutrient budget analysis by Asarian et al. (2009) since the two analyses use different time periods for their calculations. The Klamath River TMDL model analysis is based on an annual period from January to December, but the nutrient budget analysis is based on an annual period from May of one year through April of the next year. The Klamath River TMDL model calculates results at a monthly time scale, but the nutrient budget analysis calculates results at a bi-weekly or seasonal (e.g., May to September) time scale.

On an annual basis (i.e., May 2005 to May 2006 or May 2006 to May 2007), the mass-balance nutrient budget analysis estimated the TP retention rate was approximately 3 to 6 percent of the incoming TP for Iron Gate Reservoir and approximately 6 to 8 percent for Copco No. 1 Reservoir, while the TN retention rate was approximately 4 to 7 percent of the incoming TN for Iron Gate Reservoir and approximately 5 to 10 percent for Copco No. 1 Reservoir. Similar to the

Klamath River TMDL model results for 2000, these results indicate an overall annual nutrient retention from May 2005 to May 2007. However, the nutrient budget analysis also indicates that there were periods of both retention and release during summer through winter, through analysis of bi-weekly nutrient budget values. More specifically, Iron Gate Reservoir releases for individual bi-weekly periods ranged from approximately 2 to 35 percent of incoming TP during late summer/fall and approximately 5 to 35 percent of incoming TN during mid-summer through mid-winter. Copco No. 1 Reservoir releases for individual bi-weekly periods ranged from approximately 2 to 35 percent of incoming TP during mid-summer to mid-winter months and approximately 3 to 14 percent of incoming TN during winter months. Average nutrient releases over the entire summer to winter period were much less than these amounts, since there were also periods of retention (Asarian et al. 2009).

Overall, the lack of nutrient retention in Copco No. 1 and Iron Gate reservoirs and the associated net annual increase in nutrients downstream of Iron Gate Dam due to removal of those reservoirs would be expected to be approximately 12 to 13 percent for TN and approximately 9 to 13 percent for TP based on the nutrient budget analysis results from May 2005 to May 2007. Note that the net annual nutrient increase from removal of both reservoirs is not equal to the sum of the annual nutrient retention from individual reservoirs since the individual reservoir results are reported as a percent of the incoming nutrients for the individual reservoir. Since much of the nutrient retention in Copco No. 1 and Iron Gate reservoirs occurs during winter and spring, much of this nutrient increase after dam removal (39 to 78 percent of TN and 92 to 116 percent of TP[6]) would occur during winter and spring (i.e., December to May) when water temperature, light levels, and high flows in the river do not support phytoplankton and periphyton growth (Asarian et al. 2009).

Further, as analyzed in Volume III Attachment 1 Potential Impact 3.2-8 and Volume I Potential Impact 3.4-2 (pages 3-428 to 3-433), Potential Impact 3.4-4 (pages 3-435 to 3-437), and Potential Impact 3.4-5 (pages 3-437 to 3-440), anticipated nutrient increases under the Proposed Project would not be expected to result in significant increases in overall algal biomass beyond levels experienced under existing conditions, so these additional nutrients would not be anticipated to result in exceedances of the California North Coast Regional Water

[6] Annual TP retention in Copco No. 1 and Iron Gate reservoirs was calculated as the sum of the TP retention from May of one year to May of the next year. Annual TP retention in Copco No. 1 and Iron Gate reservoirs during the one year period from May to May was less than December to May TP retention because there was a net release of TP downstream of Iron Gate Dam between May and December in that year. As such, the increase in TP between December and May downstream of Iron Gate Dam due to dam removal would potentially exceed the annual increase in TP, and the percentage of TP increase between December and May could exceed 100 percent.

Quality Control Board's Water Quality Control Plan for the North Coast Region (Basin Plan) water quality objectives for biostimulatory substances in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment. Please also refer to Volume III Attachment 1 Potential Impact 3.4-2 and Potential Impact 3.4-4 for minor revisions to these analyses that do not alter the significance determinations. Nutrient increases under the Proposed Project would only result in an exceedance of the Basin Plan biostimulatory substances water quality objective if those increases promote additional growth of algal biomass to the extent that such additional growth causes nuisance or adversely affect beneficial uses. Overall, the increase in nutrient concentrations under the Proposed Project would not result in significant biostimulatory impacts since these nutrient increases are not expected to result in an overall increase in algae biomass that exceeds existing conditions.

Phytoplankton would be limited in their ability to use increased nutrient levels for growth because elimination of the existing calm reservoir habitat under the Proposed Project would constrain habitat conditions that support large phytoplankton blooms in summer and fall, as discussed in Volume III Attachment 1 Potential Impact 3.2-8 and Volume I Potential Impact 3.4-2 (pages 3-428 to 3-433). Relatively high water velocity and constant mixing in the Klamath River does not typically support high levels of phytoplankton growth or reproduction under current conditions (Otten et al. 2015; Genzoli and Kann 2017). There are slow-moving habitats along the river edges that may be suitable for phytoplankton growth, but an increase in nutrients under the Proposed Project would not be expected to increase the overall biomass of nuisance and/or noxious blue-green algae compared to existing conditions. This is because available slow-moving river margin habitats suitable for phytoplankton growth are already typically occupied and periodically experience high concentrations of phytoplankton cells and algal toxins under existing conditions (Kann et al. 2010a; Genzoli and Kann 2017). While phytoplankton cells and algal toxins are measured in calm, slow-moving river margin habitats under existing conditions, growth and reproduction of phytoplankton in these habitats has not been documented. Phytoplankton cells and algal toxins in these habitats are generally attributed to entrapment and accumulation of cells and toxins transported downstream from the reservoirs rather than growth and/or reproduction within these habitats (Falconer et al. 1999; Kann et al. 2010a; State Water Board et al. 2010, updated 2016; Genzoli and Kann 2016, 2017). Longitudinal decreases in the measured *Microcystis aeruginosa* cell densities and microcystin downstream of Iron Gate Dam in both slow-moving shoreline and open channel habitats further suggest *Microcystis aeruginosa* cells and microcystin are being transported downstream into these shoreline habitats and phytoplankton growth is limited in these slow-moving shoreline habitats (Genzoli and Kann 2017). The removal of slow-moving reservoir habitats also would eliminate the primary source of *Microcystis aeruginosa* potentially transported into these river margin habitats, limiting the available *Microcystis aeruginosa* cells to uptake the additional nutrients.

Additionally, TN:TP ratios and a comparison of nutrient data measured at Klamath River monitoring sites from 2002 to 2017 downstream of Iron Gate Dam against phytoplankton half-saturation constants[7] for inorganic nitrogen and phosphorus suggest that nutrient availability is not the limiting factor that controls biomass from Iron Gate Dam (RM193.1) to approximately Seiad Valley (RM 132.7) under existing conditions. While nutrient concentrations vary widely across seasons (i.e., more than an order of magnitude), the minimum nutrient concentrations downstream of Iron Gate Dam were consistently greater than the phytoplankton half-saturation constants for inorganic nitrogen and phosphorus. The minimum inorganic phosphorus (i.e., orthophosphate) concentration (i.e., 0.019 mg/L) was approximately 6 times greater the inorganic phosphorus half-saturation constant (i.e., 0.003 mg/L) downstream of Iron Gate Dam, while the minimum TP concentration (i.e., 0.023 mg/L) was approximately 8 times greater than the inorganic phosphorus half-saturation constant. The minimum total inorganic nitrogen (i.e., ammonia/ammonium and nitrate+nitrite) concentration (i.e., 0.018 mg/L) was approximately 1.3 times greater than the inorganic nitrogen half-saturation constant (i.e., 0.014 mg/L) downstream of Iron Gate Dam, while the minimum TN concentration (i.e., 0.25 mg/L) was approximately 18 times greater than the inorganic nitrogen half-saturation constant. Furthermore, typical nutrient concentrations downstream of Iron Gate Dam are generally 3 or more times greater than the minimum nutrient concentrations. Since the measured nutrient concentrations under existing conditions are greater than the associated half-saturation constant from Iron Gate Dam to approximately Seiad Valley, there are currently more than sufficient nutrients to meet algal growth needs in this reach and additional nutrients under the Proposed Project would not correspond to an increase in algal biomass or an exceedance of the Basin Plan biostimulatory substances water quality objective.

Downstream of Seiad Valley, IM 15 data from 2009 to 2017 at Klamath River at Orleans (RM 58.9) and Turwar (RM 5.6) indicate that there are sufficient orthophosphate and total phosphorus to meet phytoplankton growth needs under existing conditions, but measured nutrient concentrations indicate inorganic nitrogen would likely limit phytoplankton growth. The total inorganic nitrogen in the Klamath River at Orleans and Turwar from 2009 to 2017 frequently was less than the inorganic nitrogen half-saturation constant during summer to early fall months. The abundance of nitrogen-fixing periphyton species in the Klamath River increases downstream of Seiad Valley and they become dominant, also

[7] The concentration of nutrient(s) at which the rate of uptake of those nutrients by phytoplankton (for growth) is one-half the maximum rate. Half-saturation constants for inorganic nitrogen and phosphorus also represent the highest concentration at which algae growth is directly proportional to nutrient concentrations (Cole and Wells 2015).

suggesting algal growth, including phytoplankton, becomes nitrogen-limited in the Klamath River downstream of Seiad Valley under existing conditions. While inorganic nitrogen is likely limiting growth of phytoplankton species that cannot fix nitrogen downstream of Seiad Valley, the growth of nitrogen-fixing phytoplankton species would be less limited by low inorganic nitrogen concentrations. While increases in nitrogen downstream of Seiad Valley under the Proposed Project would potentially result in some additional phytoplankton growth, the limited suitable habitat in the Klamath River downstream of Seiad Valley and the existing occupation of this limited suitable habitat would constrain increases in phytoplankton biomass under the Proposed Project compared to existing conditions. As such, nutrient increases under the Proposed Project still would not be anticipated to increase the overall phytoplankton biomass in the Klamath River or to result in an exceedance of the Basin Plan biostimulatory substances water quality objective due to the elimination of suitable reservoir habitat, the reductions in transport of *Microcystis aeruginosa* cells from reservoir habitats, and the presence of phytoplankton biomass in the remaining limited suitable habitat in the Klamath River, as discussed above.

In summary, some phytoplankton growth, including blue-green algae, may still occur after dam removal in the calm, slow-moving habitats along the margins of the Middle and Lower Klamath River, especially during low-flow periods, but nutrient increases under the Proposed Project are not expected to result in an overall increase algae biomass that exceeds existing conditions since a) dam removal would eliminate existing reservoir habitat that supports algal growth; b) the available suitable habitats in the Klamath River are already occupied and periodically experience high concentrations of phytoplankton cell and algal toxins concentrations under existing conditions; c) dam removal would reduce transport of *Microcystis aeruginosa* cells that could use the additional nutrients for growth into the available suitable habitats; and d) under existing conditions sufficient nutrients are already available to meet algal growth needs from Iron Gate Dam to Seiad Valley. Overall, the *Microcystis aeruginosa* and microcystin levels in Middle and Lower Klamath River under existing conditions are expected to decrease after dam removal because the decrease from reduced transport of *Microcystis aeruginosa* and microcystin into the Middle and Lower Klamath River under the Proposed Project is anticipated to be greater than potential growth within slow-moving habitats in the Middle and Lower Klamath River even with potential nutrient increases.

Lastly, please refer to Volume III Attachment 1 Potential Impact 3.2-8 and Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) and Potential Impact 3.4-5 (pages 3-437 to 3-440) for the analysis of the influence of anticipated nutrient increases under the Proposed Project on periphyton biomass in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment. Please also refer to Volume III Attachment 1 Potential Impact 3.4-4 for minor revisions to these analyses that do not alter the significance determinations. Nutrient concentrations are high enough (i.e., greater than the half-saturation constants) that there are sufficient nutrients for periphyton growth from the upstream end of the Hydroelectric Reach (i.e., J.C. Boyle Reservoir) to Seiad Valley (RM 132.7) under existing conditions and nutrient increases downstream of Iron Gate Dam under the Proposed Project would not have a biostimulatory effect on periphyton growth. Potential increases in periphyton abundance upstream of Iron Gate Dam in the Hydroelectric Reach would be due to habitat increases (i.e., conversion of reservoir into river habitat) rather than nutrient increases. This additional periphyton growth would uptake some nutrients and likely decrease the magnitude of the upstream nutrients being transported through the Hydroelectric Reach into the Middle Klamath River, but the Yurok Tribe analysis (Asarian et al. 2010) still estimates a potential nutrient increase in the Middle and Lower Klamath River under dam removal even with this uptake by periphyton. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-8.

In the reaches where sufficient nitrogen is available to meet periphyton growth (i.e., upstream of Seiad Valley), the abundance of nitrogen-fixing species is low since nitrogen-fixing species primarily have a competitive advantage over other periphyton species when nitrogen concentrations are low. Downstream of Seiad Valley, the abundance of nitrogen-fixing species in the Klamath River increases and they become dominant, suggesting periphyton growth becomes nitrogen-limited in the Klamath River downstream of Seiad Valley under existing conditions. As such, increases in TN due to dam removal may alter the composition of the periphyton community (Asarian et al. 2010), but the increase in TN would likely just result in a change in the species of periphyton growing in the Klamath River and there is no anticipated overall increase in the periphyton abundance or biomass. Additionally, potential increases in TP due to dam removal under the Proposed Project are not expected to increase periphyton abundance or biomass because TP concentrations in the Middle and Lower Klamath River and the Klamath River Estuary suggest there is sufficient phosphorus to meet algal growth needs under existing conditions and additional phosphorus would not have a biostimulatory effect.

2.2.7 Terrestrial Master Responses

TER-1 Wildlife Habitat Effect of Removing Reservoirs

Several commenters indicate that the Iron Gate and Copco No. 1 reservoirs provide habitat for wildlife and removing the dams would destroy wildlife habitat. Commenters have noted, for example, that the area currently supports nesting bald eagles and pond turtles, and that the reservoir system has been long-established and supports both aquatic and terrestrial wildlife that sustain themselves on the reservoir systems.

Information on wildlife species at the Lower Klamath Project reservoirs is summarized in Volume I Section 3.5.2.4 *Terrestrial Resources – Environmental Setting – Non-special-status Wildlife* (pages 3-474 to 3-477) and Section 3.5.2.5

Terrestrial Resources – Environmental Setting – Special-status Species – Special Status Wildlife (page 3-478; see also Table 3.5-5, pages 3-501 to 3-513). As described therein, western pond turtles have been documented at Iron Gate Reservoir and Copco No. 1 Reservoir. The reservoirs and adjacent habitats also support migratory bird species (e.g., American white pelican, Barrow's goldeneye, common loon, black tern, black swift, Vaux's swift, olive-sided flycatcher, willow flycatcher, yellow warbler, and yellow-breasted chat) and year-round bird species (bald eagle, greater sandhill crane). The reservoirs and riparian areas provide foraging habitat for these species, by providing habitats that support fish, invertebrates, and reptiles for these birds to eat. Migratory birds use these reservoirs seasonally during their migrations and/or for overwintering, by supporting nesting, foraging, and/or loafing (resting on the water) habitat (see Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-21 [pages 3-562 to 3-563]). Surveys conducted by KRRC in 2017 and 2018 documented several osprey nests on platforms located on top of electrical poles in areas surrounding Iron Gate Reservoir, Copco No. 1 Reservoir, Copco No. 2 Reservoir, and along the Klamath River (CDM Smith 2018c, AECOM and CDM Smith 2019), and it is likely that osprey use the reservoirs for foraging on fish. The reservoirs also provide foraging habitat for bat species (e.g., Yuma myotis) that primarily prey on aquatic emergent insects (see Potential Impact 3.5-21). Project structures have been documented to support habitat for Yuma myotis (AECOM and CDM Smith 2019), and surrounding habitats, including project structures, may also support roosting for other special-status bat species (Western mastiff bat, Townsends's western big-eared bat, spotted bat, pallid bat, fringed myotis, and long-eared myotis) that may forage on terrestrial insects in more upland habitats.

The species discussed above, which include special-status species, are not exclusive to the Lower Klamath Project reservoirs, but rather they also have been documented in adjacent areas. For example, all of the bird species listed above have been either documented in habitats along the Klamath River upstream of Copco No. 1 Reservoir and downstream of Iron Gate Dam (see Volume I Section 3.5.2.5 *Terrestrial Resources – Environmental Setting – Special-status Species – Special Status Wildlife* Table 3.5-5), at Lower Klamath National Wildlife and Tule Lake National wildlife refuges, or at other nearby creeks, lakes, and reservoirs including Emigrant Creek, Emigrant Lake, Howard Prairie Lake City Park, and Hyatt Reservoir north of Iron Gate Reservoir (eBird 2019). Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-21 (pages 3-562 to 3-563) acknowledges that a loss of aquatic reservoir habitat would result in a loss of nesting, foraging, and loafing opportunities for fish-eating birds (e.g., bald eagle, osprey, and common merganser) and birds that consume aquatic vegetation and invertebrates (e.g., mallards). However, as discussed in Potential Impact 3.5-21, these impacts would be less than significant as these birds would continue to use the river or other aquatic habitat outside of the Proposed Project Primary Area of

Analysis for foraging once the reservoirs are removed. Aquatic insect foraging habitat for swifts and bats (Yuma myotis) would be reduced, as discussed in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-17 (pages 3-559 to 3-560). However, once benthic macroinvertebrate populations reestablish after drawdown, swifts and bats would be able to forage over riverine habitat. Please also refer to Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-25 (pages 3-572 to 3-573), which analyzes the effects on wildlife that forage on fish (e.g., bald eagle, Barrow's goldeneye, common loon, and western pond turtle) from increased habitat for salmonids and changes in hatchery production.

Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-22 (pages 3-563 to 3-570) presents the analysis of potential short- and long-term impacts on western pond turtle from loss of aquatic reservoir habitat; based on this analysis, impacts would be less than significant with mitigation. Impacts on other wildlife species as a result of removal of reservoir habitat are discussed in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status and Rare Natural Communities* Potential Impact 3.5-12 (pages 3-540 to 3-543), Potential Impact 3.5-13 *(*pages 3-543 to 3-547), Potential Impact 3.5-23 (page 3-570), Potential Impact 3.5-25 (pages 3-572 to 3-573), Potential Impact 3.5-29 (pages 3-575 to 3-576), and Potential Impact 3.5-30 (page 3-576). No special-status terrestrial invertebrates or amphibians would be affected by the removal of the reservoirs, as it is unlikely that reservoir habitat supports these species.

Please see Master Response AQF-1 for a discussion of how removal of the Lower Klamath Project reservoirs would affect Lost River and Shortnose sucker populations.

Consistent with CEQA Guidelines section 15088.5 (b), the EIR analysis characterizing potential short-term and long-term impacts on native special-status terrestrial species due to the loss of reservoir habitat has been clarified to include information regarding species' use of reservoirs and rivers within the Primary Area of Analysis, as well as in nearby wildlife refuges, creeks, lakes, and reservoirs outside of the Primary Area of Analysis. Please refer to Volume III Section 3.5 *Terrestrial Resources* for the associated revisions.

2.2.8 Flood Hydrology Master Responses

FLD-1 Downstream Flood Hydrology

Numerous commenters expressed concern regarding the potential for the Proposed Project to result in increased flooding and associated damage. This response summarizes key points from the EIR concerning the potential impacts related to the Proposed Project's changes to downstream flood hydrology, as well as the Proposed Project's proposal to reduce or avoid such impacts.

As discussed in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* (pages 3-630 to 3-635), J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams are not designed or currently operated as flood control facilities, although they do result in incidental and limited flood protection during certain flood events. Specifically, Volume I Table 3.6-12 (page 3-631) presents peak flood flows for the mainstem Klamath River and indicates that the 100-year flood is attenuated less than seven percent by Iron Gate and Copco No. 1 reservoirs under existing conditions, with J.C. Boyle and Copco No. 2 reservoirs providing negligible flood attenuation due to their substantially smaller volume and, in the case of J.C. Boyle, long distance upstream (USBR 2012a). Under the Proposed Project, there would be a minor increase in the 100-year floodplain elevations in the reach from Iron Gate Dam (river mile [RM] 193) to Humbug Creek (RM 174) following dam removal, with two additional legal habitable structures identified in the anticipated floodplain that are currently not within the existing floodplain. Additionally, peak flood flows downstream of Iron Gate dam would occur about 10 hours sooner if the dams were removed.

To address the minor increase in floodplain inundation below Iron Gate Dam, the KRRC proposes implementation of the Downstream Flood Control Project Component (Volume I Potential Impact 3.6-3 [pages 3-630 to 3-633]). This component of the Proposed Project includes working with landowners to move or elevate the 36 habitable structures (34 existing structures and 2 additional structures) located in the altered 100-year floodplain between Iron Gate Dam and Humbug Creek prior to dam removal, where feasible. This would reduce the risks of exposing people and/or structures to damage, loss, injury, or death due to flooding following dam removal.

As described in Volume I Potential Impact 3.6-3 (pages 3-630 to 3-633), final determination of the extent of the future 100-year floodplain following dam removal would be made by the Federal Emergency Management Agency (FEMA) and the KRRC is planning to coordinate with Siskiyou County and FEMA to initiate the map revision process (Appendix B: *Definite Plan*). Although the Downstream Flood Control Project Component would likely reduce potential flood hydrology-related impacts to less than significant, the State Water Board cannot ensure its implementation. Additionally, there may be new or increased potential for flood damage and/or loss of structures that are not feasible to move or elevate. Therefore, the State Water Board has concluded that impacts associated with exposing structures to a substantial risk of damage due to flooding are significant and unavoidable.

The Emergency Response Plan would ensure that potential effects related to exposing people and/or structures to a substantial risk of flooding related to flood forecasting would result in no significant impact. See Volume I Potential Impact

3.6-3 (page 3-632 to 3-633) for further discussion of the Emergency Response Plan.

2.2.9 Groundwater Master Responses

GRW-1 Effects on Groundwater Wells

Multiple comments expressed concern regarding the potential impact of removing Lower Klamath Project reservoirs on groundwater availability and quality, including the potential impact on residential or other private wells near the reservoirs.

Volume I Section 3.7 *Groundwater – Potential Impacts and Mitigation* Potential Impact 3.7-1 (pages 3-663 to 3-665) discusses the potential impacts of the Proposed Project on groundwater resources in the vicinity of the Lower Klamath Project reservoirs. As described in Volume I Section 3.7 *Groundwater* (starting on page 3-639), there is uncertainty regarding the extent to which wells may be impacted and the number of potentially impacted wells. However, available well record data (Section 3.7.2.2 *Groundwater – Environmental Setting – Local Groundwater Conditions* [pages 3-644 to 3-661] and Volume II Appendix L) indicate that some wells could be significantly impacted by dam removal unless measures are undertaken to protect groundwater supplies. Well records evaluated in the Groundwater analysis were obtained from the California Department of Water Resources and Oregon Water Resources Department (OWRD) databases. The records reviewed include sufficient detail to accurately locate the wells relative to the Lower Klamath Project reservoirs. These records include 25 wells near Iron Gate Reservoir and 22 near Copco No. 1 and Copco No. 2 reservoirs.

The Proposed Project includes implementation of the Groundwater Well Management Plan to offset potential adverse impacts. The Groundwater Well Management Plan requires monitoring to detect groundwater well impacts and identification of short and long-term measures to address such impacts as encountered. Under the Groundwater Well Management Plan, if groundwater levels in existing wells adjacent to the Lower Klamath Project reservoirs are found to be substantially depleted as a result of Project implementation, such that production rates drop to levels that do not support designated domestic or irrigation uses, the KRRC would undertake measures to return the production rates of the affected domestic or irrigation groundwater supply wells to conditions existing prior to dam removal. Additionally, short-term measures would include actions providing temporary water supplies until long-term measures such as pump motor replacement, well deepening, or full well replacement are identified and implemented.

Volume I Section 2.7.8.8 *Proposed Project – Proposed Project – Other Project Components – Groundwater Well Management* (page 2-99) and Volume II Appendix B: *Definite Plan* provide additional detail regarding the Groundwater

Well Management Plan. Further, the State Water Board has issued a draft water quality certification that sets forth monitoring and reporting requirements for groundwater wells surrounding the Lower Klamath Project reservoirs, including reporting that summarizes actions that KRRC has or will implement to address any impacts to groundwater supply associated with implementation of the Proposed Project.

GRW-2 Wells Missing from Groundwater Analysis

Some comments expressed concern that the EIR's groundwater analysis did not include the locations of all groundwater wells located within the groundwater Area of Analysis (Volume I Figure 3.7-1, page 3-640), and requested that additional information for missing wells be provided. Existing groundwater conditions in the Lower Klamath Project vicinity are presented in Volume I Section 3.7.2.2 *Groundwater – Environmental Setting – Local Groundwater Conditions* (starting on page 3-644) and the analysis of potential impacts of the Proposed Project on groundwater resources is presented in Volume I Potential Impacts 3.7-1 and 3.7-2 (starting on page 3-663 and 3-665, respectively). The section relies on information from the California Department of Water Resources well logs but notes that the available data on the location of existing wells is limited. In light of this limitation (and of limits on information regarding well-specific conditions other than location and water source that influence whether reservoir removal will impact a particular well), the EIR provides general information on potential impacts and measures to address groundwater wells within the groundwater Area of Analysis (Volume I Figure 3.7-1; page 3-640). Analysis provided in the EIR applies to both known and unknown wells within the Area of Analysis.

The analysis presented in the Lower Klamath Project EIR, as well as in previous studies conducted by USBR (2012a), conclude that while the direction of regional groundwater flow is toward the Lower Klamath Project reservoirs, local groundwater levels (i.e., locations immediately adjacent to the reservoirs) exhibit site-specific variability, with the majority of wells exhibiting water levels above those of the reservoirs such that groundwater would flow toward the reservoir, rather than away from the reservoir. A subset of groundwater wells located immediately adjacent to Copco No. 1 Reservoir exhibit water levels below those of the reservoir, such that groundwater would potentially flow from this reservoir toward these wells. In light of the potential for connectivity between groundwater and Copco No. 1 Reservoir for a subset of existing wells, and because well data are not readily available for every existing groundwater well in the vicinity of the Lower Klamath Project reservoirs, it is possible that removal of the reservoirs would cause a substantial decrease of groundwater levels and a corresponding decrease in production rates in existing wells to a degree that interferes with existing or planned uses. The inclusion of any other existing groundwater wells surrounding the Lower Klamath Project reservoirs in the groundwater analysis presented in the EIR, or in the analysis conducted by USBR (2012a), would not change the potential for the aforementioned impact.

Please also refer to Master Response GRW-1 for a discussion of the KRRC's Groundwater Well Management Plan, which would offset potential adverse impacts of Lower Klamath Project dam and reservoir removal on local groundwater supplies.

2.2.10 Water Supply/Water Rights Master Responses

WSWR-1 Potential Effects on Agricultural Water Supply for California Water Users in the USBR Klamath Irrigation Project

Some comments express concern that the Proposed Project will limit agricultural water supplies for farms upstream of the Hydroelectric Reach. Some comments refer specifically to operational coordination between the United States Bureau of Reclamation's (USBR) Klamath Project for irrigation and the Klamath Hydroelectric Project for hydropower production. Concerns specifically related to water supply on Klamath River tributaries are addressed in Master Response WSWR-2. Concerns specifically related to water supply within the Hydroelectric Reach and downstream of Iron Gate Dam are addressed in Master Response WSWR-3.

Volume I Section 3.8.2.1 *Upper Klamath Basin* (page 3-670 to 3-671) and Section 3.8.5 *Potential Impact 3.8-2* (pages 3-679 to 3-680) describe the role of the Lower Klamath Project in water diversions upstream of the Hydroelectric Reach, and potential impacts of the Proposed Project on those agricultural water supplies. As described more fully in the EIR, Upper Klamath Lake is the primary water supply for agricultural irrigation use in the Klamath River Basin. Approximately 98 percent of the available active surface water storage for irrigation uses along the Klamath River occurs in Upper Klamath Lake, which is regulated by Link River Dam. Keno Dam regulates water levels of the Klamath River upstream of the dam. The facility does not generate hydropower. PacifiCorp operates Keno Dam under an agreement with USBR to maintain stable water levels in Keno Impoundment/Lake Ewauna for irrigation uses. The Lower Klamath Project facilities have non-consumptive hydropower water rights (please also refer to Master Response WSWR-3), rather than water rights for the provision of irrigation supplies. Neither Link River Dam nor Keno Dam is being considered for removal under the Proposed Project.

As described in Volume I Section 3.8.5 *Potential Impacts* 3.8-1 and 3.8-2 (pages 3-676 to 3-680), during the extreme drought of 2014 to 2016, PacifiCorp coordinated late-2014 releases from Iron Gate and Copco No. 1 dams which resulted in a small degree of flexibility for managing irrigation water in the Upper Basin by allowing USBR to postpone releasing water for irrigation purposes at Keno Dam. A comparable water borrowing agreement between PacifiCorp and USBR for approximately 20,000 acre-feet also occurred in 2018. It is unclear if further water borrowing would occur in the future due to the multiple constraints detailed by USBR and discussed in Volume I Potential Impact 3.8-2 (pages 3-

679 to 3-680). The EIR's assessment of the unlikelihood of future water borrowing is further bolstered by USBR's elimination of this alternative from further consideration as part of its environmental assessment of the Klamath Irrigation Project operations (USBR 2019). Removal of the Lower Klamath Project dams would not affect USBR's central role in providing water to irrigators in the Upper Klamath Basin while also providing flows to the Klamath River as required by the current biological opinion.

WSWR-2 Water Availability on Klamath River Tributaries

Some comments raise concerns that removal of the Lower Klamath Project reservoirs would reduce the water supply available for environmental purposes in the mainstem Klamath River, and as a result, water diverters in tributaries to the Klamath River would be curtailed in order to increase mainstem surface water flows.

As described in Volume I Section 3.8.1 *Water Supply/Water Rights – Area of Analysis* (pages 3-667 to 3-669), there would be no water supply impact to tributaries to the mainstem Klamath River from implementation of the Proposed Project. Agricultural diversions within the Mid and Lower Klamath basins occur in tributaries including the Shasta, Scott, Salmon, and Trinity rivers. However, because the USBR maintains its biological opinion obligations for the mainstem Klamath River regardless of the existence of the Lower Klamath Project, dam removal would not alter the amount of water available for environmental purposes, or the source of that water.

WSWR-3 Downstream Water Rights, Lower Klamath Project Water Rights, and Hatchery Water Diversions

Some comments express concern that removal of the Lower Klamath Project facilities would adversely impact water supplies and/or water rights for beneficial uses including hydropower production, agriculture, hatcheries, and other downstream water diversions.

Please refer to Volume I Potential Impact 3.8-1 (pages 3-676 to 3-679) and Volume II Appendix M. The Lower Klamath Project reservoirs contain approximately two percent of the active surface water storage in the Klamath River watershed. The dams are operated for short-term water storage to be released for hydropower operations. As hydropower operations would cease at the Lower Klamath Project dams under the Proposed Project, use of these hydroelectric power-generation rights would cease. As described in Volume I Potential Impact 3.8-1 (pages 3-677 to 3-679) this cessation of diversion is not anticipated to have a significant impact on other domestic and agricultural diversions in the Klamath River downstream of the Hydroelectric Reach. With respect to the loss of hydropower generation associated with the Lower Klamath Project, this topic pertains to a portion of the Draft EIR that was recirculated on

December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Under the Proposed Project, diversions for Iron Gate Hatchery operations would decrease, and the point of diversion would change from Iron Gate Reservoir to Bogus Creek (Volume I Section 2.7.6.1 *Iron Gate Hatchery* [pages 2-77 to 2-80]). As identified in the EIR, there are no water diversions between the hatchery diversion location and the point of return for the water. The existing water flows that the California Department of Fish and Wildlife (CDFW) diverts into the Fall Creek Hatchery would increase under the Proposed Project as the hatchery is returned to operation for eight years following dam removal. Please refer to Volume I Potential Impact 3.8-1 (pages 3-676 to 3-679) and Master Responses WSWR-5 and WSWR-6 below for further discussion of the City of Yreka and hatchery water rights. Neither of these changes are anticipated to impact other water rights holders because there are no intervening diverters associated with the hatchery points of diversion and hatchery use is non-consumptive. Additionally, after eight years hatchery operations are planned to cease. Please refer to Master Response WSWR-1 for a discussion of potential effects on agricultural and downstream water supply.

WSWR-4 Potential Sediment Impacts on Water Diversions Downstream of the Lower Klamath Project

Some comments express general concern about potential impacts to diversion works downstream of the Lower Klamath Project that may result from increased sedimentation that is expected to occur during and following dam removal activities. Some of these comments have included concern that impacts to individual diversions were not evaluated with greater particularity. As described in Master Responses WSWR-1 and WSWR-3, the Proposed Project was not found to have a significant impact on water supplies or water rights. However, the EIR does evaluate and require mitigation for potential impacts related to sediment release and deposition.

Volume I Potential Impact 3.8-3 (page 3-680 to 3-682) evaluates the potential impact from releases of stored reservoir sediments during Proposed Project implementation to Klamath River water intake pumps downstream of Iron Gate Dam. USBR (2012a) conducted detailed hydraulic, hydrologic, and sediment transport modeling to determine the potential for sediment-related impacts due to removal of the Lower Klamath Project dams. This model does not address localized sediment deposition and erosion at a site-scale, which could affect existing diversion facilities.

No comments were received identifying individual diversion infrastructure that could be impacted due to sediment releases and deposition under the Proposed Project. The findings of Volume I Potential Impact 3.8-3 (pages 3-680 to 3-682) already discloses that sediment releases during reservoir drawdown could significantly affect the functionality of downstream diversion facilities. To address this potential impact, Mitigation Measure WSWR-1 (Volume I, page 3-681 to 3-682) requires individualized mitigation to address any impacts, with the option for diverters to engage in pre-project evaluations. With mitigation, the impact would be less than significant.

WSWR-5 City of Yreka Water Supply/Water Rights

Some comments express concern about potential impacts to the City of Yreka's water supply, which is diverted from Fall Creek (see also Volume I Section 2.7.7 *City of Yreka Water Supply Pipeline Relocation* [pages 2-84 to 2-86]). Specific concerns include potential impacts from the pipeline alignment, instream bypass flow requirements in Fall Creek, PacifiCorp diversions from Spring Creek to Fall Creek, and the City's diversion intake structures on Fall Creek. Please refer to Master Responses WSWR-6 and WSWR-7 for a discussion of water availability and water rights in the Fall Creek watershed.

As described in Volume I Potential Impact 3.8-4 (pages 3-682 to 3-683), the existing water supply pipeline for the City of Yreka passes under Iron Gate Reservoir and would have to be relocated prior to reservoir drawdown to prevent potential damage. Three alternatives have been developed for proposed modifications to the pipeline, and the KRRC would determine the preferred alternative in consultation with the City of Yreka. During connection of a new pipeline, the KRRC anticipates that the existing pipeline would be disconnected for less than 12 hours during the winter season. The available water in the City of Yreka's storage facilities is able to supply the City of Yreka for up to 60 hours during the winter (see also Volume II Appendix B: *Definite Plan*).

In light of the lack of the specific construction detail necessary to fully support the KRRC's outage estimate, the EIR includes Mitigation Measure WSWR-2. Mitigation Measure WSWR-2 requires both coordination on the planned outage with City of Yreka and a separate approval for any outage longer than 12 hours and requires that the outage will not impair the City of Yreka's ability to supply water.

The 15 cubic feet per second (cfs) instream bypass flow requirement associated with the City of Yreka's water right is derived from provisions of the agreement between the City of Yreka and CDFW executed in 1967 and filed with the State Water Board. The condition was included in the amended permit for diversion and use granted by the State Water Board in 2012. There is no evidence that CDFW's 15 cfs bypass flow requirement is not suitable for potential future use of Fall Creek by salmonids, regardless of the entity that owns and operates Fall Creek hatchery, and no amendment to that obligation is part of the Proposed Project. CDFW has given no indication in its comments on the Draft EIR that a higher flow would be necessary in Fall Creek with access by anadromous fish or with hatchery operation. Additionally, under California water rights law, diversions under junior water rights must cease if demand under all senior water rights has not been met; exercise of a junior right cannot harm the senior right.

Concerns related to future increases of bypass flow requirements are speculative and not analyzed in this EIR.

With respect to concerns regarding potential impacts to the City of Yreka's water supply diversion intake structures, the Definite Plan (Volume II Appendix B: *Definite Plan*) indicates that the existing flat panel fish screens for the water supply intakes at Dams A and B may not meet current regulatory agency screen criteria for anadromous fish and may require updates (see also Volume I Section 2.7.7 *City of Yreka Water Supply Pipeline Relocation* [pages 2-84 to 2-86]). Since issuance of the Draft EIR, the KRRC has proposed to include a permanent fish passage barrier at the Fall Creek Hatchery, located approximately 200 to 300 feet downstream of both Dams A and B (KRRC 2019a), such that there would be no need for updates to the City of Yreka's Dam A or B existing diversion intake structures and there would be no impacts.

WSWR-6 Fall Creek Hatchery Water Rights

Some comments express concern that increased water diversions from Fall Creek associated with re-opening the Fall Creek hatchery could preclude the City of Yreka from diverting their full water right.

Water diversions from Fall Creek associated with operation of the Fall Creek Hatchery would not impact the City of Yreka's water right, including its bypass flow requirement. CDFW's non-consumptive water right diverts water primarily downstream from the City of Yreka's diversion point with an optional 0.33 cubic feet per second (cfs) diversion above the City of Yreka's Dam B on Fall Creek. After passing through the hatchery, all diverted water (less evaporative losses) would be returned to Fall Creek upstream of the City of Yreka's bypass flow compliance point (i.e., location of USGS Gage No. 11512000 approximately 1,000 feet upstream of Daggett Road). Please refer to Volume I Section 2.7.6.2 *Fall Creek Hatchery* (pages 2-81 to 2-84) for further discussion. See also Master Response WSWR-5.

Since issuance of the Draft EIR, the KRRC has proposed to use 0.33 cfs from the optional diversion point located upstream of the City of Yreka's Dam B on Fall Creek. The KRRC proposes to use water from the optional diversion for egg incubation at Fall Creek Hatchery and proposes that this diversion would be part of the 10 cfs maximum diversion for operation of the hatchery. This diversion would also be non-consumptive. As noted above, all diverted water (less evaporative losses) would be returned to Fall Creek upstream of the bypass flow compliance point for the City of Yreka's water supply. Further, although the 0.33 cfs would be diverted upstream of the City of Yreka's Dam B, the amount of this diversion is relatively small compared with historical Fall Creek flows and historical City of Yreka diversions (Volume I Figure 2.7-16 [page 2-84]) and therefore the 0.33 cfs diversion would not preclude the City of Yreka from diverting their full water right.

WSWR-7 PacifiCorp Water Rights in Fall Creek and Spring Creek

Some comments express concern that reductions to PacifiCorp's water rights in Fall and Spring creeks could preclude the City of Yreka from diverting their full water right.

PacifiCorp's water diversions on Spring and Fall creeks and hydropower generation at the Fall Creek powerhouse are part of the Klamath Hydroelectric Project (KHP) and are not part of the Proposed Project. PacifiCorp's ownership and operation of the portions of the KHP that are not part of the four dams and the associated facilities proposed for removal (i.e., the Lower Klamath Project), or part of Parcel B lands, are not being changed under the Proposed Project. Whether the Federal Energy Regulatory Commission (FERC) would alter PacifiCorp's Spring Creek diversion in the future, as related to the KHP, is speculative and is not analyzed in this EIR. The State Water Board anticipates that any such change would be the subject of a future proceeding under FERC, which would include the opportunity for public and State Water Board input on decisions to continue or to change current operations.

2.2.11 Greenhouse Gas Emissions and Energy Master Responses

ENR-1 Rate Increases

Several comments state the belief that removal of the Lower Klamath Project facilities would result in power rate increases for PacifiCorp customers. Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment (see also Volume I Section 5.4 *Social and Economic Factors Under CEQA*).

Although under CEQA no further response is required, the following information is provided as context for power rates. The excerpt below is taken from the U.S. Bureau of Reclamation's (USBR's) response to public comments on this topic, as presented in Volume III of the 2012 KHSA EIS/EIR. This State Water Board is not aware of any limits to the applicability of the below analysis and conclusions regarding costs since its publication.

"Rates for PacifiCorp customers in the Klamath Basin are anticipated to rise even if the dams are retained. Any rate increase would be used to fund a portion of [dam removal], if approved, or the cost of relicensing, if not approved. Federal funds and California bond funds would be used to pay for the remainder of the costs associated with the Proposed [Project]. Rate increases for utility customers are controlled by public utility commissions to prevent price gouging and sudden harmful increases in power costs. Both the Oregon Public Utilities Commission (PUC) and the California PUC (CPUC) have determined that the cost to PacifiCorp customers would be less under a decommissioning scenario than a relicensing scenario."

According to the Oregon PUC hearings on the cost increases associated with the KHSA [Klamath Hydroelectric Settlement Agreement], PacifiCorp claimed that relicensing would cost their customers in excess of $400 million in capital costs and $60 million in operations and maintenance costs over a 40-year license term (Oregon PUC Order No. 10-364 can be found at https://apps.puc.state.or.us/orders/2010ords/10-364.pdf). In contrast, the cost of decommissioning the Lower Klamath Project has been capped at $450 million under the KHSA, and customer contributions have been capped at $200 million with up to $184 million coming from Oregon customers and up to $16 million from California customers. In California, the annual collection from PacifiCorp may not exceed two percent of their annual revenue, and it must be collected as a specified amount per kilowatt-hour billed to customers. The State of California is providing the remaining $250 million through Proposition 1 bond funding (Amended KHSA 2016 can be found at http://www.klamathrenewal.org/wp-content/uploads/2017/04/2016.12.31-Executed-and-Amended-Final-KHSA.pdf).

The CPUC also determined that the KHSA would provide more certainty to PacifiCorp customers in terms of cost than a relicensing scenario, as the KHSA mandates specific cost caps to PacifiCorp's customers. Without the KHSA, the CPUC finds that PacifiCorp's ratepayers would be subject to "an uncertain amount of cost in addressing what to do with PacifiCorp's Klamath assets" (CPUC Final Decision to Authorize a Surcharge to Recover the Costs of Removing the Klamath Assets can be found at http://docs.cpuc.ca.gov/PUBLISHED/FINAL_DECISION/134812-03.htm).

2.2.12 Geology, Soils, and Mineral Resources Master Responses

GEO-1 Fine Sediment Modeling and Analysis

Several comments were submitted regarding the EIR's overall approach to sediment modeling and analysis for the Proposed Project and alternatives, the downstream extent of potential fine sediment impacts during and following dam removal, and the analysis approach for addressing spatially discrete fine sediment impacts. These topic areas are discussed below.

1D and 2D Sediment Models

Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), which is partially modified in Volume III Attachment 1, describes the results of sediment modeling for the Proposed Project undertaken by USBR (2012a). While not cited in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), results of sediment modeling conducted by Stillwater Sciences (2008) are cited in USBR (2012a) and used towards analyzing how the rate of reservoir drawdown would affect the amount of erosion of the reservoir sediment deposits.

Stillwater Sciences (2008) originally used the peer-reviewed Dam Removal Express Assessment Model (DREAM-1) (Cui et al. 2006a,b) to identify preferred reservoir drawdown options for minimizing suspended sediment impacts to the Klamath River, especially biological resources, downstream of Iron Gate Dam. USBR (2012a) subsequently applied the one-dimensional (1D) Version (2.4) of the Sedimentation and River Hydraulics sediment transport model (SRH-1D), developed by Huang and Greimann (2010), to examine surface hydrology, groundwater hydrology, hydraulics, geomorphology, and sediment transport within the Klamath River Basin under the No Project Alternative (dams remain in place) and the Proposed Project (dam removal). Fine and coarse sediment were both modeled by USBR (2012a), including 48 two-year simulations (1961-2008) focused on suspended sediment, as well as three fifty-year simulations considering long-term evolution of the riverbed, with drawdown (3 ft/day maximum) modeled for dry, median, and wet water year types.

Information on the data and model parameters input to the SRH-1D model is included in USBR (2012a, pages 9-4 to 9-5). The sediment load inputs to the SRH-1D model are also described in USBR (2012a, pages 5-4 to 5-11), with additional information on tributary sediment loads provided in Stillwater Sciences (2010). In addition to the SRH-1D model, USBR (2012a, pages 9-56 to 9-85) also applied a two-dimensional (2D) model (SRH-2D v3) for Copco No. 1 Reservoir, which verified the erosional patterns predicted by the SRH-1D model for Copco No. 1 Reservoir.

The main difference between 1D and 2D sediment models is that 1D models consider flow velocity (i.e., the speed that water travels in the river channel) and water surface elevation (i.e., water level) as average values that remain constant across the width and depth of the river channel, whereas 2D models allow flow velocity and water surface elevation (also expressed as average values) to vary across the width of the river channel using a spatially distributed grid or mesh of input data. At an even finer scale, 3D models apply a mesh of input data across the width, depth, and upstream to downstream dimension of the river channel. 1D sediment models are technically sound for assessing sediment erosion, transport, and deposition, and associated channel change, in the upstream to downstream direction (i.e., the "longitudinal" dimension). For the purposes of Volume I Section 3.11 *Geology, Soils, and Mineral Resources*, the SRH-1D sediment model results were used to assess whether the Proposed Project would result in substantial deposition[8] of sediment in the Klamath River channel or Klamath River Estuary due to erosion of reservoir sediment deposits, and

[8] To affect the significance determinations for reaches downstream of Cottonwood Creek, a 2D model would have to find that there would be substantial deposition of sediment as defined in Volume III Attachment 1 Section 3.11.3 *Geology, Soils, and Mineral Resources – Significance Criteria*, where clarifying text has been added since the Draft EIR, or a risk to people and structures.

whether people and structures would be adversely affected (see Volume I Section 3.11.3 *Geology, Soils, and Mineral Resources – Significance Criteria* on page 3-759 and the modifications in Volume III Attachment 1). Although 2D sediment modeling would improve the understanding of sediment dynamics across the river channel (i.e., the "lateral" dimension), the results of such an undertaking would not change the EIR significance determinations presented in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) because the EIR already discloses that there would be short-term substantial deposition of sediment in the Klamath River channel between Iron Gate Dam and Cottonwood Creek in the short term (i.e., a significant and unavoidable impact) and recognizes the potential for spatially discrete fine sediment deposition in slack-water areas farther downstream. Additionally, 2D model results are usually consistent with 1D results as seen with 2D and 1D models used for reach-scale analyses of erosion and sediment deposition in river systems (Stillwater Sciences 2008; and the SRH-2D v3 model in USBR 2012a). The finer-scaled pattern of sedimentation across the river width (i.e., in slack water areas) downstream of Cottonwood Creek that could be predicted by a higher resolution 2D model would not affect the key findings of the EIR analysis or change the significance determinations.

The SRH-1D model simulations applied are considered appropriate for assessing the potential effects of dam removal in the context of CEQA. Furthermore, the advantage of 1D sediment modeling is that it is computationally less intensive and for assessing impacts from the Project, more efficient than 2D or 3D modeling. This allowed for SRH-1D models to be applied to the Klamath River from upstream of J.C. Boyle Dam (RM 229.8) to the Pacific Ocean using two-year simulations over a 48-year period (1961-2008), as well as using three separate 50-year simulations with reservoir drawdown modeled to occur in dry, median, and wet water year types (USBR 2012a). Modeling over this length of river and for this number of years would be impractical with 2D or 3D models, and modeling a fewer number of years would significantly reduce the probability that the hydrological conditions present during project implementation would be captured by any model predictions.

River Sediment Transport and Downstream Extent of Significant Short-term Sedimentation Impacts

The existing sediment deposits in J.C. Boyle, Iron Gate, and Copco No. 1 have a high water content (80 to 90 percent) and over 80 percent of the sediments are fine-grained (see Table 3.11-6 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [page 3-766]), which means that they are highly erodible. Based on the above described, technically sound, SRH-1D model simulations, USBR (2012a) estimated that between 5.4 and 8.6 million yd^3 [1.2 to 2.3 million tons], or 36 to 57 percent of the total reservoir sediment volume, is expected to be eroded and transported downstream during the drawdown period (see Table 3.11-7 in

Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [page 3-767 to 3-768]). Whether sediment eroded and transported would be within the lower, mid, or upper portion of this range is primarily related to whether drawdown occurs in a dry, normal, or wet water year, with more erosion and transport expected in a wet water year (see Figure 3.11-11 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [page 3-768]).

In addition to modeling the amount of sediment that would be eroded and transported downstream, the SRH-1D model simulated reach-averaged erosion of, and deposition on, the channel bed (USBR, 2012, pages 9-34 to 9-37). Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both SRH-1D simulations (i.e., the 48 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

The model simulations found that the reservoir sediment deposits would erode in the Hydroelectric Reach, with minimal deposition (see Figure 3.11-13 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [page 3-771]). The model also found that most of the fine-grained sediment would be transported downstream to the Pacific Ocean during the drawdown process (USBR, 2012, page 9-33). In the downstream direction, flows in the Klamath River increase due to tributary inflows (see Table 3.6-9 in Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* [pages 3-616 to 3-617]), such that for the same riverbed slope there is greater stream power to hold sediment suspended in the water (see Table 3.11-3 in Volume I Section 3.11.4.2 *Geology, Soils, and Mineral Resources – Impacts Analysis Approach – Suspended Sediment* [pages 3-749 to 3-750]). Therefore, as the fine sediment load moves downstream during reservoir drawdown and in the short term following dam removal, it is not likely to be deposited in any substantial way unless there is a decrease of riverbed slope great enough to counter the power of water flow, which does not occur in the 193 river miles between Iron Gate Dam and the Pacific Ocean. USBR (2012a) modeled sediment deposition results are supported by Stillwater Sciences (2008) model results, which used the peer-reviewed Dam Removal Express Assessment Model (DREAM-1) (Cui et al. 2006a,b), and returned no discernable sediment deposition downstream of Iron Gate Dam for any simulations.

Based on the SRH-1D model results, the downstream extent of substantial sediment deposition would be Cottonwood Creek. The Klamath River reaches where sediment deposition is most likely to occur within two years of dam removal are Bogus Creek to Willow Creek and Willow Creek to Cottonwood Creek (RM 185.1), both of which have relatively low riverbed slope (approximately 0.2 to 0.4 percent within 5 miles of Iron Gate Dam) compared with upstream reaches, and are upstream of the first major tributary inflow–the Shasta River (RM 179.5) (see Figure 3.11-15 in Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5). Between Bogus Creek and Cottonwood Creek most of the predicted sediment deposition would be sand or larger, with fine sediments remaining in suspension in the water column through these reaches. The SRH-1D model simulation found that the streambed level could be raised (i.e., the process of 'aggradation') by 0.8 to 1.7 feet between Iron Gate Dam and Cottonwood Creek if drawdown occurs in a normal water year due to primarily coarse sediment deposition, with less in dry and wet water year types (USBR 2012a, pages 9-36 to 9-37). In these reaches, the greatest deposition is expected in a normal water year type, because less sediment would be eroded from the upstream reservoirs in a dry water year, and more sediment would remain suspended in the water column through these reaches in a wet water year. The potential effects of this deposition between Bogus Creek and Cottonwood Creek on aquatic habitat are described in Volume I Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Master Response AQF-7. Regarding geomorphic hazards, the flow of water and sediment is expected to follow existing and historic channels, which are reasonably confined and have sufficient width-depth ratios to allow for the predicted sediment deposition to occur within the channel.

Farther downstream, between Cottonwood Creek and the Shasta River, there is more likely to be minor scour than sediment deposition, and downstream of the Shasta River there would insignificant deposition (less than 0.1 feet) within two years following dam removal (see Figure 3.11-15 in Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5). Based on the SRH-1D model, downstream fluctuations of stream power (USBR 2012a, page 4-9) would not be substantial enough to result in suspended fine-grained load dropping out of the water column in reaches downstream of Cottonwood Creek. The estimated equivalent 10-year flood flow that would occur during reservoir drawdown would be large enough to spill onto lower elevation floodplains, with some spatially discrete sediment deposition expected in these locations. Although mitigation would be required to reduce the short-term impacts of elevated suspended sediment concentrations on coho salmon critical habitat and Chinook and coho essential fish habitat in the Klamath River between Cottonwood Creek and the Shasta River (see Potential Impacts 3.3-1 through 3.3-16 in Volume I Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*), return of more natural sediment loads to the Klamath River, which has been historically sediment starved by dams and hydraulic mining, would be beneficial for aquatic species in the long term (see Volume III Attachment 1 Section 3.3.5.2 *Aquatic Resources – Potential Impacts and Mitigation – Bed Elevation and Grain Size*

Distribution and Master Responses AQF-7 and AQF-10). Further, any fine sediment deposition that does occur in the short term or long term would have positive benefits for riparian vegetation establishment and would expand habitat suitable for larval rearing of Pacific lamprey (see Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Habitats* Potential Impact 3.3-11).

Short-term Spatially Discrete Sedimentation Impacts

As USBR (2012a) used a combined data reporting approach for the two-year model simulations, the report does not explicitly account for transient (i.e., temporary) sediment storage and erosion effects within the two-year period immediately following dam removal, or thereafter. Although most fine-grained sediment is expected to move downstream during drawdown (as described above) and Stillwater Sciences (2008) found that the amount of pool filling within the Klamath River bed would be small, there would be some spatially discrete sedimentation effects, such as deposition in slack water areas (e.g., pools, eddies, alcoves) (see Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [pages 3-772 to 3-773], which is partially modified in Volume III Attachment 1). This prediction was considered in the analyses of geology, soils, and mineral resources, hydrology, water quality, and aquatic biological resources for the Proposed Project and the alternatives, and is described as such in the Draft EIR.

The likely persistence of any fine sediment that does deposit along the Klamath River would be dependent on the flow magnitude required for remobilization of surface sediments. Shea (2016) summarized available information on this subject, and found the following:

- The flow required to mobilize fine sediments deposited in surface layers (i.e., exceed the shear stress) on 20-30% of the riverbed downstream of Iron Gate Dam is 5,000 cfs to 8,000 cfs (adapted from Holmquist-Johnson and Milhous 2010).
- The flow required to initiate slight mobilization of the riverbed (i.e., for the Shield’s parameter to reach or exceed the reference Shield’s stress), which would correspond to a small, but measurable, sediment transport rate, with potential flushing of sand to a depth of gravels and cobbles with a D_{90} particle size (i.e., the particle size diameter at which 90 percent of the riverbed’s sediment is comprised of particles with a diameter less than this value), downstream of Iron Gate Dam varies by reach and ranges from 5,800 cfs to 20,000 cfs (USBR 2012a).

Additionally, Ayres Associates (1999) provide geomorphologically specific information on the sediment motion associated with pools and riffles using a set of criteria related to grain shear stress, the specific weight of water, sediment size, and sediment density (termed “Shield’s criteria’) throughout the length of the Klamath River downstream of Iron Gate Dam, which are both considered here:

- Riffles comprise coarser sediment and conditions for sediment motion are frequently exceeded on parts of the riffle, even in low flows, because riffles are shallow with relatively high velocities and rough surfaces. Using Shield's criteria, the flow required for full mobility of the highest point on a riffle (i.e., riffle crests) at Little Bogus Creek (RM 187), which is upstream of Cottonwood Creek, is approximately 9,800 cfs, and this increases downstream to 147,000 cfs at Blue Creek (RM 16) using D_{50} (i.e., the particle size diameter at which 50 percent of the riverbed's sediment is comprised of particles with a diameter less than this value).
- Pools comprise finer sediment, and in the Klamath River the long-term capacity for storing fine sediment along the riverbed greatly exceeds the fine sediment supply. Using Shield's criteria, the flow required for sediment motion in pools at Little Bogus Creek is approximately 5,400 cfs, increasing downstream to 25,000 cfs at Blue Creek using D_{84} (i.e., 2 mm—the particle size diameter at which 84% of the riverbed's sediment is comprised of particles with a diameter less than this value). Using a smaller particle size (e.g., D_{50}) reduces the flow required for motion of fine sediment in pools.

In the reaches where significant sediment deposition is most likely to occur (Bogus Creek to Cottonwood Creek), the median estimate for initiation of mobilization of the existing bed substrate is a flow of approximately 10,250 cfs, which has a return period of approximately 4 years based on data from 1961-2008 (see Figure 3.11-6 in Volume III Attachment 1 Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Impacts Analysis Approach – Sediment Load*) (USBR 2012a). As discussed in *Geology Soils and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 and USBR (2012a, pages 9-86 to 9-88), fining of the channel bed post dam removal is predicted to reduce the return period flow required to initiate mobilization of the channel bed to approximately 6,000 cfs from Bogus Creek to Cottonwood Creek. Therefore, controlled flushing flows in the order of 6,000 cfs (USBR 2018a; NMFS 2019; USFWS 2019a) may result in some bed mobilization from Bogus Creek to Cottonwood Creek. The amount of sediment deposition predicted by the SRH-1D model results between Bogus Creek and Cottonwood Creek, and the potential for these sediment deposits to remain in place for more than two years until a sufficiently large flow can mobilize them, led to the significant and unavoidable impact determination associated with Potential Impact 3.11-5 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* (page 3-765 to 3-775).

Downstream of Cottonwood Creek, the potential for impacts due to spatially discrete fine sediment deposition (i.e., deposition that occurs in slack water areas such as pools, eddies, and alcoves) would not be significant because the predicted sedimentation (described above) is sufficiently small and any sedimentation that does occur would be expected to mobilize during subsequent flood events. As described above, flows of 5,000 to 8,000 cfs could be sufficient to flush surface sediment downstream of Iron Gate Dam. Modeling by USBR

(2012a) produced reach-by-reach flow estimates, which were considered in preparing the EIR. Based on USBR (2012a), none of the reaches from Cottonwood Creek to Indian Creek have a median return period for initiation of sediment transport (i.e., surface flushing) greater than 4.5 years (see Figure 3.11-6 in Volume III Attachment 1 Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Impacts Analysis Approach – Sediment Load*). No significant fining of the channel bed from Cottonwood Creek to Indian Creek is predicted that would alter the historic return period for sediment mobilization (USBR 2012a, pages 9-86 to 9-88). Under the USBR Klamath Irrigation Project 2019 BiOp (USBR 2018a; NMFS 2019; USFWS 2019a), flow releases of approximately 6,000 cfs would occur at Iron Gate Dam annually in spring, which would be expected to generate surface flushing in some reaches (i.e., reaches with the lowest shear stress) downstream of Iron Gate Dam. Although there are some differences between lower flows modeled by USBR (2012a) for the 1961−2011 period and lower flows that would occur with the 2019 BiOp (USBR 2018a; NMFS 2019; USFWS 2019a), the peak flows (>5,000 cfs) that would mobilize sediment are similar. Therefore, with the 2019 BiOp, the return periods modeled by USBR (2012a) for initiation of sediment transport continue to be relevant to this discussion and the EIR.

Should spatially discrete downwelling of sediment (i.e., downward movement of finer sediment into the matrix of larger particles on the riverbed) occur, the subsequent geomorphologically effective flow would redistribute (sort) the gravel and cobble layer on the riverbed, as well as widen the channel and remove aquatic vegetation. Shea (2016) estimates that this would occur with flows of approximately 15,000 cfs downstream of Iron Gate Dam, which have a return period probability of 10 years; although Ayres Associates (1999) suggest that geomorphic reworking of riffle crests may occur more frequently, and USBR 2012a (Figure 5-25 on page 5-8) indicate that slightly higher flows would be required for significant bed mobilization with return periods of 10.5 to 12.5 years. This is a cyclic geomorphic phenomenon, where sediment and vegetation build up until the next geomorphologically effective flow rejuvenates the reach, and the process repeats itself, maintaining approximate sediment equilibrium of free-flowing rivers at the time scale of decades. This process of sorting and redistributing sediment would reduce the impact of substantial short-term sediment deposition upstream of Cottonwood Creek in the long term. The Proposed Project would have the beneficial long-term (i.e., 50 years) effect of increasing sediment supply and transport and creating a more dynamic and mobile bed downstream of Iron Gate Dam. Farther downstream where no substantial short-term sediment deposition would occur, none of the reaches from Cottonwood Creek to Indian Creek have a median return period for significant (full bed) mobilization, which would sort the gravel and cobble layer, greater than 12 years (see Figure 5-25 in USBR 2012a, page 5-8). Downstream of Beaver Creek, significant bed mobilization would occur frequently, with the median estimate of every two to three years. Any potential small and spatially discrete fine-grained sediment deposition downstream of Cottonwood Creek is expected to have the longest residence time between the Shasta River and Beaver Creek.

Minimization and Monitoring Requirements

The EIR determined that potential sediment deposition between Iron Gate Dam and Cottonwood Creek would be significant and unavoidable (Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [pages 3-765 to 3-775]) because mitigation measures could not reduce deposition in the Klamath River channel between Bogus Creek and Cottonwood Creek to an amount that would not be substantial. The significance of potential sedimentation was, therefore, fully disclosed in the Draft EIR based on the best available science, and technically sound information, described above. This determination was made after accounting for Proposed Project measures to minimize ongoing sediment erosion and impacts. Mechanical methods for moving and stabilizing sediment have been avoided in the Proposed Project, in favor of softer measures to achieve the same objectives. Sediment jetting would be used to maximize sediment erosion during drawdown, thus minimizing potential future erosion of reservoir sediment deposits, and is described in Volume I Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 (pages 3-84 to 3-106), which is revised and reprinted in Volume III Attachment 1. Additionally, during and after reservoir drawdown, hydroseeding would be used to stabilize sediments, with vegetation management for at least five-years following dam removal (see Volume II Appendix B: *Definite Plan*, pages 211-215).

The approach in the EIR does not affect monitoring that would be required under the Clean Water Act Section 401 certification for the Lower Klamath Project. The Definite Plan (see Volume II Appendix B: *Definite Plan – Appendix M*) includes a Water Quality Monitoring Plan to assess the Proposed Project's impacts to water quality, and this plan includes turbidity and suspended sediment concentration monitoring, along with adaptive management requirements. Please note that the State Water Board has authority to review and approve any final Water Quality Monitoring Plan through its water quality certification under the Clean Water Act, Section 401. The State Water Board released a Draft Water Quality Certification for public comment on June 07, 2018. The Draft Water Quality Certification sets forth water quality monitoring, adaptive management, and compliance requirements for any Water Quality Monitoring Plan to meet under Conditions 1 and 2. For informational purposes, note that the Draft Water Quality Certification requires quantification of the amount of sediment present in each Proposed Project reservoir footprint, the total amount of sediment exported from the Proposed Project reservoirs, and the amount of sediment that settles in the Klamath River between Iron Gate Dam and Cottonwood Creek following dam removal in the short term.

Conclusion

Although significant sediment deposition may occur between Iron Gate Dam and Cottonwood Creek, most eroded reservoir sediments are predicted to be transported to the Pacific Ocean as particles that remain suspended in the water during drawdown and in the short term following drawdown. The DREAM-1 model applied by Stillwater Sciences (2008) and the SRH-1D model applied by USBR (2012a) both indicate that fine sediment deposition in the Klamath River downstream of Cottonwood Creek would be minimal. Any spatially discrete fine sediment deposition (i.e., deposition that occurs in slack water areas such as pools, eddies, and alcoves) would also likely be transient (i.e., temporary), with remobilization occurring in near-term floods (i.e., for initiation of remobilization, 4.5-year probability or less).

The SRH-1D model, which is used as a basis for assessing downstream sediment impacts in the EIR, is technically sound and fit-for-purpose. The significance determinations in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 would not change with application of a different sediment model or more spatially discrete geomorphic analysis, because the existing sediment models were sufficient to assess potential sediment-related impacts of the Proposed Project against criteria relevant to CEQA, and the reach-by-reach significance of potential sedimentation was fully disclosed in the Draft EIR. Therefore, additional analysis of fine sediment erosion, transport, and deposition, as suggested by some commenters, is not necessary for the purposes of the EIR, and would be an unreasonable use of time and resources.

GEO-2 Potential For Slope Instability

Several commenters expressed concern about the potential for drawdown to trigger slope instability at specific locations around the Copco No. 1 Reservoir rim. Some slope stability-related comments also assert that existing and proposed geologic investigations and analyses to better define slope stability along the reservoir rim are inadequate to define the impacts and associated mitigation, and that monitoring of large, potentially unstable areas within Copco No. 1 Reservoir included in Mitigation Measure GEO-1 should be extended to a five-year period following drawdown.

Please refer to Volume I Section 3.11.2.3 *Slope Instability and Mass Wasting* (pages 3-747 to 3-748) for a general description of existing slope instability around the reservoirs and Volume III Attachment 1 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 for a detailed analysis of specific areas along the Copco No. 1 Reservoir rim where slope instability may occur during reservoir drawdown. Potential Impact 3.11-3 also includes a description of measures that KRRC will implement to mitigate the potential impacts of slope instability during drawdown (see also Volume II Appendix B: *Definite Plan*). Mitigation Measure GEO-1 specifies that KRRC shall implement these measures to mitigate the potential impacts of slope instability during reservoir drawdown; and specifies additional monitoring and inspection of unstable or potentially unstable areas throughout and following drawdown, as well as revegetation of affected areas.

For development of the Definite Plan (Volume II Appendix B of the EIR), the KRRC summarized existing geologic mapping, performed additional geologic mapping, conducted subsurface investigations with lab testing, and, using results of the testing, characterized and analyzed the stability of sediments in the reservoir rim and bed areas. Based on these analyses, KRRC identified certain areas that have the potential for slope instability as a result of proposed activities associated with dam removal. Where areas of potential instability occur above the current reservoir water surface, and where these instabilities could result in impacts to existing roads, private property, or structures during and following reservoir drawdown, KRRC would mitigate these impacts by implementing the below summarized actions, also specified in Mitigation Measure GEO-1.

Mitigation Measure GEO-1 specifies that KRRC will visually monitor potentially unstable areas along the Copco No. 1 Reservoir rim for the duration of reservoir drawdown and for two weeks following drawdown, or longer, if KRRC determines that a longer monitoring period is prudent. Depending on the location, monitoring may involve tribal monitors (see also Mitigation Measures TCR-1, TCR-2, and TCR-3 in Volume III Attachment 1). If slope failure related to Project activities is observed, an exclusion zone will be established around the unstable area and the KRRC will monitor the unstable area. Throughout drawdown activities, and once the areas are safe to inspect, the KRRC shall inspect any slope failures and implement slope stabilization measures, as appropriate. For any slope failure related to Project activities that occurs during drawdown or the year following drawdown and that adversely impacts a structure or public facility or impacts or has a material potential to impact water quality or volitional fish passage, KRRC will fund or implement the following actions:

1. By agreement with the property owner, repair or move affected structures and/or purchase affected property; or
2. Repair and/ or re-align affected road segments; or
3. Regrade and/or engineer structural slope improvements (e.g., retaining walls, buttresses, drilled shafts or other structural elements that could be installed to resist slope movement); and
4. Revegetate affected areas to the extent revegetation is feasible and appropriate.

As stated in Volume III Attachment 1 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3, implementation of the aforementioned measures would reduce the potential impacts to a less than significant level. Although KRRC may be conducting additional analyses to better understand the site-specific potential for slope failure, the results of these analyses would be intended to provide more refined information regarding how best to implement Mitigation Measure GEO-1 to reduce potential impacts to the less than significant or no impact level, and the results of these analyses would not change the determination of environmental impacts detailed in the EIR, nor would they change the actions stipulated in the mitigation measure.

With respect to comments asserting that monitoring under Mitigation Measure GEO-1 should be extended to a five-year period following drawdown, the following explanation is provided. When the water level in a reservoir is high, hydrostatic pressures (i.e., pressures exerted by the reservoir water at equilibrium at a given point, due to the force of gravity) help to stabilize the shoreline slope. A reduction in water level reduces the stabilizing external hydrostatic pressure and changes pore pressures (i.e., pressures in the small spaces between grains of sediment) inside the shoreline slope, which can lead to slope instability. Analyses by KRRC indicate the potential for slope instability in particular areas of the Copco No. 1 Reservoir rim during drawdown. The potential for slope instability in subsequent years following drawdown would be substantially lower, since groundwater related to reservoir inundation would have drained and pore pressures associated with that groundwater would have dissipated. Thus, any instabilities after the initial drawdown and draining of the reservoir slopes immediately following drawdown are anticipated to be unrelated to the Proposed Project. Consistent with the analysis described in Volume III Attachment 1 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3, throughout and immediately following reservoir drawdown is the reasonable and appropriate period within which to monitor and inspect potential slope instability related to the Proposed Project as this period allows for sufficient time for the conditions that may result in instability to resolve.

2.2.13 Recreation Master Responses

REC-1 Flatwater Fishing and Boating

Some commenters have expressed concern that the removal of the Lower Klamath Project facilities would result in a loss of flatwater fishing and boating at the reservoirs, and some of these commenters view the Iron Gate and Copco No. 1 reservoirs as rare/unique flatwater habitat within California. Some commenters indicate that a lack of recent data in the Draft EIR to characterize recreational use of the Lower Klamath Project reservoirs for flatwater activities is problematic. Other commenters are concerned that the KRRC's proposed new recreational facilities and the existing facilities may not be sufficient to minimize Proposed Project's impacts to flatwater recreation.

Section 3.20 *Recreation* has been updated to include the most recent recreational use data that are available (2015−2019). Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Section 3.20.2.1 *Recreation –Regional Recreation – Reservoir- and Lake-based Regional Recreation,* Table 3.20-4, indicates that there are 12 other lakes/reservoirs with similar facilities within 50 miles of the Lower Klamath Project reservoirs and another seven lakes/reservoirs within 100 miles, including California's Trinity Lake Unit, Whiskeytown Lake, Shasta Lake, and Willow Lake, such that the Lower Klamath Project reservoirs would not be rare or unique resources. Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-2 discusses the impacts to flatwater fishing and boating. As discussed in Potential Impact 3.20-2, given that other regional facilities provide similar opportunities for reservoir-based recreation in an uncrowded setting, KRRC's proposal to retain and enhance most existing river access facilities, and Parcel B land transfer under the Proposed Project that would potentially allow for additional future river-based recreation opportunities, the Proposed Project would be highly unlikely to result in a loss of recreational facilities affecting a large area or substantial number of people.

Based on public comments on the Draft EIR, Section 3.20.3 *Recreation – Significance Criteria* has been revised to remove the requirement from the significance criteria for a recreational facility to be considered rare or unique before a change to or loss of a facility would be considered a significant impact. The particular revised criterion that would result in a significant impact to recreational resources is as follows: "Adverse changes to or loss of recreational facilities affecting a large area or substantial number of people." Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

REC-2 Level of Detail in KRRC's Draft Recreation Plan

Some commenters have expressed concern regarding the analysis and/or significance determination for Potential Impact 3.20-4. Others request further details regarding any future site-specific review of the new recreation sites proposed in the KRRC's Draft Recreation Plan and details on the Proposed Project's mitigation measures that would help reduce potential impacts on recreation, consistent with CEQA Guidelines 15168(c).

The KRRC's Recreation Plan takes a programmatic approach to developing recreational facilities and mitigating any impacts attributable to these developments. Proposed new recreational facilities are being evaluated by KRRC, including consideration of public input on the potential types and locations of these facilities. A Final Recreation Plan would be submitted to FERC, and this plan would include any new recreation facilities that are proposed by the KRRC. The Final Recreation Plan would be subject to environmental review under NEPA, and mitigation measures would be determined by FERC. If implementation of the Final Recreation Plan (at FERC's direction) requires any further state or local approvals, then written checklists would be prepared pursuant to CEQA Guidelines sections 15162 and 15168(c) to ascertain whether further site-specific environmental review of individual reactional projects would be necessary. Such individual projects shall be subject to applicable best management practices and mitigation measures required by FERC, applicable mitigation measures in this EIR, such as Mitigation Measures WQ-1, TER-1,

TER-2, TER-3, TER-5, TCR-1, TCR-2, TCR-3, and HZ-1, and any other measures required by an agency with jurisdiction over those individual recreation projects. The potential environmental impacts of these new recreational facilities would be reviewed at a project level in subsequent evaluations prior to their implementation. Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-4 has been removed in light of the discussion above. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

The EIR analyzes the potential environmental impacts of adding new recreational sites or expanding existing recreational sites for water quality (Potential Impact 3.2-4), aquatic resources (Potential Impact 3.3-21), terrestrial resources (Potential Impact 3.5-1, Potential Impact 3.5-7, Potential Impact 3.5-10), historical resources and tribal cultural resources (Potential Impact 3.12-1), and utilities (Potential Impact 3.18-1).

2.2.14 Hazards and Hazardous Materials Master Responses

HAZ-1 Identification and Disposal of Hazardous Materials due to Construction Activities

Numerous commenters expressed concern that hazardous materials associated with implementation of the Proposed Project, and their transport, use, disposal, accidental spill/release, handling, and/or emissions, have not yet been fully identified.

Please refer to a discussion of this topic in Volume I Section 3.21.2.1 *Hazards and Hazardous Materials – Environmental Setting – Transport/Releases of Hazardous Materials* (pages 3-1029 to 3-1031) and Volume I Section 3.21.2.3 *Hazards and Hazardous Materials – Environmental Setting – Contaminants/Contaminated Sites* (pages 3-1033 to 3-1035). Please also refer to Volume I Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* Potential Impact 3.21-1, specifically pages 3-1042 to 3-1045, Potential Impact 3.21-2, specifically pages 3-1045 to 3-1046, and Potential Impact 3.21-4, specifically pages 3-1046 to 3-1047 for analysis of the potential impacts of the Proposed Project as related to the routine transport, use, disposal, accidental spill/release, handling, and/or emissions of hazardous materials. Pages 3-1043 to 3-1044 list federal and state regulations applicable to this project.

As discussed in Volume III Attachment 1 Section 3.21 *Hazards and Hazardous Materials*, after the Draft EIR was released for public comment, the State Water Board received a submittal from PacifiCorp (dated December 30, 2019) which included redacted versions of Phase I and Phase II Environmental Site Assessment (ESA) reports. As noted in the submittal, these reports included the following:

Phase I ESA documents

- Phase I ESA for the Lower Klamath Hydroelectric Project, Dated August 23, 2019
- Phase I ESA for the City of Yreka Diversion Dam, Dated July 10, 2019
- Phase I ESA for the Fall Creek Hatchery, Dated July 10, 2019

Phase II ESA documents

- J.C. Boyle Development, Hazardous Building Materials Survey (HBMS) Revision 1, Dated August 27, 2019
- Copco No. I Development, HBMS Revision 1, Dated August 22, 2019
- Copco No.2 Development, HBMS Revision 1, Dated August 22, 2019
- Iron Gate Development, HBMS Revision 1, Dated August 22, 2019
- Iron Gate Hatchery and Fall Creek Hatchery, HBMS Revision I, Dated August 22, 2019
- City of Yreka Diversion Dam, HBMS Revision 1, Dated August 27, 2019
- Iron Gate Hatchery Burn Pit, Phase II ESA, Dated September 13, 2019

These redacted reports confirm the findings in the Draft EIR, which disclosed the potential for certain types of hazardous materials (e.g., asbestos, heavy metals, polychlorinated biphenyls [PCBs] creosote-treated wood), at the various facilities as well as information in Appendix B: *Definite Plan – Appendix O-3 Hazardous Materials Management Plan*. Volume III Attachment 1 presents the final Section 3.21 *Hazards and Hazardous Materials*.

HAZ-2 Potential for Increased Wildfire Risk due to Loss of Lower Klamath Project Reservoirs

(A) Numerous comments expressed the generalized concern that the Lower Klamath Project reservoirs would no longer be available for fire response crews to use as a water source for firefighting if the dams were to be removed.

Please refer to a discussion of this topic in Volume I Section 3.17.2.1 *Public Services – Environmental Setting – Fire Protection* (pages 3-909 to 3-911) as well as Volume I Section 3.21.2.6 *Hazards and Hazardous Materials – Environmental Setting – Wildfires* (pages 3-1036 to 3-1040). Please also refer to Volume I Section 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17-2 (specifically pages 3-915 to 3-921), for an analysis of whether elimination of a long-term water source for wildfire services would substantially increase the response time for suppressing wildfires in the vicinity of the Lower Klamath Project, and Volume I Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* Potential Impact 3.21-8 (specifically pages 3-1050 to 3-1053), for an analysis of whether dam removal construction-related activities and/or removal of the Lower Klamath Project reservoirs would substantially increase the public's risk of loss, injury, or death associated with wildland fires.

KRRC's most recent application for water quality certification of the Proposed Project, as submitted to the State Water Board in December 2019 (KRRC 2019a), includes the following additional information about the Fire Management Plan:

- "KRRC intends to avoid a material net increase of fire risk as compared to baseline conditions in the Project area as defined in the Definite Plan."
- "KRRC is developing an updated Fire Management Plan that will include effective and feasible strategies and concepts to enhance both short-term and long-term fire prevention, detection, and suppression in the Klamath River Basin, and will submit the updated Fire Management Plan with FERC in support of the pending surrender application."
- "The updated Fire Management Plan is being developed in consultation with federal, California, Oregon, and local fire agencies. During construction, these measures include, but are not limited to meeting or exceeding federal, Oregon, and California requirements for fire prevention and suppression during construction activities, implementation of best management practices following National Fire Protection Association standards, and the designation of a safety officer on site that is responsible for overseeing fire responsibilities for construction operations 24 hours a day, seven days a week. The Fire Management Plan will also address long-term fire management to ensure that the Klamath River Basin's fire-fighting resources are not diminished due to the implementation of the Project, including the potential deployment of technology that will rapidly detect wildfire ignitions in the Basin allowing fire agencies to respond quickly to fire ignitions. KRRC is also consulting with fire agencies on identifying replacement water sources and access, including identification of aerial river access points."
- "In addition, KRRC has also contracted with Reax, a leading fire engineering firm that has assisted utilities throughout California (including PacifiCorp) to reduce operational fire risk. Reax will assist KRRC with the development of the updated Fire Management Plan to ensure that the measures set forth in the updated Fire Management Plan will effectively reduce short- and long-term fire risk as a result of the implementation of the Project".

Section 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17-2 and Section 3.21.5 *Hazards and Hazardous Materials - Potential Impacts and Mitigation* Potential Impact 3.21-8 have been revised to include the additional information presented above. Please refer to Volume III Attachment 1 Sections 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17-2 and Section 3.21.5 *Hazards and Hazardous Materials - Potential Impacts and Mitigation* Potential Impact 3.21-8 for these revisions.

(B) Numerous comments expressed concern that Recommended Measure PS-1 is not an enforceable mitigation measure, the KRRC's Fire Management Plan (FMP) is a draft plan that has not yet been reviewed by fire suppression agencies, and coordination with CALFIRE regarding their specific needs and abilities has not yet occurred.

In CALFIRE's comment letter on the Draft EIR dated February 25, 2019 (please refer to comment SA4-1), CALFIRE notes *"…It is fair to say the possible impacts of the dam removal on firefighting would depend on a variety of factors including: Location of fire, type of fire, fire behavior, firefighting resources assigned to the fire, time of year when the fire occurs, the water flow of the Klamath River on the day of the fire, etc…. Ultimately the impact of the dam removals will have to be evaluated on a case by case basis. CAL FIRE is used to fighting wildland fires in a large variety of circumstances and will adapt to whatever conditions we encounter at each fire. Also CAL FIRE understands that the …(KRRC) will be working with CAL FIRE on KRRC's Fire Management Plan to address the analyzed issues."*

In KRRC's comment letter on the Draft EIR, dated February 26, 2019 (please refer to comment ORG47-3), KRRC states *"As a condition of license surrender, KRRC will address any potential increased response time and associated wildland fire risk due to implementation of the Proposed Project."* KRRC's EIR comment letter further states *"KRRC continues to work with CAL FIRE to identify not only replacement sources of water, but ways in which KRRC can facilitate the reduction of overall emergency response times through communications and roadway improvements."* KRRC goes on to describe specific steps that they would take to implement replacement sources and reduce overall emergency response times under the Proposed Project.

As mentioned above, the KRRC included additional information about its ongoing coordination with CALFIRE in its recent application to the State Water Board for water quality certification for the Proposed Project (KRRC 2019a). This and other clarifying information has been incorporated into Volume III Attachment 1 Section 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17-2 and Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* Potential Impact 3.21-8 for the revisions.

The State Water Board appreciates KRRC's commitment to addressing any potential for increased response time and associated wildland fire risks due to implementation of the Proposed Project as a condition of license surrender, and notes that the ongoing discussion and hiring of a contractor to reduce fire risk are steps that further increase the likelihood that fire risk will not increase, and may improve as a result of the mitigation measures. The State Water Board also appreciates the aforementioned comment letter from CALFIRE affirming the agency's ability to adapt to myriad fire risk situations and its intent to work with the KRRC on the Fire Management Plan. However, the EIR significance determination related to this topic remains 'significant and unavoidable' since the terms of an updated Fire Management Plan and its incorporation of Recommended Measure PS-1 are not within the State Water Board authority, and the State Water Board therefore cannot ensure implementation of Recommended Measure PS-1. For additional discussion of preemption under the Federal Power Act, please refer to Master Response CEQ-2.

2.2.15 Master Responses for the Recirculated Portions of the Draft EIR

R-1 Comments Not Relating to Recirculated Portions of the Draft EIR

CEQA Guidelines section 15088.5 requires a lead agency to recirculate an Environmental Impact Report (EIR) when significant new information is added to the EIR, after public notice is given of the availability of the Draft EIR for public review but before certification of the Final EIR. If the revision is limited to a few chapters or portions of the EIR, the lead agency is only required to recirculate the chapters or portions that have been modified for public review. When the Draft EIR is revised only in part and the lead agency is recirculating only the revised chapters or portions of the EIR, the lead agency may request that reviewers limit their comments to the revised chapters or portions of the recirculated Draft EIR.

When a lead agency elects to partially recirculate an EIR, it can result in the lead agency receiving more than one set of comments from reviewers. In this case, the lead agency is only required to respond to: "(i) comments received during the initial circulation period [i.e., the Draft EIR, Volumes I and II circulation period] that relate to chapters or portions of the EIR that were not revised and recirculated, and (ii) comments received during the recirculation period [i.e., the Recirculated Draft EIR circulation period] that relate to the chapters or portions of the earlier EIR that were revised and recirculated." (CEQA Guidelines, section 15088.5, subd. (f)(2).)

On December 21, 2019, the State Water Board recirculated sections of the Draft EIR relating to air quality, greenhouse gas emissions and energy, and requested that reviewers limit their comments to the revised portions. The State Water Board is required to solicit and evaluate comments on the Recirculated Draft EIR, and to prepare written responses to significant environmental issues raised in those comments in accordance with section 15088 of the CEQA Guidelines. The comment period on the recirculated portions of the Draft EIR extended from December 21, 2019 until February 6, 2020.

Per section 15088.5 of the CEQA Guidelines, the State Water Board did not prepare written responses to comments received during the comment period for the recirculated portions of the Draft EIR, Volumes I and II if the comments do not pertain to the recirculated sections. However, such comments are included as part of the record and will be considered by the State Water Board before certifying the Final EIR.

R-2 Discussion of Windblown Dust from Recirculated EIR Section 3.9 (pages RE-3-29 to RE-3-30)

This master response addresses comments regarding drawdown of the Lower Klamath Project reservoirs and commenters' concerns that any subsequent exposure of sediments in the reservoir footprint could result in potential impacts relating to windblown dust and associated windblown dust related contaminates or other contaminates. Some commenters expressed concern regarding potential health impacts to surrounding residents. Additionally, commenters noted the Condit Dam removal had dust impacts and claim that similar impacts will occur with implementation of the Proposed Project. Also, commenters suggest that past drawdowns of Copco and Iron Gate Reservoir have resulted in increased dust exposure to residents around the reservoirs. As discussed herein and in the EIR, the character of the sediments, proposed revegetation measures, sampling of reservoir depositions, and other information, indicates that the potential impacts raised by commenters regarding windblown dust or related contaminates are unlikely to occur in a manner that would result in a change to the significance determinations.

With respect to comments regarding the potential for dust to be generated by sediment deposits remaining in the reservoir footprints following drawdown and dam removal, please refer to Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, which discusses how sediments remaining in the reservoir footprints would strengthen (i.e., harden) as they dry out and thus would be unlikely to result in windblown dust following reservoir drawdown. This understanding of sediment properties during and following drying is based on reservoir sediment field sampling and laboratory testing in 2012 (USBR 2012a) and 2018 (Volume II Appendix B: *Definite Plan – Appendix H*).

Moreover, as explained in the impact analysis and in Section 2.7.4 *Restoration Within the Reservoir Footprint* (pages 2-69 to 2-71), the Proposed Project includes revegetation of reservoir sediments remaining on the floodplain and the surrounding slopes during and immediately following drawdown to stabilize the sediments. Stabilization of sediments through planting is expected to be effective since laboratory revegetation "grow tests" showed that vegetation stabilized sediments from Copco No. 1 Reservoir (Appendix B: *Definite Plan – Appendix H* – Section 8.1.1 *Reservoir Sediment Characteristics*). The Proposed Project Reservoir Area Management Plan (Appendix B: *Definite Plan – Appendix H*; see also Volume I Section 2.7.4 *Restoration Within the Reservoir Footprint* [pages 2-69 to 2-71]) includes activities to promote revegetation and sediment stabilization such as sediment preparation and amendment; irrigation; aerial seeding using pioneer seed mixes; planting of pole cuttings, acorns, and container plants; and adaptively re-seeding or re-planting areas that do not sufficiently establish following initial restoration activities. Aerial seeding of grass seed mixes would occur during the reservoir drawdown period (January to March), as the reservoir water levels drop, and before the exposed reservoir sediments dry and form a surface crust. During the dam removal period (March to December), additional seed plantings, irrigation, monitoring of plant growth and vegetation cover, re-seeding as needed, and maintenance of existing and previously planted vegetation would occur. Additionally, the Reservoir Area Management Plan includes relative vegetation cover targets for each year following dam removal; these targets are 70 percent cover for each planting zone by year 1, 75 percent by year 2, 80 percent by year 3, and 90 percent by year 5. Given the sediment properties, timing of reservoir drawdown, and the inclusion of a restoration plan, the potential for elevated levels of dust to be generated by sediment deposits remaining in the reservoir footprints following drawdown and dam removal is very low.

The use of revegetation efforts is well supported. As stated in Volume II Appendix B: *Definite Plan* (page 214), "The use of vegetation to stabilize reservoir sediments is a common practice and well documented approach to improve ecosystem processes. For instance, all of the dam removal and reservoir restoration plans that were reviewed as part of this work (Appendix H) had native vegetation establishment in reservoir areas as the primary component to provide long-term stabilization of exposed soils. Likewise, revegetation experiments, performed in 2008 by Ellen Mussman for the Elwha River dams, showed that vegetation reduced erosion of reservoir sediments by 33% and mulch could reduce erosion by as much as 99% (Mussman et al. Mussman et al. 2008)….KRRC also drew upon similar wildland restoration efforts found in wildfire area restoration, natural disaster areas (i.e. Mount St. Helens), and human-induced impacted areas since these altered and often barren landscapes are very similar to the remaining reservoir sediments. Establishment of native vegetation provides many important benefits for the stability of the remaining sediments in these disturbed areas."

Some commenters compare purported effects associated with the Lower Klamath Project reservoir sediments and the sediments remaining behind the Condit Dam (located in Oregon) following its removal. The two projects, however, are very different and it does not follow that the sediment deposits underlying the reservoirs would create the same degree of windblown dust. Specifically, the composition of the sediments of the two projects differs considerably, as does the timing of revegetation efforts following dam removal. The sediment deposits in Copco No. 1 and Iron Gate reservoirs contain approximately 14 to 16 percent sand (by mass) and 84 to 86 percent fine sediment (by mass) (Volume I Table 2.7-10 on page 2-67). In contrast, the sediment deposits behind Condit Dam contained a higher amount of sand (approximately 60 percent, by mass) and a lower amount of fine sediment (approximately 35 percent silt and clay, by mass) (Wilcox et al. 2014). The higher degree of fine sediment in the Lower Klamath Project deposits is aligned with the experimental observations of rapid strengthening (i.e., hardening) as these sediments dry out (see above), reducing the potential for windblown dust relative to the sediments that were originally behind Condit Dam. Furthermore, Condit Dam was breached in October 2011, and vegetation seeding did not begin until 11 months later in September 2012 (PacifiCorp 2016f). As noted above, hydroseeding of the sediment deposits in the Lower Klamath Project reservoir footprints would begin *during* drawdown, and revegetation efforts would continue throughout the year of drawdown and dam removal, with monitoring and adaptive management occurring throughout the first five years following dam removal and completion of revegetation, or until the performance criteria have been met.

Commenters noted past occurrences where Copco No. 1 reservoir water surface elevations decreased, which the commenters believe may have resulted in increased airborne dust, and they expressed concern that the same effect could occur under the Proposed Project. The water surface elevation decreases of Copco No. 1 Reservoir as a part of Klamath Hydroelectric Project operations, however, are quite different from the anticipated management of reservoir drawdowns under the Proposed Project. During the extreme drought of 2014-2016, PacifiCorp coordinated late-2014 water releases from Iron Gate and Copco No. 1 reservoirs to provide a small degree of flexibility for managing irrigation water in the Upper Klamath Basin. A comparable water borrowing arrangement also occurred in 2018. These water-borrowing operations reduced the water surface elevations of Iron Gate and Copco No. 1 reservoirs and occurred during dry periods where the sediments would have dried quickly and may have been mobilized during wind events. In contrast, the Proposed Project's drawdown is scheduled to occur during January-March which is a period of cool temperatures and precipitation which is likely to reduce the speed at which sediments dry in comparison to sediment drying under past Klamath Hydroelectric Project operations. Additionally, as explained above, the Proposed Project includes restoration actions such as aerial seedings to help stabilize the sediments and prevent windblown dust. Water surface elevation changes under current Klamath Hydroelectric Project operations did not include restoration and seeding actions to reduce windblown dust to residents near Copco reservoir.

In the comments received related to windblown dust, there were several references to other dam removal projects or bodies of water in the West where commenters believe that windblown dust was an issue. These included Condit Dam (addressed above), Owens Lake, and the Salton Sea. The available information, however, does not indicate that the Proposed Project is similarly situated in either geography or operations. The Klamath Hydroelectric Reach during implementation of the Proposed Project is characterized by differing wind patterns, soil types, physical properties of reservoir sediments, topography, and the implementation of a robust reservoir restoration plan designed to stabilize remaining sediments and exposed areas after drawdown. Past drawdown events in the Klamath Hydroelectric Reach where residents have stated that windblown dust was an issue would be prevented during implementation of the Proposed Project due to implementation of the restoration plan. These efforts to stabilize reservoir sediments and exposed areas were not implemented during past drawdowns. As noted above, the restoration plan for the reservoir areas is based on current knowledge of reservoir restoration and experience gained from recent dam removal projects. This includes designing a restoration plan intended to minimize the potential for undesirable sediment releases that would also reduce the potential for windblown dust.

As explained herein, the likelihood of substantial amounts of windblown dust occurring as a result of dam removal under the Proposed Project are low. Nonetheless, the EIR adequately disclose the potential contaminants associated with the Proposed Project. Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* provides a general summary of the inorganic and organic contaminants measured in the Klamath River waters, the reservoir sediments, and aquatic biota. Please also refer to Volume III Attachment 1 Appendix C, Section C.7 *Inorganic and Organic Contaminants* for further details about the inorganic and organic contaminants measured in the reservoir sediments. Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* includes the chemicals of potential concern detected in reservoir samples and comparisons of detected chemical concentrations with USEPA and California Environmental Protection Agency (CalEPA) human health screening levels to assess human health risk.

For example, as stated in Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants*, 4,4'-dichlorodiphenyltrichloroethane (DDT), 4,4'-dichlorodiphenyldichloroethane (DDD), 4,4'-dichlorodiphenyldichloroethylene (DDE), dieldrin, and 2,3,7,8-tetrachlorodibenzodioxin (TCDD) were detected only in J.C. Boyle sediments. Additionally, no PCBs were found above U.S. Army Corps of Engineers (USACE) Puget Sound Dredged Disposal Analysis Program (PSDDA) screening levels (Shannon & Wilson, Inc. 2006), and the degree of exceedance for total PCBs may reflect regional background conditions. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Additionally, Volume III Attachment 1 Section 3.2 *Water Quality*, Volume II Appendix B *Definite Plan* (pages 148 to 150), and Volume III Attachment 1 Appendix C discuss the levels of contamination measured in the reservoir sediment deposits. Volume III Attachment 1 Section 3.2 *Water Quality* discusses the potential impacts from human exposure to inorganic and organic contaminants in the reservoir sediment deposits. Concentrations of inorganic and organic contaminants in the reservoir sediments mean that the potential for problematic levels of human exposure to these compounds once reservoir drawdown occurs is unlikely. As stated in Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13, for the Lower Klamath Project reservoir sediments remaining in the reservoir footprint and along the river banks, detected levels of dioxin, furan, and dioxin-like PCBs are only slightly above regional background concentrations, and arsenic and nickel are the only compounds detected at levels exceeding USEPA and/or CalEPA residential screening levels to protect human health. The section also states that exposure to arsenic in these areas would be constrained by short-term activities and long-term future land use that would support only limited exposure patterns, such that human exposure to arsenic and nickel in sediments in the reservoir footprint would be a less-than-significant impact. The USEPA and CalEPA screening levels used in the analysis in Potential Impact 3.2-13 relate to the ingestion of soil, which differs from the inhalation of airborne dust. However, estimating exposure from both pathways is dependent on the concentration of contaminants and the timeframe over which exposure occurs. In sum due to the mitigating factors noted above (i.e., physical properties of reservoir sediments, level of contamination in reservoir sediments, seasonally wet conditions during drawdown, and implementation of the restoration plan immediately following reservoir drawdown), it is not anticipated that any additional emissions from windblown dust would result in a change to the significance determinations in recirculated Section 3.9 *Air Quality* related to the emissions of particulate matter and potential health effects.

Although there is the potential that criteria air pollutants and GHG emissions may be generated during any efforts to reduce windblown dust during restoration activity, these emissions are not anticipated to be substantial enough to result in a change in the significance determinations in recirculated Section 3.9 *Air Quality* and Section 3.10 *Greenhouse Gas Emissions and Energy*. Due to the conservative assumptions used to estimate the criteria air pollutant and GHG emissions from construction activity, any emissions generated to address windblown dust would be accounted for in the emissions estimates related to restoration activities.

2.3 Written Comments and Responses – Draft EIR

This section presents written comments received on the Draft EIR and the State Water Board's responses to those comments. Written comments and responses in this section are organized by comment affiliation type. To determine which affiliation your comment is associated with, please refer to Table 2-1 or Table 2-2.

Table of Written Comments and Responses

2.3.1 State Agencies

This section presents written comments received on the Draft EIR from state agencies and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by agency name. To determine whether your comment is associated with an affiliation type other than state agencies, please refer to Table 2-1 or Table 2-2.

Table of Written State Agency Comments and Responses

CAL FIRE, Mike Hebrard

Comment SA4-1

The Water Board Environmental Impact Report found that the removal of the dams would have a "significant and unavoidable" impact due to the "elimination of a long-term water source for wildfire services" and a potential substantial increase in response time for suppressing wildfires.

The possible impact of the dam removals on CAL FIRE's wildland firefighting is a very complicated issue. It is fair to say the possible impact of the dam removal on firefighting would depend on a variety of factors including: Location of fire, type of fire, fire behavior, firefighting resources assigned to the fire, time of year when fire occurs, the water flow of the Klamath River on the day of the fire, etc.

Ultimately, the impact of the dam removals will have to be evaluated on a case by case basis. CAL FIRE is used to fighting wildland fires in a large variety of circumstances and will adapt to whatever conditions we encounter at each fire. Also, CAL FIRE understands that the Klamath River Renewal Corporation (KRRC) will be working with CAL FIRE on KRRC's Fire Management Plan to address the analyzed issues.

Please feel free to contact me with any questions regarding this letter.

Response to Comment SA4-1
Thank you for your comment. The information provided in this comment was used to help develop Master Response HAZ-2.

California Department of Fish and Wildlife, Tina Bartlett, Jeffrey Stoddard, Tiffanny Manko

Comment SA3-1
The California Department of Fish and Wildlife (Department) appreciates the opportunity to comment on the Draft Environmental Impact Report (DEIR) for the Lower Klamath Project License Surrender (Project). The proposed Project consists of the decommissioning and removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and associated facilities located on the Klamath River. The Project implements portions of the Klamath Hydroelectric Settlement Agreement (KHSA), as amended. The Department is a signatory to the KHSA and has been actively participating in matters related to the Project since December 2000.

The Department provided a letter to the State Water Resources Control Board (SWRCB) on the Notice of Preparation for the subject DEIR on February 1, 2017. In addition, the Department provided a letter to the SWRCB regarding our support of the draft 401 water quality certification on June 26, 2018, and the aquatic resource measures as described in the Definite Plan on November 9, 2018. We hereby incorporate the comments provided in those letters by reference. The Department worked closely with the Klamath River Renewal Corporation (KRRC) on the development of the restoration plan, the terrestrial resource measures, and the aquatic resources measures as they are presented in the Definite Plan and we support their implementation. Department personnel have reviewed the DEIR and offer the following comments.

KRRC proposes to remove three dams in California and one in Oregon to create a free-flowing Klamath River in the Hydroelectric Reach and provide for volitional fish passage in accordance with the terms of the KHSA. Currently, the Klamath Hydroelectric Project is causing irreparable harm to the State's fish and wildlife resources. The dams alter the flow of the river, block fish passage, and create poor water quality conditions that cause toxic algal blooms, low dissolved oxygen(DO), and high-water temperatures. The dams also contribute to conditions that foster fish disease and result in high juvenile salmon mortality in *the Klamath River. The Project, if approved and implemented, will return the Klamath River in the Hydroelectric Reach to natural riverine conditions resulting in improved water quality and a more natural range of water temperatures. The Project will benefit anadromous fish populations by increasing access to historical habitat, restoring mainstem and tributary habitat, and improving biological and physical factors that heavily influence fish populations (e.g., flow conditions, sediment and bedload transport, water quality, fish disease, toxic algal blooms, and water temperature).*

The Department supports the establishment of a free-flowing Klamath River and volitional fish passage through implementation of the proposed Project, specifically as it relates to the recovery and conservation of fish and wildlife resources. Although we recognize that the SWRCB's analysis indicates that the Project will result in short-term significant and unavoidable impacts, these impacts would largely be limited to the time frame of direct dam deconstruction actions and sediment release.

The short-term aquatic effects of the Project will primarily occur from the release of sediment during reservoir drawdown. These effects include high concentrations of suspended sediment, bedload mobilization and deposition, and low DO levels, all of which are well described in the DEIR. It is the Department's position that the measures proposed to minimize impacts to aquatic resources from these short-term effects are adequate.

The short-term effects of the Project on terrestrial resources will primarily occur due to construction related activities and noise-levels. Again, it is the Departments position that these effects will be adequately off-set by the measures proposed. We concur with the list of short-term effects identified in the DEIR and summarized on page ES-12.

The long-term benefits of the Project will ultimately outweigh the short-term impacts. The Department concurs with the list of the long-term benefits of the proposed Project provided in the DEIR starting on page ES-9. The Project would significantly improve Klamath River water temperatures and DO conditions, reduce algal toxins, reduce the incidence of fish disease in juvenile salmon, restore historical anadromous fish habitat, and eliminate fish passage barriers. In addition, the Project would result in long-term beneficial effects to terrestrial resources. Some of those benefits include, increased wildlife movement opportunities, and increased distribution of riparian habitat, which, in turn, will lead to beneficial effects on willow flycatcher (Empidonax trail/ii), a species listed as threatened under the California Endangered Species Act. We provide greater detail regarding the long-term benefits of dam removal below.

There has been an increase in dam removal projects over the last five years (O'Conner et al. 2015) and studies have demonstrated the following benefits: the successful establishment of self-sustaining populations of salmonids in *previously inaccessible habitat (Anderson et al. 2015), and the proportion of returning fish born in upstream reaches increasing over time (Engle et al. 2013; Hatten et al. 2015; Allen et al. 2016). On the Elwha River, the total escapement of Chinook Salmon (Oncorhynchus tshawytscha) (4,243 adults) approximately doubled over the 20-year average immediately following dam removal and, after the Savage Rapids Dam was removed from the Rogue River (2009), salmonid redds were documented within the bounds of the former reservoir in one year, and over twice that many redds were identified within the former reservoir in two years (ODFW 2011). Recent dam removal efforts show that the rivers are healing very quickly, and fish are instinctively repopulating historic habitat. In a comprehensive synthesis of dam removal literature prepared by O'Conner et al. (2015) they state that a major finding of dam removal research is that rivers are resilient with many responding quickly to dam removal by trending towards their pre-dam states.*

Response to Comment SA3-1

Thank you for your comment. A response to this comment is not required under CEQA because the comment does not raise a significant environmental issue (CEQA Guidelines, section 15088) and/or would not change an environmental impact or mitigation measure analyzed in the EIR. This comment is included as part of the record and will be considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment SA3-2

There are a number of peer-reviewed scientific and engineering studies that document the Project's benefits. The following documents more thoroughly discuss the Project's long-term benefits:

- *Klamath Dam Removal Overview Report for the Secretary of the Interior- an assessment of science and technical information (March 2013)*
- *Definite Plan for the Lower Klamath Project (Appendix I and Appendix J) (June 2018)*
- *The Joint Preliminary Biological Opinion on the Proposed Removal of Four Dams on the Klamath River, Conducted by: National Marine Fisheries Service and Fish and Wildlife Service Region 8 (November 2012).*
- *Klamath Facilities Removal Environmental Impact Statement/ Environmental Impact Report (EIS/EIR). (The Department and the Bureau of Reclamation were co-leads, 2012)*
- *Summary of Findings Informing the Secretarial Statement of Support (A transmittal to FERC from the Department of the Interior 2016)*
- *Preliminary Comments and Recommendations on PacifiCorp's Application for New Major License, Klamath River Hydroelectric Project, FERC No 2082, Klamath and Siskiyou Counties (a letter prepared by CDFW and submitted to FERC on March 27, 2006)*

In general, the Department concurs with all the benefits to natural resources from dam removal identified in the above referenced documents. Although this letter highlights some of the benefits identified in those documents, we want to emphasize that our silence as to any natural resource benefits described in any of the above identified documents should not be interpreted as a rejection or disagreement with any such benefits. We have drawn from the above listed documents to prepare the following section of this letter.

Response to Comment SA3-2

Please refer to response to comment SA3-1.

Thank you for providing a list of peer-reviewed scientific and engineering studies that document the Proposed Project's beneficial effects. During draft EIR development, the State Water Board considered all of the sources cited in California Department of Fish and Wildlife's (CDFW's) February 21, 2019 letter in addition to other resource materials included in reference sections for each resource area of the Draft EIR.

Comment SA3-3

The construction of PacifiCorp's hydroelectric dams on the Klamath River has blocked fish passage to the upper basin for nearly 100 years. The lack of fish passage at the hydroelectric facilities has resulted, and continues to result, in direct adverse impacts on anadromous fish resources of the Klamath Basin. Long-term declines of Klamath Basin fisheries have been estimated at 92 percent to 96 percent for wild fall-run Chinook Salmon, 98 percent for spring-run Chinook Salmon, 67 percent for steelhead trout (0. mykiss) (since 1960), 52 percent to 95 percent for Coho Salmon (0. kisutch), and 98 percent for Pacific Lamprey (Lampetra tridentata) (Overview Report). The research suggests that salmonids will benefit from a host of ecological improvements resulting from dam removal including access to miles of spawning and rearing habitat upstream from Iron Gate Dam. It is estimated that the Project will result in access to 76 miles of habitat for Coho Salmon, 300 miles for Chinook Salmon (Huntington 2004), and 420 miles for steelhead (Huntington 2004; 2006). In addition, recolonization of previously inaccessible reaches of the river will also restore the flow of marine-derived nutrients to upstream portions of the watershed resulting in an overall boost to ecosystem nutrient budgets and productivity (Tonra et al. 2015).

Water Quality and Water Temperature

The long-term benefits of dam removal include overall increases in DO concentrations. The reach of the Klamath River downstream of Iron Gate Dam is predicted to have a DO level increase of 3 to 4 mg/L during the summer and late fall (PacifiCorp 2005), which will reduce stresses to juvenile salmonids rearing in the mainstem.

In the long-term, it is anticipated that water temperatures downstream of the Iron Gate Dam site will be 2°c to 10°C lower during August through December and 2°c to 5°C higher during January through March than under the existing conditions. The generally warmer spring temperatures and cooler summer and fall temperatures are likely to benefit salmonid species. In addition, the more natural diurnal water temperature variation will be more synchronous with historical migration and spawning periods for salmon species. Benefits associated with increased spring water temperatures include increased growth rates for juveniles (Dunne et al. 2011) which has been shown to increase ocean survival (Bilton et al. 1982, Henderson and Cass 1991, Lum 2003, Jokikokko et al. 2006, Muir et al. 2006).

Hydrograph

Increased (i.e., natural) flow variability in the Klamath River mainstem will increase the effectiveness of environmental cues and better enable juvenile salmonids to adapt to changes in flow. Juveniles make localized movements in response to changes in environmental conditions at temporal scales of hours to months. Increased flow variability therefore is expected to increase the likelihood of juvenile survival due to their redistribution to suitable refugia sites upstream or downstream when they detect changes in flow.

Disease

Outmigrating juvenile salmonids within the Lower Klamath River Basin currently experience significant mortality from infectious disease, with recent estimates of disease-related mortality in downstream migrants as high as 90 percent, in specific areas for specific times (CDFW 2006). The Project will restore flows in the Klamath River that create channel bed scour. This bed scour will result in habitat disturbance of the polychaete worm that hosts Ceratonova shasta (FERC 2007), a myxosporean parasite that infects salmonids and can lead to mortality. In the long-term, reducing polychaete habitat will likely lead to an increase in the abundance of salmonids by increasing outmigration survival, particularly for juvenile Coho Salmon (FERC 2007).

Nuisance Algae

The Project will eliminate the habitat for the toxic blue-green algae (Dunne et al 2011, Hamilton et al. 2011). Blue-green algae thrives in stagnant water and is intolerant of turbulent water. The elimination of the reservoirs will result in an immediate and long- term reduction in toxic algal blooms which will improve long-term water quality (pH and DO) in the mainstem Klamath River.

Sediment and Debris Transport

The Project will result in a more natural sediment transport regime (Reclamation 2011, Hamilton et al. 2011, USDOI and CDFG 2012), which will increase the complexity in the channel bed. It is anticipated that these changes will enhance spawning, incubation, and rearing habitat for salmonids and reduce fish disease prevalence in the Klamath River. Increased delivery rate of debris will result in large wood deposition which has also been shown to increase salmonid abundance, survival, and production (Keeley et al. 1996, Solazzi et al. 2000, Roni and Quinn 2001, Whiteway et al. 201O, White et al. 2011).

Climate change

Based on the climate change model prediction of increasing water temperatures in the Klamath River watershed, access to the cold-water tributaries in the Hydroelectric Reach will improve salmonid population resilience and increase the probability of long-term persistence. The National Research Council (2004) wrote, "For salmonids, the most important potential changes [in the Klamath River aquatic environment due to climate change] include altered timing of snowmelt, lower base flows, and additional warming of water in summer." Access to spring-fed tributaries of the Klamath River in the Hydroelectric Reach will provide important refugia for salmonids as the climate continues to change.

In sum, the improved mainstem aquatic habitat conditions that will result from implementation of the Project (e.g., increased DO concentrations, increased flow variability, more natural water temperature patterns, decreases in disease, and increased gravel and large wood recruitment) and increased spatial distribution of habitat for native fishery resources are expected to improve ecosystem function and the survival of all fishery resources in the Klamath River in the long-term.

We look forward to working closely with KRRC and the SWRCB on an adaptive management and monitoring program for the Project. There are a number of plans that will require coordination with and approval from the Department prior to Project implementation including:

1. *Water Quality Monitoring Plan*
2. *Fish Presence Monitoring Plan*
3. *Tributary Mainstem Connectivity Plan*
4. *Spawning Habitat Availability Report and Plan*
5. *Juvenile Salmonid Rescue and Relocation Plan*
6. *Hatchery Operations and Maintenance Plan*
7. *Restoration Plan*
8. *Recreation Facilities Plan*
9. *Hydropower Operations Plan*

In closing, we would like to emphasize that the Department is committed to building and maintaining partnerships that achieve comprehensive and collaborative solutions to fisheries restoration and recovery in the Klamath River watershed. The Department will continue to coordinate with agricultural and water user communities, Tribes, Siskiyou County, our fish agency partners, commercial fishing interests, and conservation groups, to achieve that end. The Department continues to look for solutions to difficult natural resource issues by staying engaged with various stakeholders in the Klamath River Basin. Ultimately, the Department is interested in the long-term success of these holistic efforts beyond just dam removal.

Response to Comment SA3-3
Please refer to response to comment SA3-1.

2.3.2 Local Agencies

This section presents written comments received on the Draft EIR from local agencies and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by agency name. To determine whether your comment is associated with an affiliation type other than local agencies, please refer to Table 2-1 or Table 2-2.

Table of Written Local Agency Comments and Responses

Board of Harbor Commissioners of the Crescent City Harbor District, James Ramsey

Comment LA5-1
The Board of Harbor Commissioners of the Crescent City Harbor District wishes to voice their support for the removal of the dams located on the Klamath River.

The Board of Harbor Commissioners further supports the Klamath River Renewal Corporation's (KRRC) application to the State Water Board for a Clean Water Act section 401 certification for the Federal Energy Regulatory Commission Project No. 14803 license surrender of the Lower Klamath Project. The beneficial results *of the dam removal project include positively affecting the water quality of the Klamath River and by doing so, taking an historic step toward restoring traditional salmon runs. Dam removal is crucial to restoring the natural ecosystem that existed before construction of the dams.*

Response to Comment LA5-1
Thank you for your comment. Please refer to Master Response GEN-1.

City of Crescent City, Blake Inscore

Comment LA7-1
Crescent City supports removal of the Klamath River dams as analyzed in the State Water Resources Control Board's recent Draft Environmental Impact Report (DEIR).

Crescent City serves as the home port for numerous commercial and recreational fishing vessels. The fishing industry is a major source of income for the City and includes fishing, seafood markets, seafood processing and support for local businesses like marine repair and supply services, restaurants and grocery stores. Many of our residents depend on these industries for their livelihood.

The Klamath River was once the third-largest salmon-producing river on the West Coast, and salmon played a large part in our fishing industry's prosperity. However, Klamath River dams blocked the migration of adult fish to historic upstream spawning grounds, greatly reducing salmon populations, and the region's commercial fishing industry has been severely compromised by these reduced salmon runs.

Crescent City-based recreational fishing has suffered as well, putting an unwelcome drag on our economy and pressuring city budgets and services.

We strongly believe, based on the DEIR, that a free-flowing Klamath will revitalize both segments of our fishing industry, and in turn create jobs and bring revenue to Crescent City that will allow us to better serve our residents.

For the reasons outlined above, Crescent City supports the Proposed Project reviewed in the DEIR and looks forward to the benefits it will provide to our region.

Response to Comment LA7-1
Thank you for your comment. Please refer to Master Response GEN-1.

City of Yreka, Steven Baker, Don Henion

Comment LA8-1

The State Water Resources Control Board ("SWRCB") has circulated for public comment (State Clearinghouse No. 2016122047) a Draft Environmental Impact Report (DEIR; KRRC 2018; hereafter known as the "DEIR") which sets forth the fact that PacifiCorp has applied to the Federal Energy Regulatory Commission ("FERC") for authority to decommission and remove four PacifiCorp owned and operated Klamath Hydroelectric Project dams, the flow of which is regulated by the Bureau of Reclamation ("BOR"). The application requests a substitution of permitees from PacifiCorp to the Klamath River Renewal Corporation, a 501(c)(3) corporation formed to potentially oversee the project ("KRRC").

The dams proposed to be decommissioned are the Iron Gate Dam, the Copco No. 1 Dam, the Copco No. 2 Dam, the J.C. Boyle Dam, and various appurtenant facilities, such as the removal and relocation of most of the infrastructure of the Iron Gate Fish Hatchery to a new fish hatchery located on Fall Creek immediately adjacent to the City of Yreka's diversions for its municipal water supply (collectively, the "Lower Klamath Facilities").

Response to Comment LA8-1

Thank you for your comment. This comment concerns a summary of the Lower Klamath Project.

Comment LA8-2

In significant part, the application has requested FERC to divide the Klamath River Basin Hydroelectric Project license into two separately designed projects: 1) The four lowermost dams on the Klamath River to a separate Lower Klamath Facilities project license; 2) The other PacifiCorp hydroelectric owned or operated facilities that are not proposed to be decommissioned. FERC has granted this request. The application also requests that FERC allow the transfer of the Lower Klamath Project license from PacifiCorp to KRRC. KRRC would then implement FERC approved steps to remove/decommission those facilities. Finally, the application requests that FERC stay its proceedings on PacifiCorp's (the current licensee) pending application for license renewal until FERC takes final action on the application. ("Proposed Project").

PacifiCorp's FERC license on the Lower Klamath Project expired in March 2006. FERC has not yet approved the Proposed Project, the transfer of the license, nor indicated what steps, if any, it will require should it approve the decommissioning of the Lower Klamath Facilities. FERC has referred the Proposed Project to an Independent Board of Consultants ("BOC") to fully review the Klamath Renewal Project and make its recommendations upon which FERC will base its ultimate decision to approve, disapprove or order modifications to the Proposed Project. The individuals on the BOC have expertise in dam construction and removal, engineering, aquatic and terrestrial biology, financial feasibility, construction cost estimating, insurance, and bonding for large infrastructure projects.

Response to Comment LA8-2
This comment concerns the Federal Energy Regulatory Commission (FERC) application for Lower Klamath Project and related issues.

Comment LA8-3
Significantly, although FERC has ultimate control over the nature and scope to the Proposed Project the DEIR is not being jointly submitted for comment with a NEPA environmental study. A NEPA Final Environmental Impact Study ("FEIS") was circulated and approved in 2012 but this study is outdated and FERC has required additional studies and information before that process can proceed.

Response to Comment LA8-3
Comment noted. Please see Master Response CEQ-1 for additional information.

Comment LA8-4
The Proposed Project is the product of an agreement between the United States Department of the Interior (which is the overseeing agency for the Bureaus of: Indian Affairs; Land Management; Reclamation; Park Service; U.S. Fish and Wildlife and U.S. Geological Survey), United States Department of Commerce's National Marine Fisheries Service, State of California, California Natural Resources Agency (which is the umbrella agency for Department of Water Resources, Department of Fish and Wildlife, Department of Conservation), California Department of Fish and Wildlife, the State of Oregon, Oregon State of Environmental Quality, Oregon Department of Fish and Wildlife, Oregon Water Resources Department and the permittee/owner PacifiCorp (a subsidiary of Berkshire Hathaway) as well as 35 other tribal, fish and conservation related NGOs, irrigation entities and water users. This agreement is entitled the Klamath Hydroelectric Settlement Agreement, dated February 18, 2010, as amended April 6, 2016 and November 30, 2016 ("AKSA"). The AKSA has not been sanctioned by the U.S. Congress nor ratified by state or federal law. It is an agreement whose validity has not been tested in Court and we are not aware of any pending litigation in that regard.

Response to Comment LA8-4
This comment concerns the Klamath Hydroelectric Settlement Agreement (KHSA).

Comment LA8-5
The federal compact to implement the 2010 agreement, was introduced and reintroduced to the House of Representatives and the U.S. Senate and variously referred to as S.1851 the "Klamath Basin Economic Restoration Act of 2011" and HR.3398, S2739 – the "Klamath Basin Water Recovery and Economic Restoration Act of 2014" and S.133 – the "Klamath Basin Water Recovery and Economic Restoration Act of 2015." None of these bills were signed into law and, accordingly, federal funds were not appropriated for its implementation.

Implementation of the AKSA is now being funded with a surcharge on PacifiCorp customers ($200 million) and by California State water bond funds ($250 million). It is estimated that if this agreement is not implemented, and FERC proceeds to relicense the dams, that PacifiCorp projects that it will incur a loss estimated at 20 million dollars per year on the Klamath Hydroelectric Project, which loss, PacifiCorp will be entitled to recover from its ratepayers under PUC regulatory standards.

Response to Comment LA8-5

This comment concerns the Klamath Hydroelectric Settlement Agreement (KHSA).

Comment LA8-6

Yreka's sole concerns, as related in these comments, are to ensure that the Proposed Project does not, in any manner, presently or consequently in any future period, adversely affect Yreka's right to divert and consumptively use water for municipal purposes under its Water Right Permit.

The possible areas that Yreka can presently identify through the data and plans proposed thus far, related to the following areas:

1. The replacement and reconstruction of its water transmission pipeline with a water transmission pipeline that is safe and secure from external threats that could cause any interruption in municipal water service.

2. The lack of specificity of the exact improvements to be made to Yreka's water diversion facilities on Fall Creek. The lack of such concrete specificity renders it premature and impossible to adequately address those particular impacts of the Proposed Project.

3. The effects of the proposed location, construction and expansion of a defunct fish hatchery and reconstruction of rearing ponds at Fall Creek, which are proposed to divert water under a junior water permit and further proposed to rear and release endangered species which could, in the future, cause further water restrictions upon Yreka's right to take under its consumptive water permit.

4. The effect of the project on PacifiCorp's pre-1914 water right to divert water from Spring Creek (16.5 cfs) and from Fall Creek to its Fall Creek Hydroelectric Facility upon which adequate water flow to Yreka's water diversion is predicated.

Response to Comment LA8-6

This comment summarizes some of the major concerns in the City of Yreka's letter. Please refer to Master Responses WSWR-3, WSWR-5, WSWR-6, WSWR-7, and responses to comments LA8-20 and LA8-22. Please also see responses to individual comments in this letter for more detailed information on the issues summarized here.

<u>Comment LA8-7</u>

5. The proposed deconstruction of the majority of the existing fish hatchery located at Iron Gate together with the lack of adequate studies and analysis of maintaining, improving and expanding hatchery activities at Iron Gate Hatchery or all other alternative locations which would thereby obviate any possible additional future adverse impacts on Yreka's right to divert or restrict the flow to such diversion, on Yreka's consumptive municipal water diversion from Fall Creek.

6. The data-deficient basis, lack of specificity and procedural compliance with applicable law in prematurely requiring Yreka to provide comments on a project that is still subject to change in the proceedings before the Federal Energy Regulatory Commission.

Response to Comment LA8-7

This comment summarizes some of the major concerns in the City of Yreka's letter. Please see responses to individual comments in this letter for more detailed information on the issues summarized here. Additionally, please see response to comment LA8-40 and Master Response CEQ-1.

<u>Comment LA8-8</u>

7. The assumption by the SWRCB of lead agency status when this status properly rests with the Klamath River Basin Compact Commission which has not been consulted, held public hearings, received public input or made any determinations regarding the Proposed Project.

Response to Comment LA8-8

Please refer to Master Response CEQ-4.

<u>Comment LA8-9</u>

Fall Creek is a tributary of the Klamath River and part of the Klamath Water Basin network. As stated in the DEIR, the City of Yreka, operates a public municipal water supply system and takes its normal water supply exclusively from Fall Creek under the allowance granted under California State Water Right Permit 15379, Application #22551, a water right that allows the diversion and consumption of up to 15 cubic feet per second ("cfs") (9.7 mgd) and allows diversion of 6,300 acre/feet annually for domestic and municipal water uses (the "Permit"). Yreka's water supply originates from two diversion impounds whose points of diversion are specified on the Permit. During extreme drought emergencies Yreka selectively provides other smaller municipalities with a small allocation of water in order for those municipalities to supply clean water to their inhabitants and businesses for subsistence purposes. No elaboration on the environmental impacts on humans would seem necessary if Yreka was deprived of its water supply. The effect of a project on humans is considered in the NEPA process.

The primary point where the city takes its water is known as the "A" Dam and is located directly below the tailrace of the PacifiCorp's Fall Creek Hydroelectric Facility. This powerhouse is fed by a penstock which receives water from a diversion canal from Fall Creek. The City "A" Dam is upstream of the intake of the California Department of Fish and Wildlife rearing ponds which the state ceased all operations in 2004.

City operations occasionally require adjustment due to the operational aspects of the powerhouse. Primarily, this happens when the PacifiCorp's powerhouse trips offline, or is taken offline for maintenance. PacifiCorp will then change the gates at the Fall Creek Diversion Dam to send water down the natural channel of Fall Creek to Yreka "B" Dam instead of the penstock to the powerhouse. The "B" Dam is located in the natural channel of Fall Creek directly below the lower set of barrier falls.4 City Staff must then manually install boards and open a valve to allow water from the "B" Dam to be gravity piped to the intake of the "A" Dam. This operational situation alters the flow over to the "A" Dam. Water from the tailrace of the powerhouse slowly reduces and depending on the situation, may cease entirely. It is important to understand that the convergence of the natural channel of Fall Creek and the tailrace section is located below the former rearing pond intake.

Yreka's headworks is located at the "A" Dam. It is this location where water enters the singular intake point of a 24" pipe of Yreka's water transmission system. From the headworks, gravity conveys the water to a pump station to the West. From that point the pipe lays on the bottom of Iron Gate Reservoir thence on to Yreka's water storage tanks and purification plant. The City's water conveyance pipeline is 23 miles long.

SWRCB required in Yreka's amended water diversion permit that 15 cfs or more must flow past the Dams "A" and "B" combined for fish and wildlife purposes (See Attachment 1). When this requirement was requested in 1967 by the California Department of Fish and Wildlife the Department had not yet sought its own water appropriation of 10 cfs, which was CWRQCB permitted in 1979. The bypass measurement is taken downstream of the confluence of the tailrace section and the natural watercourse of Fall Creek. The amount and quality of water for the California Department of Fish and Wildlife ("CDFW") operations will hinge upon the ability of the rearing pond intake to divert water from both the "A" Dam and "B" Dam to ensure flows are present at all times. It is rare to have 15 cfs flowing past both dams at the same time. Flow past the "A" dam varies depending on how many and of what size generators are online at PacifiCorp's Fall Creek Hydroelectric Facility. In the current configuration, Yreka has two options for flow into its headworks. It is believed that CDFW owns a pipe diversion from the "B" Dam to the rearing ponds but its condition, sizing, and ability to provide required flows for hatchery and rearing pond operations are unknown to this commenting party.

PacifiCorp diverts water from Fall Creek under Statements of Diversion and Use S015372 and S0153736. PacifiCorp claims a maximum non-consumptive diversion right to about 75 cfs based on a pre-1914 claim.

Yreka's diversion from Fall Creek is presently subject to a permit condition that requires the City of Yreka to bypass a minimum flow of 15.0 cfs or the natural flow of the stream whenever it is less than 15.0 cfs. The intent of the flow bypass is to benefit fish and wildlife purposes. Accordingly, without consideration for any diversion from Fall Creek or Spring Creek for the proposed 10 cfs permit allocation on its junior and subordinate priority Fall Creek Fish Hatchery, Fall Creek must have 30 cfs flowing through it for Yreka to divert its entire 15 cfs for its water supply.

Of primary significance to Yreka's ability to take its full appropriation is PacifiCorp's right to divert up to 16.5 cfs from Spring Creek to Fall Creek for the use of its power generation facilities which is also the product of a State of Oregon pre-code water right. After this 16.5 cfs is diverted from Spring Creek, it flows through PacifiCorp's Fall Creek Hydroelectric facility (the "Facility") and flows into Fall Creek thereby increasing Fall Creek's flow by 16.5 cfs, which then continues to flow on to the point of Yreka's water diversion. While PacifiCorp appears to have secured a right to divert up to 16.5 cfs under Oregon law, during FERC's earlier consideration of relicensing of the Facility, it was considered but not yet implemented, that PacifiCorp's Spring Creek diversion be greatly restricted. FERC's 2012 Final Environmental Impact Study determined to impose two conditions on PacifiCorp's federal power permit – no diversions from Spring Creek to Fall Creek from June 1 through September 15 and a reduction from 16.5 cfs to 4 cfs the remainder of the year. Accordingly, to great extent, the necessary volume of Yreka's water source is dependent on water that is diverted from Spring Creek to the Facility. When the flow of Fall Creek is at its lowest the demand by municipal water users is at its highest. Any implementation of a reduction to Spring Creek's diversion to the Facility, under present permitting conditions, would prevent Yreka from the benefit of its full 15 cfs allocation for domestic and municipal water uses.

Response to Comment LA8-9

The State Water Board acknowledges the detailed description of the City of Yreka's water supply diversions at Dam A and Dam B. These are also described and noted in figures within Volume I Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* (pages 2-81 to 2-84) and Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* (pages 2-84 to 2-86). Please also refer to Master Response WSWR-7 and Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology – Spring, Fall and Jenny Creeks* (pages 3-606 to 3-607). Reference to the Spring Creek diversion has been added to Section 3.8.2.1 *Water Supply/Water Rights – Environmental Setting –*

Upper Klamath Basin – Fall Creek Water Rights – City of Yreka. Please refer to Volume III Attachment 1 Section 3.8.2.1 *Water Supply/Water Rights – Environmental Setting – Upper Klamath Basin – Fall Creek Water Rights – City of Yreka* for the revisions.

Comment LA8-10

Table 2.7-16 of the DEIR purports to demonstrate "historical Fall Creek flow," which table, merely shows the flows during a short two-year period spanning 10/01/2003 through 9/01/2005. As discussed below, this data inaccurately describes the actual long-term flows especially as it would regard multiple-year low-flow periods, in which the 2012 FEIS proposed action by FERC to discontinue all flow diversion from Spring Creek to the Facility during the critical low-flow periods (and Yreka's high-use periods) and reduce Spring Creek's diversion to the Facility the rest of the year from 16.5 cfs to 4 cfs—Yreka would not have sufficient water for domestic/municipal use five months the first dry year, six months the second year and five months the third year. This is the case even if all consideration of the proposed diversion of up to 10 cfs for the newly erected Fall Creek Hatchery were disregarded.

With 30 cfs as a baseline for Yreka to fully take under its present permit, together with the year around flow to the PacifiCorp Facility from Spring Creek (16.5 cfs) to Fall Creek, flow records at the USGS operated Gage 11512000 near the confluence of Fall Creek and the Klamath River exist for the period April 1933 to September 1959. As shown in Table 1, the mean monthly flow for the period in August was 33 cfs.

Table 1. Monthly Mean Flow at USGS Gage 11512000 (1933–1959).

Month	***Calculated Flow (cfs)***
January	*46*
February	*51*
March	*49*
April	*45*
May	*38*
June	*35*
July	*34*
August	*33*
September	*34*
October	*35*
November	*37*
December	*43*

In 2018 the maximum flows decreased from the historical average high of 51 cfs down to 41 cfs. Although the low flow was greater that year, increasing in that one year from a mean average in august from 33 cfs to 38 cfs, one can objectively determine that, without the Spring Creek diversion, or if the CDWF *junior water right of 10 cfs depleted water flow at Yreka's point of diversion, there would be insufficient water for Yreka to divert enough flow under its permitted allocation even at Yreka's present population. See Table 2 below:*

Table 2. Fall Creek—Annual Water Level Log Sheet Year: 2018. FALL CREEK MEASUREMENT PROCEDURE: Reads will be taken monthly on or near the 1st of each month.

1st of Month	Fall Creek Gaging Station Level (ft – no pumps running)	Calculated Flow (cfs)
January	1.10	41.0
February	1.09	40.5
March	1.08	40.0
April	1.08	40.0
May	1.07	39.0
June	1.04	37.6
July	1.06	38.6
August	1.06	38.6
September	1.06	38.6
October	1.06	38.6
November	1.08	40.0
December	1.08	40.0

Table 3. Illustrates the Maximum Rate of Water Diverted and used from Fall Creek by Yreka in the Year 2017.

Month	Maximum Rate of Diversion (cfs)
January	10.9
February	10.8
March	10.7
April	11
May	11
June	11
July	11.7
August	13.7
September	11
October	11
November	5.8
December	13.8

Table 4 demonstrates the monthly divertible flow for a multiple dry year period. PacifiCorp's present bypass flow requirement of 5.0 cfs is considered, and the City of Yreka's 15.0 cfs bypass flow requirement is included. Table 4 shows total divertible flows dipping to a low of 9.0 cfs in the first dry year, 8.0 cfs in the *second dry year, and 9.0 cfs in the third dry year. Yreka would not have enough water for its municipal use five months the first dry year, six months the second year and five months the third year. As we will go into in more detail later in these comments, SWQCB's consideration of this DEIR is premature when it is unknown all the conditions that FERC will approve/impose, should the Proposed Project be allowed to proceed in any manner.*

Table 4. Monthly Divertible Flow for a Multiple Dry Year Period.

Table 4
Monthly Divertible Flow for a Multiple Dry Year Period

USGS Gage 1151200	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1939 (cfs)	30	32	35	30	29	28	28	28	29	28	29	33	358
w/o Spring Creek	26	28	31	26	25	24	24	24	25	24	25	29	n/a
Spring Creek "Add Back"	30	32	35	30	29	24	24	24	25	28	29	33	n/a
Flow @ Dam A (cfs)	25	27	30	25	24	19	19	19	20	23	24	28	n/a
City- divertible Flow @ Dam A (cfs)	10	12	1	10	9	4	4	4	5	8	9	13	n/a
City- divertible Flow @ Dam B (cfs)	5	5	5	5	5	5	5	5	5	5	5	5	n/a
City-total Diversion ("A" + "B")	18	17	20	15	14	9	9	9	10	13	14	18	n/a

USGS Gage 1151200	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1940 (cfs)	34	44	44	37	29	27	28	27	29	30	30	33	392
w/o Spring Creek	30	40	40	33	25	23	24	23	25	26	26	29	n/a
Spring Creek "Add Back"	34	44	44	37	29	23	24	23	25	30	30	33	n/a
Flow @ Dam A (cfs)	25	27	30	25	24	19	19	19	20	23	24	28	n/a
City- divertible Flow @ Dam A (cfs)	10	12	1	10	9	4	4	4	5	8	9	13	n/a
City- divertible Flow @ Dam B (cfs)	5	5	5	5	5	5	5	5	5	5	5	5	n/a
City-total Diversion ("A" + "B")	18	17	20	15	14	9	9	9	10	13	14	18	n/a

USGS Gage 1151200	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1941 (cfs)	33	37	30	32	30	29	28	28	29	29	29	31	376
w/o Spring Creek	29	33	26	28	26	25	24	24	25	25	27	36	n/a
Spring Creek "Add Back"	33	37	30	32	30	25	24	24	25	29	31	40	n/a
Flow @ Dam A (cfs)	28	32	25	27	25	20	19	19	20	29	31	40	n/a
City- divertible Flow @ Dam A (cfs)	10	12	1	10	9	5	4	4	5	9	11	20	n/a
City- divertible Flow @ Dam B (cfs)	5	5	5	5	5	5	5	5	5	5	5	5	n/a
City-total Diversion ("A" + "B")	18	22	15	17	15	10	9	9	10	14	16	25	n/a

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All of this data is publicly available on SWQCB's website.

All of this data is publicly available on SWQCB's website.

Table 5 demonstrates the recent multiple year drought effect in the years 2015 and 2016

Table 5. Year 2015.

1st of Month	***Fall Creek Gaging Station Level***	***Calculated Flow***
January	*1.48*	*40.4*
February	*1.44*	*39.0*
March	*1.32*	*33.6*
April	*1.28*	*32.0*
May	*1.26*	*31.2*
June	*1.24*	*30.5*
July	*1.16*	*27.4*
August	*1.26*	*31.2*
September	*1.29*	*32.4*
October	*1.30*	*32.8*
November	*1.30*	*32.8*
December	*1.30*	*32.8*

2016

1st of Month	***Fall Creek Gaging Station Level***	***Calculated Flow***
January	*1.33*	*34*
February	*1.48*	*40.4*
March	*1.50*	*41.2*
April	*1.24*	*30.5*
May	*1.20*	*28.6*
June	*1.20*	*28.6*
July	*1.17*	*27.8*
August	*1.17*	*27.8*
September	*1.17*	*27.8*
October	*1.17*	*27.*
November	*1.24*	*30.5*
December	*1.20*	*28.6*

Response to Comment LA8-10

The commenter is expressing concern that flow information included in the EIR for Fall Creek is insufficient for analyzing long-term low flow conditions in Fall Creek and the impacts to the City of Yreka's water right associated with long-term low flow conditions and the Proposed Project's hatchery operations. Specifically, the commenter notes the "2012 FEIS" proposed action by Federal

Energy Regulatory Commission (FERC) to discontinue all flows diversions from Spring Creek during critical low flow periods. Additionally, the commenter provides flow data from 1933 to 1959.

Historical United States Geological Survey (USGS) gage data from Fall Creek are consistent with Figure 2.7-16 in Volume I Section 2.7.8.3 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* (page 2-84) and illustrate that mean monthly flows in Fall Creek exceed 30 cubic feet per second (cfs) in all months, which indicates the City of Yreka's diversion of 15 cfs, with a bypass flow of 15 cfs, could have occurred. However, it is possible that during historical multi-year drought periods mean monthly flows in Fall Creek could be lower and potentially affect any water right holder on Fall Creek. Please note that the Proposed Project's water diversion at Fall Creek Hatchery (FCH) would be non-consumptive, primarily diverted downstream of the City of Yreka's diversion point, and returned to Fall Creek upstream of the City of Yreka's bypass flow compliance point. Therefore, the Proposed Project's water diversion at Fall Creek Hatchery would not impact the City of Yreka's water right or bypass flow requirements. Please refer to Master Response WSWR-5 for further information on the City of Yreka's water supply and water rights. Please refer to Master Response WSWR-6 for further information on Fall Creek Hatchery water rights. Please refer to Master Response WSWR-7 for further information on PacifiCorp water rights in Fall Creek and Spring Creek.

Comment LA8-11

If the FERC determines, as it did in its 2012 FEIS, to curtail the diversion from Spring Creek to the Facility from June 1st through September 15th together with a 4 cfs diversion limit the remainder of the year – with the present 15cfs bypass in effect – Yreka would rarely be able to divert the 15 cfs it requires for domestic/municipal uses. As further discussed in these comments, the circulation of this DEIR is premature, in part because it is not clear what proposed action the presently designated federal lead agency, FERC, will propose as its Preferred Alternative. If FERC continues to pursue restrictions to the Spring Creek diversion to the Facility, Yreka recommends that the effects of the Proposed Project be mitigated by action through SWQCB to amend Yreka's permit to entirely eliminate the 15 cfs bypass (15 cfs – 16.5 cfs = -1.5 cfs). It is precisely these types of unknowns that the requirement that a joint DEIR/DEIS be submitted for circulation.

Response to Comment LA8-11

Please refer to Master Responses WSWR-7 and CEQ-1.

Comment LA8-12

Water Laws Granting Domestic Water Use as the State's Highest Priority

According to California, Oregon and the United States Code, municipal water use has the highest priority of any other use, including those uses related to fish and wildlife considerations.

First, California Water code §106 provides:

"It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water ..."

Water Code §106.3 provides, in part:

"(a) It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

(b) All relevant state agencies, including the department, the state board, and the State Department of Public Health, shall consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and criteria are pertinent to the uses of water described in this section. [Emphasis added]

(e) The implementation of this section shall not infringe on the rights or responsibilities of any public water system."

Thus, it is clear under California water law that municipal water use has the priority of any other use and that the SWQCB is statutorily bound to afford Yreka with its "highest use" priority.

However, there is even a more specific statutory scheme affirming this principal which is specifically applicable to the use of water from the Klamath River Basin. Those principals are set out in Federal, California and Oregon laws collectively known as the Klamath River Basin Compact, Public Law 85-222, ratified by Congress and signed into law by the President on August 30, 1957, colloquially dubbed "The Law of the River" (the "Compact"). The law creates a federally designated commission to implement its provisions called the "Klamath River Compact Commission" (the "Commission.") Each of the ancillary state laws also refer to, and are members of, the Commission.

Oregon has adopted the KORS 542.610 which provides:

"The Legislative Assembly of the State of Oregon hereby ratifies the Klamath River Basin Compact set forth in ORS 542.620 (Klamath River Basin Compact), and the provisions of such compact hereby are declared to be the law of this state upon such compact becoming effective as provided in subsection (2) of this section.

(2) The compact shall become effective when it has been ratified by the legislatures of the States of California and Oregon, and has been consented to by the Congress of the United States as provided in Article XIII of the compact. [1957 c.142 §1]"

The compact was ratified by the State of Oregon by Chapter 142, Oregon Laws 1957 (signed by Governor on April 17, 1957).

The State of California has adopted the Compact at Water Code §5900, et seq. The Compact was ratified by the State of California by Chapter 113, California Statutes 1957 (signed by Governor on April 17, 1957, and effective on September 11, 1957). The provisions of said Klamath River Basin Compact reiterated in California Water Code 5901 are:

Article I. Purposes

The major purposes of this compact are, with respect to the water resources of the Klamath River Basin:

A. To facilitate and promote the orderly, integrated and comprehensive development, use, conservation and control thereof for various purposes, including, among others: the use of water for domestic purposes; the development of lands8 by irrigation and other means; the protection and enhancement of fish, wildlife and recreational resources; the use of water for industrial purposes and hydroelectric power production; and the use and control of water for navigation and flood prevention.

B. To further intergovernmental co-operation and comity with respect to these resources and programs for their use and development and to remove causes of present and future controversies by providing (1) for equitable distribution and use of water among the two states and the Federal Government, (2) for preferential rights to the use of water after the effective date of this compact for the anticipated ultimate requirements for domestic and irrigation purposes in the Upper Klamath River Basin in Oregon and California, and (3) for prescribed relationships between beneficial uses of water as a practicable means of accomplishing such distribution and use.

Article II. Definition of Terms

As used in this compact:

A. "Klamath River Basin" shall mean the drainage area of the Klamath River and all its tributaries within the States of California and Oregon and all closed basins included in the Upper Klamath River Basin.

B. …

C. "Commission" shall mean the Klamath River Compact Commission as created by Article IX of this compact.

D. "Klamath Project" of the Bureau of Reclamation of the Department of the Interior of the United States shall mean that area as delineated by appropriate legend on the official map incorporated by reference under subdivision B of this article.

E. "Person" shall mean any individual or any other entity, public or private, including either state, but excluding the United States.

F. …

G. "Water" or "waters" shall mean waters appearing on the surface of the ground in streams, lakes or otherwise, regardless of whether such waters at any time were or will become ground water, but shall not include water extracted from underground sources until after such water is used and becomes surface return flow or waste water.

H. "Domestic use" shall mean the use of water for human sustenance, sanitation and comfort; for municipal purposes; for livestock watering; for irrigation of family gardens; and for other like purposes.

I. …

J. …

Article III. Distribution and Use of Water

A. There are hereby recognized vested rights to the use of waters originating in the Upper Klamath River Basin validly established and subsisting as of the effective date of this compact under the laws of the state in which the use or diversion is made, including rights to the use of waters for domestic and irrigation uses within the Klamath Project. There are also hereby recognized rights to the use of all waters reasonably required for domestic and irrigation uses which may hereafter be made within the Klamath Project.

B. Subject to the rights described in subdivision A of this article and excepting the uses of water set forth in subdivision E of Article XI, rights to the use of unappropriated waters originating within the Upper Klamath River Basin for any beneficial use in the Upper Klamath River Basin, by direct diversion or by storage for later use, may be acquired by any person after the effective date of this compact by appropriation under the laws of the state where the use is to be made, as modified by the following provisions of this subdivision B and subdivision C of this article, and may not be acquired in any other way:

1. In granting permits to appropriate waters under this subdivision B, as among conflicting applications to appropriate when there is insufficient water to satisfy all such applications, each state shall give preference to applications for a higher use over applications for a lower use in accordance with the following order of uses:

(a) Domestic use,

(b) …

(c) Recreational use, including use for fish and wildlife,

(d) …

(e) Generation of hydroelectric power,

(f) These uses are referred to in this compact as uses (a), (b), (c), (d), (e) and (f), respectively. Except as to the superiority of rights to the use of water for use (a) or (b) over the rights to the use of water for use (c), (d), (e) or (f), as governed by subdivision C of this article, upon a permit being granted and a right becoming vested and perfected by use, priority in right to the use of water shall be governed by priority in time within the entire Upper Klamath River Basin regardless of state boundaries. The date of priority of any right to the use of water appropriated for the purposes above enumerated shall be the date of the filing of the application therefor, but such priority shall be dependent on commencement and completion of construction of the necessary works and application of the water to beneficial use with due diligence and within the times specified under the laws of the state where the use is to be made. Each state shall promptly provide the commission and the appropriate official of the other state with complete information as to such applications and as to all actions taken thereon."

Response to Comment LA8-12

The EIR finds no significant impact with mitigation to the City of Yreka's water supply. Please see Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683) and Master Response WSWR-5 for further discussion. In the absence of a conflict between water uses – and any potential environmental impacts from an ensuing need for one right holder to curtail use – it is not necessary for the EIR to address the City's statements concerning use priorities in the Klamath River Basin Compact and in California Water Code sections 106 and 106.3. Please also refer to Master Response CEQ-4.

Comment LA8-13

Why does the Compact matter? The interstate compacts clause of the United States Constitution, Article I, §10, cl. 3, which states in pertinent part: "No State shall, without the Consent of Congress . . . enter into any Agreement or Compact with another State, or with a foreign Power." Since a Compact has already been entered regarding the exact prioritization of the use of Klamath River Basin waters in Oregon, California and throughout the federal reservations (i.e., the U.S. Forests, the Wildlife Refuges, the Tribal Nations, the Bureau of Reclamation, etc.) it is required that to encroach on the jurisdiction of the Compact requires the consent of the Commission.

Prior to the entry of the AKSA there were many attempts to gain the "consent of Congress." Each of those attempts failed. Nowhere in the provisions of the Compact is there any time-limitation that causes the compact to expire. It is not clear whether the Congress even has the authority under the Constitution to reserve to itself in compact legislation the ability to "alter, amend, or repeal" the terms of a compact. Litwak, Compact Law 33, 241, notes:

After Congress gives its consent to a compact, two questions arise relating to the relationship between the compact and the federal government. First, does that consent limit the ability of the federal government to enact subsequent law that might affect the implementation of the compact? . . . Second, does consent alter the responsibilities of the federal government under existing federal law that relates to the subject matter of the compact?

Consent matters not only because it satisfies the constitutional requirement but also because it makes clear the fact that, in addition to whatever specific interests the two states might have in a given situation, there is a national interest in the matter that is critical. The states are not free to assert that only their particular concerns count, either at the time of the agreement or later when disputes may arise over its terms. As the Supreme Court made clear in Dyer v. Sims: "A compact is more than a supple device for dealing with interests confined within a region. That it is also a means of safeguarding the national interest is well illustrated in the Compact now under review." West Virginia ex rel. Dyer v. Sims 341 U.S. 22, 27 (1951). In Hess v. Port Authority Trans-Hudson Corp., Justice Ginsburg echoed the Dyer language., 341 U.S. 22, 27 (1951).

Litwak explains at length, and with excerpts from a variety of key cases, this national interest and the constitutional consent requirement that protects it. This doctrine allows Congress to ensure that agreements among states do not injure either other states or the nation as a whole, and is key to understanding why states cannot act unilaterally with respect to existing compacts. He stresses that: "Dyer v. Sims is the Supreme Court's clearest statement on holding states to their obligations under a compact, even if a state believes its constitution restricts the state's ability to fulfill the compact."

The Dyer Court held that it would not be states that would decide, but the federal courts.

“But a compact is after all a legal document. Though the circumstances of its drafting are likely to assure great care and deliberation, all avoidance of disputes as to scope and meaning is not within human gift. Just as this Court has power to settle disputes between States where there is no compact, it must have final power to pass upon the meaning and validity of compacts. It requires no elaborate argument to reject the suggestion that an agreement solemnly entered into between States by those who alone have political authority to speak for a State can be unilaterally nullified, or given final meaning by an organ of one of the contracting States. A State cannot be its own ultimate judge in a controversy with a sister State. To determine the nature and scope of obligations as between States, whether they arise through the legislative means of compact or the "federal common law" governing interstate controversies (Hinderlider v. La Plata Co., 304 U.S. 92, 110), is the function and duty of the Supreme Court of the Nation. Of course, every deference will be shown to what the highest court of a State deems to be the law and policy of its State, particularly when recondite or unique features of local law are urged. Deference is one thing; submission to a State's own determination of whether it has undertaken an obligation, what that obligation is, and whether it conflicts with a disability of the State to undertake it is quite another.”

The Commission’s exercise of powers is conditioned on the ability of “any interested party [to] have the opportunity to present his views on the proposed action” before Commission action, after “reasonable” advance notice of the action. (71 Stat. at 505.) Decision-making by the compact entity is thus nothing like the negotiation of a settlement agreement without such opportunity for public comment. The Supreme Court has confirmed that the requirement of decision-making by a compact entity involves a different sort of “political accountability;”

“An interstate compact, by its very nature, shifts a part of an authority to another state or states, or to the agency the several states jointly create to run the compact. Such an agency under the control of special interests or gubernatorially appointed representatives is two or more steps removed from popular control, or even of control by a local government.”

Hess v. Port Auth. Trans-Hudson Corp., 513 U.S. 30, 42 (1994) (quoting M. Ridgeway, Interstate Compacts: A Question of Federalism 300 (1971)).

Moreover, compact issues under agreements to which the Congress has consented are matters of federal, not state law, known generally as the “Law of the Union” doctrine. This critically important doctrine is one that many state officials do not appear to understand, but the Supreme Court has made the point clearly in Cuyler v. Adams 449 U.S. 433 (1981). “Because congressional consent transforms an interstate compact within [the Compact] Clause into a law *of the United States, we have held that the construction of an interstate agreement sanctioned by Congress under the Compact Clause presents a federal question." The Court added "[W]here Congress has authorized the States to enter into a cooperative agreement, and where the subject matter of that agreement is an appropriate subject for congressional legislation, the consent of Congress transforms the States' agreement into federal law under the Compact Clause."*

In addition to the obvious points, Litwak stresses that because compact law is federal law, the usual considerations of federal preemption are not present and the compact law "supersedes the party states' statutes and constitutions." That being understood, the Compact Commission itself is not always an agency of the United States but, can be, depending on the language of the compact itself, a regional planning agency.

Statutes are exercises of the legislative power to prescribe or prohibit public or private conduct, establish policy, or mandate processes by which public agencies operate and are part of the body of positive law. Compacts are agreements that represent a meeting of the minds among different parties and are interpreted today against a longstanding common law tradition.

An interstate compact is clearly an agreement among states, but it is also statutory, both in terms of the legislation adopted by the participating states to sanction the agreement but also because of the critically important fact that Congress adopts legislation consenting to the agreement. The congressional action is not only an exercise of its authority under the interstate compact clause of the Constitution, but also transforms issues that arise under the compact into federal questions under the Law of the Union doctrine.

If the focus is on statutory interpretation and if the issues are matters of federal law, compact agencies may be entitled to deference by courts in their interpretation of the legislation they implement and administer under the Supreme Court's Chevron doctrine. Indeed, the Oregon Supreme Court recognized that Chevron deference is due to the Gorge Commission. Litwak even notes that a number of compacts empower the compact agency "to provide guidance on compact responsibilities and interpretation of compact provisions."

Response to Comment LA8-13

Comment noted. Comment refers to interstate compacts and related legal analysis. Please see Master Response CEQ-4.

Comment LA8-14

The California and Oregon state statutes and the United States Code make it clear that the Compact's application not only applies to the Upper Klamath Basin, which is defined as the portion of the Klamath Project within Oregon commencing at the Stateline, but also to the entire Klamath River Basin in California; which, *without question and specifically, includes the Klamath River's tributaries such as Fall Creek. California Water Code § 5901, Article II(H) defines "domestic use" among other uses as "municipal use." Thus, the California Water Code specifically provides that the use of water for "domestic purposes," that being, the use of water for "municipal purposes" has the first priority in the allocation of Klamath Basin water usage.*

Response to Comment LA8-14
Please refer to response to comment LA8-12 and Master Response CEQ-4.

Comment LA8-15
Significantly, public policy specifically declares water for municipal use to be of a higher priority than water use for fish and wildlife purposes. That does not mean that Yreka is opposed to the use of conservation hatcheries, just that any operational conflicts which negatively impacts Yreka's present or future right to take water must be resolved in favor of the protection of Yreka's municipal usage.

Response to Comment LA8-15
Please refer to response to comment LA8-12 and Master Response CEQ-4.

Comment LA8-16
As set out in the Compact itself, the purpose of the Compact is to further intergovernmental co-operation and comity with respect to these resources and programs for their use and development and to remove causes of present and future controversies by providing (1) for equitable distribution and use of water among the two states and the Federal Government, (2) for preferential rights to the use of water after the effective date of this compact for the anticipated ultimate requirements for domestic and irrigation purposes in the Upper Klamath River Basin in Oregon and California, and (3) for prescribed relationships between beneficial uses of water as a practicable means of accomplishing such distribution and use.

This provision encompasses this exact circumstance – one in where it is being determined how the SWQCB shall determine, in the context of the Proposed Project, whether Yreka's municipal use of water is of a higher priority than that of any other use, regardless of when the right was appropriated. It goes without saying that any portion of the Proposed Project that could impact or adversely affect Yreka's right to utilize its fully permitted allocation must be adequately studied and modified so that Yreka's municipal water use is not adversely impacted. Thus, when considering whether the relocation of a fish hatchery that propagates ESA designated threatened species would detrimentally affect the city's right to take in the future, it is clear that any wildlife consideration must give way to the priority granted to municipal water usage.

Accordingly, SWQCB is constrained to construe the laws and environmental regulations of the State of California in a manner that is consistent with the provisions and existence of the Compact. No joint or individual action by Oregon, California or any of the parties to the Proposed Project, can take lawful action other than to prioritize Yreka's water use as the highest priority use in the Klamath River Basin.

Response to Comment LA8-16

Please refer to response to comment LA8-12 and Master Response CEQ-4.

Comment LA8-17

It is equally clear that the Commission is the proper lead agency to the Proposed Project as the regional planning agency. The circulation of this DEIR by an agency without authorization, public hearings before the Commission and delegation under the Compact is premature as the Commission is the appropriate regional planning agency to circulate it. Any other course of conduct would constitute a violation of both the "Law of the River" and the "Law of the Union." The correct application of these doctrines make crystal clear that the DEIR must be circulated for comment as a joint state and federal DEIR/DEIS.

Response to Comment LA8-17

Please refer to Master Responses CEQ-1 and CEQ-4.

Comment LA8-18

The Preservation of Yreka's Right to Take as Agreed by the Parties to the Amended Klamath Settlement Agreement

As noted in the preface to these comments the Proposed Project is the genesis of the AKSA. The SWRCB, if it proceeds to the stage of a FEIR, must make its determinations regarding the Proposed Project by construing the AKSA as providing Yreka's municipal water use with the highest priority use over lesser priorities set out in the Compact. Fortunately, the AKSA contains multiple provisions intended to protect Yreka's municipal water supply. The provision relating to the protection of Yreka's municipal water permit and its water conveyance infrastructure as follows:

AKSA ¶ 7.2.3 "Assessment and Mitigation of Potential Impacts to the City of Yreka The Parties understand that actions related to this Settlement may affect the City of Yreka. In recognition of this potential, the Parties agree to the following provisions, which shall remain in effect so long as this Settlement remains in effect.

A. The Parties collectively and each Party individually shall agree not to oppose the City of Yreka's continued use of California State Water Right Permit 15379, which provides for the diversion of up to 15 cfs for municipal uses by the City of Yreka.

B. As part of implementation of this Settlement, an engineering assessment to study the potential risks to the City of Yreka's water supply facilities as a result of implementation of Facilities Removal shall be funded and conducted by the Secretary. Actions identified in the engineering assessment necessary to assure continued use of the existing, or equivalent replacement, water supply facilities by the City of Yreka shall be funded from the California Bond Measure and implemented. Actions that may be required as a result of the engineering assessment and in consultation with the City of Yreka include, but are not limited to:

(1) Relocation, replacement, and/or burial of the existing 24-inch diameter water line and transmission facilities from the City of Yreka's Fall Creek diversion;

(2) Assessment, mitigation, and/or funding to address potential damage to the City of Yreka's facilities located along the Klamath River, including mitigation of potential impacts that may occur as a result of a dam breach. Such assessment, mitigation, and/or funding shall include consideration of the cathodic protection field located near the north bank of the Iron Gate crossing and the facilities that house the City's diversion and pump station; and

(3) Assessment, mitigation, and/or funding to address any impacts resulting from implementation of the Settlement, on the ability of the City to divert water consistent with its Water Right Permit 15379.

C. As part of implementation of this Settlement, an assessment of the potential need for fish screens on the City of Yreka's Fall Creek diversion facilities was completed in the Detailed Plan and it identified the need for fish screens on Dam A and Dam B. As a result of implementation of this Settlement, in order to meet regulatory requirements and screening criteria, construction of the required fish screens, including, but not limited to, necessary costs to preserve City facilities with additional species protection, shall be funded through the California Bond Measure pursuant to Section 4.2.3, or through other appropriate sources." [Emphasis added]

Since the State of California, SWQCB and the Department of Fish and Wildlife are all parties to this agreement, the parties have agreed that all their actions will support the continued and unimpaired use of Yreka's 15 cfs water diversion. This would include all determinations made on the Proposed Project and on the DEIR.

Response to Comment LA8-18

Please note that the State Water Resources Control Board is not a signatory to the amended Klamath Hydroelectric Settlement Agreement (KHSA). The provision of the KHSA related to City of Yreka's water supply is noted.

Please refer to Volume I Section 3.8.4 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 and 3-683), which analyzes the potential impact of relocating the City of Yreka's water supply pipeline under the Proposed Project on the City's water supply. Potential Impact 3.8-4 includes Mitigation Measure WSWR-2, which would ensure that there would be uninterrupted water supply during replacement of the pipeline section, any required intake screen modifications, and throughout Project implementation. Potential Impact 3.8-4 concludes that with mitigation there would be no significant impact to the City of Yreka's water supply. Please also refer to Master Responses WSWR-5 and WSWR-6.

Comment LA8-19
ASKA Interim Measure 17 states in relevant part:

"Additionally, if anadromous fish have passage to the Fall Creek following removal of the California dams, flows will be provided in the Fall Creek bypass reach to provide for the appropriate habitat needs of the anadromous fish species of any kind that are naturally and volitionally present in the Fall Creek bypass reach. Flows will be based on species specific habitat needs identified by the IMIC. The operation will also avoid and minimize take of any listed species present."

Accordingly, if anadromous fish take passage into Fall Creek, processes must be put into place to ensure that Yreka receives its full allocation of water as well as any additional water needed for the anadromous fish. This should not be interpreted to imply that anadromous fish should be encouraged to take passage into Fall Creek through the imprinting of being raised in a hatchery located there. In fact, use of the words "naturally and volitionally" should be correctly interpreted as those anadromous fish that are the product of the natural production of fish occupying the Klamath River Basin rather than those caused to immigrate to Fall Creek after their rearing as hatchery Yearlings. There is no reason to single out Fall Creek from any of the other Klamath tributaries except for the purpose of the protection of Yreka's water diversion. Another provision of the Fish and Game Code that could apply is section 5937, which requires the owner of any dam to "allow sufficient water at all times to pass through …to keep in good condition any fish …below the dam…." This section is notable because third-parties like environmental groups can bring lawsuits against public entities that own dams to enforce this duty, which appears to be frequently occurring.

Response to Comment LA8-19
The provision of the Klamath Hydropower Settlement Agreement (KHSA) relating to PacifiCorp's obligation to continue to provide 5 cubic feet per second (cfs) in the Fall Creek bypass reach is noted. Please also refer to Master Responses WSWR-5 and WSWR-6.

Comment LA8-20

The DEIR Fails to Select a Preferred Alternative of Three Types of Replacement to Yreka's Water Transmission Pipeline and the Improvements That Will be Made to Yreka's Water Diversion Facilities Thereby Rendering Yreka's Ability to Comment Impossible

Yreka's water transmission pipeline lays along the bottom of Iron Gate Reservoir. When the reservoir is drawn down, it will be subject to high velocity waters and scouring that will be harmful to it. The DEIR states that a replacement pipe crossing is needed before dam removal and reservoir drawdown to ensure an uninterrupted water supply to the City of Yreka. The DEIR generally opines that, as a result of any chosen alternative, excepting the no removal alternative, that Yreka's water transmission pipeline, must be reconstructed in one of three methods:

1. A new buried pipeline by micro-tunneling in the immediate vicinity of the existing waterline crossing.

2. A new aerial pipeline on a dedicated utility pipe crossing in the immediate vicinity of the existing waterline crossing.

3. A new buried pipeline and an aerial pipeline crossing on the existing timber traffic bridge along Daggett Road located approximately 2,000 feet upstream of the existing waterline crossing.

How this pipeline is replaced is of vital importance to Yreka. No selection is made even though the DEIR states that this is one of the first projects that must be completed before the water in Iron Gate Reservoir is drawn down.

Response to Comment LA8-20

The comment expresses concern that a final water supply pipeline alignment has not yet been selected, inhibiting the commenter's ability to accurately comment on pipeline alignment options.

The commenter notes that the EIR explains that the City of Yreka's water transmission pipeline lays along the bottom of the Iron Gate Reservoir, that a replacement pipe crossing would need to be installed before dam removal and reservoir drawdown, to prevent damage to the pipeline, and that the pipe crossing would consist of one of three options. (please refer to Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* [pages 2-84 to 2-85.). Volume I Potential Impact 3.8-4 (3-682 to 3-683) evaluates the potential environmental impacts of replacing the City of Yreka water supply pipeline regardless of which pipeline alignment alternative is selected, consistent with CEQA Guidelines section 15126. A number of resource areas consider potential construction-related impacts of replacing the pipeline, including Water Quality (Section 3.2.5.2 *Water Quality – Potential Impacts and*

Mitigation – Suspended Sediments Potential Impact 3.2-4 and Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-15 [please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality]*), Aquatic Resources (Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-21, Potential Impact 3.3-22, and Potential Impact 3.3-24 [please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*]), Water Rights/Water Supply (Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 [pages 3-682 to 3-683], which includes Mitigation Measure WSWR-2), recirculated Air Quality (Potential Impact 3.9-1 and Potential Impact 3.9-4), recirculated Greenhouse Gas Emissions (Potential Impact 3.10-1), Aesthetic Resources (Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-6 [please refer to Volume III Attachment 1 for the final Section 3.19 *Aesthetics*]), Cumulative Effects (Volume I Section 3.24.17 *Cumulative Effects – Public Services* Potential Impact 3.24-8 [pages 3-1160 to 3-1161], Potential Impact 3.24-55 [pages 3-1205 to 3-1206], Potential Impact 3.24-59 [pages 3-1210 to 3-1211 as modified in Volume III Attachment 1 Potential Impact 3.24-59], and Potential Impact 3.24-64 [pages 3-1215 to 3-1216]). The EIR also analyzes the potential for long-term (permanent) visual changes resulting from the proposed removal of the existing, submerged portion of the pipeline and replacement with new bridge or aerial pipeline infrastructure in Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-5. Please refer to Volume III Attachment 1 for the final Section 3.19 *Aesthetics*.

The three pipeline alignment options came from the project proponent, which has not yet committed to a specific option. The impact analyses referenced above provide ample basis for the City of Yreka to provide public comments and other input on the ultimate method of reconstructing its water supply pipeline, notwithstanding that three potential methods remain available.

Comment LA8-21

A DEIR must consider all phases of project planning, implementation, and operation. Cal Code Regs §15063(a)(1). It is referred to as Potential Impact 3.8-4. The DEIR states merely that it will determine the preferred alternative in consultation with the City of Yreka. Consultation is not the equivalent of consent and deprives Yreka of any ability to comment. It concludes that any of the selections made will result in the same quantity and quality of water conveyed to the city. However, because the exact plans for pipeline re-routing are incomplete, it is not possible to determine the reasonableness of the assumed timeframe for pipeline disconnection. An interruption in service is not limited to the time it takes to reconnect a water line. If the pipeline is constructed in a manner that permits service interruption in the future it is also an environmental consideration that must be considered. Environmental Protection Inf. Ctr. v Department of Forestry & Fire Protection (2008) 44 C4th 459, at 503. The level *of specificity required in the DEIR regarding this part of the Proposed Project is therefore inadequate.*

Response to Comment LA8-21
Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* (pages 2-84 to 2-86) and Potential Impact 3.8-4 (pages 3-682 to 3-683) describe the need for replacement of a section of the City of Yreka's water supply pipeline, and present three potential options for such replacement, based on the options under discussion between the City and the applicant, as presented in the Definite Plan.

The potential for service interruption under the Proposed Project is analyzed in Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* Potential Impact 3.8-4 (pages 3-682 to 3-683). There is no evidence that any of the pipeline configurations would have greater or lesser ability to avoid a service disruption. Regardless, Potential Impact 3.8-4 describes Mitigation Measure WSWR-2, which avoids future service interruptions regardless of how the City of Yreka's supply pipeline is replaced, by setting a performance standard.

Comment LA8-22
In regard to the replacement of the water diversion fish screens, the DEIR states: "While the fish screens have recently been updated, their compliance to NMFS, USFWS, and CDFW screen criteria for anadromous fish still needs to be confirmed. These fish screens would require updates, if found to be non-compliant." To mitigate the impact the DEIR states: "Any work the KRRC undertakes to ensure that the City of Yreka water supply intakes' screens comply with fish screen criteria shall be completed within the water delivery outage period specified above." This lack of specifics in the DEIR impermissibly disables Yreka to comment.

Response to Comment LA8-22
Please refer to Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683) for discussion of fish screens as part of the Proposed Project. Mitigation Measure WSWR-2 permissibly requires a performance standard which would mitigate the potential significant effect of a Project, and which may be accomplished in more than one specified way.

Comment LA8-23
The DEIR circulated is required to avoid vagueness, incompleteness, or untested mitigation measures. Mitigation measures must not be remote and speculative. Federation of Hillside & Canyon Assn's v City of Los Angeles (2000) 83 CA4th 1252, 1260. Here the mitigation measures are inadequate because they are so undefined that it is impossible to gauge their effectiveness. Preserve Wild Santee v City of Santee (2012) 210 CA4th 260 San Franciscans for Reasonable

Growth v City & County of San Francisco (1984) 151 CA3d 61, 79); Kings County Farm Bureau v City of Hanford (1990) 221 CA3d 692, 727.

Response to Comment LA8-23
Please refer to response to comments LA8-20 and LA8-22.

Comment LA8-24
Yreka's present water pipeline is buried or covered with many feet of water. It is of critical importance that the reconstruction of the pipeline be done in a manner that ensures that water service will remain as uninterrupted as it was before the Proposed Project. Yreka is concerned about possible terrorist attacks on exposed portions of the pipeline (if simply suspended over the riverbed or placed in open view under a bridge structure) and simple vandalism with rural citizens sporting .50-caliber rifles. Thus, Yreka recommends the imposition of a mitigation measure which requires the selection of a new buried pipeline by tunneling in the immediate vicinity of the existing waterline crossing or that the DEIR be recirculated with the proper amount of specificity required to enable Yreka to comment.

Response to Comment LA8-24
The existing water supply pipeline for the City of Yreka is primarily under ground and under water between the Fall Creek diversion and the City's treatment plant, although portions of the pipeline are exposed above ground in accessible areas. Bridge crossings in rural and urban areas commonly have attached and exposed utility lines (see, e.g., CalTrans 2018 [providing standards of construction for utility bridge crossings].) The California Division of Drinking Water (DDW) has no evidence that any vandalism or terrorist acts have been perpetrated against any utilities in the vicinity of the Proposed Project. Therefore, concerns anticipating such acts are speculative, and it is not necessary to impose further mitigation for replacing a segment of the City of Yreka's water supply pipeline.

Please also refer to responses to comments LA8-20 and LA8- 21 regarding specificity.

Comment LA8-25
The same situation applies to the Fish Screens that the DEIR indicates need to be replaced but does not provide any specificity as to what improvements or modifications will be undertaken.

Response to Comment LA8-25
If the existing fish screens at the City of Yreka water supply pipeline are found to be non-compliant, as described in Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* (page 2-85) the existing screens would be replaced with screens that meet modern criteria from NMFS (National Marine Fisheries Service), USFWS (United States Fish and Wildlife Service), and CDFW (California Department of Fish and Wildlife). Please

refer to Volume III Attachment 1 Section 3.3.4 *Aquatic Resources – Potential Impacts and Mitigation* Potential Impact 3.3-22 for a discussion of the potential impacts of replacing the existing fish screens at the City of Yreka water supply pipeline. In this discussion, the potential impacts of the Proposed Project are assessed with and without installation of fish screens to allow for the possibility that the screens would not need to be replaced. If screen replacement is necessary, standard construction best management practices would be applied, as described in Volume 1 Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs*. Therefore, sufficient specificity is available to assess the potential impacts to environmental resources from installation of fish screens at the City of Yreka water supply pipeline (if they are found to be non-compliant).

Further, the Klamath River Renewal Corporation (KRRC) has recently indicated that the Proposed Project would involve installation of a permanent fish passage barrier just downstream of the confluence of Fall Creek and the Fall Creek powerhouse tailrace to prevent fish entrainment in the existing City of Yreka diversions (KRRC 2019a). A permanent fish passage barrier at this location would negate the need for fish screen installation at the existing City of Yreka water diversions. Although details surrounding the proposed design and implementation of a permanent fish passage barrier associated with the Fall Creek Hatchery (FCH) are not yet available, they would be required to adhere to all construction Best Management Practices (BMPs) and relevant mitigation measures associated with all construction for larger Proposed Project, including requirements tailored for in-stream work. Construction of a barrier would also eliminate the potential need for construction associated with modifying or replacing the existing fish screen. Thus, should a barrier be constructed instead of modifying or replacing the City of Yreka's fish screen, the EIR analyses of potential impacts and significance determinations associated with the City of Yreka's water supply infrastructure would not require revision. Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* has been revised to note the permanent fish passage barrier. Please refer to Volume III Attachment 1 Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* for the revisions.

Comment LA8-26

The lack of concrete specificity of the exact improvements to be made to Yreka's water pipeline and water diversion facilities on Fall Creek renders it premature and impossible to adequately address those particular impacts of the Proposed Project.

Response to Comment LA8-26

Please refer to Master Response WSWR-5, Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683), and Section 7.5 *Yreka Water Supply* in Volume II

Appendix B: *Definite Plan*. Please also refer to comment responses LA8-20 through LA8-25.

Comment LA8-27
The Decommissioning of the Iron Gate Hatchery and the Construction of the Fall Creek Hatchery

The ASKA contains the following provisions regarding the fish hatcheries.

7.6.6 PacifiCorp Hatchery Facilities:

A. Hatchery Funding

"PacifiCorp will fund 100 percent of hatchery operations and maintenance necessary to fulfill annual mitigation objectives developed by the California Department of Fish and Wildlife in consultation with the National Marine Fisheries Service. This includes funding the Iron Gate Hatchery facility as well as funding of other hatcheries necessary to meet ongoing mitigation objectives following Facilities Removal…"

B. Hatchery Production Continuity

"PacifiCorp will fund a study to evaluate hatchery production options that do not rely on the current Iron Gate Hatchery water supply. The study will assess groundwater and surface water supply options and water reuse technologies that could support hatchery production in the absence of Iron Gate Dam. The study may include examination of local well records and increasing production potential at existing or new facilities in the Klamath Basin as well as development of a test well or groundwater supply well. Based on the study results and with the approval of the California Department of Fish and Wildlife and the National Marine Fisheries Service, PacifiCorp will provide one-time funding to construct and implement the measures identified as necessary to continue to meet current mitigation production objectives for a period of eight years following the Decommissioning of Iron Gate Dam….Production facilities capable of meeting current hatchery mitigation goals must be in place and operational upon removal of Iron Gate Dam. PacifiCorp shall not be responsible for funding hatchery programs, if any, necessary to reintroduce anadromous fish in the Klamath basin."

Response to Comment LA8-27
The comment's recitation of Klamath Hydropower Settlement Agreement (KHSA) provisions is noted.

Please note that the State Water Resources Control Board is not a signatory to the amended KHSA.

<u>Comments LA8-28 and LA8-29</u>

The DEIR Proposes to Construct a new Fall Creek Hatchery adjacent to Yreka's Municipal Water Supply Improvements located at Fall Creek. The DEIR proposes to reopen Fall Creek Hatchery with upgraded facilities (e.g., install circular tanks, UV treatment system, renovate existing raceways, upgrade plumbing, provides for settling ponds, etc.) for raising coho salmon (an ESA designated "threatened" species) and Chinook salmon yearlings within the existing facility footprint and an area adjacent to the upper raceways (Figure 2.7-15 in the DEIR). Additional space requirements needed for most operations (e.g., vehicle parking, pertinent buildings, tagging trailer, etc.) can be accommodated on existing developed or disturbed areas around the hatchery and powerhouse, but the settling pond would need to be located outside of this area. The settling pond would be constructed on one of two potential nearby sites located on Parcel B lands downstream of the Fall Creek Hatchery, with a minimally buried or at-grade conveyance pipeline transporting flows from the hatchery to the settling pond.

The AKSA does not obligate PacifiCorp to fund the study of the construction of a hatchery at Fall Creek adjacent to Yreka's water diversion facilities in particular. One study opines that once Iron Gate Dam is removed the river will have cooler water, which cooler water could supply IGH. It does not consider any filtering methods to improve IGH water quality. The DEIR does not reference any studies undertaken to generate further cooling of the water that IGH uses. It would appear that geothermal cooling could be studied. If geothermal cooling were not sufficient for optimal fish propagation, it could be supplemented with water cooler. PacifiCorp has access to the cheapest source of power than anyone else.

How was FCH selected when it is known that there are other better sources of cool water in the area which would sustain a fish hatchery. Under the "dams out" alternative, adult salmon access will be provided to cool water tributaries (i.e., Shovel Creek, 2.1 mi; and upper/middle Spencer Creek, 7.1 mi) above the dams, springs currently inundated by reservoirs, and groundwater areas above the Keno Reservoir (the Wood River, the Williamson River, and springs on the west side of Upper Klamath Lake). In addition, a large spring complex discharging directly to the mainstem Klamath River downstream from JC Boyle Dam provides ~225 cubic feet per second of cool water year-round (USDI Bureau of Land Management 2003), creating a large thermal refuge area currently unavailable to salmon, particularly during summer and fall months. Accordingly, Yreka requests further studies be conducted before the selection of a site adjacent to Yreka municipal water source and the construction of FCH is implemented.

Response to Comments LA8-28 and LA8-29

The comment requests that further studies be conducted regarding the water source for Iron Gate Hatchery and further studies be conducted prior to selection of a hatchery location adjacent to the City of Yreka's water supply intake.

Please refer to Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (pages 2-77 to 2-84) for a discussion of the Proposed Project hatchery operations, including production goals and water supply. Please refer to Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 for an analysis of the water temperature in the Klamath River in the vicinity of the Iron Gate Hatchery (i.e., downstream of Iron Gate Dam) after dam removal. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Overall, dam removal under the Proposed Project would result in warmer water temperatures adjacent to Iron Gate Hatchery (i.e., downstream of Iron Gate Dam) earlier in the spring, cooler temperatures earlier in the fall, and increased daily variability compared to existing conditions. These changes would be consistent with a more natural thermal regime for the Klamath River (refer also to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature*). Currently, water temperatures delivered to Iron Gate Hatchery from Iron Gate Reservoir range from 38 to 45°F (3.7 to 7.2°C) and 50 to 60°F (10 to 15.7°C) in the winter and summer months, respectively (CDFW and PacifiCorp 2014). As analyzed in Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-1 and shown in Figure 3.2-8, modeled Klamath River water temperature downstream of Iron Gate Dam after dam removal under the Proposed Project would typically be greater than 50 to 60°F (10 to 15.7°C) during summer, so Klamath River water could not provide a similar level of cold water to Iron Gate Hatchery as Iron Gate Reservoir does under existing conditions.

Note that the Klamath River Renewal Corporation (KRRC) originally considered the following potential water supply options for Iron Gate Hatchery:

- direct diversion from the Klamath River,
- groundwater,
- Fall Creek diversion and transfer, and
- Bogus Creek diversion.

Based on further exploration of the feasibility of each of the aforementioned options, KRRC proposed that water for Iron Gate Hatchery would be diverted from Bogus Creek within 1,000 feet of the confluence with the mainstem Klamath River. Diversion from Bogus Creek represents the Proposed Project As discussed in Volume I Section 2.7.6.1 *Proposed Project – Hatchery Operations – Iron Gate Hatchery* (pages 2-77 to 2-80), if Bogus Creek flows are insufficient to meet minimum operational needs while balancing flow requirements in the creek, water reuse (recirculation) from the rearing raceways could be utilized. In addition to recirculation, early release of smolts (i.e., prior to April 1) may occur to reduce water use requirements in the hatchery. The effectiveness of recirculation and early smolt release would be studied to determine whether they could be used to meet minimum operational flow and water temperature needs in the hatchery given annual variations in Bogus Creek flow and water temperature during the early release period. Thus, based on the studies and modeling already conducted and the alternatives already vetted for feasibility and effectiveness, the additional studies requested by the comment would not uncover additional feasible alternatives.

Comments on the Definite Plan (i.e., the Proposed Project), including the approach for supplying cold water to Iron Gate Hatchery and the selection of the location for Fall Creek Hatchery (FCH), should be submitted to the KRRC. As described in Volume I Potential Impact 3.8-4 (pages 3-682 to 3-683), with mitigation the EIR does not find a significant impact on the City of Yreka's water supply.

Comment LA8-30

The Fall Creek Hatchery was originally built in 1919 and operated until 1948. The facility thereafter consisted of rearing ponds used from 1979 to 2003 to raise 180,000 chinook salmon which were released at the Iron Gate Hatchery. Chinooks are not an ESA listed species. There are six raceways that remain, unused since 2003. Photographs taken on February 21, 2019 of the current state of what remains of the "hatchery" are attached as Attachment 4. The hatchery itself is completely demolished. Since the DCFW 10 cfs junior and subordinate water appropriation was acquired in 1979[21], it could not have been used for hatchery purposes, only for the rearing ponds from 1979 through 2003. This CDFW permits the diversion of 5,463 acre-feet per year while Yreka's permit allows 6,300 acre-feet per year. If CDFW were to fully use its permitted allocation Yreka would not be able to take under its permit as agreed by the parties to the ASKA.

Response to Comment LA8-30

Please refer to Master Response WSWR-6 and response to comment LA8-10.

Comment LA8-31

To operate the Fall Creek Hatchery, up to 10 cfs of water would be diverted from the PacifiCorp Fall Creek powerhouse return canal downstream of the City of Yreka's diversion facility at Fall Creek Dam A. Hatchery water would be diverted from Fall Creek Dam B to Dam A during periods when the powerhouse return canal is not flowing. While the Definite Plan specifies diverted water would be returned to Fall Creek at the fish ladder located in the lower tank area or the settling pond location (Appendix B: Definite Plan −Section 7.8.3), an October 2018 update specifies the upper rearing tank would discharge diverted water directly to Fall Creek, the lower rearing tank would discharge to the fish ladder adjacent to the tank, and the settling pond would discharge to Fall Creek further down, but upstream of the USGS 11512000 gage on Fall Creek (S. Leonard, AECOM as KRRC Technical Representative, pers. comm., October 2018). Fall Creek diverted water would be gravity fed and plumbed to each rearing location and all circular tanks.

It is proposed that the hatchery diversion would not significantly alter Fall Creek flows measured at the USGS 11512000 gage or compliance with minimum Fall Creek flow requirements since the diversion flows for Fall Creek Hatchery would be diverted and returned (less evaporative losses) to Fall Creek upstream of the USGS 1151200 gage under the Proposed Project. This action would return most hatchery flows to Spring Creek before the point where the CDFW imposed Yreka's Fall Creek bypass is measured.

However, the effect, if any, that Mitigation Measure 17[22] has at this point, is relevant because it is not clear where the flows will come from to satisfy the concept that "flows will be provided in the Fall Creek bypass reach to provide for the appropriate habitat needs of the" fish. Is this phrase meant to apply to Yreka's municipal diversion or PacifiCorp's 75 cfs Fall Creek and 16.5 cfs Spring Creek right to take? There is no explanation of how these flows can be created and not affect Yreka's diversion.

Response to Comment LA8-31
The cited provision is not a Mitigation Measure under the EIR: the text is from the Klamath Hydropower Settlement Agreement's (KHSA's) Interim Measure 17. The 5 cubic feet per second (cfs) minimum flow in the Fall Creek bypass reach described in KHSA Interim Measure 17 is a continuation of PacifiCorp's existing operations of Fall Creek powerhouse. No change to this bypass reach flow is anticipated under the Proposed Project. Please also refer to Volume I Section 2.7.9 *Proposed Project – Proposed Project – KHSA Interim Measures* Table 2.7-19 (pages 2-103 to 2-107), Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology – Spring, Fall, and Jenny Creeks* (page 3-606), and Master Response WSWR-7.

Comment LA8-32
Further, unless Yreka's permit is amended, the permit's Condition F provides:

"This permit does not authorize any act which results in the taking of a threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). If a "take" will result from any act authorized under this water right, the permittee shall obtain authorization for an incidental take prior to construction or operation of the project. Permittee shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this permit."

Response to Comment LA8-32
Comment noted. The comment refers to Condition F of the City of Yreka's water right permit. Please refer to LA8-37 for response to related comments.

<u>Comment LA8-33</u>

The KRRC Definite Plan set out that the intention is to raise 75,000 Coho Yearlings and 115,000 Chinook Yearlings at the proposed Fall Creek Hatchery ("FCH").23. These Coho Yearlings are now being raised at Iron Gate Hatchery ("IGH"). The DEIR 2.3.4, et seq. summarizes that the IGH, now raises steelhead, coho salmon, and Chinook salmon. The hatchery includes a warehouse, a hatchery building, four fish-rearing ponds, a fish ladder, a visitor center, and four employee residences. It has a fish trapping and holding facility including a fish ladder, holding tanks, and a processing facility at the downstream base of Iron Gate Dam. It is supplied by water from the present reservoir.

The objectives of the AKSA as detailed in the Definite Plan present imminent risks for the City of Yreka's Fall Creek water right. Specifically, the broad objective of the AKSA Fisheries Program is intended to reintroduce anadromous fish species which could migrate into Fall Creek. Reintroduction of fish species could lead to the increased prevalence of threatened or endangered species in and around the City of Yreka's points of diversion. Also, various habitat restoration requirements could have an impact on the nature of the flow in Fall Creek. CDFW's proposal to construct a new hatchery facility at the site of its defunct fish hatchery is adjacent to Yreka's points of diversion will likely cause the hatchery raised fish to return to Fall Creek due to these species homing mechanisms. The objective of the AKSA is for the reintroduction of anadromous species throughout their historic range above Iron Gate Dam and provides that the focus of habitat restoration and monitoring is to be the Upper Klamath River Basin. Retaining coho prorogation at the IGH is directly in line to the Upper Klamath Basin and must remain the place of propagation of coho hatchery production. Instead the majority of this hatchery is proposed for demolition and eliminates coho production.

Response to Comment LA8-33

Please refer to responses to comments LA8-28/29 and LA8-37. Additionally, please refer to Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (pages 2-77 to 2-86) for a detailed description of both the Fall Creek Hatchery (FCH) and the Iron Gate Hatchery plans.

<u>Comment LA8-34</u>

The data clearly demonstrates that Yreka would only receive its fully permitted water allocation one month out of the three-year period during low flow years if CDFW's junior, lower priority appropriation was permitted for the use of a Fall Creek hatchery/rearing ponds and if CDFW did not be return its hatchery flows above the gage as is presently proposed or if more water is used by the hatchery than is proposed CDFW. If CDFW is allowed to construct a hatchery at Fall Creek, the return of its flows above the gage must be a made condition of that allowance.

Response to Comment LA8-34
As described in Volume I Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* (pages 2-81 to 2-84), diversions associated with California Department of Fish and Wildlife's (CDFW's) non-consumptive water right on Fall Creek would return to the creek upstream of the United States Geological Survey [USGS] gage (Gage no. 11512000). Additionally, please refer to Master Responses WSWR-5 and WSWR-6.

Comment LA8-35
Further, as noted in the DEIR, it is "unclear" how the Fall Creek Hatchery would be "decommissioned" or "repurposed" at the expiration of the eight-year PacifiCorp financial commitment. What is known to this commentator is that at least one Indian Tribe desires to take over the operation of the hatchery. Should the State transfer its operation to a sovereign nation the next step, five years later, is for that tribe to request the Bureau of Indian Affairs to transfer the property into trust for the benefit of the Tribe. At that point neither the State, nor Yreka, would have any degree of control over the diversion to the hatchery and one would have to assume that, rather than the projected monthly Fall Creek Hatchery diversions set out in the DEIR, that the full allocation of 10 cfs would be used year around. On the basis of "federal reservation" arguments, some additional extraction might occur.

Response to Comment LA8-35
Please refer to Master Response WSWR-5 and WSWR-6. The comment's hypothetical series of events in which a Native American tribe would take ownership of Fall Creek Hatchery (FCH) after it is decommissioned, take the property into trust to remove it from state authority, and operate it using a greater amount of water than the current proposal and in violation of the principles of seniority to the detriment of a municipal diversion is speculative.

Comment LA8-36
Accordingly, the threat to Yreka's continued extraction of 15 cfs is clear and imminent unless a mitigation measure is placed into effect that the Fall Creek Hatchery be decommissioned at the end of PacifiCorp's financial commitment. The State of California should be required to set aside sufficient revenues to adequately finance this obligation.

If the Proposed Fall Creek Hatchery is allowed to be constructed, given this consideration, Yreka requests that the effects of the Proposed Project be mitigated by action through SWRCB to amend Yreka's permit to reduce the present 15 cfs bypass to 5 cfs (15 cfs – 10 cfs = 5 cfs). As previously mentioned, when Fish and Wildlife requested this bypass flow it did not then have its own 10 CFS appropriation intended for its rearing ponds/raceways. If the Fall Creek Hatchery is permitted to be constructed, the rationale for the bypass is then mooted since proactive propagation measures would be in effect through the *operation of the Fall Creek Hatchery and there would be no additional environmental need for the bypass.*

Response to Comment LA8-36
Similar to the discussions in responses to comments LA8-10, LA8-28, LA8-29, LA8-34, LA-37,and LA8-40, no Mitigation Measure is required to protect City of Yreka's ability to divert for municipal supplies, because the Proposed Project does not have a significant impact on the City's water supply or use. Please also refer to Master Responses WSWR-5 and WSWR-6.

Comment LA8-37
The Definite Plan and DEIR propose hatchery propagation of threatened Coho salmon at the proposed FCH to the stage of yearling maturation. By hatchery raising cohoes to the yearling stage it is certain that they will be imprinted to return to Fall Creek as their "home" rather than where they are actually planted in the various tributaries, the Klamath River itself or within the Upper Klamath River Basin – which is the actual objective of the Proposed Project. This imprinting occurs at different times caused by differing hormonal conditions in natural salmon, but in hatchery raised salmon, the homing mechanism is almost certainly imprinted between the fry and smolt stages. Thus, not only is Yreka's water diversion suddenly directly in conflict with protections for ESA species but the objectives of the Proposed Plan themselves are not accomplished. As a consequence, Fall Creek is likely to be designed as "critical habitat" for the cohoes in a creek that does not itself provide good habitat for spawning, in which previous studies have shown varying returns between 0 to 10%. What data does the latest Biological Opinion have to say about this effect? "Little is known about juvenile coho salmon movement into, out of, and within the mainstem of the Klamath River. The analysis for this BA assumes similar movement patterns as nearby drainages, where data is available."

Response to Comment LA8-37
Comments regarding coho imprinting and juvenile salmon movement are noted. These comments and references are consistent with the analysis in Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries*, which analyzes the rate of recolonization based on observed stray rates of coho salmon produced at Iron Gate Hatchery; and assumes that fish return to natal streams unless straying occurs. Impacts associated with hatchery operations including coho straying is discussed in Potential Impact 3.3-9. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Additionally, please refer to Volume I Section 3.8.4 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683) for a discussion of fish screen assessments and potential upgrades as part of the Proposed Project.

No critical habitat for coho salmon is currently designated upstream of Iron Gate Dam. Following dam removal, National Marine Fisheries Service (NMFS) may consider whether to designate the newly available habitat as critical habitat as part of its five-year status review or as a separate reconsideration of the critical habitat designation for the species (J. Simondet, NMFS, pers. comm., 2011). It is speculative at this point to prejudge the outcome of any such consideration. Adult coho salmon that return to Fall Creek would presumably be collected for hatchery brood stock, potentially locate suitable spawning habitat, or may stray to other tributaries upstream of Iron Gate Dam.

Comment LA8-38

The ESA, enacted in 1973, tasked all federal agencies with the protection of endangered species, declaring: "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this chapter." Early litigation clarified that species protection occupied a position of utmost priority, superseding other policy and economic considerations.

Two federal agencies—the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS)—are primarily responsible for implementing the ESA, under authority delegated by the U.S. Department of the Interior and the U.S. Department of Commerce, respectively.

To oversimplify how ESA operates, endangered or threatened species are first recognized and listed through a science-based administrative process, and the implementing agencies also identify their critical habitat. Federal agency actions that might adversely affect a listed species can proceed only after consultation with either the FWS or NMFS (depending on the species involved), which then advise the federal agency through a Biological Opinion (BiOp) whether the proposed action would jeopardize the continued existence of the species or damage or destroy its critical habitat, and what "prudent and reasonable alternatives" might be available.

Response to Comment LA8-38

Comment noted. The comment relates an overview of the Endangered Species Act (ESA).

Comment LA8-39

Coho salmon once existed throughout the Basin but are now extinct above Iron Gate Dam, the lowermost Klamath mainstem dam that blocks fish passage. This salmon species was listed as threatened in 1997 and is NMFS's responsibility to manage and recover.

Meanwhile the BOR BiOp contains a request for formal consultation under section 7(a)(2) of the ESA with NMFS relating to coho salmon and their designated critical habitat. Until this occurs, it is premature to circulate this DEIR *because it is impossible for Yreka to comment upon the Proposed Project with that issue unresolved.*

Response to Comment LA8-39

The 2013 BiOp Flows served as the United States Bureau of Reclamation (USBR) Klamath Irrigation Project operational flow requirements for the Klamath River and specified the minimum flow requirements downstream of Iron Gate Dam at the time of the Notice of Preparation (NOP) for the Lower Klamath Project EIR (i.e., December 22, 2016) and the Draft EIR considered the potential effects of dam removal using the 2013 BiOp Flows to represent existing hydrology. In 2017, re-consultation on revisions to the biological opinion began again. After the issuance of the Lower Klamath Project Draft EIR on December 27, 2018, the applicable biological opinion and the operational flow requirements for the Klamath River changed again in March 2019, when the new biological opinions were issued by the National Marine Fisheries Service [NMFS] (2019) and United States Fish and Wildlife Service [USFWS] (2019). The 2019 Biological Opinion flows (2019 BiOp Flows) are now the current operational flow requirement for the Klamath River.

However, the fact that the flow schedules required for the USBR's Klamath Project were being revisited did not render CEQA analysis for the Klamath River Renewal Corporation's (KRRC's) project speculative so as to require a delay in CEQA review. Therefore, it was not premature to circulate the Draft EIR.

Please refer to Volume III Attachment 1 Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project* for a comparison of the 2019 BiOp Flows, the 2013 BiOp Flows, and the Klamath Basin Restoration Agreement (KBRA) Flows, and a discussion of how the 2019 BiOp Flows are analyzed in the Lower Klamath Project Final EIR as a second CEQA baseline, representing flows under newly defined existing conditions. Please note that there are no changes in significance determinations relating to the inclusion of the 2019 BiOp Flows in the Final EIR analyses. For additional detail, please refer to Master Response HYD-1.

Comment LA8-40

Because of the inherent conflict between Yreka's right to take water for municipal purposes and the potential effect of the propagation of threatened species negatively affecting that right to take its full 15 cfs, as the parties agreed in the AKSA, Yreka requests that a mitigation measure be imposed that, should the FCH be constructed, no ESA endangered or threatened species be propagated at FCH.

Response to Comment LA8-40

The commenter is expressing concern regarding hypothetical future water diversion restrictions for the City of Yreka, based on the presence of a larger number of threatened species (coho salmon) in Fall Creek than would occur due to fish barrier removal alone and due to the operations of the Proposed Project's coho salmon conservation program at Fall Creek Hatchery (FCH). Based on this concern, the commenter is requesting that mitigation measures be added to the Proposed Project for Fall Creek Hatchery operations.

Mitigation measures requested by the commenter to protect their water supplies are not required because there is no significant impact to the City of Yreka's water supply associated with Proposed Project's Fall Creek Hatchery operations (please also refer to responses to comments LA8- 10, LA8-28, LA8-29, LA8-34, LA8-37, LA8-41, and Master Responses WSWR-5 and WSWR-6). As described in Potential Impact 3.3-24, there is no evidence that the existing 15 cubic feet per second (cfs) bypass requirement is insufficient to supply adequate flows for listed salmonids that would use Fall Creek to access the Proposed Project's Fall Creek Hatchery. During the period of coho salmon migration and spawning (December through early winter), flows are typically much higher than the minimum 15 cfs bypass flow as a result of precipitation. If coho salmon adult returns were to become relatively high in Fall Creek as a result of hatchery returns, there is no basis to speculate that increased instream flows from reduced water diversions would be a reasonable or effective means to reduce crowding. Furthermore, the current program at Iron Gate Hatchery does not indicate that a similar program at Fall Creek Hatchery become high enough to induce "crowding." At Iron Gate Hatchery from 2004 to 2016, from zero to around 350 hatchery return spawners were observed, without crowding issues noted (Knechtle and Chesney 2011, 2016a, 2017). In addition, the proportion of anadromous salmonids anticipated to use the habitat in Fall Creek is relatively minor in comparison with the totality of newly accessible habitat upstream of Iron Gate Dam under the Proposed Project. The state (California Department of Fish and Wildlife [CDFW]) and federal (National Marine Fisheries Service [NMFS]) resource managers responsible for hatchery operations and the recovery of coho salmon have not indicated the release location of coho salmon smolts from the Fall Creek Hatchery, and it is speculative to assume that releases would occur in a location that would lead to adult crowding.

The 15 cfs is a flat bypass requirement that applies regardless of whether the City of Yreka's consumptive diversion is increased to 15 cfs (as was assumed for purposes of the flow analysis for salmonids in the EIR (please refer to Volume III Attachment 1 Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* Potential Impact 3.3-24). Additionally, NMFS and CDFW were involved in developing the hatchery proposal for Fall Creek, and these agencies have not indicated concern that the existing flows or that the City Yreka's bypass requirements in Fall Creek (negotiated with CDFW) are insufficient. The comment's concern that a greater number of listed coho salmon will return to Fall Creek and subsequently require restriction of City of Yreka's diversions is speculative (please also refer to response to comment LA8-37).

Additionally, the mitigation requested—that no threatened species be raised at Fall Creek Hatchery—does not appear to be feasible under CEQA. The goals for coho production are for a conservation hatchery and require a year-round supply of cold water which may not be available at Iron Gate Hatchery.

Comment LA8-41

It has been found that it is possible to prevent imprinting by treating water with activated carbon and ion-exchange resin, insoluble in petroleum-ether, dialyzable, non-volatile, and heat-stable and then imprinted with ÃŸ-phenylethyl alcohol (PEA) or morpholine for at least 14 days during smoltification and lured into unfamiliar streams scented with these odors during homing migration a few years later. Alternatively, in a natural stream environment, however, after preventing imprinting in the hatchery environment, smolts should be imprinted immediately by different odors when they encounter a branch stream that flows into a main stream during downstream migration as in the sequential imprinting hypothesis. If construction of the FCH is approved, and further if CDFW is not prohibited from raising ESA threatened species at FCH, this mitigation measure must be imposed to mitigate the probability that the cohoes will be imprinted to return to Fall Creek as a result of their rearing at the FCH.

To further prevent Fall Creek from becoming a magnet for salmonid spawning, Yreka seeks a mitigation condition that all fish propagated at FHC be planted at other tributaries and areas where they will be likely to return and that they not be released at Fall Creek itself.

This means planting the yearlings where the habitat is favorable to coho spawning propelling spawning upward into the Upper Klamath Basin. However, Oregon and California do not agree on whether hatchery fish should be propagated to accomplish the objectives of the Proposed Project. Oregon endorses a policy of native fishery production while CDFW originally proposed a "wait and see" approach before engaging in hatchery operations. All parties agree that hatchery fish compete with native fish, could create increased risk of disease, and could negatively affect natural fish production. In this regard the latest BiOp states:

"Uncertainty exists concerning the interrelationship of hatchery produced fish with the naturally produced coho salmon when both are present in the natural environment (i.e., after the hatchery fish are released into the Klamath River). This includes the role of hatchery produced salmon in the spread and proliferation of fish disease. The effects of hatchery operations are included as a Baseline condition."

Yet, CDFW is proposing to directly and immediately proceed with the demolition of IGH and construction of FCH. While it is understandable that CDFW desires to proceed while the project funding is occurring, PacifiCorp's commitment for *funding would remain in place in the event that "waiting and seeing" proves out to require hatchery produced fish following dam decommissioning.*

Response to Comment LA8-41

Klamath River Renewal Corporation's (KRRC) Definite Plan (Section 7.8.3 *Proposed Fish Hatchery Plan*) describes the proposed Fall Creek Hatchery (FCH) facilities and improvements, water supply requirements, and operations including the production of coho salmon. As described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project Fish – Hatcheries*, coho salmon hatchery operations are proposed to continue operating as a conservation hatchery under a Hatchery Genetic Management Plan, including specific assessment of hatchery impacts on species spatial structure and operation of Fall Creek Hatchery with a particular emphasis on recolonization, including rearing and release techniques. The proposed fish hatchery plan states that California Department of Fish and Wildlife (CDFW) and National Marine Fisheries Service (NMFS) are evaluating release strategies for coho salmon produced at Fall Creek Hatchery. The state and federal agencies responsible for managing the recovery of coho salmon would continue to adjust hatchery operations, including release strategies, to maximize production, recovery, and recolonization while minimizing crowding and other potential issues in Fall Creek, in the operations of the facility under the Hatchery Genetic Management Plan. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* analyzes the effect of continued hatchery production of coho salmon. Impacts associated with hatchery operations including coho straying are discussed in Potential Impact 3.3-9. Potential Impact 3.3-9 was not found to be significant in the short term and to be beneficial for coho salmon populations in the long term. Under CEQA, mitigation measures are not required for impacts that are not found to be significant. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Regarding recolonization without hatchery operations, please refer to Section 4.7.3 Alternatives – *Aquatic Resources – No Hatchery Alternative.* Please also refer to Master Response AQF-2 for general discussion of future hatchery operations, and response to comment LA8-40 for further discussion of crowding concerns.

Comment LA8-42

While Yreka is neutral on whether or not the Proposed Project dams are decommissioned, it is interesting that it has been determined that the parasites that are largely creating the mortality of the salmon can be obviated by simply flushing the parasites off the rocks on the bottom of the river. While it is proposed that this flushing will naturally occur through flooding once the dams are decommissioned, there are no studies presented in the Definite Plan nor any *proposed alternative in the DEIR, that suggests that the BOR cannot simply perform this task though the rapid release of water with the dams intact. This is one of the functions of the BOR – to regulate the flow of water while balancing water usage with species recovery alternatives.*

Response to Comment LA8-42

United States Bureau of Reclamation (USBR) regulates flows released at Link River Dam in the Upper Klamath Basin, including the provision of flushing flows for the Middle Klamath River to address polychaete habitat. The flushing flows prescribed in the 2017 court order and incorporated in the 2019 Biological Opinion (BiOp) could be achieved with dams in place or with dams removed. As described in Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, 2017 court-ordered flushing flows were required in 2017 and 2018, with the intent of reducing disease in the Lower Klamath River by mobilizing bedload sediments to disrupt the periphyton intermediate host (discussed below). The court-ordered flushing flows and emergency dilution flows are not modeled as part of existing conditions hydrology under the Proposed Project. As described in Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, the 2017 court-ordered flows included a requirement to ensure that certain high flows are reached each winter, and they also included an emergency dilution requirement if juvenile fish disease reached high levels in the infection nidus. The emergency dilution flows were used in 2018. In March 2019, the court-required re-initiation of USBR consultation with National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS) was completed and new biological opinions (BiOps) were issued by NMFS (2019) and USFWS (2019a). The 2019 BiOp flow requirements include annual surface flushing flows of at least 6,030 cubic feet per second (cfs) for 72 hours at Iron Gate Dam between March 1 and April 15, and the potential for dilution flows and/or enhanced spring flows should water be available and disease conditions support their use. Dilution flows also occurred in June 2019 under the new BiOp flow requirements. While there has not been sufficient time to collect data characterizing the efficacy of the flushing flows since they were initiated in 2017, the necessity to use dilution flows in 2018 and 2019 suggests that flushing flows are insufficient on their own to resolve the issue of fish disease downstream of Iron Gate Dam.

Please refer to Volume III Attachment 1 Section 3.3.5.5 *Fish Disease and Parasites* and Master Response AQF-6 for a discussion of the multiple additional factors (in addition to flushing flows and the resulting bed mobilization) that affect fish disease and parasite prevalence in the Klamath River that potentially would be altered by the Proposed Project. The Lower Klamath Project EIR has been updated to reflect the 2019 BiOp Flows as an additional CEQA baseline for both the Proposed Project and the alternatives, as applicable. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment LA8-43

There is no study, proposal requiring or discussion that hatchery raised fish be genetically diversified to assure they do not pose a risk to wild populations. This mitigation is requested.

Response to Comment LA8-43

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* analyzes the effect of continued hatchery production of coho and Chinook salmon on wild populations of these species. Potential Impact 3.3-7 (Effects on the fall-run Chinook salmon population due to short-term sediment releases and long-term changes in habitat quality, habitat quantity, and hatchery operations due to dam removal) and Potential Impact 3.3-9 (Effects on coho salmon populations due to short-term sediment releases and long-term changes in habitat quality, habitat quantity, and hatchery operations due to dam removal) were not found to be significant in the short term and were found to be beneficial for these populations in the long term. Under CEQA, mitigation measures are not required to be included for impacts that are not found to be significant. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

As described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project Fish – Hatcheries*, the Hatchery Genetics Management Plan (HGMP) for the Iron Gate Hatchery (CDFW and PacifiCorp 2014) specifically addresses conservation of genetic resources for hatchery produced coho salmon. The hatchery program will operate in support of the basin's coho salmon recovery efforts by conserving a full range of the existing genetic, phenotypic, behavioral, life history, and ecological diversity of the run.

Comment LA8-44

The characterization in the DEIR that there would be "upgraded plumbing" with the construction of a new Fall Creek Hatchery is a gross minimization of the water facilities that would be constructed. Attachment 5 demonstrates the last water layout design plan provided to Yreka by KRRC's engineers. Attachment 6 is the latest Fall Creek Hatchery layout provided to Yreka. The DEIR Should Yreka's water diversion impounds be altered in any manner, coordination between all parties would be absolutely necessary to maintain operations. In fact, the same coordination from all who are diverting water from Fall Creek (including any newly constructed fish hatchery) is necessary when Yreka performs periodic maintenance on its diversion impounds and fish screens.

Response to Comment LA8-44

Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC). The figure shown in Attachment 5 is generally consistent with information provided in the KRRC's Definite Plan and the EIR. Please note that the figure shown in Attachment 6 of this comment is also provided in Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* as Figure 2.7-15 (page 2-83). The caption for Figure 2.7-15 has been revised to note that specific details regarding the location of facilities at the re-opened hatchery are subject to minor changes within the Limits of Work. Further, as described in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Mitigation Measure WSWR-2 (pages 3-682 to 3-683) is consistent with CEQA Guidelines section 15126.4, and in particular subdivision (a) (1) (B), which states that a mitigation measure may specify performance standards which would mitigate the significant effect of the project and which may be accomplished in more than one specified way. Additionally, Mitigation Measure WSWR-2 states that a short water delivery outage is necessary to make the final connections following construction of the new pipeline; the KRRC shall limit the water delivery outage to a maximum of 12 hours, unless the KRRC receives prior approval for a longer outage from the State Water Board, based on detailed information that the outage proposed will not interfere with City of Yreka's ability to supply water; and the KRRC shall coordinate the water delivery outage period with the City of Yreka to ensure the City of Yreka has an adequate supply of water stored to cover the maximum water delivery outage period, with adequate buffer.

Comment LA8-45

The Consequences of the Proposed Spring Creek Flow Restriction Condition Taken Together with Yreka's Water Permit Bypass Condition Will Restrict Yreka From Taking its Permitted Allocation

In the conditions proposed for renewal of the hydroelectric licenses, it has been proposed that PacifiCorp's 16.5 diversion from Spring Creek to its Fall Creek Hydroelectric facility be discontinued during the low-flow months of the summer. These are also Yreka's highest demand months. If this condition were implemented, together with the consequences of the CDFW 15 cfs bypass, Yreka would be deprived of its municipal water source during its most critical period. Accordingly, Yreka requests that a mitigation measure be imposed that SWQCB recommend to FERC that it not impose the proposed restriction of the diversion of Spring Creek water to the Facility.

Response to Comment LA8-45

Please refer to Master Response WSWR-7.

Comment LA8-46

The Klamath River Basin Compact Commission is an Essential party and is Properly the Lead Agency for the Purposes of this Circulating the DEIR and making Determinations Upon it.

Section 1.1 of the Draft Environmental Impact Report (DEIR; KRRC 2018; hereafter known as DEIR) states that the Klamath River Renewal Corporation (KRRC) has applied to the Federal Energy Regulatory Commission (FERC) to decommission and remove the four Lower Klamath Project dams (Proposed

Project). Section 1.1 further states that FERC is the federal lead agency that licenses the construction, operation, and decommissioning of most hydroelectric dams in the United States. However, in the DEIR we are now required to comment upon, the SWRCB has assumed the lead agency role and prepared the Lower Klamath Project License Surrender Project DEIR without following the legislative intent of CEQA, CEQA Guidelines, and CEQ NEPA regulations and, equally significant, the state and federal laws relating to the Klamath River Compact.

Response to Comment LA8-46
Please refer to Master Response CEQ-4.

Comment LA8-47
This is a logical non sequitur under the law since the project is intended to be carried out by the KRRC, a non-public 501(c)(3) organization. If 14 Cal Code Regs §15051(a) applies at all, it does not apply to SWQCB but to the Compact Commission. Pursuant to the Law of the River and the Law of the Union, the Commission is specifically designated as the regional planning agency with the greatest responsibility for supervising or approving the project as a whole pursuant to 14 Cal Code Regs §15051(b).

Article IX (Administration) of the Compact creates the Klamath River Compact Commission. (See 69 Stat. 613, 71 Stat. 497 [1957]; Cal. Water Code §§ 5900-5901 and ORS 542.610 to 542.630) Under Article IX subparagraph 1 creates the commission to administer the compact (the "Commission"). The Commission consists of three: a ex officio representative designated by the State of Oregon Water Resources; an ex officio representative designated by the SWRCB and a nonvoting Chair of the Commission designated by the President of the United States. Action is effective only if it is unanimously affirmed by both voting members. The Commission is required to appoint an executive director. Subparagraph 8 requires the Commission to be subject to open meeting laws.

The Commission is obligated to hold public hearings and to submit to the Governor of each state a budget of its estimated expenditures for such period as required by the laws of that state for presentation to the legislature thereof. Each state pledges itself to appropriate and pay over to the commission one-half of the amount required to finance the commission's estimated expenditures as set forth in each of its budgets. The Commission is required to transmit to the legislature and Governor of each state and to the President of the United States an annual report covering the finances and activities of the Commission and embodying such plans, recommendations and findings as may have been adopted by the Commission and to be annually audited by a Certified Public Accountant.

The Commission has monetary restrictions. It is prohibited from pledging the credit of any government except by and with the authority of the legislative body thereof given pursuant to and in keeping with the constitution of such government *and is also prohibited from incurring any obligations prior to the availability of funds adequate to meet them. The Commission is empowered to: 1) borrow, accept or contract for the services of personnel from any government or agency thereof, from any intergovernmental agency, or from any other entity; 2) Accept for any of its purposes and functions under this compact any and all donations, gifts, grants of money, equipment, supplies, materials and services from any government or agency thereof or intergovernmental agency or from any other entity; 3) Acquire, hold and dispose of real and personal property as may be necessary in the performance of its functions; and 4) Make such studies, surveys and investigations as are necessary in carrying out the provisions of this compact. Obviously, the studies relevant to the Proposed Project and the preparation of the related environmental DEIR fall within these categories.*

Response to Comment LA8-47
Please refer to Master Response CEQ-4.

Comment LA8-48
The DEIR and the DEIS Should be Required to be jointly Submitted

The National Environmental Policy Act (NEPA) (42 USC §§4321-4370h), was adopted to mandate public agencies to consider the environmental impacts of their actions, to document those impacts, and to disclose that documentation to the public. See No Oil, Inc. v City of Los Angeles (1974) 13 C3d 68, 86 n21, 118 CR 34; Friends of Mammoth v Board of Supervisors (1972) 8 C3d 247, 261, 104 CR 761; Selmi, The Judicial Development of the California Environmental Quality Act, 18 UC Davis L Rev 197 (1984).

If a project requires approvals from a California public agency but will also be carried out, financed, or approved in part by a federal agency, preparation of a joint EIR/EIS may be required (see 14 Cal Code Regs §§15220-15228), and the joint document must usually meet the requirements of both CEQA and NEPA. This is particularly applicable where projects that have a significant impact on matters within federal jurisdiction, such as some projects that require a permit to fill wetlands or that may affect waters that are subject to United States jurisdiction under §404 of the Federal Water Pollution Control Act (Federal Clean Water Act) (33 USC §1344).

This project expressly concerns the flow of navigable water between Oregon and California and through federal (US Forest Service) and Tribal reservations Klamath Tribe, Karuk Tribe, Hoopa Tribe and Yurok Tribe). Each of these tribes are federally recognized. Not only is an express federal approval an integral part of the implementation of this plan, the deconstruction of four hydroelectric dams, under FERC required considerations, significantly affects the quality of the human environment which separately requires NEPA environmental assessment. 42 USC §4332(2)(C), 40 CFR §§1501.4(b), 1508.9.

The National Environmental Policy Act (NEPA), is intended to ensure that Federal agencies actively participate as cooperating agencies in other agency's NEPA processes. The CEQA regulations addressing cooperating agencies status (40 C.F.R. §§ 1501.6 & 1508.5) implement the NEPA mandate that Federal agencies responsible for preparing NEPA analyses and documentation do so "in cooperation with State and local governments" and other agencies with jurisdiction by law or special expertise. (42 U.S.C. §§ 4331(a), 4332(2)).

Response to Comment LA8-48
Please refer to Master Response CEQ-1.

Comment LA8-49
The Intergovernmental Cooperation Act contains specific coordinated planning requirements for local, state and federal agencies. Presidential Executive Order 12372 requires federal agencies to coordinate actions and projects with local governments so that local impacts arising from federal projects may be identified.

The National Environmental Policy Act (NEPA) applies to projects that are carried out, financed, or approved in whole or in part by federal agencies; therefore, FERC must prepare an environmental impact statement prior to acting with respect to the Proposed Project.

Yreka respectfully requests SWQCB to take the action above stated.

Response to Comment LA8-49
Please refer to Master Response CEQ-1.

County of Siskiyou, Ashley J. Remilllard

Comment LA9-1
On behalf of Siskiyou County ("County"), we are writing to express our significant concerns regarding the Draft Environmental Impact Report ("DEIR") for the Lower Klamath Project License Surrender ("Proposed Project") prepared by the California State Water Resources Control Board ("State Board") pursuant to the California Environmental Quality Act, Cal. Pub. Res. Code, § 21000 et seq. ("CEQA"). As the State Board is aware, the Klamath River Renewal Corporation ("KRRC") and PacifiCorp have submitted applications to the Federal Energy Regulatory Commission ("FERC") for hydropower license transfer and surrender. Together, these applications propose to transfer, decommission, and remove four lower Klamath River dams—Iron Gate, Copco I, Copco II, and J.C. Boyle. Three of these dams are located within Siskiyou County. The County has, on multiple occasions, expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. See, e.g., PacifiCorp, 162 FERC 61,236 at 28 (Mar. 15, 2018). Accordingly, the

County has a vested interest in ensuring that the public is appropriately and lawfully informed of the consequences of the Proposed Project.

As part of the license surrender process, and pursuant to section 401 of the Clean Water Act, 33 U.S.C. § 1341 et seq., KRRC must also obtain a water quality certification from the State Board. Because the section 401 certification must be based on a finding that the Proposed Project will meet water quality standards and other applicable requirements, the State Board must comply with CEQA. Here, however, the State Board has failed to do so.

As further set forth in the Technical Memorandum attached hereto as Exhibit A, the DEIR fails to satisfy the requirements of CEQA and its implementing guidelines, 14 Cal. Code Regs. §§ 15000 et seq. ("CEQA Guidelines"), and therefore fails to provide the public with an adequate assessment of the significant environmental effects associated with implementation of the Proposed Project. The County's concerns include, among other things, the following:

As the State Board is aware, FERC is required under the National Environmental Policy Act ("NEPA") to prepare an environmental impact statement to evaluate the potential environmental impacts of the Proposed Project. Various provisions of the CEQA Guidelines, as well as NEPA's implementing regulations, state that lead CEQA and NEPA agencies should avoid duplication and jointly prepare one environmental document. Such an approach improves efficiency, preserves public resources, and avoids public confusion and complexity. Here, the State Board's failure to prepare a joint environmental document with FERC is problematic. For example, the fact that FERC has not begun the NEPA process reinforces the uncertain nature of the Proposed Project description (also discussed below). Likewise, having two documents with multiple alternatives makes the Proposed Project unnecessarily complex and risks causing unneeded public confusion. Thus, the County requests that the State Board issue a revised DEIR prepared in coordination with FERC.

Response to Comment LA9-1

Thank you for your comment. Please refer to Master Response CEQ-1.

<u>Comment LA9-2</u>

The State Board has improperly failed to consult with responsible agencies and other local agencies that exercise authority of the resources that will be affected by the Proposed Project. See Cal. Pub. Res. Code § 21104; 14 Cal. Code Regs. § 15086(a). Specifically, the State Board has taken the position that the County is not a responsible agency because the County's local permitting requirements will be preempted by federal law. This determination is improperly premature. Not only has FERC required compliance with all local permitting requirements in other dam removal contexts, Arizona Public Service Co., 109 FERC ¶ 61,036 (2004); Wisconsin Electric Power Co., 94 FERC ¶ 61,038 (2001), but this is a determination to be made by FERC—not the State Board. In addition, FERC has *made it clear that KRRC must comply with state and local laws to the extent practicable. E.g., Definite Plan at 38, citing PacifiCorp, 115 FERC ¶ 61,194 (2006) ("We prefer for our licensees to be good citizens of the communities in which projects are located, and thus to comply with state and local requirements, where possible.") Unless and until FERC makes a determination regarding preemption, it is improper for the State Board to assume that the County is not a responsible agency under CEQA.*

Response to Comment LA9-2

Please refer to Master Response CEQ-2 for a discussion of the effect of Federal Power Act preemption on responsible agencies.

Comment LA9-3

The purpose and objectives of the Proposed Project are improperly narrow. More specifically, the purpose and objectives foreclose meaningful consideration of alternatives that should properly be considered under CEQA. For example, the objective to '[r]estore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams' is narrower than, and not justified by, the project purpose (i.e., improving water quality and upstream access). This objective essentially preselects the preferred alternative-dam removal-thereby precluding consideration of other alternatives that could significantly improve fish passage and survival (e.g., trap and haul, or other means of assisted migration). Likewise, the purpose and objectives improperly focus exclusively on improving "anadromous fish passage." This ignores the fact that multiple other non-anadromous species inhabit the Proposed Project area, including imperiled shortnose and Lost River suckers. It is improper for the purpose and objectives to be defined so narrowly as to exclude consideration of alternatives that would benefit other Klamath Basin aquatic species.

Response to Comment LA9-3

The State Water Board has set forth an underlying purpose and project objectives that are reasonably focused on restoration goals related to the Lower Klamath Project facilities (see Volume I *Executive Summary* page ES-4). The Proposed Project purpose and objectives are not improperly narrow or conflated, nor do they preclude meaningful consideration of a reasonable range of alternatives to the Proposed Project in the EIR.

Specifically, the objective specifying volitional anadromous fish passage is aligned with the requirements of National Marine Fisheries Service's (NMFS) Biological Opinion issued to the Klamath Hydroelectric Project (KHP) in prior proceedings regarding these facilities – while being broader than the four-dam-removal goal stated by the applicant and included in the Klamath Hydroelectric Settlement Agreement (KHSA).

Long-term declines in Klamath Basin fisheries have been observed for wild fall-run Chinook salmon, spring-run Chinook salmon, steelhead, coho salmon, and Pacific lamprey. These declines, which are attributable to the cumulative effects of a multitude of changing conditions including dam construction, hydrologic modifications, changing ocean conditions, and land use changes, have created hardships for commercial fisheries and tribal communities that depend on these fisheries as an important cultural resource. Commercial fishery trollers in the Pacific Ocean that catch coho and fall- and spring-run Chinook salmon originating from river systems including the Klamath River have suffered severe economic impacts due to decreases in fish numbers and related harvest limitations in the past several decades (see also Volume I Section 5.4.1.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Commercial Fishing* [pages 5-5 to 5-7]). A lack of access to native food sources, including an inability to get salmon due to poor river conditions, is primary among the reasons that Klamath Basin Native community food assistance users report a reliance on food assistance, with 70 percent of all surveyed households reporting that they rarely or never have access to their desired foods including salmon (Sowerwine et al. 2019). Salmon are also ecologically important to the Klamath River Basin, providing a nutrient-rich food source for terrestrial species, including bald eagles, osprey, and many other species of birds and mammals. The declines in coho salmon in the Klamath Basin have contributed to the listing of this species as threatened under the Endangered Species Act (ESA) (Volume III Attachment 1 Section 3.3 *Aquatic Resources* Table 3.3-2). Improvements to listed suckers in this reach would not be an appropriate objective for the Hydroelectric Reach because, as further discussed in response to comment LA9-19, the sucker populations in Iron Gate and Copco No. 1 reservoirs are "sink populations" and are not likely to be self-sustaining.

The Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project that meet most of the project objectives. As described in Volume I Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15), the State Water Board considered all of the potential alternatives discussed in the 2007 FERC EIS and the 2012 KHSA EIS/EIR and evaluated them as potential objectives, including consideration of their ability to meet the Proposed Project's underlying purpose and objectives. In addition to revisiting the alternatives considered for the prior related environmental reviews, the State Water Board considered three additional potential alternatives raised in Lower Klamath Project scoping, including a fish passage alternative that looks at a combination of trap and haul, fish cannons (a new technology since 2012), and other mechanisms for fish passage without dam removal proposed by Siskiyou County and others.

Ultimately, the State Water Board brought forward six alternatives for detailed analysis in the EIR. Of these, two involve removal of all four Lower Klamath Project Dams, and four involve some or all of the dams remaining in place with mandatory fishway prescriptions. While none of the additional proposals for fish passage were found to be feasible alternatives for review, the EIR notes where the potential impacts of trap and haul might differ from the impacts of the mandatory fishway prescriptions in the Continued Operations with Fish Passage and Two Dam Removal alternatives (Volume I Section 4.4 *Alternatives – Continued Operations with Fish Passage* [pages 4-99 to 4-180] and Section 4.5 *Alternatives – Two Dam Removal* [pages 4-100 to 4-246]).

There are potential impacts and beneficial effects identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment LA9-4

The Proposed Project is improperly defined. Specifically, the DEIR defines the Proposed Project as the project set forth in the Definite Plan for the Lower Klamath Project ("Definite Plan") that was submitted to FERC in June 2018. As the State Board is aware, the Definite Plan is currently under review by FERC, and has not been deemed technically or financially feasible. Furthermore, KRRC has indicated that the Definite Plan will be revised and reissued in April 2019. See http://www.klamathrenewal.org/wp-content/uploads/2018/12/2018-12-12-Letter-Report-BOC-Mtg-No-1.pdf; see also November 2018 Comments from Siskiyou County re Definite Plan (attached hereto as Exhibit B). The State Board's use of a tentative, yet-to-be-vetted project as the Proposed Project is contrary to CEQA. See Washoe Meadows Community v. Department of Parks and Recreation, 17 Cal.App.5th 277 (Cal. Ct. App. 2017).

Response to Comment LA9-4

Prior to issuance of the Draft EIR in December 2018, the Klamath River Renewal Corporation (KRRC) indicated that updates to the Definite Plan primarily would be focused on updating cost information associated with the Proposed Project and that any updates to the proposed activities and/or project components would be minor.

In July 2019 and February 2020, KRRC provided updates to the Definite Plan, in which KRRC provided cost-related information, including funding for mitigation surety, which is not integral to the analyses in the EIR. KRRC (2019b) also proposed that pre-drawdown construction activities would occur in 2021 and primary reservoir drawdown and dam removal would occur in 2022, which does not constitute significant new information. Please refer to KRRC (2019b) here: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf. Please refer to KRRC (2020) here: http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf

CEQA does not require that a lead agency delay environmental review until a federal agency makes particular determinations regarding a proposed project. Therefore, the project description is not improper.

Comment LA9-5

Throughout the DEIR, the State Board refers to "measures that would not be considered feasible for the purposes of CEQA because the SWRCB cannot ensure that they would occur." The State Board's approach with respect to these measures is improper. Where mitigation measures can be devised consistent with CEQA, the State Board cannot lawfully shirk its responsibility to identify such measures and require compliance with them in order to reduce impacts to less than significant. Importantly, "a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance." Oakland Heritage Alliance v. City of Oakland, 195 Cal. App. 4th 884, 906 (Cal. Ct. App. 2011), cited in Center for Biological Diversity v. Department of Fish & Wildlife, 234 Cal. App. 4th 214, 246 (Cal Ct. App. 2015). It is reasonable to expect compliance with, for example, the federal Endangered Species Act, pertinent provisions of the California Fish and Game Code, and other federal and state laws. Therefore, the State Board should revise the DEIR to incorporate mitigation measures (rather than recommended measures) wherever possible.

Response to Comment LA9-5

Please refer to Master Response CEQ-2.

Comment LA9-6

The State Board acknowledges that the Proposed Project will result in exceedances of air quality thresholds established by the Siskiyou County Air Pollution Control District ("SCAPCD"), including with respect to NOX, PM10, and PM2.5. DEIR at 3-703, citing SCAPCD Rule 6.1, Construction Permit Standards for Criteria Pollutants. The State Board further concludes that, based on those exceedances, construction emissions for the Proposed Project would be significant. Id. In Section 2.8 of the Project Description, however, the State Board has not identified SCAPCD as a responsible agency that will rely on the DEIR for permitting or other regulatory purposes. See, e. g., SCAPCD Rule 2.1(A), Permits Required. This contravenes CEQA Guidelines section 15124, subdivision (d). The State Board should revise the DEIR to properly comply with this requirement.

Response to Comment LA9-6

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Air Quality). With respect to the comment's concern that the EIR does not identify the Siskiyou County Air Pollution Control District (SCAPCD) as a responsible agency that will rely on the EIR for permitting or other regulatory purposes, please refer to Master Response CEQ-2.

<u>Comment LA9-7</u>

The DEIR's analysis of greenhouse gas emissions is inadequate. For example, the impact analysis indicates that emissions have not been quantified since the 2012 EIR/EIS, despite significant changes to the Proposed Project. The State Board should either perform a new analysis to quantify emissions or explain why it has not performed such an analysis. See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments, 3 Cal. 5th 497, 515-516 (Cal. Ct. App. 2017). Furthermore, the DEIR's 10,000 MT threshold of significance is contrary to recent court decisions holding that, without an analysis explaining why the data is relevant to a particular project, reliance on statewide data or other regional data to prepare significance thresholds is improper. E.g., Golden Door Properties, LLC v. Cty. of San Diego, 27 Cal. App. 5th 892 (Cal. Ct. App. 2018); Ctr. for Biological Diversity v. Dep't of Fish & Wildlife, 62 Cal. 4th 204 (Cal. 2015). Thus, at a minimum, the State Board should revise the DEIR to include an additional analysis demonstrating why the data that it used is relevant to the Proposed Project, including with respect to both its type and location. Id.; see also DEIR at 3- 720. Moreover, because of the burden and risk associated with tailoring thresholds to particular projects, many local agencies have instead adopted a net zero threshold. See, e.g., Newhall Ranch Project, https://netzeronewhall.com/. This is also the approach recommended by the California Air Resources Board. See, e.g., https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf at 101. The County encourages the State Board adopt a net zero threshold for the Proposed Project. In any event, the County reaffirms its position that the DEIR must include mitigation measures to reduce air quality impacts to less than significant rather than simply allowing KRRC to endanger public health by proceeding with an action that has unmitigated, significant air quality impacts.

Response to Comment LA9-7

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

<u>Comment LA9-8</u>

Section 1.1 of the Draft Environmental Impact Report (DEIR) states that the Klamath River Renewal Corporation (KRRC) has applied to the Federal Energy Regulatory Commission (FERC) to decommission and remove the four Lower Klamath Project dams (Proposed Project). Section 1.1 further states that FERC is the federal lead agency that licenses the construction, operation, and decommissioning of most hydroelectric dams in the United States.

The National Environmental Policy Act (NEPA) applies to projects that are carried out, financed, or approved in whole or in part by federal agencies; therefore, FERC must prepare an Environmental Impact Statement (EIS) prior to taking action with respect to the Proposed Project. California Environmental Quality Act (CEQA) Guidelines Section 15006, Reducing Delay and Paperwork, *states that lead agencies should eliminate duplication with federal procedures by providing for joint preparation of environmental documents with federal agencies and by adopting documents prepared in fulfillment of NEPA and its implementing regulations. In addition, CEQA Guidelines Section 15222, Preparation of Joint Documents, states that a lead agency should try to combine an Environmental Impact Report (EIR)/EIS to avoid the need for the federal agency to prepare a separate document for the same project. According to CEQA Guidelines Section 15222 this involvement is necessary because federal law generally prohibits a federal agency from using an EIR prepared by a state agency unless the federal agency was involved in the preparation of the document. Furthermore, Council on Environmental Quality (CEQ) NEPA Regulations encourage cooperation with state and local agencies in an effort to reduce duplication in the NEPA process (40 Code of Federal Regulations [C.F.R.] § 1506.2). The CEQ NEPA regulations state that cooperation shall include joint planning processes, joint environmental research and studies, joint public hearings, and joint environmental assessments (Id. § 1506.2(b)(1-4)).*

The State Water Resources Control Board (SWRCB) has prepared the Lower Klamath Project License Surrender Project DEIR without following the legislative intent of CEQA, CEQA Guidelines, and CEQ NEPA regulations. The SWRCB has created undue confusion and complexity for the public, local agencies, and other state and federal agencies involved in reviewing the project by initiating two separate, duplicative environmental review processes. Thus, it's recommended that the SWRCB issue a revised DEIR in coordinating with FERC.

Although the County clearly outlines the need for a revised EIR, it is important to note that due to SWRCB's failure to follow the process outlined above the potential for future amendments to the DEIR, requiring recirculation, results in financial hardship to economically stressed stakeholders and local agencies, such as Siskiyou County, who will be obligated to expend further limited resources to review and respond to the new documents the SWRCB circulates. Had the SWRCB followed typical and acceptable procedural steps in developing this DEIR, there would have been a significant decrease in the financial strain experienced by affected stakeholders and local agencies, including Siskiyou County.

Response to Comment LA9-8
Please refer to Master Response CEQ-1.

Comment LA9-9
Under Public Resources Code section 21104, "[p]rior to completing an environmental impact report, the state lead agency shall consult with, and obtain comments from, each responsible agency, trustee agency, any public agency that has jurisdiction by law with respect to the project, and any city or county that borders on a city or county within which the project is located unless otherwise designated annually by agreement between the state lead agency and the city or

county, and may consult with any person who has special expertise with respect to any environmental impact involved." Under 14 California Code of Regulations (CCR) § 15086(a), the lead agency "shall consult with and request comments… from" responsible agencies and other local agencies that exercise authority over resources that may be affected by the project, and "may consultant directly with: (1) Any person who has special expertise with respect to any environmental impact involved, (2) Any member of the public who has filed a written request for notice with the lead agency or the clerk of the governing body." Here, SWRCB has taken the position that Siskiyou County is not a Responsible Agency because FERC will preempt all of Siskiyou County's local permitting requirements. However, FERC has, in some dam removal cases, required licensees to obtain all local permits. See Arizona Public Service Co., 109 FERC 61,036 (2004), and Wisconsin Electric Power Co., 94 FERC 61,038 (2001). As FERC has explained to PacifiCorp in the past, "federal preemption does not necessarily mean that the Commission will not elect to require PacifiCorp to comply with those of the Counties' requirements that the Commission concludes will not interfere with the company's ability to carry out the Commission's orders"; rather, "[i]t only establishes that it is within the Commission's sole discretion to determine the extent to which such compliance will be required." (PacifiCorp Project No. 2342-18; Order available at: https://www.ferc.gov/whats-new/comm-meet/051806/H-2.pdf.) Given that counties may be permitted to exert regulatory authority to the extent its regulations do not make compliance with FERC orders impossible or unduly difficult, and given that FERC prefers licensees to be good citizens of the communities in which projects are located, and thus to comply with all local requirements, where possible, the SWRCB is in error in not consulting with the County as a Responsible Agency so that the EIR would be useful for its purposes as well.

Response to Comment LA9-9
Please refer to Master Response CEQ-2.

Comment LA9-10
Section 2.1 of the DEIR, Project Purpose and Objectives, outlines the SWRCB identified objectives of the Proposed Project as well as the underlying purpose. The purpose is "timely improving water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and restoring anadromous access upstream of Iron Gate Dam." This purpose is unduly narrow. It appears the SWRCB and KRRC have conflated the underlying purpose, objectives, and Proposed Project. This is contrary to CEQA. North Coast Rivers Alliance, et al. v. A.G. Kawamura/Our Children's Earth Foundation, et al. v. California Department of Food and Agriculture (2015) 243 Cal.App.4th 647 (opining that failing to properly distinguish between the project purpose, project objectives, and project violates CEQA).

The four project objectives outline improvements to water quality and fish populations, but notably absent are considerations by the lead agency of any *consideration of the potential benefits for and costs to local communities, including but not limited to agricultural and ranching interests. The SWRCB should consider the interest of the citizens of Siskiyou County in their project objectives.*

Furthermore, the objective to "Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams" is narrower than, and not justified by, the project purpose (improving water quality and upstream access). This objective can be used to justify dam removal over any other alternative including trap and haul or other means of assisted migration. Restoring volitional anadromous fish passage rather than conserving wild salmonid populations, for example, gives the appearance of purposefully manipulating the objectives in order to identify the applicant's long-preferred alternative of dam removal as the preferred alternative.

Response to Comment LA9-10

Please refer to response to comment LA9-3. Please also refer to Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA*. Additionally, please refer to Master Responses WSWR-1, WSWR- 2, WSWR-3, and WSWR-4, and to Volume 1 Section 3.15.5 *Agriculture and Forestry Resources – Potential Impacts and Mitigation* for further discussion regarding potential impacts to agriculture.

Comment LA9-11

Section 2.7 of the DEIR, Proposed Project, states that the Detailed Plan and Definite Plan constitute the applicant's Proposed Project. As the SWRCB is aware, the Definite Plan is currently being reviewed by FERC and the Independent Board of Consultants for technical adequacy. In fact, the project proponent has committed to revise the Definite Plan, issuing a new document in April 2019. See http://www.klamathrenewal.org/wp-content/uploads/2018/12/2018-12-12-Letter-Report-BOC-Mtg-No-1.pdf. According to Washoe Meadows Community v. Department of Parks and Recreation (2017) 17 Cal.App.5th 277, an EIR must contain an "accurate, stable, and finite" project description. Given the potential changes to the Proposed Project as a result of the commitment to issue revised documents, additional pending review and subsequent comments, using the draft plan as a basis for the project description and baseline for analysis is inadequate. Further, as FERC is the lead federal agency for the project, SWRCB should wait for their input on the Definite Plan before having forged ahead on the DEIR (CEQA Guidelines 15223). SWRCB's release of the DEIR precluded FERC's ability to review and comment on the project itself.

Section 2.7.8 of the DEIR, Project Component, summarizes project components outside of the major dam and powerhouse deconstruction. These components primarily address environmental, safety, and quality of life issues and are *outlined in the appendices to the Definite Plan. Siskiyou County has provided substantive comments on the Definite Plan (and appendices). As these components are instrumental in the mitigation of environmental impacts, please ensure that our comments are addressed in subsequent drafts of these essential components of the Proposed Project.*

Response to Comment LA9-11

Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC). Please refer to response to comment LA9-4 regarding sufficient stability of the Proposed Project and to Master Response CEQ-1 for a discussion of the relationship between the CEQA and the National Environmental Policy Act (NEPA).

Comment LA9-12

Section 15126.4(a) of the CEQA Guidelines states "(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

There are many sections in the DEIR that rely on future surveys or studies to be prepared to identify resources or habitats that may be present in the project impact area. Without quality data that allow for an assessment of baseline conditions of resources within the project area, the impact analysis is unreliable. The impacts of a Proposed Project must be evaluated by comparing expected environmental conditions after project implementation to conditions at a point in time referred to as the baseline. The changes in environmental conditions between those two scenarios represent the environmental impacts of the Proposed Project. The adequacy of a document's baseline is a factual issue to be determined based on whether there is substantial evidence in the record supporting the agency's determination.

Baseline is not a policy choice to be made at the end of CEQA Review (Save Our Peninsula Committee v. Monterey County (2001) 87. Cal. App. 4th 99). For a new project, courts have required that the baseline reflect actual existing physical conditions at the start of environmental review. The DEIR relies on future surveys and studies to identify wetlands, special-status plants, culturally significant resources, special-status wildlife, groundwater wells, and other affected resources. The impact determination directly correlates to the existing or baseline conditions. If those conditions are unknown then making a determination of significance is not possible or reliable. The SWRCB has abdicated its responsibility in providing quality data regarding the baseline/existing conditions so that realistic and accurate impact determinations can be made. We have noted specifically in Table 1, below, where individual *resource topics do not have the adequate environmental setting information to make an informed impact analysis.*

Response to Comment LA9-12

As described in Volume I Section 3.1.2 *Introduction – Environmental Setting*, the EIR establishes and evaluates the relevant baseline as part of each resource area. The EIR incorporates available existing information to describe the baseline under CEQA. The environmental setting analysis relies on a range of available information, including studies that are relevant to the description of existing conditions. In some instances, the analyses discuss new or updated studies like those noted in the comment, to confirm the presence and/or extent of a particular resource that has been identified as potentially present using existing information, or to confirm whether associated impacts have the potential to occur. These additional studies can be relevant for a range of reasons, including the abundance of available data for characterizing a resource, the likelihood that data collected in prior studies would change over time and the rate of that change, and the degree of granularity in the existing data. Where the analyses discuss new or updated studies, the EIR conservatively assumes the presence and extent of resources in light of available information, and appropriately evaluates the breadth of potential impacts as well as feasible mitigation. This approach is consistent with CEQA's requirement to describe the environmental setting in order to "give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts" (CEQA Guidelines section 15125, subd. (a)).

Referencing ongoing studies related to current conditions or requiring further, more exact information regarding resources prior to implementation of a project does not constitute an impermissible delayed policy decision regarding establishment of a baseline.

The comment notes that Table 1 raises specific allegations of lack of specificity in the baseline. Please see the responses to those more specific comments, below.

Comment LA9-13

(1) An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.

(A) The discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project.

(B) This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.

(2) Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.

Throughout the DEIR, the SWRCB refers to "measures that would not be considered feasible for the purposes of CEQA because the SWRCB cannot ensure that they would occur." In these cases, recommended measures are provided that would reduce potential impacts if implemented by KRRC. However, the impact analysis herein cannot rely on the implementation of these measures. In many of these cases the DEIR concludes that a significant and unavoidable impact would result. It is unclear why the SWRCB has taken this position with so many of the impacts. The excerpt below is from pages ES-9–ES-15.

"[T]he determination of whether a project will have significant environmental impacts, and the formulation of measures to mitigate those impacts, must occur before the project is approved." California Native Plant Society v. City of Rancho Cordova (2009) 172 Cal.App.4th 603, 621. Here, the SWRCB has failed to formulate mitigation measures, arguing time and again, it is not feasible to do so. For example, with respect to terrestrial resources, the SWRCB states: "implementation of terrestrial resources measures would be not be considered feasible for the purposes of CEQA because the State Water Board cannot ensure that they would occur. In these cases, recommended measures are provided that would reduce potential impacts if implemented by KRRC" (DEIR, p. 3-516). Where mitigation measures can be devised consistent with CEQA Guidelines Section 15126.4, the SWRCB cannot lawfully shirk its responsibility to identify such measures and require compliance with them in order to reduce impacts to less than significant. Importantly, "a condition requiring compliance with regulations is a common and reasonable mitigation measure, and may be proper where it is reasonable to expect compliance." Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal. App. 4th 884, 906 cited in Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App. 4th 214, 246. It is reasonable to expect compliance with the federal Endangered Species Act, pertinent provisions of the Fish and Game Code, and other federal and state laws. Therefore, the SWRCB must revise the DEIR to incorporate mitigation measures rather than recommended measures wherever possible. In those circumstances where the SWRCB believes it is not possible, it must comply with CEQA Guidelines Section 15126.4(a)(5) by explaining the reasoning for its determination. Simply reciting the conclusory claim that there are no feasible mitigation measures does not suffice. "The failure to provide enough information to permit informed decision-making is fatal." Napa Citizens for Honest Government v. Napa County Bd. of Supervisors (2001) 91 Cal. App. 4th 342,

361. Furthermore, in those circumstances where the SWRCB proposed recommended measures, consistent with Public Resources Code section 21081(a)(2), the SWRCB should clearly identify other public agencies that have the responsibility and jurisdiction to require implementation of those recommended measures.

Response to Comment LA9-13
Please refer to Master Response CEQ-2.

Comment LA9-14
The Executive Summary to the DEIR states:

Below is a summary, by resource area, of impacts found to be 'significant and unavoidable' with or without mitigation (Table ES-1). Please note, the KRRC proposes to further develop Proposed Project actions relating to certain state and local regulatory requirements for several resource areas that fall outside of State Water Board's water quality certification authority. The State Water Board anticipates implementation of additional measures (e.g., good neighbor agreements between the KRRC and relevant state or local agencies, recommended measures in this EIR, and any modifications developed through the FERC process that provide the same or better level of protection for the resource in question) would reduce impacts. The EIR notes where such protection would eliminate the potential for a significant impact. However, the State Water Board cannot ensure implementation of good neighbor agreements, recommended measures included in this EIR, or modifications anticipated to be developed through the FERC process. Therefore, the State Water Board has identified impacts that rely on implementation of such agreements or recommended measures in this EIR as significant and unavoidable.

DEIR at ES-11.

This section included significant and unavoidable impacts on the following resources: Water Quality, Aquatic Resources, Phytoplankton and Periphyton, Terrestrial Resources, Flood Hydrology, Air Quality, Historical Resources and Tribal Cultural Resources, Public Services, Aesthetics, Recreation, Hazards and Hazardous Substances, Transportation and Traffic, and Noise. Most of the resource areas also included recommended mitigation measures that the SWRCB states are not enforceable and therefore cannot be relied upon. In some cases the recommended measures are under the purview of other state or federal agencies that may require those measures through their permits or consultations that must be completed as part of the project permitting process and that may be enforceable by the permitting agency (e.g. California Department of Fish and Wildlife [CDFW] for special-status terrestrial species and rare natural communities or state-listed species; U.S. Fish and Wildlife Service [USFWS] and/or National Marine Fisheries Service [NMFS] for federally listed species, etc.).

The DEIR does not rely on other trustee or lead agency authority in cases where it reasonably could to ensure that these measures would be implemented to reduce impacts to less than significant. Part A of the above statute clearly indicates that "mitigation measures shall distinguish between" (1) "measures which are proposed by project proponents to be included in the project," and (2) "other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project."

The SWRCB asserts its authority to enforce or require mitigation for certain resources. As an example, the DEIR asserts that it has jurisdiction over wetlands and waterways and can enforce that mitigation, therefore concluding that it can imposed mitigation measures to mitigate effects to reptiles and amphibians so that they are less than significant (based on Mitigation Measure TER-2 − Amphibian and Reptile Management). This measure, just as any terrestrial mitigation measure, will require approval by CDFW and normally would be included in a Streambed Alteration Agreement (SAA) and, in the event any reptiles are listed as threatened or endangered, in a California Endangered Species Act (CESA) permit.

The SWRCB has interpreted law with respect to CEQA to provide that any required mitigation measures would have to be fully enforceable through SWRCB permit conditions. Therefore, where mitigation cannot be enforced by SWRCB under its non-CEQA authorities, such as the Porter Cologne Water Quality Control Act, the SWRCB must make significant and unavoidable impact determinations rather than identifying mitigation to mitigate effects to less than significant. The SWRCB goes on in these significant and unavoidable impact determinations to refer to "recommended measures" that if implemented would reduce impacts to less than significant. In many cases these measures would be reasonably expected to be conditions of approving the project by another trustee or responsible agency. One such example is CDFW through their responsibilities under Lake and Streambed Alteration Program. Section 1600 of the Fish and Game Code states:

The Legislature finds and declares that the protection and conservation of the fish and wildlife resources of this state are of utmost public interest. Fish and wildlife are the property of the people and provide a major contribution to the economy of the state, as well as providing a significant part of the people's food supply; therefore their conservation is a proper responsibility of the state.

The Lake and Streambed Alteration Program establishes a regulatory scheme to protect and conserve fish and wildlife resources, and the habitats upon which they depend. This includes notification to CDFW and a procedure to reach agreement with CDFW. This regulatory program codifies CDFW's responsibility *to protect public trust resources. The SWRCB, being a state agency likewise charged with protection of public trust resources, is responsible to ensure that conservation of fish and wildlife is part of any project it authorizes or acts as lead agency with respect to under CEQA. Because CDFW and the SWRCB are both state agencies, the EIR should require mitigation measures that avoid violation of state laws. The Water Board cannot simply determine that impacts are significant and unavoidable in violation of state law.*

The DEIR also includes significant and unavoidable impact determinations for several federally listed species using the same reasoning that SWRCB cannot enforce mitigation measures outside the water quality certification conditions. However, the significant and unavoidable impacts that would result from the Proposed Project to listed species (including Bald and Golden Eagle Protection Act [BGEPA] species) without USFWS consultation and approved avoidance, minimization and mitigation would be in violation of the ESA. Because the project will require both a U.S. Army Corps of Engineers (USACE) Section 404 permit and FERC surrender license, there is a federal nexus and both will require a Section 7 consultation with the USFWS. The SWRCB analysis should require:

1) implementation of Recommended Terrestrial Measures 3–12,
2) acquisition of an SAA from CDFW, and
3) consultation with the USFWS to secure a Biological Opinion or Letter of Concurrence to avoid violation of state and federal law.

Section 15126.2 of the CEQA Guidelines states:

(a) The Significant Environmental Effects of the Proposed Project. An EIR shall identify and focus on the significant environmental effects of the Proposed Project on the environment. In assessing the impact of a Proposed Project on the environment, the lead agency should normally limit its examination to changes in the existing physical conditions in the affected area as they exist at the time the notice of preparation is published, or where no notice of preparation is published, at the time environmental analysis is commenced. Direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects. The discussion should include relevant specifics of the area, the resources involved, physical changes, alterations to ecological systems, and changes induced in population distribution, population concentration, the human use of the land (including commercial and residential development), health and safety problems caused by the physical changes, and other aspects of the resource base such as water, historical resources, scenic quality, and public services. The EIR shall also analyze any significant environmental effects the project might cause or risk exacerbating by bringing development and people into the area affected. For example, the EIR should evaluate any potentially significant direct, indirect, or cumulative environmental impacts of locating development in areas susceptible to hazardous conditions (e.g., floodplains,

coastlines, wildfire risk areas), including both short-term and long-term conditions, as identified in authoritative hazard maps, risk assessments or in land use plans, addressing such hazards areas.

Response to Comment LA9-14

Please refer to Master Response CEQ-2 regarding preemption under the Federal Power Act including the effects of preemption on mitigation measures and responsible agencies. As discussed in Master Response CEQ-2, recommended measures to reduce impacts on federally-listed species to less than significant have been modified to be mitigation measures; coordination with applicable federal and state agencies has been incorporated within these mitigation measures, as appropriate. To reduce impacts on bald and golden eagles to a less than significant level, Recommended Terrestrial Measure 11 has been revised to be a Mitigation Measure (Mitigation Measure TER-7). To reduce impacts on grey wolf, Recommended Measure 8 has been revised to be a Mitigation Measure (Mitigation Measure TER-6). Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-Status Species and Rare Natural Communities* for these revised measures.

Additionally, this comment provides a summary introduction of items raised, with more specific items listed in commenter's Table 1. For a response to the more specific items raised in commenter's Table 1, please see the individual responses below.

<u>Comment LA9-15</u>

Data relied upon for the water quality analysis is too old to adequately assess existing conditions of the project area. The information relating to total phosphorus, total nitrogen, dissolved oxygen, pH, inorganic and organic matter, sediment contaminants, and aquatic biota contaminants is all over ten years old and does not represent the current environment, particularly given alterations in climate and surrounding land uses.

Response to Comment LA9-15

Please refer to Master Response WQ-4.

<u>Comment LA9-16</u>

The Klamath River Water Quality Model (KRWQM) includes the assumption that all waters that enter the state of California are fully compliant with applicable Total Maximum Daily Loads (TMDLs). That is, the model assumes that reservoir conditions and waters that flow into California meet all water quality standards for water temperature, organic enrichment/dissolved oxygen, nutrients, pH and microsystins. As such, the effects of dam removal on the TMDL target constituents are underestimated, since it's likely that the TMDLs will not be being met upstream. The DEIR then states: "dam removal would rapidly and substantially move the Hydroelectric Reach towards achieving California TMDL

Compliance." This is disingenuous, as it relies heavily on the improper and unsupported assumption that waters entering California will be TMDL-compliant. It also ignores the short term effects and the consequence of sending a huge, contaminated debris flow that will end up downstream of the Hydroelectric Reach, the Klamath River estuary, and the Pacific Ocean. The DEIR should analyze water quality constituents without assuming TMDL compliance upstream.

Response to Comment LA9-16
Please refer to Master Response WQ-5.

The language quoted in the comment – "dam removal would rapidly and substantially move the Hydroelectric Reach towards achieving California TMDL compliance" – is part of Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature*, so it is specifically referring to achieving California Total Maximum Daily Load (TMDL) compliance for water temperature. Additionally, it is the final sentence in the first full paragraph in Volume I page 3-76 describing why this conclusion is accurate for water temperature despite the California Klamath River TMDL model's assumption of compliance. Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* has been revised to clarify that dam removal would rapidly and substantially move the Hydroelectric Reach towards achieving California TMDL compliance for water temperature. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Sediment impacts are addressed in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments*, not in the cited temperature section. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment LA9-17
The KRWQM model notes that removal of the dams would increase water temperatures in the spring, with climate change possibly resulting in a 1.8˚F to 5.4˚F increase in water temperatures. With increases in temperatures between 1.8˚F to 5.4˚F, conditions for spring spawners and adult/juvenile migration would potentially be worse than with the dams in place, as the dams are able to release deeper, cold water during the spring and summer months. Also, for the Middle and Lower Klamath, Estuary, and Pacific Nearshore environment, the KRWQM predicts warmer water during April through August (migration/spring spawning) and warmer (4–18˚F) water during August through November (fall spawning time). The DEIR should consider the negative effects of warmer water on migrating and spawning salmonids.

Response to Comment LA9-17
Please refer to Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 for a discussion of the potential

impacts of the Proposed Project on water temperature in the Klamath River. The model results discussed in the comment are not from the Klamath River Water Quality Model (KRWQM). The model results are from the River Basin Model-10 (RBM-10) model that estimates Klamath River water temperature conditions from Link River Dam to the Pacific Ocean over the next 50-years under climate change for a scenario with the Lower Klamath Project dams remaining in place (i.e., "dams-in") under 2010 BiOp Flows and for a scenario with the Lower Klamath Project dams removed (i.e., "dams out") under Klamath Basin Restoration Agreement Flows (KBRA Flows). In addition to water temperature changes due to the dams remaining in place or the dams being removed, water temperature was predicted to increase 1.8ºF to 5.4ºF under both "dams in" and "dams out" scenarios over the next 50-years due to climate change (Perry et al. 2011). Water temperature increases under climate change generally resulted in a progressive, nearly uniform increase in water temperature throughout the modeled Klamath River reaches over time, suggesting variations in the flow between the "dams-in" and "dams-out" scenarios did not influence the predicted increase in water temperature from climate change.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* provides an analysis of water temperature dynamics and effects on aquatic resources under existing conditions. Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* provides an analysis of the potential influence of warmer water on salmonids, including the potential for adverse impacts to aquatic resources due to increased water temperatures during spring and summer under the Proposed Project. The Chinook Salmon Expert Panel concluded that Lower Klamath Project dam removal offers greater potential than the existing conditions for Chinook salmon to tolerate climate change and changes in marine survival (Goodman et al. 2011). Similarly, the Coho Salmon and Steelhead Expert Panel concluded that dam removal would provide greater mitigation to climate change for coho salmon and steelhead than existing conditions (Dunne et al. 2011). Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impacts 3.3-7, 3.3-9, and 3.3-10 provide discussion of the effects of dam removal on Chinook salmon, coho salmon, and steelhead populations, including changes in water temperature under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response WQ-2.

Comment LA9-18

If barriers are removed to allow upstream access by Oncorhynchus mykiss irideus (steelhead), the potential effects of this subspecies on O. mykiss newberrii, and vice versa, needs to be analyzed in the DEIR. Hatcheries have had a large influence on the genetic structure of salmonids in the basin, and *thought should be given to how restoring upstream passage may affect the resident trout population.*

- "In addition, non-native stocks of O. mykiss have been widely planted in the basin, and large hatcheries exist on both the Klamath (Iron Gate Hatchery) and Trinity (Trinity River Hatchery) rivers. The extent of their genetic impact on wild, naturally-spawning, O. mykiss is not known." (Pearse et al 2007)

Response to Comment LA9-18

Volume I Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-18 discusses how removal of Lower Klamath Project dams under the Proposed Project and resulting habitat access to steelhead (*O. mykiss*) would affect resident redband trout. Because these two species evolved together in the Upper Klamath Basin of the Klamath River and co-existed prior to the construction of dams (Goodman et al. 2011), there is no predicted significant impact to either species from restoring the potential for interactions. Pearse et al. (2007) does not raise concerns about genetic implications from interactions between *O. mykiss* downstream and upstream of Iron Gate Dam, and their research did not include collection of samples upstream of Iron Gate Dam. Both populations have already been subjected to hatchery trout genetics, there have been no steelhead hatchery releases from Iron Gate Fish Hatchery since 2012, and the comment presents no information that is not already included in the EIR appropriate for assessing species interactions. Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-18 has been revised to include discussion of the information presented in Pearse et al. (2007). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment LA9-19

California Fish and Game Code 2081.11 states that "(a) The department may authorize, under this chapter, the take or possession of the Lost River sucker (Deltistes luxatus) and shortnose sucker (Chasmistes brevirostris) resulting from impacts attributable to or otherwise related to the decommissioning and removal of the Iron Gate Dam, Copco 1 Dam, Copco 2 Dam, or J.C. Boyle Dam, consistent with the Klamath Hydroelectric Settlement Agreement, if all of the following conditions are met:

- (1) The department determines the authorized take will not jeopardize the continued existence of the Lost River sucker or shortnose sucker.

- (2) The impacts of the authorized take are minimized.

- (3) The take authorization provides for the development and implementation of an adaptive management plan, approved by the department, for monitoring the effectiveness of, and adjusting as necessary, the measures to minimize the impacts of the authorized take.

- (b) This section shall not be construed to exempt the project described in subdivision (a) from any other law."

Most work with these species is centered on their status in Upper Klamath Lake and the tributaries that feed the lake. There is no recent information presented addressing the status of the population in the downstream reservoirs. The KRRC cites work conducted by Desjardins and Markle (2000), which was approximately 20 years ago. Desjardins and Markle (2000) indicated that further studies were needed to investigate recruitment of adults and juveniles. Therefore, there is a data gap on the current status of these species in these downstream reservoirs. If adequate recruitment to spawning age is an issue in both the Upper Klamath Lake and downstream areas, it is improper to sacrifice the downstream population as a "sink population" without adequately understanding and describing the justification (i.e., genetics, current population structure). As stated in the U.S. Geological Survey (USGS) Report (Hewitt et al 2018), "Despite relatively high survival in most years, we conclude that both species have experienced substantial decreases in the abundance of spawning adults because losses from mortality have not been balanced by recruitment of new individuals." Furthermore, this position is reflected in another USGS Report (Burdick et al. 2018), which states: "Upper Klamath Lake populations are decreasing because adult mortality, which is relatively low, is not being balanced by recruitment of young adult suckers into known spawning aggregations. Most Upper Klamath Lake juvenile sucker mortality appears to occur within the first year of life."

Response to Comment LA9-19

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species – Lost River and Shortnose Suckers* provides a comprehensive summary of recent information used to inform the USFWS (2013) revised recovery plan, which determined that the populations in Iron Gate and Copco No. 1 reservoirs are "sink populations" and are not likely to be self-sustaining. The issues noted in the comment regarding a reduction in survival of the sucker population in Upper Klamath Lake (citing recent reports) are not potentially alleviated by the existing sucker populations in Iron Gate and Copco No. 1 reservoirs. Low recruitment in the reservoir populations is due to the lack of access to spawning habitats, as described in Moyle (2002) and NRC (2004), and as determined through extensive sampling conducted by Oregon State University, citing Desjardins and Markle (2000). No data are available, and United States Fish and Wildlife Service (USFWS) has released no information to suggest that the sink populations in Iron Gate and Copco No. 1 reservoirs are a viable source for supporting the Upper Klamath Lake population.

The issues of poor recruitment, reduced survivorship of adults, and low age class diversity are discussed in the recovery plan for these species (USFWS 2013), and the discussion is consistent with the information included in the Hewitt et al.

(2018) and Burdick et al. (2018) United States Geological Survey (USGS) reports mentioned in the comment.

Comments regarding the summary of Fish and Game Code 2081.11 noted.

Comment LA9-20

In the DEIR, the Resident Fish Panel Expert states that the Upper Klamath Lake populations are self-sustaining. However, both reports from the USGS on adult (Hewitt et al 2018) and juvenile status (Burdick et al. 2018) indicate inadequate numbers of new spawning recruits. Therefore, the Panel's findings are inconsistent with current science on the Lost River and shortnose Suckers. This inconsistency should be acknowledged and discussed.

Response to Comment LA9-20

The comment claims that recent United States Geological Survey (USGS) reports (Hewitt et al. 2018 and Burdick et al. 2018) demonstrate that the Upper Klamath River sucker populations are no longer "self-sustaining." However, this appears to be a misunderstanding of the term "self-sustaining". The cited reports affirm that the status of the Lost River and Shortnose sucker populations in Upper Klamath Lake remains distressed. "Self-sustaining" simply means that the population is capable of occurring without influence from other sucker populations. The endangered status of these species clearly speaks to the United States Fish and Wildlife Service (USFWS) position that the population abundances are in decline. The issues of poor recruitment, reduced survivorship of adults, and low age class diversity are discussed in the recovery plan for these species (USFWS 2013).

Comment LA9-21

If the USFWS or other agencies are worried about hybridization of Klamath smallscale suckers (Catostomus rimiculus) with the other sucker species, as detailed in the 2013 Biological Opinion (USFWS 2013), removal of barriers such as J.C. Boyle Dam could allow access of Klamath smallscale suckers to migrate upstream where Lost River and Shortnose suckers more commonly occur. This could potentially increase incidences of hybridization. This is further stated as a concern by Buettner et al. (2006) and others to caution against supporting migration of individuals from Iron Gate and Copco Reservoirs into the Upper Klamath Lake population.

Response to Comment LA9-21

Hybridization of Klamath smallscale suckers is directly addressed in the EIR through the discussion of implementing Klamath River Renewal Corporation's (KRRC's) proposed Aquatic Resource Measures. The Aquatic Resource Measures are summarized in Section 2.7.8.1 *Proposed Project – Proposed Project – Other Project Components – Aquatic Resource Measures* and detailed in Volume II Appendix B: *Definite Plan − Appendix I*. The Proposed Project includes Aquatic Resource Measure AR-6 (*Suckers*) to reduce the short- and long-term effects of reservoir removal (including increased connectivity to upstream habitats). Aquatic Resource Measure AR-6 involves the following two primary actions: reservoir and river sampling to estimate the abundance of suckers in the Hydroelectric Reach and to conduct genetic testing for hybridization; and, sucker salvage and release into waterbodies isolated from the Upper Klamath Lake populations. The proposed actions are anticipated to increase the survival of individual Lost River and shortnose suckers currently inhabiting the Hydroelectric Reach, without increasing exposure of the Upper Klamath Lake population to adults that possess a high degree of hybridization.

Smallscale sucker have been found to be common in J.C. Boyle Reservoir (Buettner et. al 2006) and improving connectivity in the Hydroelectric Reach through dam removal has not been identified as a short-term or long-term concern with respect to the potential for increasing hybridization between smallscale sucker and federally listed Lost River and shortnose suckers. Buettner et al. (2006) note that Miller and Smith (1981) claimed that hybridization was pronounced in the hydroelectric reservoirs, but Buettner et al. (2006) do not provide evidence, or state a concern, with hybridization resulting from potential upstream habitat connectivity. The USFWS Biological Opinion (2013) does not state a concern with removal of J.C. Boyle Dam, or suggest a link between increased habitat connectivity and hybridization, both as suggested in the comment. USFWS (2013) states that hybridization among Klamath Basin suckers is consistent with a pattern of historical intercrossing.

In addition, minor typographical errors in the section this comment refers to, Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species,* have been corrected. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species* for the revisions.

Comment LA9-22

The USFWS logic in the 2013 Revised Recovery Plan to not include the downstream reservoirs, downstream of Keno Dam, under Critical Habitat designation for the Lost River Sucker and Shortnose Sucker are based on Primary Constituent Elements. However, data on the population status of the Lost River Sucker and Shortnose Sucker should be updated prior to assuming the sucker populations downstream of Keno Dam are part of a sink population. During sampling in 1998 and 1999, Desjardins and Markle (2000) found all developmental stages of Shortnose Sucker at J.C. Boyle and Copco Dams. The downstream reservoirs, while artificially created, currently provide some level of habitat for these sucker species. In a Joint Press Release dated February 20, 2014 between the USFWS and PacifiCorp (USFWS and PacifiCorp 2014), it is stated that "the majority of remaining affected suckers are not part of reproducing populations since they reside in downstream reservoirs, which are outside of their historic range." While these suckers may not have been present in these areas prior to dam installation, the installation of dams and the associated reservoirs now provide some level of habitat for these ESA sucker species.

Response to Comment LA9-22

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Lost River and Shortnose Suckers* provides a comprehensive summary of the best available scientific information on sucker populations in the Lower Klamath Project hydroelectric reservoirs, including a detailed summary of the results of the sampling conducted by Desjardins and Markle (2000) in 1998 and 1999 that documented multiple life stages of suckers in the hydroelectric reservoirs. This section reflects the information used to inform the 2013 revised recovery plan. The federal agency responsible for the recovery of the Lost River and Shortnose suckers concluded in the recovery plan that the populations in Iron Gate and Copco No. 1 reservoirs are "sink populations" and are not likely to be self-sustaining, nor do they contribute to the recovery goals for the sucker populations. Low recruitment in the reservoir population is due to the lack of access to spawning habitats, as described in Moyle (2002) and NRC (2004), and as determined through extensive sampling conducted by Oregon State University, citing Desjardins and Markle (2000). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Comments regarding USFWS's process of critical habitat designation are noted. Designation of critical habitat by USFWS is not under the purview of the State Water Board and is not part of the Proposed Project analyzed in this EIR.

Comment LA9-23

Similar to Impact 3.3-1, the DEIR concludes that there is no significant impact to EFH with implementation of AQR-1 and AQR-2. However, these mitigation measures (MMs) are directed at species rather than EFH. The impact to EFH occurs even with implementation of mitigation and should be considered significant.

Response to Comment LA9-23

In addition to addressing impacts to species, Klamath River Renewal Corporation's (KRRC's) proposed Aquatic Resource Measures AR-1 and AR-2 include components that directly alleviate impacts to fish habitat (including essential fish habitat; EFH), including spawning and migratory habitat. Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* describes potential impacts on Chinook and coho salmon EFH (and critical habitat) quality and quantity due to short-term sediment releases and long-term changes in habitat quality and quantity due to dam removal (see Potential Impact 3.3-4).

Proposed Aquatic Resource Measure AR-1 (Mainstem Spawning) would improve habitat connectivity from the Klamath River into tributaries by addressing sediment and debris obstructions that block volitional upstream passage, thereby increasing and improving access to fish habitat. Aquatic Resource Measure AR-1 also includes an evaluation and proposal of other actions to improve rearing and spawning habitat such as large woody material installation, riparian plantings, or cattle exclusion fencing. Additional actions would be implemented if spawning habitat conditions following dam removal do not meet target metrics including gravel augmentation in the mainstem, with additional spawning habitat actions in tributaries, thereby directly improving EFH and critical habitat.

Proposed Aquatic Resource Measure AR-2 (Juvenile Outmigration) would require actions to maintain connectivity to EFH and critical habitat to ensure volitional fish passage between tributaries and the Klamath River, and it would provide for the development of a water quality monitoring network, trigger thresholds, and plan for relocating juvenile fish from tributary confluence areas to cold water tributaries or nearby off-channel ponds.

As described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts*, in addition to the KRRC's proposed measures the EIR includes Mitigation Measures AQR-1 and AQR-2 to increase certainty of the effectiveness of the Aquatic Resource Measures AR-1 and AR-2. EIR Mitigation Measures AQR-1 and AQR-2 specify that monitoring shall also be conducted following a significant (5-year) flow event, even if that flow event occurs more than two years following dam removal. Implementation of Mitigation Measures AQR-1 and AQR-2 would increase the frequency of monitoring and extend the monitoring period for implementing proposed Aquatic Resource Measures AQ-1 and AQ-2. Increasing the frequency of monitoring and extending the monitoring period would improve EFH and critical habitat conditions for Chinook and coho salmon by ensuring that the actions specified under proposed Aquatic Resource Measures AR-1 and AR-2 are protective for a longer duration if necessary. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Comment LA9-24

The SWRCB relies on Mitigation Measure AQR-1 − Mainstem Spawning, and Mitigation Measure AQR-2 − Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species. Also, the question remains as to why the SWRCB believes that the salvaging and relocation of a listed species that is both federally and state-listed as threatened (under the purview of NMFS and CDFW) is enforceable as part of the Water Quality Certification conditions but cannot do the same for other species or habitats (e.g. terrestrial special-status plants or species).

Response to Comment LA9-24

Please refer to response to comment LA9-23 for discussion of how AQR-1 and AQR-2 will protect habitat for fish species. Please also refer to Master Response CEQ-2 for discussion of the effect of federal preemption on the enforceability of mitigation measures and how mitigation for potential impacts to some terrestrial species can be accomplished pursuant to federal authorities.

Comment LA9-25
Similar to Impact 3.3-1, the DEIR concludes that there is no significant impact to EFH with implementation of AQR-1 and AQR-2. However, these mitigation measures (MMs) are directed at species rather than EFH. The impact to EFH occurs even with implementation of mitigation and should be considered significant.

Response to Comment LA9-25
The comment's assertion that Mitigation Measures AQR-1 and AQR-2 are not directed at fish habitat is incorrect. Please refer to response to comment LA9-23 for discussion of how potential impacts to Essential Fish Habitat (EFH) and critical habitat will be mitigated to less than significant levels.

Comment LA9-26
The SWRCB relies on Mitigation Measure AQR-1 − Mainstem Spawning, and Mitigation Measure AQR-2 − Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species, and not the critical habitat.

Response to Comment LA9-26
Please refer to responses to comments LA9-23 and LA9-25.

Comment LA9-27
The DEIR states that "cool groundwater spring inputs in the Williamson River and the south side of Upper Klamath Lake would likely provide thermal refugia for the non-migratory juvenile salmonid rearing life stages." However, this statement overlooks the fact that juveniles will be forced into crowded conditions with many other species of native and non-native fishes and these crowded conditions would likely increase the potential for disease outbreaks. Furthermore, these spring inputs should be counted, identified, and quantified in a way that substantiates this conclusion.

Response to Comment LA9-27
Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for a discussion of disease risk in the Williamson River following the Proposed Project. There is some concern regarding a disease zone in the lower Williamson River downstream from the confluence with the Sprague River, where there are currently high parasite densities observed (Hurst et al. 2012). However, maximum temperatures in the Williamson River do not exceed the disease threshold of 59°F in all years analyzed (Bartholomew and Foott 2010, Hamilton et al. 2011). Overall, the risk of a juvenile salmon disease response in the Williamson River would be lower than under existing conditions in the Middle Klamath River, but not negligible in all water years (S. Foott, USFWS, pers. comm., 2012). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.* Please also refer to

Master Response AQF-5 for a discussion of potential for conditions upstream of Iron Gate Dam to result in a new disease nidus.

Please refer to response to comment ORG46-235. Please also refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8 and Volume I Section 3.7.2.1 *Groundwater – Environmental Setting – Regional Groundwater Conditions* (page 3-641), which cite the work of Gannet et al. (2007), for the most recent and comprehensive attempt to estimate the groundwater level gradients and flow patterns within the vicinity of the Lower Klamath Project reservoirs.

Comment LA9-28

The statement regarding young salmon having the option to feed at night when water temperatures are cooler fails to recognize that the primary feeding times for juveniles is the crepuscular hours and they do not typically feed at night because of low light visibility (Schabetzberger, et al. 2003). Young salmon, not being able to consume adequate amounts of food on a daily basis, will compromise their ability to be fit for migration to the ocean and still experience average survival rates. This data is not taken into account and would conflict with the Proposed Project's purported benefits to salmonids due to reductions in minimum daily temperatures.

Response to Comment LA9-28

Section 3.3.5.4 *Aquatic Resources – Environmental Setting – Potential Impacts and Mitigation – Water Temperature* provides additional supporting information for the overall conclusion that reductions in minimum daily temperatures below those under existing conditions would benefit salmonids in the Klamath River mainstem, helping them to tolerate the warmer periods of the year when dwelling in the mainstem, but also allowing feeding excursions when confined to refugia during the warmer times of the day. NRC (2004) concludes that cooler temperatures at night may allow rearing fish to move out of temperature refugia to forage at night, allowing growth to occur even when ambient day time temperatures are above optimal. Foott et al. (2012) directly tested the effect of diurnal (including nighttime conditions) fluctuating water temperature profiles similar to what would be observed in the Klamath River under the Proposed Project, and the authors observed positive growth and no apparent effect of elevated temperature on immune function or fitness in Klamath River juvenile Chinook salmon held over a 23-day period under conditions in a laboratory. Feeding apparently did not decrease enough under nocturnal conditions to substantially affect growth. Salmonids in the Klamath River have been observed to use cooler hours to migrate between thermal refugia (Belchik 2003), and the decrease in minimum temperatures during the spring, summer, and fall under the Proposed Project would be beneficial for fish (Figure 3.3-3). Increased nighttime cooling of water temperatures is important to salmonids in warm systems, providing regular thermal relief, time for repair of proteins damaged by thermal stress, and significant bioenergetic benefits that help fish persist under marginal conditions despite the potential for reduced nighttime feeding (Schrank et al. 2003, NRC 2004). In addition, Dunsmoor and Huntington (2006) suggest that lower nighttime temperatures with dam removal would allow fish to leave thermal refugia in the Klamath River to forage and thereby allow more effective use of the available refugia habitat. Overall, the Proposed Project reductions in minimum daily temperatures below those under existing conditions would benefit salmonids in the Klamath River mainstem, helping them to tolerate the warmer periods of the year when dwelling in the mainstem, but also allowing feeding excursions when confined to refugia during the warmer times of the day. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Comment LA9-29

Significant impacts associated with critical habitat are related to potential effects or impairment of the Primary Constituent Elements (PCEs) within the Action Area of the Proposed Project. The impact determination on critical habitat PCEs includes salvaging and relocating fish. Yet, the DEIR states that the Proposed Project would have no significant impact on coho salmon critical habitat in the short term. This is not accurate.

Response to Comment LA9-29

The comment appears to misunderstand the EIR analysis regarding coho salmon critical habitat. Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-1 concludes there would be no significant impact *with mitigation*. Primary Constituent Elements (PCEs) for Southern Oregon/Northern California Coast (SONCC) coho salmon are described in National Marine Fisheries Service [NMFS] (1999b) as follows: "In addition to these factors, NMFS also focuses on the known physical and biological features (PCEs) within the designated area that are essential to the conservation of the species and that may require special management considerations or protection. These essential features may include, but are not limited to, spawning sites, food resources, water quality and quantity, and riparian vegetation."

The effects on PCEs and critical habitat are analyzed in EIR Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation –Aquatic Resource Impacts* (Potential Impact 3.3-1). The EIR states that: "Based on the substantial short-term decrease in quality of the features of critical habitat and PCEs supporting SONCC coho salmon, there would be a significant impact to coho salmon critical habitat under the Proposed Project in the short term. However, the Proposed Project includes aquatic resource measures AR-1 (Mainstem Spawning) and AR-2 (Juvenile Outmigration) to reduce the short-term effects of SSCs on coho salmon PCEs of critical habitat."

With implementation of Mitigation Measures AR-1 and AR-2, the Proposed Project would have no significant impacts to coho salmon critical habitat in the short term.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment LA9-30

The SWRCB relies on Mitigation Measure AQR-1 − Mainstem Spawning, and Mitigation Measure AQR-2 − Juvenile Outmigration, to reduce impacts to coho critical habitat to less than significant. These measures reduce impacts to the species. Also, the question remains as to why the SWRCB believes that the salvaging and relocation of a listed species that is both federally and state-listed as threatened (under the purview of NMFS and CDFW) is enforceable as part of the Water Quality Certification conditions but cannot do the same for other species or habitats (e.g. terrestrial special-status plants or species).

Response to Comment LA9-30

Please refer to the responses to comments LA9-23 and LA9-24. Please also refer to Master Response CEQ-2.

Comment LA9-31

Dam removal and fish passage projects in Washington are used as examples of "rapid recolonization" following implementation. These examples are inapposite to the Proposed Project, however, because they included good water quality as a baseline condition. That is not the case here. To the contrary, it is unlikely the Klamath River will ever achieve the level of water quality that was achieved in those sample projects. This was recognized by the Chinook Salmon Expert Panel (page 3-301): "While the Chinook Salmon Expert Panel agreed that there was also evidence that potential dramatic increases in abundance associated with potential fish passage upstream of Keno Dam as well, they cautioned that achieving substantial gains in Chinook salmon abundance and distribution in the Klamath Basin is contingent upon successfully resolving key factors that would continue to affect the population, including water quality in Upper Klamath Lake and Keno Reservoir, disease, colonization of the Upper Klamath River Basin, harvest and escapement, hatchery interactions, predation by resident fish, climate change, instream flows, and impacts from dam removal."

Response to Comment LA9-31

As noted in the comment, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* (Potential Impact 3.3-7) describes potential differences between the Proposed Project and examples of dam removal and fish passage projects that occurred elsewhere. Multiple examples of dam removals conducted elsewhere are provided in the Draft EIR as examples, not as the sole or primary evidence for recolonization in the Klamath Basin. Rather, the Draft EIR uses multiple lines of evidence, including the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) approach to inform and support the recolonization analysis.

Similarities and differences between the Proposed Project and examples of dam removal and fish passage projects from elsewhere are described and these comparisons provide valuable context. The differences between the Proposed Project and other project examples were considered when predicting potential outcomes of dam removal under the Proposed Project.

As noted by the Chinook Salmon Expert Panel, water quality is a concern under existing and dam removal conditions and was considered in assessing the effects of the Proposed Project. Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Quality* describes potential impacts related to water quality conditions that were considered when analyzing the potential impacts of the Proposed Project on aquatic resources, and includes discussion of the water quality concerns raised by the Expert Panel. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment LA9-32

On February 8, 2019, the California Fish and Game Commission declared a finding of emergency and statement of proposed emergency regulation relating to the Upper Klamath-Trinity Spring Chinook Salmon. The proposed emergency regulations will make the Klamath River Basin Spring Chinook Salmon a candidate species under the California Endangered Species Act receiving full take protection while the Department of Fish and Wildlife considers a 'threatened' or 'endangered' listing. The DEIR should provide an update to the environmental setting and impact analysis assuming the spring-run Chinook Salmon would be listed under the California Endangered Species Act and provide any mitigation to limit impacts per presumed compliance with an Incidental Take Permit (California Fish and Game Code Section 2081).

Response to Comment LA9-32

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species* has been revised to describe the recent decision by the California Fish and Game Commission to consider listing Upper Klamath Trinity River Spring Chinook. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species* for the revisions.

Listing of spring-run Chinook by California Department of Fish and Wildlife (CDFW) would not change the existing physical conditions of the environmental setting or the conclusions of the analysis of potential impacts to spring-run Chinook that are set out in the EIR Section 3.3.2.1 *Aquatic Species – Spring-Run Chinook Salmon – Anadromous Fish Species*. The analysis of potential impacts of the Proposed Project on spring-run Chinook salmon is presented in Potential Impact 3.3-8. The EIR concludes no significant impact for spring-run Chinook salmon populations in the short term, and beneficial for spring-run Chinook salmon populations in the long term. Although the EIR finds no significant impact on spring-run Chinook salmon, the Klamath River Renewal Corporation (KRRC) proposes Aquatic Resource Measure AR-2 (Juvenile Outmigration), which would further reduce the potential for short-term effects of suspended sediment concentrations (SSCs) on salmonid juveniles and smolts, including spring-run Chinook salmon. In addition, although CEQA Guidelines section 15126.4(a)(3) states that mitigation measures are not required for effects which are not found to be significant, Mitigation Measure AQR-2, which would be implemented as a result of significant adverse impacts described for Potential Impact 3.3-1 and Potential Impact 3.3-4, would further reduce the potential for short-term, less than significant effects of the Proposed Project on spring-run Chinook salmon.

Comment LA9-33

Citing other Klamath River documents, the authors of the DEIR accepts the statement that clams live in buried sediment and therefore are not affected by the sediment loads that will inundate the Klamath River bed. However, studies have shown that organisms like the razor clam can only tolerate single events of additional sediment (12 cm or less) for a short period (Vavrinec, et al. 2007) and events that introduce more than 26 cm of sediment over the top of an existing clam bed can result in greater than 70 percent mortality.

Response to Comment LA9-33

As described in Potential Impact 3.11-5, Sedimentation and River Hydraulics sediment transport model (SRH-1D) model simulations project up to approximately 1.7 feet of reach-averaged dam-released sediment deposition between Bogus Creek (river mile [RM] 192.68) and Willow Creek (RM 187.8) in the short-term (less than 2 years) and up to 0.9 feet between Willow Creek and Cottonwood Creek (RM 185.1). SRH-1D model simulations did not project any significant sediment deposition downstream of Cottonwood Creek. This deposition will occur during and following drawdown, with further remobilization and deposition in association with precipitation-driven flow events following dam removal, typically lasting for several hours and separated by several days or weeks. The results of Vavrinec et al. (2007) suggest that clams may not survive deposition over 0.9 feet in the reach between Bogus Creek (RM 192.68) and Willow Creek (RM 187.8), where Anodonta spp. populations closest to Iron Gate Dam are likely to be most affected (as described above). The results of Vavrinec et al. (2007) further suggest that for clams downstream of Willow Creek there is likely to be high survival following deposition of 0.9 feet or less, especially if there is at least 24 hours between burial events. Therefore, it is predicted that freshwater clams located downstream of Willow Creek (RM 187.8) can survive deposition events such as those predicted to occur following dam removal (Vavrinec et al. 2007) and are expected to avoid impacts from bed deposition. While the comment uses razor clams as an example species, razor clams are marine bivalves that are not found in the freshwater reaches of the Klamath River analyzed under Potential Impact 3.3-19.

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-19 has been revised to incorporate the Vavrinec et al. (2007) results. Please refer to Volume III Attachment 1 Section

3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-19 for the revisions.

Comment LA9-34

Absent a wetland delineation, impacts to wetlands are unknown, avoidance cannot be assured and therefore impacts cannot be quantified.

Response to Comment LA9-34

As discussed in Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 (pages 3-518 and 3-519), a wetland delineation was anticipated within the limits of construction around the dams and facilities, access and haul roads, and disposal sites prior to the initiation of construction; this delineation was completed in July of 2019 (KRRC 2019c). The results of the wetland delineation will be incorporated into the Proposed Project design to avoid and minimize direct impacts on wetlands to the maximum extent feasible, and wetland areas adjacent to the construction Limits of Work (Volume I Section 2.2 *Proposed Project – Project Location* Figure 2.2-5 and Volume 1 Section 2.7.1 *Proposed Project – Proposed Project – Dam and Powerhouse Deconstruction* Figures 2.7-2, and 2.7-4) would be fenced to prevent inadvertent entry. Implementation of Mitigation Measure TER- 1 would require the use of sufficient buffers to ensure no significant environmental impacts to wetlands. Furthermore, for those wetlands that cannot be avoided, the Reservoir Area Management Plan includes details for the installation of native plants and aerial, barge, or hand seeding in appropriate areas to re-vegetate all areas disturbed during construction with a goal of no net loss of wetland or riparian habitat acreage and functions. Potential Impact 3.5-1 has been clarified to indicate that the amount of wetland and riparian habitat created through dam removal and revegetation efforts would far exceed the acreage of any existing, fully established wetlands and/or riparian vegetation for which a small portion of wetlands and/or riparian vegetation would not be avoided during construction activities. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-35

Potential Impact 3.5-1 is related to construction impacts however, the text goes back and forth between long- and short-term impacts and it is difficult to decipher what is being analyzed as an effect in this section. Discussing the Reservoir Area Management Plan and no net loss of wetlands in a construction impact is confusing.

Response to Comment LA9-35

Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* has been revised to clarify the definition of short-term effects. Please refer to Volume III Attachment 1 Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* for the revisions.

Potential Impact 3.5-1 in Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* (pages 3-518 and 3-519) addresses potential short-term impacts due to construction; this impact analysis does not address potential long-term impacts due to the Proposed Project. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-36

Mitigation Measure TER-1 provides buffers for avoiding existing wetlands during construction. It is unclear if the SWRCB is relying on the Reservoir Area Management Plan as mitigation for this impact. This should be clarified.

Response to Comment LA9-36

If a wetland is identified and avoidable, implementation of Mitigation Measure TER-1 would ensure that there would be no significant impacts to wetlands; the wetland would be fenced with appropriate buffers to avoid inadvertent entry. The State Water Board has the authority to include this mitigation measure in its water quality certification for the project. Please see Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the final Mitigation Measure TER-1. If a wetland cannot be avoided, the Reservoir Area Management Plan, which is part of the Proposed Project rather than a mitigation measure, includes measures to revegetate all areas disturbed during construction. Potential Impact 3.5-1 has been clarified to indicate that the amount of wetland and riparian habitat created through dam removal and revegetation efforts would far exceed the acreage of any existing, fully established wetlands and/or riparian vegetation for which a small portion of wetlands and/or riparian vegetation would not be avoided during construction activities. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-37

Surveys for these species have not yet occurred so presence and quantification of these species is not known.

Response to Comment LA9-37

As discussed in Volume I Section 3.5.5.2 *Terrestrial Resources – Potential Impacts and Mitigation – Culturally Significant Species* Potential Impact 3.5-6 (page 3-524), as part of the Proposed Project, updated inventories of wetland and riparian vegetation around the reservoir perimeters were anticipated; these inventories were completed in 2019 (KRRC) Potential Impact 3.5-6 in Section 3.5.5.2 *Terrestrial Resources – Potential Impacts and Mitigation – Culturally Significant Species* (page 3-524) has been clarified in light of this data. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-38

The mitigation includes several actions to survey for wetlands and encourage rapid revegetation with native riparian species in the reservoir footprints as defined in the Reservoir Area Management Plan (Appendix B: Definite Plan – Appendix H) to ensure no net loss of wetland or riparian habitat acreage and functions. These measures, however, only address long term impacts, and ignore short term impacts.

Response to Comment LA9-38

Potential Impact 3.5-6 in Section 3.5.5.2 *Terrestrial Resources – Potential Impacts and Mitigation – Culturally Significant Species* has been clarified. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-39

Surveys for special-status species and rare natural communities should be conducted prior to ground disturbance, but impacts cannot be quantified, or significance determinations made, absent a baseline.

Response to Comment LA9-39

The Draft EIR identified special-status plant species and rare natural communities with the potential to occur within the Primary Area of Analysis. The Draft EIR anticipated that comprehensive floristic surveys would be conducted prior to ground disturbance within the construction Limits of Work plus an established buffer.

Since the Draft EIR was released for public comment, those floristic surveys have been conducted. The mid-season (May) and part of the late season (July) floristic surveys were conducted in 2018 and the early-season (April) and follow-up late season surveys were completed in 2019. Additionally, vegetation surveys were completed in 2018 for upland areas and 2019 for wetland areas. Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special status Species and Rare Natural Communities* Potential Impact 3.5-7 has been clarified in light of these surveys. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special status Species and Rare Natural Communities* for the revisions.

The survey results do not change the significance determinations in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special status Species and Rare Natural Communities* Potential Impact 3.5-7 (pages 3-524 and 3-525). As explained in the Draft EIR, where feasible the Proposed Project design would preserve any documented special-status plants in place. If avoidance is not feasible, a combination of relocation, propagation, and establishment of new populations in designated conservation areas would be implemented, as determined in coordination with the resource agencies, and invasive plant species would be controlled by implementing measures such as routine washing of construction vehicles and equipment (Volume II Appendix B: *Definite Plan – Appendix J*). As noted in Potential Impact 3.5-7, there could be significant impacts on special-status plants in the short-term where avoidance is infeasible and if replanting does not succeed in re-establishment of new populations at a 1:1 ratio such that there is no net loss of individuals. If implemented as part of the Final Restoration Plan, Recommended Terrestrial Measure 1 would reduce impacts to less than significant. This conclusion remains the same.

Also, the Proposed Project includes avoidance and minimization measures as well as provisions for the establishment of wetland and riparian areas and other sensitive vegetation communities within the project area to result in no net loss of habitat acreage (Volume II Appendix B: *Definite Plan – Appendix J*); therefore, impacts to rare natural communities would not be significant.

Comment LA9-40

Resources within the construction envelope will be temporarily impacted even with establishment of revegetated areas. This should be considered a significant short-term impact based on the SWRCB's own significance criteria (up to 2 years of loss). The no net loss through re-establishment addresses long term impacts only.

Response to Comment LA9-40

Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* has been revised to clarify the definition of short-term effects. Please refer to Volume III Attachment 1 Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* for the revisions.

Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 has been clarified to indicate that the amount of wetland and riparian habitat created through revegetation efforts would far exceed the acreage of any wetlands and/or riparian vegetation that cannot be avoided during construction activities and that it is anticipated that at least 70 percent cover would achieved by post-dam removal year 1. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Comment LA9-41

The DEIR indicates that because the SWRCB cannot ensure implementation of the terrestrial aspects of the Final Restoration Plan, it is analyzing the impact in this DEIR as significant and unavoidable. This is improper. It is reasonable to expect implementation of, and compliance with, the plan. Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal. App. 4th 884, 906 cited in Center for

Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App. 4th 214, 246. As such, the State Board is obligated under CEQA to require such implementation and compliance as a mitigation measure. Furthermore, a CDFW SAA could be reasonably expected to include conditions to address impacts to special-status plants and rare natural communities.

Response to Comment LA9-41

Please refer to Master Response CEQ-2, Effect of Federal Power Act preemption on mitigation measures.

Comment LA9-42

Flood frequency analysis for the 10-year to 100-year events was performed for seven USGS gages along the Klamath River. The analysis used a Log-person III distribution method consistent with USGS Bulletin 17B (USGS 1982). The Bulletin 17B methods have been updated to Bulletin 17C. The updated version (Bulletin 17C) replaces statements to acknowledge climate variability and climate change. The peak discharge frequency analysis is should be revised to utilize the updated methods in Bulletin 17C.

Response to Comment LA9-42

United States Geological Survey (USGS) Bulletin 17C acknowledges climate variability and climate change; however, the guidelines assume time invariance and do not evaluate methods to account for climate variability in flood frequency analyses. Bulletin 17C guidelines retain the same statistical framework used in Bulletin 17B, such that there would be consistency in results generated by the two methods. The main differences between Bulletin 17B and 17C are 1) incorporation of interval peak flow data and historical flood information, and 2) identification of potentially influential low floods in the gage record. These additions to Bulletin 17C would not impact the flood frequency analyses for the Klamath River gages because they possess continuous periods of record over many decades and thus do not require consideration of interval peak flow data, and because the Klamath River gage data are censored to remove low outlier peak flows that result from hydroelectric regulation. It is therefore not necessary to change the analysis in the EIR.

Comment LA9-43

The KRRC proposes to work with willing landowners to implement a plan to address the significant flood risk following dam removal for the 36 habitable structures (including permanent and temporary residences) located in the altered 100-yr floodplain between Iron Gate Dam and Humbug Creek. However, the potential impacts to environmental resources, or identification of potentially hazardous materials from relocating, elevating, or other methods to relocate, or remove these structures is not identified. The DEIR should be revised to identify these impacts.

Response to Comment LA9-43
Potential environmental impacts related to the Downstream Flood Control Project Component are analyzed throughout the EIR. The potential impact analyses and mitigation measures listed below consider the broad set of ground-disturbing activities associated with the Proposed Project – including moving or elevating habitable structures downstream of Iron Gate Dam, as needed, as part of the proposed Downstream Flood Control Project Component.

Impact analyses and mitigation measures in the EIR that consider the broad set of ground-disturbing activities associated with the Proposed Project are:

<u>Volume III Attachment 1</u>
Potential Impact 3.2-4 Increases in suspended material from stormwater runoff due to pre-construction, dam deconstruction and removal, and restoration activities in the Hydroelectric Reach and the Middle Klamath River immediately downstream of Iron Gate Dam.

Mitigation Measure WQ-1 Best Management Practices to reduce potential impacts to water quality due to pre-construction, dam removal, and restoration-related activities.

Volume III, Attachment 1 Section 3.6.4 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities*

Mitigation Measure TER-6 Gray Wolf.

Mitigation Measure TER-7 Bald and Golden Eagle.

<u>Volume I</u>
Potential Impact 3.5-1 (pages 3-518 to 3-519) Construction-related impacts on wetland and riparian vegetation communities.

Mitigation Measure TER-1 (page 3-519) Establish a 20-foot buffer around delineated wetlands.

Potential Impact 3.5-7 (page 3-524 to 3-525) Short-term impacts on special-status plants and rare natural communities from construction-related activities.

Recommended Terrestrial Measure 1 (page 3-525) Establish Mitigation Ratios for Special-Status Plants.

Potential Impact 3.5-9 (page 3-527) Short-term impacts on special-status terrestrial invertebrates from construction-related activities.

Potential Impact 3.5-10 (pages 3-527 to 3-535) Short-term impacts on special-status amphibian, reptiles, and mammals from construction activities.

Mitigation Measure TER-2 (page 3-530) Amphibian and Reptile Management.

Mitigation Measure TER-3 (pages 3-530 to 3-531) Western Pond Turtle Pre-Construction Surveys.

Recommended Terrestrial Measure 3 (pages 3-532 to 3-533) On-site Biologist/Construction Monitoring Plan.

Recommended Terrestrial Measure 4 (page 3-533) Biological Resources Education and Awareness Training.

Recommended Terrestrial Measure 5 (page 3-533 to 3-534) Requirements for Construction Personnel.

Recommended Terrestrial Measure 6 (pages 3-534 to 3-535) Wildlife Exclusion and Entrapment.

Recommended Terrestrial Measure 7 (page 3-535) General Special-status Wildlife Surveys and Pre-construction Surveys.

Potential Impact 3.5-11 (pages 3-536 to 3-540) Short-term impacts on nesting birds from construction-related noise and habitat alterations.

Recommended Terrestrial Measure 9 (pages 3-538 to 3-540) Nesting Birds.

Potential Impact 3.5-12 (pages 3-540 to 3-543) Effects on willow flycatcher from short-term construction-related noise and short-term and long-term habitat alterations.

Recommended Terrestrial Measure 10 (page 3-543) Willow Flycatcher

Potential Impact 3.5-13 (pages 3-543 to 3-547) Short-term impacts on bald and golden eagles from construction-related noise and nesting habitat alterations.

Potential Impact 3.5-14 (pages 3-547 to 3-553) Short- and long-term impacts on bats from construction noise and loss of roosting habitat.

Recommended Terrestrial Measure 12 (pages 3-551 to 3-553) Roosting Bats and Habitat.

Potential Impact 3.5-15 (pages 3-554 to 3-555) Impacts on northern spotted owl and critical habitat from construction-related noise and habitat alterations.

Potential Impact 3.21-1 (pages 3-1042 to 3-1045) Proposed construction-related activities could result in substantial exposure to hazardous materials through the routine transport, use, or disposal of hazardous materials.

Mitigation Measure HZ-1 (pages 3-1044 to 3-1045) Hazardous Materials Management. (See also Volume III Attachment 1 for modifications.)

Potential Impact 3.23-8 (page 3-1100) Construction activities associated with the Downstream Flood Control Project Component (moving or elevating legally established structures with flood risk) could produce noise and vibration associated with construction activities.

Please also note that, since issuance of the Draft EIR, the Klamath River Renewal Corporation (KRRC) has clarified that the Proposed Project "Limits of Work" include the following:

- 34 small areas ranging from 0.02 acres to 6.5 acres in size, with most parcels less than 0.03 acres, all of which are located within the altered 100-year floodplain of the Middle Klamath River between Iron Gate Dam (river mile [RM] 193) and Humbug Creek (RM 174) and have existing legally-established habitable structures that may require relocation or elevation prior to dam removal;
- 1,300 linear feet of the south shore of Copco No. 1 Reservoir inclusive of the adjacent twelve parcels that possess existing habitable structures, which potentially could be impacted by slope failure during or immediately following reservoir drawdown;
- 480 linear feet of Copco Road (unpaved) located on the north shore of Copco No. 1 Reservoir which has the potential to experience slope failure during or immediately following reservoir drawdown.

The EIR Project Boundary, which is inclusive of the Proposed Project's Limits of Work, as well as PacifiCorp owned and managed lands immediately surrounding the Lower Klamath Project ("Parcel B lands") that would be transferred as part of the Proposed Project, has been updated accordingly. The clarifications to the Limits of Work are relatively minor and are included in Volume III Attachment 1 *Executive Summary* Figure ES-2 *Proposed Project Boundary − California Portion*. The updated Proposed Project Boundary shown in Figure ES-2 applies to all figures in EIR Volume I that include the Project Boundary.

Comment LA9-44

It is unclear whether the proposed Federal Emergency Management Agency (FEMA) 100-year floodplain boundary impact potentially developable lands that would otherwise be outside of the FEMA 100-yr floodplain under existing conditions. Figure 7.7-1 displays structures in the 100-year floodplain following dam removal; sheets 1 of 8, and 3 of 8 show post-dam increases in flood depths that may be within areas with planned developments and may impact private property potential. The impact analysis should include impacts to habitable *structures, along with any planned development, private property, or land uses that would allow for future development (or use).*

Response to Comment LA9-44

Please refer to Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-3 (pages 3-630 to 3-633) for discussion of potential flooding impacts to habitable structures. The analysis assesses the potential impacts of the Proposed Project and feasible alternatives against existing environmental conditions, consistent with CEQA Guidelines section 15125 (a). Additionally, please refer to Volume I Section 3.24.6 *Cumulative Effects – Flood Hydrology* (pages 3-1181 to 3-1182) for discussion of potential cumulative impacts related to development projects, including reasonably foreseeable projects (see Volume I Table 3.24-1), and flood hydrology. The comment mentions planned developments but provides no specific reference for the plans, therefore, it is unclear what potentially developable lands and planned development are being referred to. Note that Volume I Section 3.24.6 *Cumulative Effects – Flood Hydrology* (pages 3-1181 to 3-1182) does take approved and reasonably foreseeable projects into account. Potential future uses and development in floodplains in the existing Federal Emergency Management Agency (FEMA) 100-year floodplain or the altered floodplain following dam removal (USBR 2012a) would be speculative.

Comment LA9-45

The wells illustrated in Cross-Section A-A', B-B', C-C' (page 3-648+) show wells with water table below the Copco No. 1 reservoir level. This information indicates that the wells may still be recharged from water seepage from the base of the reservoir, not from lateral regional groundwater flow. Drawdown of the Copco No. 1 reservoir may decrease or eliminate the source of groundwater recharge for at least a dozen wells.

The data presented for wells near the Iron Gate reservoir suggest that the groundwater table is higher than the reservoir. Drawdown of the surface water within the reservoirs have the potential to impact adjacent groundwater levels, regardless of whether the groundwater water levels are higher or lower than the current reservoir levels. However, the wells with water levels below the reservoir level, i.e., the Copco No. 1 reservoir, may be more reliant on the reservoir as a source of groundwater recharge, and therefore these wells may be more affected by the reservoir drawdown.

As the wells are all drilled wells set within fractured bedrock, each well will have a unique response to the reservoir drawdowns, depending on the fracture orientation and hydraulic properties. Each well's sensitivity to the drawdown will also rely on the current well yield and availability of water-bearing fractures. For instance, a low yield well where the recharge is low may be more sensitive to the reservoir drawdown, especially if the well is hydraulically connected to the surface water in the reservoir.

Response to Comment LA9-45
The impact analysis associated with the comment's statements regarding existing groundwater wells in the vicinity of Copco No. 1 and Iron Gate reservoirs can be found on Volume I Section 3.7.5 *Groundwater – Potential Impacts and Mitigation* Potential Impact 3.7-1 (pages 3-663 to 3-665).

Comment LA9-46
"No significant impact" as asserted on Page 3-665, cannot be claimed until drilling occurs to remedy the loss of a well's capacity to serve its intended use.

Response to Comment LA9-46
Please refer to Master Response GRW-1.

Comment LA9-47
Page 3-665 "Potential Impact 3.7-2 The Proposed Project could interfere with groundwater recharge and adversely affect surface water conditions in the Klamath River" states no significant impact based on the findings of Gannett et al. (2007) where 92 cubic feet per second of groundwater is predicted to discharge to surface water within the reach between Iron Gate dam and the upper reservoirs. However, the well data presented within the DEIR demonstrates a large degree of variability with regard to vertical groundwater flow, where some areas with low water levels relative to the reservoir water level may be reliant on the reservoir as a groundwater recharge source. Any significant impact will be determined on a case-by-case basis and should be adequately addressed within the Groundwater Well Management Plan.

Response to Comment LA9-47
Volume I Section 3.7.5 Groundwater – *Potential Impacts and Mitigation* Potential Impact 3.7-2 (page 3-665) analyzes the potential for impacts to Klamath River surface flows to occur due to the Proposed Project. As described in Section 3.7.2 *Groundwater – Environmental Setting* (pages 3-641 to 3-661) and in Gannett et al. (2007), the Klamath River in the groundwater Area of Analysis is made up of 'gaining' reaches where natural groundwater flow moves *into* the river. Although there is localized site-specific variability in groundwater levels immediately adjacent to the reservoirs, as noted in Sections 3.7.2.1 *Groundwater – Environmental Setting Regional Groundwater Conditions* and 3.7.2.2 *Groundwater – Environmental Setting Regional Groundwater Conditions* (pages 3-641 to 3-661), removal of the Lower Klamath Project dams is not expected to alter the existing condition of groundwater moving into the Hydroelectric Reach because Lower Klamath Project reservoirs do not substantially alter regional and local groundwater conditions, and thus, surface flows would not be impacted in the Klamath River under the Proposed Project. Any significant impact to individual groundwater wells would be determined on a case-by-case basis, as described in the Groundwater Well Management Plan (see Volume II Appendix B: *Definite Plan*).

Comment LA9-48

The DEIR concludes that impacts to water supply and/or water rights are considered significant if they result in: (1) Causing unreasonable injury to existing water rights; or (2) Decreasing water supplies beyond what is needed for public health and safety (human consumption, cooking, and sanitation) for the current population.

These two criteria do not explicitly address resiliency or reliability, which could experience significant impacts, as indicated below.
The phrase "unreasonable injury" in the first criterion is not well explained. Under California law, the so-called "no-injury rule" (see Water Code, Sections 1702, 1706) can be triggered by almost any change in the point of diversion, place of use, or purpose of use of a water right that causes "injury" to, e.g., another water rights holder. The no-injury rule does not have any "reasonableness" threshold. Perhaps the word "unreasonable" is intended to reference the constitutional reasonable use doctrine (Cal. Const., art X, § 2), but if so, it's not clear why the two concepts should (or could) be combined together The second criterion, including the reference to "public health and safety," sets an extremely low bar for impacts to water supply/rights. This criterion is unusual, and does not appear to be based on typical or standard water rights principles. It sets much too low of a bar to protect vested property interests or to maintain statutory priorities/preferences for municipal and domestic uses (e.g., Water Code, Sections 106, 106.5) over, e.g., environmental or irrigation uses.

Response to Comment LA9-48

CEQA charges the lead agency with identifying and analyzing potentially significant impacts to the physical environment from a proposed project. A minor change in the exercise of a water right would not be a reasonable threshold to define a significant impact under CEQA. CEQA impacts are based on a physical change to the environment rather than on any potential legal infringement. Unreasonable interference with water right uses means that the extent of the interference would support a complaint made under Article 10 Section 2 of the California Constitution. All diversions and beneficial uses of water must be reasonable given all other needs of water, including instream and off-stream uses, and some level of minor inconvenience is acceptable in light of the constitutional policies promoting shared use of water. Such a minor change in water availability and usage would be unlikely to result in significant water-supply-related environmental impacts.

The significance criteria necessarily encompass potential impacts to resiliency and reliability of water rights because these aspects of a right to divert can be subject to unreasonable interference, and changes to resiliency and reliability can cause public health impacts. Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impacts 3.8-2, 3.8-1, and 3.8-

4 analyze potential reliability and resiliency effects from Proposed Project implementation.

The additional criterion regarding public health and safety is based on the human right to water, as expressed in Water Code section 106.3, and on the direct potential for public health impacts from a change in water supply. As noted above, significance criteria are set to evaluate environmental impacts and, as such, setting forth a water supply criterion related to public health and safety is appropriate.

Comment LA9-49

There is inadequate consideration of supply system resiliency or reliability, both of which might experience significant impacts. For example, even if the Lower Klamath Project reservoirs were not designed or operated as seasonal storage reservoirs to maintain downstream flows (page 3-674), these facilities undoubtedly provide some level of physical capability to store water and control/time releases, which will be lost with dam removal. The DEIR's discussion of coordinated releases during the "extreme drought" of 2014-2015 illustrates this capability (pages 3-678–3-680).

Response to Comment LA9-49

Please refer to Volume I Section 3.8.2.1 *Water Supply/Water Rights – Environmental Setting – Upper Klamath Basin* regarding the Lower Klamath Project for a discussion of the available active surface water storage of the Lower Klamath Project reservoirs. Please also refer to Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impacts 3.8-1 and 3.8-2 (pages 3-676 to 3-680) for discussion of surface water flow available for diversion along the Klamath River under the Proposed Project, including consideration of the United States Bureau of Reclamation's (USBR's) Klamath Irrigation Project located in the Upper Klamath Basin. Please also refer to Master Response WSWR-1 for additional discussion of potential effects on agricultural water supply and coordinated releases and Master Response WSWR-3 for additional discussion of potential effects on water supply downstream of Iron Gate Dam. Additionally, note that Keno Dam possesses the ability to coordinate timed releases in rare cases such as the 2014 – 2015 drought.

Further, the reliability of the City of Yreka's water supply is evaluated in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683). Please also refer to Master Responses WSWR-5 and WSWR-6 and responses to the City of Yreka's comments on future water availability (i.e., comments LA8-6, LA8-7, LA8-9, LA8-10, LA8-11, LA8-14, LA8-15, LA8-19, LA8-24, LA8-28, LA8-30, LA8-31, LA8-32, LA8-33, LA8-35, LA8-36, LA8-40, LA8-44, and LA8-45).

Comment LA9-50

The impacts analysis is not sufficiently detailed to show that Yreka's water rights will not be injured or otherwise impaired in dry or drought conditions. In particular, the analysis does not discuss the total downstream demands with legal priority and/or seniority ahead of Yreka's rights versus the anticipated flows.

Response to Comment LA9-50

It is possible that drought conditions could impact any water right holder on Fall Creek. However, water demands associated with the Proposed Project would not impact water availability for the City of Yreka's water right. California Department of Fish and Wildlife's (CDFW's) non-consumptive water right on Fall Creek diverts water primarily downstream from the City of Yreka's diversion point with an optional 0.33 cubic feet per second (cfs) diversion upstream of the City of Yreka's Dam B. After passing through the hatchery, all diverted water (less evaporative losses) would be returned to Fall Creek upstream of the City of Yreka's bypass flow compliance point (i.e., location of United States Geological Survey (USGS) Gage No. 11512000 approximately 1,000 feet upstream of Daggett Road). Please refer to Volume I Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* (pages 2-81 to 2-84) for further discussion.

PacifiCorp's water diversions on Spring and Fall creeks and hydropower generation at the Fall Creek powerhouse are part of the Klamath Hydroelectric Project (KHP) and are not part of the Proposed Project. PacifiCorp's ownership and operation of the portions of the KHP that are not part of the four dams and the associated facilities proposed for removal (i.e., the Lower Klamath Project), or part of Parcel B lands, are not being changed under the Proposed Project. Whether the Federal Energy Regulatory Commission (FERC) would alter PacifiCorp's Spring Creek diversion in the future, as related to the KHP, is speculative and is not analyzed in this EIR.

For additional details refer to Master Responses WSWR-5, WSWR-6, and WSWR-7.

Comment LA9-51

The project is potentially subject to 17 CCR 93105, but lack of detail in the Environmental Setting section makes it difficult to ascertain if the project is subject to this requirement. This should be analyzed and discussed. Additionally, the project must comply with California Health and Safety Code §41700 and §41701 regarding nuisance discharges and opacity limitations. It is unclear whether the project would violate these standards The DEIR should be revised to address this issue.

Response to Comment LA9-51

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-52

A significant and unavoidable impact was identified for Potential Impact 3.9-2, Section 3.9.5. Page 3-704 states that "the analysis in this section does not include mitigation to minimize impacts from construction emissions generated by the Proposed Project activities. Since similar minimization measures may be implemented during project construction…" This is in direct conflict with the CEQA Guidelines. A few mitigation measures are proposed in the Air Quality Appendix in Section N.4 (Page N-21 of the air quality Appendix – Appendix N). Additionally, there are numerous dust control measures discussed in 17 CCR 93105 (CARB 2011) and there are other feasible and reasonably achievable dust control measures that could be implemented and should therefore be discussed. Since the project must comply with the requirements of California Health and Safety Code §41700 and §41701 and is potentially subject to 17 CCR 93105 as well as SCAPCD Rule 4.1 and 4.2, it is reasonable to assume that any mitigation measures proposed would be enforceable under these regulations. See Oakland Heritage Alliance v. City of Oakland (2011) 195 Cal. App. 4th 884, 906 cited in Center for Biological Diversity v. Department of Fish & Wildlife (2015) 234 Cal. App. 4th 214, 246.

Response to Comment LA9-52

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-53

Impact 3.9-2 was found to be significant and unavoidable, but the analysis does not specify whether the impacts would be cumulatively considerable and does not address whether cumulative impacts would result from the project. Discussion of cumulative impacts of a project is required as stated in section 15130 in the CEQA Guidelines.

Response to Comment LA9-53

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-54

Regional haze is discussed generally in a broader context in Section 3.9.3, then in the Potential Impacts and Mitigation Section (section 3.9.5), conformance with the California Regional Haze Plan is evaluated and there was a finding of no significant impact since the project would be in conformance with the regional haze plan. CEQA Guidelines state in Section 15125(e) that where a Proposed Project is compared with an adopted plan, the Environmental Setting shall contain an examination of the existing physical conditions as well as potential future conditions discussed in the plan. The DEIR should give a more thorough description of the Regional Haze Plan to provide context for the reader, and inform the impact analysis.

Response to Comment LA9-54

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-55

Note that Section 3.9.1 of the DEIR states that the Area of Analysis includes Siskiyou County as a whole and there are two Class I areas within Siskiyou County as well as two associated IMPROVE monitoring stations (TRIN1 and LABE1). Discussion of the IMPROVE monitoring station data should be included in discussion of the Environmental Setting Section for regional haze. Sources that may be used as a basis for discussion of monitoring include the Western Regional Air Partnership (WRAP) Regional Haze Rule Reasonable Progress Summary Report (WRAP 2013), the California Regional Haze Plan (CARB 2009), and California Regional Haze Plan 2014 Progress Report (CARB 2014). Additionally, visibility trends by year and various summaries of light extinction and haze distributions can also be located on the Federal Land Manager Environmental Database (2019) Website under Air Quality Related Values (AQRV) Summaries, Visibility (Colorado State University 2019). Including this information would inform the analysis and how the Proposed Project could affect haze.

Response to Comment LA9-55

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-56

The Air Quality impact section discusses the justification of using stationary source operational emissions "significance thresholds" to assess impacts from the project's construction emissions. These values are taken from Siskiyou County Air Pollution Control District (SCAPCD) Rule 6.1. This rule applies to the levels of emissions above which stationary sources would be subject to implementation of Best Available Control Technology (BACT) and emission offsets. This rule does not apply to construction emissions, but the DEIR states that use of these values is conservative when used to assess construction impacts and then asserts that if emissions from construction were to exceed these thresholds, "an air quality standard" would be violated and a significant air quality impact would result. This creates several uncertainties regarding the analysis. The analysis should be revised to address the following:

What precisely is the impact of exceeding these thresholds and what is the "air quality standard" that would be violated? Has this been quantified? The SWRCB should explain why the stationary source "thresholds" are used to assess impacts and what exceedance of these thresholds means in terms of impacts, not just that exceedance of these thresholds results in significant impacts without further explanation. CEQA Guidelines state in Section 15064.7 *that "a threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency" and, that thresholds of significance must be adopted by ordinance, resolution, rule, or regulation and be supported by substantial evidence. The "thresholds" used to assess significance in the DEIR document are air permitting thresholds which were not developed for purposes of CEQA's environmental review process, and do not meet the definition of a threshold of significance. In other words, exceeding this air permitting threshold does not necessarily indicate that a project would cause an air quality standard to be violated and conversely, meeting the air permitting threshold does not guarantee compliance with air quality standards. In addition, the current version of the document clearly does not meet the requirements in Section 15126.2 of the CEQA Guidelines that "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects." Since it is unclear to a reader what precisely the impacts are, the DEIR documentation obviously falls short of the requirement to clearly identify and describe the significant effects of the project on the environment.*

The language throughout the document and technical appendix refer to these levels of emissions as "significance thresholds," implying that these values are CEQA significance thresholds developed by the Air District, which is not the case—these are air permitting thresholds. This should be clarified throughout the relevant documentation.

Response to Comment LA9-56
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-57
The impact section needs to specify whether fugitive dust is likely to exceed 40% opacity for a period or periods aggregating more than three minutes in any one hour. If so, the project would be out of compliance with SCAPCD Rule 4.1 and would likely require mitigation of construction emissions to reduce the impact of the construction project to comply with this rule.

Further, it is unclear whether the emissions will (1) cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, (2) endanger the comfort, repose, health or safety of any such persons or the public, (3) cause or have a natural tendency to cause injury or damage to a business or property? If so, the project would be out of compliance with SCAPCD Rule 4.2 and would likely require mitigation of construction emissions to comply with this rule.

Response to Comment LA9-57
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-58
Section 3.9.4 describes the impact analysis approach and indicates that emissions have not been quantified since the 2012 EIR/EIS analysis, despite changes to the project. Despite the assertion that a quantitative assessment was made for the analysis, there was by necessity, some qualitative assessment of the likely similarity of impacts from the originally Proposed Project. The approach itself is not necessarily problematic. However, the fact that there were significant impacts found, there was not originally adequate mitigation proposed, and there are several instances where emission calculation software has been updated since the original analysis was completed, makes the original emission quantifications and the impacts determination invalid for assessing the potential impacts of the project in the context of the current environmental and regulatory setting.

Response to Comment LA9-58
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-59
The determination of significant and unavoidable impacts necessitates a more substantial investigation of potential project emissions and mitigation measures. It appears that impact 3.9-2 discussed in Section 3.9.5 was deemed significant and unavoidable based on violation of a quantitative threshold, but quantification of changes to emission rates were admittedly not completed. Additionally, the original emissions quantifications were done in part using CARB's OFFROAD 2007 software and CAPCOA's CALEEMOD version 2011.1.1. There have been updates to these programs (OFFROAD 2017 and CALEEMOD version 2016.3.2, respectively) which include changes to vehicle emission factors. It is possible that these software updates could substantially change the outcome of the significance determination. This analysis should be performed, or the State Board should explain why it has not performed it. See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments (2017) 3 Cal. 5th 497, 515-516.

Response to Comment LA9-59
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-60
The DEIR states that "the current proposal for the Proposed Project lacks sufficient detail concerning construction activities and it is too speculative to determine whether the mitigation measures proposed in the 2012 KHSA EIS/EIR are feasible and enforceable." Therefore, the analysis assumes that no mitigation

would be implemented. At the very least, mitigation measures should be discussed given the finding of a significant and unavoidable impact, it is reasonable to interpret that the project should implement mitigation measures to comply with California Health and Safety Code §41700 and §41701.

Response to Comment LA9-60
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-61
There are some obvious flaws and invalid assumptions that were noted in Appendix N, which is based on the quantification of emissions from the 2012 analysis. The text of Appendix N, section N.2.1.5 regarding unpaved road dust states that "natural mitigation" from rainfall occurs but this would only be true over the course of an entire year. It is unclear if this was applied to daily emission rates, but it is safe to assume that the answer is yes, since this is included in the methods section and results are only presented in pounds per day. Applying a "natural mitigation" percentage based on annual rainfall information is not appropriate for assessing impacts on a pound-per-day basis which is the basis for the significance determination. The section also claims that "natural mitigation" from rainfall is 76–77%whereas an accurate value would be more like 24 or 23% and, as previously noted, that would only be on an annual basis. Since background documentation and calculations were not available for the purposes of this review, it is difficult to see if there are errors in the calculations and results, or if this is just a misstatement in the text of Appendix N. It would be prudent to redo the analysis based on the new project details and reevaluate some of the faulty assumptions made concerning road dust and verify that the original assumptions in the 2012 analysis are accurate, up-to-date, and appropriate.

Response to Comment LA9-61
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-62
In Section 3.9.2 – the Environmental Setting, Naturally Occurring Asbestos should be discussed in more detail. CEQA Guidelines Section 15125(a) states that the Environmental Setting Section should include a description of the physical environmental conditions in the vicinity of the project, which would include whether any portion of the disturbed area will be located in an area where the provisions of California Air Resources Board Airborne Toxic Control Measure under 17 California Code of Regulations (CCR) 93105 (California Air Resources Board [CARB] 2011) are potentially applicable. This regulation is designed to mitigate emissions of naturally occurring asbestos which may be emitted when the disturbed area contains naturally-occurring asbestos, serpentine, or ultramafic rock. Siskiyou County has several areas where ultramafic rock and

naturally occurring asbestos have been discovered (Van Gosen and Clinkenbeard 2011), so enough information needs to be included in the Environmental Setting to determine if this rule is applicable.

Response to Comment LA9-62
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-63
If the project is found to be subject to the requirements of 17 CCR 93105 and does not obtain an exemption under paragraph (c) 93105, then requirements for road construction and maintenance in paragraph (d) and requirements for construction and grading operations in paragraph (e) apply. These potentially applicable dust control measures are not included as mitigation measures. The DEIR needs to discuss section 93105, including whether an exemption applies, and, if needed, include measures to control fugitive dust emissions from construction activities. This is particularly important because potential impact 3.9-2, discussed in Section 3.9.5 regarding project impacts was determined to be significant and unavoidable due in part to emissions of particulate matter (PM)10 and PM2.5. The CEQA Guidelines clearly state in Section 15126.4(a)(1)(B) that each measure available to mitigate an impact should be discussed and the basis for selecting a particular measure should be identified. Note that, if the requirements of 17 CCR 93105 apply, these mitigation measures would be enforceable as described in Section 15126.4(a)(2) of the CEQA Guidelines.

In Section 3.9.2.2 of the Environmental Setting regarding Criteria Air Pollutants, National Ambient Air Quality Standards (NAAQSs) are mentioned, but California Ambient Air Quality Standards (CAAQS), which are more stringent for certain pollutants, are not discussed. CAAQS should be added to the discussion.

Response to Comment LA9-63
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment LA9-64
Section 3.10.4 describes the impact analysis approach and indicates that emissions have not been quantified since the 2012 EIR/EIS analysis, despite changes to the Proposed Project. The State Board should either perform a new analysis to quantify emissions or explain why it has not performed such an analysis. See Cleveland Nat'l Forest Found. v. San Diego Assn. of Governments (2017) 3 Cal. 5th 497, 515-516. Furthermore, in addition to the deficiencies in the GHG emission quantification methodologies discussed above, it seems strange that only the direct construction emissions are assessed based on a quantitative threshold, but the ongoing indirect impacts are only assessed qualitatively. It would be more appropriate to use the 10,000 MT threshold of significance to evaluate the indirect impacts since those are likely to occur over a

longer timescale. The 10,000 MT CO2e threshold was developed to assess operational impacts (ongoing sources of emissions) so use of this threshold is more conducive to evaluate the lasting impacts of non-renewable power generation than construction emissions. Typically, construction emissions are amortized over the life of the project in order to assess impacts, or some other qualitative means of assessment are used.

Additionally, the original emissions quantifications were done in part using CARB's OFFROAD 2007 software and CAPCOA's CALEEMOD version 2011.1.1. There have been updates to these programs (OFFROAD 2017 and CALEEMOD version 2016.3.2, respectively) which include changes to vehicle emission factors. It is possible that these software updates could impact the significance determination since impacts for these emission sources are being assessed quantitatively in the DEIR.

It would be prudent to redo the analysis based on the new project details and make a good-faith effort to quantify all direct and indirect emissions of GHGs resulting from the project in accordance with the CEQA Guidelines.

Response to Comment LA9-64

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment LA9-65

The impact being evaluated is whether the GHG emissions from the project, direct or indirect, would exceed 10,000 MT CO2e. Yet, this question is simply not answered with respect to indirect emissions. Instead, on page 3-727 the replacement of the hydroelectric energy is discussed, and it is stated that 65 MW of electricity, 52% of the Lower Klamath electricity production, would be replaced with electricity generated from a resource mix which would be majority non-renewable. It is then stated that over the next 20 years this would be offset by PacifiCorp (which provides power to multiple states) increasing the renewable source electricity generation. Though it is true that generally, PacifiCorp will be replacing non-renewable sources with renewable sources in coming years, this is not an impact of the Proposed Project. Therefore, it is inappropriate to frame the impacts assessment of the Proposed Project within the context of PacifiCorp's long term, broad goals, which have no bearing on the impacts of this individual project. The fact is that the Proposed Project will likely result in 65 MW of 100% renewable energy being replaced with 65 MW of some mixture of non-renewable and renewable energy and the impacts of this must be assessed based on likely power generation portfolios over the short and long term.

PacifiCorp's Integrated Resource Plan is cited in the DEIR and therefore, it follows that a good faith effort could be made to determine what mixture of resources would be representative for the replacement of the hydroelectric power *generation (or reasonable assumptions could also be made based on the Renewable Portfolio Standard goals) over the short and long term. To adequately convey the impacts of this project to the public, an attempt to quantify the increase in GHG emissions from non-renewable sources that would be required to replace the 100% renewable energy source of the dams must be made.*

Response to Comment LA9-65

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

<u>Comment LA9-66</u>

In the Impacts Analysis Approach Section 3.10.4, it is specified that there were "minor" changes between the 2012 EIS/EIR analysis and the Proposed Project, primarily due to timing. However, there are no statements specifying whether the emissions of greenhouse gases will increase, decrease, or stay the same. This analysis should be added.

Response to Comment LA9-66

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

<u>Comment LA9-67</u>

In Section 3.10.4, page 3-722, it is stated that "It is likely that sulfur hexafluoride (SF6) would be released during deconstruction because the circuit breakers from the power facilities would be emptied. Although SF6 has a relatively high GWP, sufficient data was not available at the time of this writing to quantify emissions".

Not only does SF6 have a "relatively high GWP", it has the highest global warming potential (GWP) of any compound quantified by human-kind. SF6 has a lifetime of 3,200 years in the atmosphere (Blackman, Averyt, and Taylor 2016), and a GWP of 23,500 over a 100-year time horizon (IPCC 2014). Based on this GWP value, just one pound of SF6 released is equivalent to over 10.7 metric tons of carbon dioxide equivalent (CO2e). Therefore, a good-faith effort must be made to quantify these emissions particularly since charge sizes for gas insulated switchgear equipment rated 50 kV or more can range from hundreds to thousands of kg per installation, and low voltage switches contain 1-2 kg per installation (IPCC 1997) depending on the model year. In addition to the 9,455 MT CO2e already quantified, the emissions from SF6, depending on the type and quantity of circuit breakers, could easily be exceeded. There is no information provided on the type of equipment in Appendix O or DEIR section 3.10.4.

Response to Comment LA9-67

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment LA9-68

One source of emissions mentioned was that currently sequestered organic carbon would be released when sediments including biological material are released from their current anoxic environment upon the commencement of the Proposed Project activities. This was mentioned in the environmental setting, but never mentioned again and the magnitude of emissions were not described or quantified. It should be. Additionally, changes in vegetation associated with construction activities, revegetation efforts, and changes in recreational area extents and locations were not assessed with respect to climate impacts. The impacts due to net vegetation changes and associated changes to carbon sequestration should be described or quantified as deemed appropriate based on a good-faith effort.

Response to Comment LA9-68

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment LA9-69

Sediment transport modeling was performed from 2002 survey data (USBR 2012), and the volume of sediment transport is assumed to be explicit of sediment volume, as it relies on the rate of drawdown dictated by the hydrology (dry/normal/wet). The volume and spatial extent of sediment transported for the project is based on the USBR 2012 model results. The DEIR proposes to perform sediment jetting to maximize erosion of reservoir deposits; anticipated to mobilize an additional 13–41% of the sediment volume expected to erode during dam removal (DEIR Table 3.2-12). Although the estimated volume (USBR 2012) is predicted through year 2020 based on sediment trapping/sampling for accumulated sediments between the time of survey and proposed actions, inputs from sediment jetting are not considered in the model. The spatial and temporal extents in the USBR 2012 may not adequately describe the additional input of fine sediment.

Response to Comment LA9-69

Comment noted. For information on sediment transport modeling and associated sensitivity and uncertainty, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and revisions to this section in Volume III Attachment 1, as well as to Master Response GEO-1, and response to comment ORG46-8. Sediment volumes presented in the EIR are sourced from USBR (2012a) model results. Lower Klamath Project reservoir sediment cores collected in 2006 (Shannon & Wilson, Inc. 2006) and 2009 and 2010 (USBR 2011), and used to estimate reservoir sediment thickness and volumes, are described in Section 5.6.1.2 of USBR (2012a, pages 5-18 to 5-28). Additionally, development of the hydraulic model is described in detail in Section 4.1 of USBR (2012a, pages 4-1 to 4-7), including use of 2001 and 2009 bathymetric survey data and 2010 Light Detection and Ranging (LiDAR) data.

With respect to the potential for additional mobilization of sediment due to the proposed sediment jetting during reservoir drawdown, please refer to response to comment ORG46-132. As stated in ORG46-132, Section 3.2.5.2 *Water Quality Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 – Table 3.2-12 summarizes the range of reservoir sediment volume estimated to be potentially transported by sediment jetting during drawdown and compares this sediment volume with the USBR (2012a) sediment transport model estimate of the potential range of total 2020 sediment volume anticipated to erode under dam removal without sediment jetting. The maximum and minimum sediment volume transported by sediment jetting is based on maximum and minimum potential sediment depths measured in the areas where sediment jetting would occur. Sediment is anticipated to erode from these reservoir areas under drawdown without sediment jetting (UBSR 2012), so sediment jetting would primarily transport reservoir sediments that are already anticipated to be eroded during drawdown; the maximum and minimum sediment volume estimated to be transported by sediment jetting during drawdown in Table 3.2-12 is not in addition to the sediment volume estimated to be transported by drawdown alone. The column in Table 3.2-12 titled "Percentage of 2020 Sediment Volume Transported by Sediment Jetting (%)" presents the amount of sediment that would be potentially mobilized via sediment jetting as a fraction of the total reservoir sediment deposits anticipated to be eroded. While sediment jetting would primarily transport reservoir sediments that are already anticipated to be eroded during drawdown, some additional reservoir sediments may be transported by the combination of drawdown and sediment jetting flows compared to only drawdown flows. Potential increases in the total reservoir sediment estimated to erode under the Proposed Project due to the combination of reservoir drawdown and sediment jetting flows would likely be small compared to the total reservoir sediment volume estimated to erode due to drawdown alone by USBR (2012a). As such, the assessment in Potential Impact 3.11-5 in Volume 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* (pages 3-765 to 3-775), and modified in Volume III Attachment 1, is accurate. The analysis in Potential Impact 3.11-5 is consistent with both USBR (2012a) and Section 3.2 *Water Quality*. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment LA9-70

The DEIR acknowledges fine sedimentation as a short-term impact to aquatic resources, anticipating impacts to occur within the first year following the proposed drawdown and dam decommissioning. The DEIR proposes to release *flows up to the 10-year recurrence interval flood. Flows of this magnitude are likely to deposit fine sediment at diversion head gates, tributaries, in side channels, and overbank floodplain habitats, potentially causing vertical and oblique accretion of the floodplain and point bars. Vertical accretion has potential to raise the elevation of backwater habitats causing for a higher flow to reactivate them. Oblique accretion has potential to enlarge point bars. Vertical accretion may occur at the floodplain fringe where low velocities and backwater areas exist. The DEIR proposes to survey the river bed downstream of Iron Gate to Humbug Creek, and adaptively manage aggradation and tributary barriers by mechanical removal outside of the main channel. The reach between Iron Gate and Humbug Creek is within a narrow and confined valley, the reach exhibits long riffle-runs and deep pools in a canyon section with little to no floodplain that would accrete fine sediments. Reaches downstream of Humbug Creek are in a much less confined valley and the morphology of the channel is an alluvial meandering channel dominated by riffle-pools, point bars, and an active floodplain. The upstream canyon reach has a higher transport capacity and fine sediment is anticipated to transport out of this reach to downstream reaches. The DEIR does not describe the potential short-term impacts to stream morphology of the lower reaches of the Klamath River. The downstream reaches are more sensitive to changes in sediment loading and flow, and have higher potential for vertical, lateral and oblique accretion of fine sediments. Accretion of sediments may cause short-term impacts to stream morphology, which could potentially lead to long-term impacts. For example, oblique accretion of lateral bars downstream of the Humbug Creek Confluence, has potential to adversely direct the lower stage flows towards the opposite bank, and repositioning of the thalweg. During successional high seasonal flow periods, the channel may take this new thalweg position and exacerbate the erosional forces along the opposite bank. Lateral accretion may also exacerbate the situation, as excessive deposition of fine sediment deposits near the floodplain fridge could grow in with vegetation. Impacts to stream morphology associated with fine sediment accretion downstream of Humbug Creek are recommended to be evaluated and adaptively managed. The downstream reaches have an active floodplain, where excessive fine sediment would deposit onto the floodplain and channel bars and have potential to cause impacts to stream morphology.*

The reservoir drawdown analysis should be revisited to justify the specified rate of 2 feet to no greater than 5 feet per day for the drawdown. A slower drawdown would likely decrease the episodic nature of the reservoir sediment erosion, pending further analyses on the sediment slope stability Landslides may be promoted by the drawdown by virtue of the ground water levels within adjacent hillside being out of equilibrium with the lower hydraulic heads produced during the reservoir lowering. The elevated pore pressures produced by the negative stress of the proposed rapid drawdown will create a lower coefficient of internal friction within the soil/sediment, which will enhance the potential for slope failure within the reservoir sediment and adjacent hillside.

Response to Comment LA9-70

Regarding fine sediment erosion, transport, and deposition, as well as potential stream morphological change, please refer to Master Response GEO-1. For potential related impacts to aquatic resources, please refer to Master Responses AQF-7 and AQF-10. In the reaches where significant sediment deposition is most likely to occur (Bogus Creek to Cottonwood Creek), vertical and/or oblique accretion of channel bars may occur, resulting in changes to channel morphology. The potential for morphological change associated with sediment deposition in this reach is disclosed in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* – Potential Impact 3.11-5 as *significant and unavoidable*. Please refer to Volume III Attachment 1 for the final Potential Impact 3.11-5. Downstream of Cottonwood Creek, the potential for impacts due to spatially discrete fine sediment deposition, including accretion of bars, would not be significant because the predicted sedimentation is sufficiently small and any sedimentation that does occur would be expected to mobilize during subsequent flood events.

Please refer to Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* (pages 2-54 to 2-60), as well as to Volume II Appendix B: *Definite Plan*, for explanations of reservoir drawdown periods and rates. Please also refer to Section 3.2.4.2 *Water Quality – Impact Analysis and Approach – Suspended Sediments* for a discussion of the reservoir drawdown rate in relation to sediment discharge and to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Faster reservoir drawdown would reduce the period of elevated sediment load and the duration of elevated suspended sediment concentrations (SSCs) in the Klamath River during and following dam removal. A slower drawdown rate is unlikely to decrease the episodic nature of sediment erosion, as the comment suggests, because there will be episodic sedimentation at any of the identified rates (2-5 feet per day) and the nature of sediment erosion, transfer, and deposition would be more dependent on the water year type than the rate of drawdown.

Regarding potential hillslope instability, including landslides, please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* – Potential Impact 3.11-3, as well as to Master Response GEO-2.

Comment LA9-71

Potential Impact 3.11.3 notes that reservoir drawdown could result in hillslope instability in reservoir rim area. The geologic assessment and slope stability analysis conducted by KRRC indicated that certain segments along the Copco No. 1 Reservoir rim have a potential for slope failure that could impact existing roads and/or private property. These areas included 3700 linear feet of slopes along Copco Road and approximately 2800 linear feet of slope adjacent to private property. Up to eight parcels in these areas have existing habitable structures that could potentially be impacted. However, KRRC has only *proposed to complete additional field geologic investigation and laboratory testing of material properties to better understand the potential for slope instability in these areas. A future study is not adequate to define the impact and associated mitigation that would be necessary for the project.*

Response to Comment LA9-71

Please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 (pages 3-761 to 3-765) and modifications to this impact in Volume III Attachment 1, and to Master Response GEO-2, relating to hillslope stability around the reservoirs during drawdown. In the Draft EIR, Mitigation Measure GEO-1 was not limited to investigations and testing and included monitoring and mitigation for slope failure. Since the Draft EIR, Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 Mitigation Measure GEO-1 has been updated. Revised Mitigation Measure GEO-1 includes monitoring and mitigation for slope failure. The mitigation covers any slope failure related to Project activities that adversely impacts a structure or public facility, or impacts or has a material potential to impact water quality or volitional fish passage. The Klamath River Renewal Corporation (KRRC) will fund or implement actions listed in Mitigation Measure GEO-1, including structure repair, relocation, or purchase; road repair and/ or re-alignment; engineering of structural slope improvements; and revegetation of affected areas to the extent feasible and appropriate. The monitoring and mitigation for Project-related slope failures specified in final Mitigation Measure GEO-1 (see paragraphs 2 and 3) are required regardless of the outcome of potential future studies. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 Mitigation Measure GEO-1 for the revisions.

Comment LA9-72

As a result Mitigation Measure GEO-1 Slope Stabilization was recommended, which consists of the following (from Page 3-765): "For any large slope failure that occurs during drawdown or the year following drawdown, KRRC will offset potential impacts by implementing the following actions: 1.Move affected structures or purchase affected property, 2.Re-align affected road segments, 3.Engineer structural slope improvements (e.g., drilled shafts or other structural elements that could be installed to resist slope movement), and 4.Revegetate affected areas. The monitoring period of "only during drawdown or the year following" for potential mass-wasting impacts is not adequate. The potential for landslides will continue beyond that time, until potential stabilization by natural vegetative growth will require longer period of time. Depending on climate and weather events, the period could be extended to five (5) years after the drawdown. The planned monitoring period should be extended, that the slopes at risk in other reservoirs be monitored, and that the engineering solutions could be more aggressive.

Response to Comment LA9-72

Please refer to Master Response GEO-2, relating to slope stabilization and the period of monitoring and mitigation for potentially unstable slopes surrounding Copco No. 1 Reservoir.

Comment LA9-73

The DEIR cultural resources section relies upon records searches conducted as part of the Klamath Hydroelectric Project Relicensing (FERC 2007) and 2012 EIR/EIS studies (PacifiCorp 2004 and Cardno Entrix 2012), with an updated records search in 2017 by KRRC which included the study area from the Oregon-California state line downstream to Humbug Creek. In addition, KRRC conducted a heritage search at the Klamath National Forest in 2017. However, the DEIR does not indicate whether archaeological surveys have been conducted as part of this project to identify resources within the Area of Analysis which may not be previously recorded. In section 3.12.2.3, the DEIR states "The majority of the past surveys involve pedestrian field survey and cultural resources monitoring. Overall, an estimated 8,189 acres of federal, state, and/or private lands have been previously surveyed within the records search area and except for some proposed disposal sites, encompasses the current boundaries of the Proposed Project." This language is not clear on the extent to which the study area has been subject to intensive pedestrian survey or how recently those surveys were conducted. Generally accepted professional practice is that areas that have not been surveyed within the past 5-10 years should be resurveyed to ensure adequate identification efforts. Site records should be updated to record current conditions and integrity of previously recorded resources. Changes in environmental conditions over time can lead to changes in visibility allowing for the identification of resources; the same environmental factors can change the condition and integrity of known cultural resources as well. The Cultural Resources Plan (attached to the Definite Plan but not to the DEIR) suggests that a survey was conducted in 2004; such survey is now 15 years old and should be updated. The DEIR should be revised to include detailed information on the timing, coverage, and results of the pedestrian survey to identify archaeological resources.

Response to Comment LA9-73

Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project* has been revised to clarify complete versus incomplete inventory efforts.

Additionally, although previously stated in various locations throughout the EIR, the introductory text of Section 3.12 *Historical Resources and Tribal Cultural Resources* has been clarified to acknowledge that not all of the cultural resources inventories and evaluations required pursuant to section 106 of the National Historic Preservation Act (NHPA) will be completed prior to certification of the Final EIR.

The decision regarding whether to update surveys would be made during pre-survey record searches and outreach with local tribes. Mitigation Measure TCR-1 states that the Tribal Cultural Resources Management Plan (TCRMP) shall include an inventory of known and potential Tribal Cultural Resources (TCRs) that could be affected by the Project. Appendix B: *Definite Plan – Appendix L* includes a preliminary inventory of such resources. Klamath River Renewal Corporation (KRRC) will continue to develop the inventory through the consultation process for the license surrender application.

Please refer to Volume III Attachment 1 Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project* for the revisions.

Comment LA9-74

The DEIR discussed KRRC's updated records search at the Northeast Information Center of the California Historical Resources Information System (CHRIS) which was conducted in 2017. This 2017 updated records search included the study area from the Oregon-California state line downstream to Humbug Creek. Appendix L of the Definite Plan indicates that an expanded records search was conducted in 2018 for an area encompassing a 0.5-mile wide zone on either side of the Klamath River from below Humbug Creek to the mouth of the river at the Pacific Ocean. Appendix L of the Definite Plan indicates that the results of that 2018 expanded records search would be incorporated into future reports. If downstream cultural resources in that zone have the potential to be affected by the Proposed Project, then those records search results should be incorporated into the DEIR and that area should be considered part of the Area of Analysis for the DEIR. Some of those records would be on file with the Northwest Information Center at Sonoma State University which houses records for Del Norte and Humboldt Counties. Consideration of potential project impacts to downstream historical resources and tribal cultural resources is critical.

Response to Comment LA9-74

Volume I Section 3.12.1 *Historical Resources and Tribal Cultural Resources – Area of Analysis* does consider the area 0.5 miles on either side of the river from downstream of Humbug Creek to the mouth of the Klamath River. Please refer to Figure 3.12-5, which defines Subarea 4. Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* has been revised to clarify the area's consideration in the analysis of Potential Impact 3.12-3. Please refer to Volume III Attachment 1 Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* for the revisions. Notwithstanding the 2018 expanded records search, the determination that drawdown and dam removal are unlikely to increase erosion or flood-related risk of damage to cultural resources downstream from Humbug Creek remains unchanged.

Comment LA9-75

The document does not include any discussion of whether resources might qualify as "unique archaeological resource" under PRC § 21083.2. It should be revised to do so. It only mentions archaeological resources as California Register of Historical Resources (CRHR)-eligible historical resources or as tribal cultural resources.

Response to Comment LA9-75

The introductory text of Section 3.12 *Historical Resources and Tribal Cultural Resources;* Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project*; and Section 3.12.3 *Historical Resources and Tribal Cultural Resources – Significance Criteria* have been revised to address unique archaeological resources. These revisions clarify that for the purposes of this analysis, all known and unknown prehistoric archaeological sites in the Proposed Project area, including those that may meet the criteria for unique archaeological resources, are considered Tribal Cultural Resources (TCRs). Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* for the revisions.

Comment LA9-76

In the section labeled "Historical Landscape Analysis" on page 3-813, it is not clear whether a historical landscape has been identified which warrants consideration as a historical resource under CEQA. The DEIR needs to be clear if the project area is considered a historical landscape, which should then potentially be considered as a historical resource under CEQA.

Response to Comment LA9-76

The Historical Landscape Analysis has been completed and no Historical Landscapes have been defined in the project area. The EIR has been clarified by including a statement regarding the results of the historical landscape analysis. Please find the revision in Volume III Attachment 1 Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project.* This revision does not constitute significant new information (CEQA Guidelines Section 15088.5(a)).

Comment LA9-77

Table 3.5-3 in Appendix W lists previously recorded archaeological sites and built environment resources and indicates their National Register of Historic Places (NRHP) eligibility status. Under CEQA, resources that are eligible for listing in the CRHR are also historical resources for which impacts must be analyzed. The DEIR needs to describe whether there are resources which are CRHR eligible or eligible for local listing but not NRHP eligible (also known as "CEQA only" resources). If so, these would not be addressed in the Historic Properties Management Plan (HPMP) under development by KRRC for FERC to comply *with Section 106 (because such resources would not be historic properties under Section 106). The DEIR does not identify such resources or address mitigation of impacts related to those resources.*

Response to Comment LA9-77

The introductory text in Section 3.12 *Historical Resources and Tribal Cultural Resources* has been revised to clarify that (1) for the purposes of the EIR analysis, all known and unknown built environment and historic archaeological resources are assumed to be significant historical resources under CEQA and (2) some of these resources may not be National Register of Historic Places (NRHP)-eligible. Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* for these revisions. Please note that some historical resources may not be identified on Table 3.5-3 in Volume II Appendix W, which addresses only NRHP-eligible resources. As stated in Section 3.12.5.2 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Built Environment and Historic-period archaeological Resources*, the Klamath River Renewal Corporation (KRRC) has initiated a process through the Cultural Resources Working Group and Federal Energy Regulatory Commission (FERC) to develop and implement a Historic Properties Management Plan (HPMP) and a Programmatic Agreement. KRRC has committed to including protection of both National and California-eligible cultural resources (i.e., historic properties and historical resources) in the Historic Properties Management Plan (KRRC 2019a). At this time, however, the Historic Properties Management Plan and the Programmatic Agreement are not finalized and the State Water Board cannot require their implementation. In addition, the EIR analysis concludes that even with inclusion of the KRRC's proposed protection measures, some impacts to historical resources would be significant and unavoidable.

Comment LA9-78

Mitigation Measures TCR-1 through TCR-3 refer to development of an HPMP which will include a Tribal Cultural Resources Management Plan (TCRMP), a Looting and Vandalism Prevention Program (LVPP), and an Inadvertent Discovery Plan (IDP). However, as disclosed under discussion of Impact 3.12.5.2, FERC and KRRC are initiating the development of these plans under the Section 106 process and "the State Water Board cannot require their implementation." It's not acceptable to defer mitigation during future consultation processes under CEQA (CEQA Guidelines Section 15126.4(a)(1)(B)). Mitigation measures, and their effect on the impacts of the project, should be clearly stated in the DEIR for consideration by stakeholders, the public, Native American Tribes, and others.

Response to Comment LA9-78

Please refer to Master Response CEQ-2 and ORG46-302.

The State Water Board developed tribal cultural resources mitigation measures in formal Assembly Bill 52 (AB 52) government-to-government consultation with Native American Tribes that have tribal cultural resources which could be impacted by the Proposed Project. To ensure implementation of the mitigation measures, the Klamath River Renewal Corporation (KRRC) was included in AB 52 consultations for development of tribal cultural resources mitigation measures. On October 17, 2018 and November 30, 2018 the KRRC confirmed their agreement with the mitigation measures, thus ensuring feasibility for implementation under CEQA.

Please note that although Section 106 requirements are not required to extend to non-federally recognized Native American Tribes, CEQA does not require that Tribal Cultural Resource (TCR) impacts be dependent on a Native American Tribe's federal recognition status as such, and TCR mitigation measures identified in the EIR apply to both federal and non-federally recognized tribes. Efforts currently occurring in the Section 106 process are separate and complementary to the TCR mitigation measures developed and committed to by the KRRC.

Mitigation Measures TCR-1, TCR-2, and TCR-3, which require development and implementation of a Historic Properties Management Plan (HPMP) that includes a Tribal Cultural Resources Management Plan (TCRMP), a Looting and Vandalism Prevention Program (LVPP), and an Inadvertent Discovery Plan (IDP), respectively, do not improperly defer formulation of mitigation measures. For this project, formulation of the precise means of mitigating project impacts to all potentially affected historic and cultural resources before the EIR is certified is infeasible and impractical for a number of reasons, including the nature and magnitude of the project, the quantity of cultural resources that could be impacted, the current inaccessibility of many of those resources, and the need for the State Water Board to issue or deny water quality certification for the project within the statutory time limit.

Numerous surveys and studies have been conducted, compiled, and evaluated, and the State Water Board has engaged in an extensive and productive consultation process with affected Native American tribes pursuant to AB 52, which resulted in the development of detailed mitigation measures. The consultation process pursuant to section 106 of the National Historic Preservation Act is ongoing, and may result in additional cultural resource surveys and evaluations. In particular, the KRRC has agreed to conduct intensive surveys to identify Tribal Cultural Resources (TCRs), archaeological, and other historical resources following reservoir drawdown, and to conduct a data gap analysis to ensure that all of the areas within the limits of work are surveyed to the extent feasible. The KRRC has committed to develop and implement a HPMP for protection of both federally and California-eligible historical properties (KRRC 2019a). The additional information developed through the section 106 consultation process will be incorporated into the HPMP and TCRMP.

Under CEQA, deferral of the specifics of mitigation is permissible where a commitment exists to implement the mitigation, specific performance standards are identified, and the types of actions that will be considered and potentially incorporated into a mitigation plan are identified. (*Sacramento Old City Assn. v. City Council* (1991) 229 Cal.App.3d 1011, 1028-1030; Cal. Code Regs., tit. 14, § 15126.4, subd. (a)(1)(B).) Those requirements are satisfied here. First, the KRRC has committed to implementing Mitigation Measures TCR-1, TCR-2, and TCR-3. The TCRMP (which will include the LVPP and IDP) will be developed in consultation with affected tribes and submitted to Federal Energy Regulatory Commission (FERC) as part of the HPMP for approval.

Specific performance standards for the mitigation of significant impacts to historic and cultural resources are established by applicable federal and state laws and guidelines, which are identified in the EIR and Appendix L to the Definite Plan. These include Public Resources Code section 21084.3, section 106 of the National Historic Preservation Act, the Advisory Council on Historic Preservation's Section 106 Archaeology Guidance, and the Native American Graves Protection and Repatriation Act. The purpose of the HPMP, TCRMP, LVPP, and IDP is to ensure that potential significant impacts to historic and cultural resources are mitigated in accordance with those legal standards.

The types of actions that will be considered and potentially incorporated into the TCRMP, LVPP, and IDP are identified in TCR-1, TCR-2, and TCR-3. Those mitigation measures list the elements that must be included in the respective plans, and identify specific measures that must be implemented or considered, including field worker training, limits to worker and public access, tribal monitors, and surveys. The plans must identify protocols and best practices to be followed upon discovery or disturbance of TCR's during project implementation. Consistent with Public Resources Code section 21084.3, subdivision (a) and as specified in section 8.3.2 of Appendix L to the Definite Plan, avoidance and preservation in place will be the preferred treatment method for historic properties and TCR's.

The parameters summarized above support the conclusion that TCR-1, TCR-2, and TCR-3 do not improperly defer the formulation of mitigation measures, and would reduce or avoid potential impacts to many TCR's, although the potential for some significant impacts would remain, for the reasons explained in Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources*. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Comment LA9-79

The impacts analysis considers impacts to tribal cultural resources, built environment historical resources, and historic-period archaeological resources. There is no discussion relevant to prehistoric archaeological sites which may be CRHR eligible (and therefore historical resources under CEQA) but which may not qualify as tribal cultural resources. The DEIR should be revised to include this discussion. Not all prehistoric sites are Tribal Cultural Resources (TCRs).

Response to Comment LA9-79

The introductory text of Section 3.12 *Historical Resources and Tribal Cultural Resources* and Section 3.12.4 *Historical Resources and Tribal Cultural Resources – Impact Analysis Approach* has been revised to clarify that with the exception of isolated occurrences of cultural material, all known and unknown prehistoric archaeological sites within the Project area are considered to be tribal cultural resources for purposes of the EIR analysis. Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* and Section 3.12.4 *Historical Resources and Tribal Cultural Resources – Impact Analysis Approach* for the revisions.

Potential impacts to Tribal Cultural Resources (TCRs) are analyzed in Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources*. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

Comment LA9-80

There is no mitigation measure that outlines what the HPMP will include. It is referenced somewhat under MM TCR-1, but it should be described in greater detail in an MM of its own and should be referenced under Potential Impacts 3.12-13, 3.12-14, 3.12-15, and 3.12-16 (as well as others). For example, it is not clear whether pre-construction data recovery would be implemented for eligible historic archaeological sites that cannot be avoided by the project. Under CEQA, avoidance and preservation in place are the preferred forms of mitigation for archaeological sites. When avoidance is infeasible, a data recovery plan should be prepared to provide for the systematic recovery of scientifically consequential information from the site (CEQA Guidelines, Section 15126.4). There is no mention of data recovery in the entire DEIR document.

Response to Comment LA9-80

As described in Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources*, Mitigation Measure TCR-1 requires Klamath River Renewal Corporation (KRRC) to develop a Historic Properties Management Plan (HPMP); KRRC would also propose the HPMP for Federal Energy Regulatory Commission's (FERC's) approval as a term of the license surrender order. Per Mitigation Measure TCR-1, the HPMP must contain a Tribal Cultural Resources

Management Program (TCRMP) that addresses how the Project will avoid, minimize, or mitigate adverse impacts to Tribal Cultural Resources (TCRs), consistent with California Public Resources Code section 21084.3(a). The mitigation measure specifies that in developing the HPMP, the KRRC will consider measures listed in California Public Resources Code Section 21084.3(b) that, if feasible, may be appropriate to avoid, minimize, or mitigate adverse impacts. The required content of the HPMP is also specified in Volume II Section 8.3 of Appendix L – *Cultural Resources Plan* to Appendix B of the Definite Plan, including mitigation measures. In regards to data recovery Volume II Appendix L Section 8.3.2; page 62 of the *Cultural Resources Plan* identifies data recovery as a potential mitigation measure when impacts cannot be avoided, as follows: *For effects to archaeological sites that will be mitigated through data recovery, mitigation protocols will include but not be limited to a research design that articulates research questions; data needed to address research questions; methods to be employed to collect data; laboratory methods employed to examine collected materials; and proposed disposition and curation of collected materials and records*.

Comment LA9-81

Under Potential Impact 3.12-11, the DEIR discusses impacts to Copco No. 1 Dam, Copco No. 2 Dam, Iron Gate Dam, and their associated hydroelectric facilities, as well as the Klamath River Hydroelectric Project District as a whole. No mitigation measures are listed relative to this impact in Section 3.12.5.2 or in Table ES-1. The text of the impact discussion mentions that restoration, adaptive re-use, and relocation are all not feasible. It references "inclusion of documentation measures in conformance with the Secretary of the Interior's guidance" but does not specify what this would entail. The text references "KRRC's proposed mitigation measure" but no MM for this impact is included. Typical mitigation for demolition of an eligible resource includes documentation according to Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER) standards. While such documentation typically does not reduce impacts to less than significant, additional MM can also be crafted. In fact, CEQA requires that all feasible mitigation be undertaken even if it does not mitigate below a level of significance. Such measures might include preparation of interpretive signage, development of public school curriculum related to the historic themes specific to the resource in question, preparation of a historic context document for the county or region in question or related to historic themes specific to the resource, preparation or funding of museum exhibits, or other appropriate strategies.

Response to Comment LA9-81

Please refer to Master Response CEQ-2 for a discussion of federal preemption. Please note that the referenced section discusses measures including documentation that the KRRC has proposed, including documentation. Please refer to Volume III Attachment I for the final version of Section 3.12.5.2 –

Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to the Build Environment Potential Impact 3.12-11.

Comment LA9-82

Potential Impact 3.8-2 in the Water Supply/Water Rights section describes the potential for less water to be available to users (including for irrigation of agricultural lands) as a result of the Proposed Project, as some Klamath Irrigation Project deliveries are made to California users. These same users turn to groundwater pumping when there are surface water shortages; however, there are ground water management plans that must be implemented by 2022 and may adjust sustainable pumping levels. Some farms may not be able to afford, or have the ability, to pump groundwater during dry years, which could result in the indirect conversion of Farmland to a non-agricultural use.

Response to Comment LA9-82

As explained in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-1 (pages 3-676 to 3-679) and Potential Impact 3.8-2 (pages 3-679 to 3-680), water deliveries to farmers that rely upon the United States Bureau of Reclamation's (USBR's) Klamath Irrigation Project are not sourced from the Lower Klamath Project reservoirs. The USBR is required to release water from the Klamath Irrigation Project into the Klamath River upstream of Keno Dam to comply with the flow requirements in the applicable National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) biological opinion(s). The Proposed Project does not include any changes to the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s). Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* summarizes how the applicable biological opinion(s) have changed separately and independently of the Proposed Project from the NMFS and United States Geological Survey (USGS) Joint 2013 Biological Opinion (2013 BiOp) that was the applicable biological opinion at the time of the Notice of Preparation (NOP) for the Lower Klamath Project (i.e., December 22, 2016) to the biological opinions issued by NMFS and USFWS in March 2019 (2019 BiOps) after the Lower Klamath Project Draft EIR had been issued on December 28, 2018. Please refer to Volume III Attachment 1 for the final Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*.

As discussed in Volume I Section 3.8.5 –*Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-2 (pages 3-679 to 3-680), twice in recent years, PacifiCorp has agreed to operate its hydropower projects in a manner that supported increased irrigation deliveries to the Klamath Irrigation Project and assist USBR in meeting requirements of the 2013 BiOp (i.e., the applicable biological opinion at that time). This water was subsequently replaced by the Klamath Irrigation Project. The agreement by PacifiCorp to adjust its operations was not a legal requirement. If PacifiCorp had not released the flows from Iron Gate and Copco No. 1 reservoirs in those years, then USBR would have released flows at Keno Dam and the water would have traveled downstream, regardless.

The Proposed Project would preclude the potential option (not requirement) of utilizing the Lower Klamath Project reservoir water supply to help the USBR meet the applicable biological opinion(s) flow requirements and thereby extend the available water supply to the USBR Klamath Irrigation Project. However, there would be no legal injury to the Klamath Irrigation Project users because the Lower Klamath Project operators are not required to temporarily supplement water deliveries, per the 2013 BiOp that was the applicable biological opinion when the Notice of Preparation for the Lower Klamath Project was issued on December 22, 2016, or per the currently applicable 2019 BiOp. USBR is still required to release water from the Klamath Irrigation Project into the Klamath River upstream of Keno Dam to comply with the flow requirements in the currently applicable biological opinion(s) (i.e., 2019 BiOp). Additionally, there is no indication that water would not be available for public health purposes, absent supplementation of Klamath Irrigation Project available water.

As discussed in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-2 (pages 3-679 to 3-680), the Tulelake Basin is designated a medium priority basin under the Sustainable Groundwater Management Act (SGMA), in part because of declining groundwater levels and high-volume groundwater extractions, which have been occurring despite the Lower Klamath Project being operational. It can be expected that there will be some adjustment by basin farmers as they comply with future sustainable groundwater extraction requirements, which they would need to do regardless of whether the Lower Klamath Project was in place. The need to comply with future sustainable groundwater extraction requirements may result in indirect conversion of farmland to a non-agricultural use, similar to what could be experienced in other groundwater basins throughout the State. However, this is not a consequence of the Lower Klamath Project. As stated above, there is no legal requirement for the Lower Klamath Project operators to temporarily supplement water deliveries to Klamath Irrigation Project farmers and the USBR. There is no indication that such an optional supply is or should be used as a future planning tool by the USBR or farmers.

Comment LA9-83

As provided in Section 3.11.5 on page 3-762 of the Geology, Soils, and Mineral Resources section of the DEIR and described in Appendix B: Definite Plan, the geologic assessment and slope stability analysis conducted by KRRC indicated that certain segments along the Copco No. 1 Reservoir rim have a potential for slope failure that could impact existing roads and/or private property. These areas include approximately 3,700 linear feet of slopes along Copco Road and approximately 2,800 linear feet of slope adjacent to private property. Up to eight parcels in these areas have existing habitable structures that could potentially be *impacted. The Population and Housing section of the DEIR neglects to consider potential impacts to these residences.*

Response to Comment LA9-83
Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3, including Mitigation Measure GEO-1, has been revised following review of public comments and revisions to Volume II Appendix B: *Definite Plan* – Appendix E. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 for the revisions. Note that Section 3.11.3 *Geology, Soils, and Mineral Resources – Significance Criteria*, as modified in Volume III Attachment 1, includes the exposure of people or structures to adverse effects resulting from slope instability as a relevant consideration; therefore, Mitigation Measure GEO-1 mitigates for significant impacts to people and structures associated with potential slope failures during and immediately following drawdown on potentially unstable slopes. Section 3.16.1 *Population and Housing – Area of Analysis* and Section 3.16.2 *Population and Housing – Environmental Setting* has been revised to clarify that the slope failure impacts on habitable structures are addressed in Section 3.11.5 *Geology, Soils, and Mineral Resources*, and that the combined consideration of potential impacts from slope failure and floodplain changes does not require further consideration for effects on population and housing. Please refer to Volume III Attachment 1 Section 3.16.1 *Population and Housing – Area of Analysis* and Section 3.16.2 *Population and Housing – Environmental Setting* for the revisions.

Comment LA9-84
MMs need to be included when this impact analysis is remedied.

Response to Comment LA9-84
Please refer to response to comment LA9-83. The clarifications discussed in LA9-83 did not result in a need for mitigation.

Comment LA9-85
Section 3.16.2 of the Population and Housing section of the DEIR note that 36 residences would be affected by changes in the FEMA 100-year flood elevations resulting from the removal of Iron Gate Dam. As described on page 3-632 in Section 3.6.5.2 of the Flood Hydrology section of the DEIR, the change to the 100-year floodplain inundation area would pose significant flood risk to these 36 residences, resulting in the possibility that these structures would be relocated. The Population and Housing Section should consider the Proposed Project's effect on these 36 structures together with the 8 residences vulnerable to landslide as a result of reservoir drawdown.

Response to Comment LA9-85
The potential for impacts on 36 residences due to flooding as a result of the Proposed Project is referenced in Volume I Section 3.16.1 *Population and*

Housing – Area of Analysis (page 3-903), which states that the effects of flood elevations upon these residences are analyzed in more detail in Volume I Section 3.6 *Flood Hydrology*. The analysis in the EIR determines that the loss of structures that are not feasible to move or elevate would be a significant impact. In addition, Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* (page 3-631) notes that a total of 34 legally-established habitable structures are already located within the existing 100-year floodplain and an estimated 2 additional legally-established habitable structures would be within the altered 100-year floodplain in the same reach following dam removal, for a total of 36 legally established habitable structures within the altered 100-year floodplain following dam removal (Appendix B: *Definite Plan*).

Please also refer to response to comment LA9-83.

Comment LA9-86

MMs need to be included when this impact analysis is remedied.

Response to Comment LA9-86

Please refer to response to comment LA9-85.

Comment LA9-87

Property owners with residences in locations that have views and/or recreational access to the reservoirs could feel discontented by the change from a flatwater aquatic environment to a riverine environment. As a result, the Proposed Project could cause population in the area to decrease, as property owners could conceivably decide to relocate to another location that supports a more favorable perceived aquatic environment. Additionally, the loss of dam operating revenue that would result from the removal of the dams, and loss of tax revenue, could impact the quality of education in the long run. A decline in the quality of education could cause current households to relocate outside the County in search of better educational opportunities. The Population and Housing section of the DEIR should discuss the potential fiscal effects associated with a declining population and loss of tax revenue and the implications this may have for public school enrollment and the quality of education. In addition, the DEIR should consider the relocation of these households, and the need for replacement housing elsewhere, which may be associated with indirect displacement as a result of discontent.

Response to Comment LA9-87

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, the EIR includes Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Consideration of Economic Information for Resources Potentially Affected by*

Dam Removal (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value. An evaluation of potential population changes as described in the comment would be speculative.

Comment LA9-88

This analysis should be revised to include a discussion of impacts to emergency services due to an increased work force.

Response to Comment LA9-88

Emergency services, which includes a discussion of impacts to services due to an increased work force, is discussed in Volume I Section 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17.5 (starting on page 3-913) and Potential Impact 3.22-4 (pages 3-1075 to 3-1076). Please also refer to response to comment ORG47-56.

Comment LA9-89

The Proposed Project would result in the removal of three readily available water sources, not one as is stated. This should be corrected.

It states, "The removal of the reservoirs could increase the turn-around time for helicopters or ground crews refilling with water for fire abatement purposes." Yet, the next two sentences conflict with this statement saying that it would not be changed, because the river will still be there, and other reservoirs are available. These sentences need to be made consistent with each other.

In addition, the impact analysis fails to quantify the increase in turnaround time for helicopters due to the loss of reservoirs (e.g., two minutes is very different than 30 minutes). Furthermore, although the impacts is determined to be significant and unavoidable, given the potential devastating wildfire implications of implementing the Proposed Project, some quantification of the impacts should be made for the public and wildfire fighting agencies.

Response to Comment LA9-89

The Klamath River, as a whole, represents a single source of water although it contains numerous pools from which water could be drawn to fight fires. The Lower Klamath Project reservoirs represent a portion of this water source, although there are three individual reservoirs in California that are proposed for removal. The EIR project description and impact discussion are clear that three individual reservoirs would be impacted by the Proposed Project. No correction is necessary.

With respect to the comment regarding helicopter turn-around time, please refer to Master Response HAZ-2.

<u>Comment LA9-90</u>

The Definite Plan, Appendix C-01, Fire Management Plan should identify additional permanent water sources that emergency services (specifically, helicopter water tankers) could use for wildland fire fighting, readiness, and prevention. Stating the Klamath River, where it flows freely within the former reservoir footprints could be used for as source of water to fight wildland fire is far too speculative. Topography and river flow patterns/fluctuations will prevent many locations of the River from ever being used by helicopter. The Fire Management Plan should identify areas where man-made structures are located in areas that are safe and reliable for helicopter water tankers to extract water. Man-made structures such as dip tanks provide a reliable, safe and permanent water source, and could be installed/designed integrated with the proposed dry hydrants.

Response to Comment LA9-90

The issue raised in the comment is considered in Appendix O-1 Fire Management Plan. Please also refer to Master Response HAZ-2.

<u>Comment LA9-91</u>

The impact discussion should analyze the potential for the loss of school-aged children due to residential relocation as a result of lower quality of life for areas around the reservoirs. Also, the loss of dam operating revenue that would result from the removal of the dams could impact the quality of education in the long run. A decline in the quality of education could cause current households to relocate outside the County in search of better educational opportunities for their children.

Response to Comment LA9-91

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a). Please also refer to Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA*.

However, to inform the public and decisionmakers regarding the potential consequences of the proposed project, Volume I Section 3.17.5 *Public Services – Potential Impacts and Mitigation* Potential Impact 3.17-3 (page 3-922) addresses the potential long-term physical impacts of the project on school facilities and services. The additional concern raised in the comment regarding changing demographics as a result of reservoir removal is too speculative for evaluation in the EIR.

<u>Comment LA9-92</u>

Data used to estimate facility and reservoir use was collected in 2001 and 2002 by PacifiCorp (PacifiCorp 2004) and is approximately 18 years old. It is likely that use levels of these facilities and reservoirs have changed since 2002, as *shifts in participation in outdoor recreation has occurred. For example, freshwater fishing across the United States has declined from 43.1 million participants in 2006 to 38.3 million participants in 2017 (RBFF and OF 2018) while boat ownership increased from 20.5 million in 2009 to 21.2 million in 2012 (RBFF and OF 2013) and overall outdoor participation increased from 41.9% of all Americans in 2006 to 49.0% in 2017 (OF 2018). The State Board should address these shifts in the DEIR; otherwise, it is possible that any impact analysis that relies on this information may not be accurate.*

Response to Comment LA9-92

Section 3.20.2 *Recreation – Environmental Setting* has been revised to incorporate more recent recreational data, where possible. Please refer to Volume III Attachment 1 Section 3.20.2 *Recreation – Environmental Setting* for the revisions.

Comment LA9-93

The Significance Criteria for Recreation (Section 3.20.3) include "Changes to or loss of rare or unique recreational facilities affecting a large area or substantial number of people" and "Significant increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated" (page 3-1002). Because the data used to establish baseline use of the facilities and reservoirs associated with the Proposed Project is approximately 18 years old and outdoor recreation participation has changed in the meantime, meaningful analysis of a "substantial number of people" and/or the current and projected levels of use of regional facilities is unlikely.

For example, the impact analysis for Potential Impact 3.20-1 states, "Overall, the impacts of construction and restoration activities are limited in temporal and geographic scope and so would not result in changes to or loss of rare or unique recreational facilities affecting a large area or substantial number of people. Nor would they result in a significant temporary increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Tables 3.20-2, 3.20-3, and 3.20-4 show that there are numerous alternative recreational facilities and access outside the area of effect, but within the vicinity. Most of these facilities experience low to moderate use levels and they can accommodate additional users. Recreational users who are temporarily displaced would be able to use these other areas, but they are unlikely to overload the other areas because those areas have sufficient capacity to accept them. Therefore, impacts will be less than significant" (page 3-1006). Without updated facility and reservoir use data, the degree to which displaced reservoir recreationists would affect facilities and reservoirs in the region cannot be accurately estimated.

Response to Comment LA9-93

Section 3.20.2 *Recreation – Environmental Setting* has been revised to incorporate more recent recreational data, where possible. The significance criteria noted have also been changed. Please refer to Volume III Attachment 1 Section 3.20.2 *Recreation – Environmental Setting* and Section 3.20.3 *Recreation – Significance Criteria* for the revisions.

<u>Comment LA9-94</u>

Citing from the 2004 PacifiCorp report, the DEIR states "When surveyed on their perception of crowding at the reservoirs, the mean score of respondents was 3.2 (on a 9-point scale from 1—not crowded to 9—extremely crowded), indicating that visitors did not feel overly crowded while participating in recreation activities. Further, approximately 39 percent of respondents had changed their visits to the Lower Klamath Project reservoirs from other lakes in the area to avoid crowding" (page 3-994). The impact analysis for Potential Impact 3.20-2 states "As indicated in the responses to visitor use surveys conducted by PacifiCorp (2004), the reservoirs are popular recreation areas in part because they are uncrowded relative to other lakes in the area and do not require user fees"(page 3-1007), and "…Given that a number of other lakes and reservoirs in the vicinity of the Lower Klamath Project provide similar opportunities for reservoir-based recreation in an uncrowded setting, KRRC's proposal to retain and enhance most existing river access facilities within the Area of Analysis for recreation, and Parcel B land transfer under the Proposed Project that would potentially allow for additional future river-based recreation opportunities, the Proposed Project would be highly unlikely to result in a loss of rare or unique recreational facilities affecting a large area or substantial number of people. In addition, the KRRC has prepared a Draft Recreation Plan (Appendix B: Definite Plan – Appendix Q) that includes stakeholder outreach, identification of potentially new or modified recreational facilities as well as evaluation and screening criteria, which will further reduce any potential impacts" (page 2-1009).

As described in Comment 1, "Changes to or loss of rare or unique recreational facilities affecting a large area or substantial number of people" is one of the criteria for the determination of significance. Because visitor surveys have identified the Iron Gate and Copco No. 1 Reservoirs as uncrowded relative to other lakes in the region, these reservoirs could be interpreted as rare within the region for their low use and uncrowded setting. The analysis focuses on the redistribution of these users to other existing lakes in the region, yet the data and analysis explicitly states that conditions at these lakes were unsatisfactory due to perceived overcrowding under current conditions. It can be anticipated that the loss of reservoir-based recreation on Iron Gate and Copco No. 1 Reservoirs would result in the perception of increased levels of overcrowding at other lakes in the region, despite the reported use of these other lakes being low or moderate. Additionally, as there are few reservoirs within Siskiyou County, California that are of similar size and setting, the Iron Gate and Copco 1 reservoirs could be considered rare within the California region.

Response to Comment LA9-94

Section 3.20.3 *Recreation – Significance Criteria* Potential Impact 3.20-1, Potential Impact 3.20-2, and Potential Impact 3.20-6 have been revised to clarify that the analysis considers the potential for adverse changes to recreational facilities, regardless of whether the facilities may be considered rare or unique. Please refer to Volume III Attachment 1 Section 3.20.3 *Recreation – Significance Criteria* and Section 3.20.5 *Recreation – Potential Impacts and Mitigation* for the revisions.

Comment LA9-95

The Draft Recreation Plan is included in the impact analysis as contributing to the "no significant impact" determination for reservoir-based recreation. The impact analysis for Potential Impact 3.20-2 states "The Proposed Project includes a Recreation Plan (see Appendix B: Definite Plan – Appendix Q for the Draft Recreation Plan) that would be used to identify new recreation opportunities that offset the proposed removal of reservoir recreation sites as well as the reduction in whitewater boating days resulting from the Proposed Project. KRRC has started an ongoing stakeholder outreach process seeking input from potentially impacted recreation users, operators, managers and administrators, including tribes, state and federal agencies, county agencies and chambers of commerce, local residents, recreation businesses, and public interest groups. The stakeholder outreach process would continue through the development of the Final Recreation Plan, which is scheduled for completion by KRRC in June 2019. The Draft Recreation Plan includes potential recreation opportunities identified in the USBR (2012) Detailed Plan as well as those identified through recent stakeholder outreach efforts. The Draft Recreation Plan also outlines preliminary criteria for screening opportunities, including whether each recreation opportunity would: "directly address the recreation impacts generated by the KHSA;" and "directly address or offset changes in the localized reservoir recreation or Hells Corner boating near where the impacts are occurring." In addition, the Proposed Project includes the transfer of approximately 8,000 acres of real property (Parcel B lands; see also Section 2.7.10 Land Disposition and Transfer) located in Klamath County, Oregon, and Siskiyou County, California, to the respective states (or a designated third party) for public interest purposes, including river-based recreation, open space, active wetland and riverine restoration, and public education (Page 3-1008)" and "Given that a number of other lakes and reservoirs in the vicinity of the Lower Klamath Project provide similar opportunities for reservoir-based recreation in an uncrowded setting, KRRC's proposal to retain and enhance most existing river access facilities within the Area of Analysis for recreation, and Parcel B land transfer under the Proposed Project that would potentially allow for additional future river-based recreation opportunities, the Proposed Project would be highly unlikely to result in a loss of rare or unique recreational facilities affecting a large area or substantial number of people." The Recreation Plan Update webinar (hosted by KRRC on January 30, 2019) presented an updated Recreation Plan, which consists of eight new or upgraded *river access points (four in Oregon and four in California) including (Americans with Disabilities Act (ADA)-accessible facilities where feasible, and recreational access to existing sites during construction where feasible. As stated in the screening criteria, the opportunities presented in the Recreation Plan will "directly address or offset changes in the localized reservoir recreation…near where impacts are occurring." Restricting the Recreation Plan to eight new or upgraded river access points fail to directly address the loss of flatwater recreation, particularly as reservoir-based recreation opportunities could be considered rare within Siskiyou County, California. For this reason, it is inappropriate to assume that the Recreation Plan would address or offset any impacts to reservoir-based recreation.*

Additionally, the impact analysis for Potential Impact 3.20-4 states As described previously, the Proposed Project involves the development and implementation of a plan to construct new recreational facilities and river access points along the restored river channel between the California-Oregon border and Iron Gate Dam following dam removal activities. Replacement of recreation facilities would not necessarily be "like for like", but rather would be designed to accommodate similar levels, if different types of use. This would require the creation of new gravel roads and other improvements for vehicle and visitor access to and use of the new river-based recreation sites, which could result in construction-related impacts to the environment, including potential impacts to water quality and historical and/or tribal cultural resources. While new recreation facilities are part of the Proposed Project, the final location, size, and design of the facilities are still under development and will be the subject of subsequent approvals. It is thus too soon to conduct a meaningful environmental analysis of the replacement facilities. However, construction and operation of new recreational facilities would undergo any environmental review necessary for the subsequent approvals, and any impacts of the construction and operation of the facilities would be mitigated, if feasible, to levels that comply with all applicable laws, regulations, and environmental standards. Because this component of the Proposed Project would not be approved until a later date, for the purposes of this EIR the impacts of this component are not significant." (page 3-1010).

Specific mitigation measures regarding recreation would be determined by FERC through a separate project permitting process. Therefore, it is inappropriate to assume that impacts to recreation would be less than significant without determining what the mitigation measures would consist of.

Response to Comment LA9-95

With respect to the comment's assertion regarding rare or unique recreational facilities, please refer to response to comment LA9-94.

The State Water Board does not agree that it is inappropriate for the EIR analysis to consider the potential for new recreation opportunities designed to offset the proposed removal of reservoir recreation sites and the reduction in whitewater boating days resulting from the Proposed Project. As stated in Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-2, the Klamath River Renewal Corporation's (KRRC's) Draft Recreation Plan involves identifying these new recreation opportunities as well as retaining and enhancing most existing river access facilities within the Area of Analysis for recreation. The analysis goes on to acknowledge that a number of other lakes and reservoirs in the vicinity of the Lower Klamath Project provide similar opportunities for reservoir-based recreation in an uncrowded setting and states that Parcel B land transfer under the Proposed Project would potentially allow for additional future river-based recreation opportunities. The analysis considers each of these contributing factors and determines that the Proposed Project would not result in a long-term loss in regional lake-based recreational activities that would affect a large area or a substantial number of people. Please refer to Volume III Attachment 1 for the final Section 3.20.5 *Recreation.* For additional discussion of how the EIR considers the level of detail in KRRC's Draft Recreation Plan, please refer to Master Response REC-2.

Comment LA9-96

The government records database searches, consistent with American Society for Testing and Materials (ASTM) E1527 – 13 or ASTM E2247 – 08 should be conducted.

Additionally, review of available sediment quality data (Bureau of Reclamation Klamath Sediment Chemistry Report [BOR 2011]) suggests that additional assessment may be warranted to include additional deep-sediment samples, additional Total polychlorinated biphenyls (PCB) analyses (especially from deeper sediments), and additional Polycyclic Aromatic Hydrocarbons (PAH) analyses so that the detection level, at a minimum, falls between the threshold effect concentration (TEC) and probable effect concentration (PEC) values, instead of greater than the PEC levels.

Response to Comment LA9-96

The Phase I Environmental Assessment for the Lower Klamath Project was performed by the Klamath River Renewal Corporation (KRRC) in 2018, in general accordance with the American Society for Testing and Materials (ASTM) Practice E-1527-13 for conducting Phase I ESAs (KRRC 2019f,g,h). The assessment was conducted at the J.C. Boyle Development, Copco No. 1 Development, Copco No. 2 Development, Iron Gate Development, and the Iron Gate Fish Hatchery. Phase II investigations were performed by KRRC in 2018 and 2019 (KRRC 2019i,j,k,l,m,n,o). For additional information regarding the Phase I and Phase II Environmental Assessments, please refer to Master Response HAZ-1.

Please refer to Section 3.2.2.8 *Water Quality – Inorganic and Organic Contaminants, Sediment Contaminants* for a discussion of how on-site geologists verified that reservoir sediment cores collected during 2009 and 2010 reached the reservoir-deposited/pre-reservoir sediment boundary to characterize the inorganic and organic contaminants throughout the entire depth of the existing reservoir sediments. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Additional total polychlorinated biphenyls (total PCBs) measurements in reservoir sediments are not necessary to assess the potential adverse effects from short-term and long-term exposure to reservoir sediments since the method reporting limit (MRL) for total PCBs in reservoir sediment was greater than the most stringent screening level for total PCBs. The MRL for total PCBs in reservoir sediment samples was 33,500 picogram per gram (pg/g), but the most stringent screening level for total PCBs was 89,000 pg/g for human health (i.e., California Environmental Protection Agency [CalEPA] California Human Health Screening Level [CHHSL], Residential), 60,000 pg/g for freshwater (i.e., 2009 Pacific Northwest Sediment Evaluation Framework [SEF] Screening Level 1 [SL1]; total PCBs was replaced in the 2018 Pacific Northwest SEF with total Aroclors), and 38,000 pg/g for marine (i.e., Puget Sound Dredged Material Management Program [DMMP]). Furthermore, there are no freshwater threshold effect concentration (TEC) or probable effect concentration (PEC) or the approximately equivalent marine threshold effect level (TEL) or probable effect level (PEL) for total PCBs included in the National Oceanic and Atmospheric Administration (NOAA) screening quick reference tables (SQuiRTs).

As discussed in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 and Potential Impact 3.2-14, some analytes, including six Aroclor PCB compounds, had laboratory MRLs that were greater than the applicable screening levels, so it is not possible to directly confirm that these analytes were above or below the applicable screening levels. However, any undetected analytes would be unlikely to result in substantial adverse impacts on human health since the potential exposure in the short and long-term to these compounds would be limited (e.g., less than the long-term residential levels of exposure considered in the human health screening levels).

Additionally, as discussed in Potential Impact 3.2-13, total PCBs were detected in elutriate reservoir sediment samples above Basin Plan, national priority water quality criteria, so previous measurements sufficiently characterize the total PCBs in elutriate reservoir sediment samples. While the detected elutriate total PCBs concentrations would be less than the most stringent human health drinking water standards upstream of Copco No. 1 once the dilution expected during reservoir drawdown was considered, total PCBs concentrations would be greater than the most stringent human health drinking water standards downstream of Iron Gate Dam even with dilution considered and this would be a significant impact. As explained in Potential Impact 3.2-13, implementation of Mitigation Measure WQ-2 would reduce this impact to a less than significant level. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Seventeen polycyclic aromatic hydrocarbons (PAHs) had laboratory MRLs that were greater than the applicable screening levels, so it is not possible to directly confirm that these analytes were above or below the applicable screening levels in reservoir sediments, as discussed in Potential Impact 3.2-13 and Potential Impact 3.2-14. However, any of these PAHs would be unlikely to result in substantial adverse impacts on human health since the potential exposure in the short and long-term to these compounds would be limited (e.g., less than the long-term residential levels of exposure considered in the human health screening levels). If it was assumed the reservoir sediment concentrations of those seventeen PAHs with MRLs less than the most stringent screening levels were equal to the maximum MRL (i.e., 1,200 micrograms per kilogram [ug/kg]), all seventeen PAHs would be less than the applicable PEC or PEL throughout the Klamath River and fourteen of the seventeen PAHs would meet the most stringent sediment screening level including consideration of dilution during reservoir drawdown. The remaining three of those seventeen PAHs (i.e., acenaphthene, dibenz(a,h)anthracene, fluorene) would meet the most stringent reservoir sediment screening level upstream of Copco No. 1 Reservoir considering dilution during drawdown, but those three PAHs would not meet the most stringent sediment screening level in the Klamath River downstream of Iron Gate Dam until additional tributary inflows sufficiently increased dilution (i.e., approximately Klamath River at Orleans for all three based on modeled decreases in suspended sediment concentration [SSCs]). While the seventeen PAHs with MRLs greater than the most stringent sediment screening levels would be unlikely to result in substantial adverse impacts on human health due to limited opportunities for exposure, implementation of Mitigation Measure WQ-2 for other inorganic and organic contaminants also would further reduce potential exposure and result in these PAHs having a less than significant impact.

Additionally, if it was assumed the elutriate sediment concentrations of PAHs with MRLs less than the most stringent water quality standards were equal to the maximum MRL (i.e., 0.02 to 0.1 micrograms per liter [ug/L] depending on the PAH compound), all PAHs, including acenaphthene, dibenz(a,h)anthracene, and fluorene, would be less than the most stringent human health drinking water standards throughout the Klamath River once the expected dilution during reservoir drawdown was considered. Thus, additional PAHs analyses are not necessary to assess the potential adverse effects from short-term and long-term exposure to reservoir sediments.

Comment LA9-97

Recommended Measure TR-1 (Section 3.22) should be implemented as an MM, as mentioned previous comments. TR-1 should assess:

The use of selective transportation scheduling to identify the least-traveled times on Copco Road for materials transportation;

The use of guide vehicles for transporting hazardous materials/wastes;
The use of busses to transport construction personnel to and from a central location to the construction sites; and,

Development of construction crew housing at a location nearer to the construction sites to reduce traffic volume on Copco Road.

Response to Comment LA9-97
Please refer to Master Response CEQ-2 and note that Recommended Measure TR-1 has been changed to be Mitigation Measure TR-1. Please note that the suite of measures described in the comment are the type of management measures that can be assessed with others for feasibility and effectiveness in the development of a Traffic Management Plan (TMP), as described in Mitigation Measure TR-1. The mitigation measure specifically contemplates consultation with local agencies.

Comment LA9-98
Similarly, Recommended Measure PS-1 – Fire Management Plan should be implemented as an MM, and should appropriately assess the feasibility of identifying, improving, constructing, and maintaining an adequate number of pools in the river and restoration areas for use as helicopter water tank filling locations and water sources for ground crews in order to fully mitigate the impact of wildland fire.

Response to Comment LA9-98
Please refer to Master Response HAZ-2. For a discussion of preemption under the Federal Power Act, please refer to Master Response CEQ-2.

Comment LA9-99
Section 3.22.5 of the Transportation and Traffic section of the DEIR states that the Proposed Project would include the import and export of construction equipment. Section 3.22.2.2 states that the Proposed Project would include the provision of off-road construction equipment such as cranes, excavators, loaders, and large capacity dump trucks, which would be delivered by tractor trailer vehicles. However, Table 3.22-6 and the analysis of proposed construction-related traffic do not consider vehicle trips associated with equipment delivery. Therefore, the analysis of construction-related vehicle traffic is incomplete and should be revised to consider vehicles trips associated with equipment delivery.

Response to Comment LA9-99
Please refer to Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (starting on page 3-1069) for a discussion of transportation-related impacts. Equipment hauling is discussed in this section

(e.g., pages 3-1063, 3-1070, and 3-1074) and is part of the analysis. Potential Impacts 3.22-1 and 3.22-2 (starting on page 3-1069) determined that the level of proposed traffic would be less than the Level of Service (LOS) design of the roadways. Volume II Appendix B: *Definite Plan – Appendix O2 Traffic Management Plan* (TMP) (page 9 to page 12), which is part of the Proposed Project, provides a framework for addressing equipment hauling. Please refer to Master Response CEQ-2 for a discussion of why the text of the Final EIR has been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1. Please also refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 through 3.22-5 for the revisions.

Comment LA9-100

Section 3.22-5 states that non-reservoir-based recreation within the Area of Analysis would still occur but would be dispersed away from the immediate vicinity of Copco No. 1 and Iron Gate and therefore would not overlap with construction traffic. Page 3-986 of the Recreation section of the DEIR indicates that two privately-owned recreation facilities are located within 2.5 miles downstream of the Iron Gate Dam along Copco Road: The R Ranch Klamath River Campground and the Klamath Ranch Resort Blue Heron RV Park. It is reasonable to assume that non-reservoir-based recreation activities associated with these facilities would still occur during Proposed Project construction and would peak during summer months, thereby overlapping with peak construction traffic, contrary to statements in the DEIR. The DEIR should be revised to reflect the fact that these recreational facilities attract large recreational vehicles (RVs) and other recreational motorists that would share Copco Road with construction vehicles hauling exported demolition materials and oversized equipment during peak construction season.

Response to Comment LA9-100

Traffic from the two referenced facilities in the comment was included as part of the existing conditions average daily traffic (ADT) and the LOS (Level of Service) considered in the EIR. Potential conflicts with recreational uses within the traffic and transportation Area of Analysis are indicated in both Volume II Appendix B: *Definite Plan – Appendix O2 Traffic Management Plan* (TMP), which is part of the Proposed Project, and in Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation*. Please refer to Master Response CEQ-2 for a discussion of why the text of the Final EIR has been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1. Please also refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 through 3.22-5 for the revisions.

Section 3.22.5 *Traffic and Transportation – Potential Impacts and Mitigation* Potential Impact 3.22-1 has been revised to clarify that non-reservoir-related traffic could still occur within the Area of Analysis. Please refer to Volume III

Attachment 1 Section 3.22.5 *Traffic and Transportation – Potential Impacts and Mitigation* for the revisions.

Comment LA9-101

The Traffic Management Plan lacks a strategy to address potential conflicts arising from encounters between construction vehicles hauling oversized equipment, RVs, and vehicles pulling trailers. Recommended Measure TR-1 A-1 also neglects consideration of potential oversized construction vehicle/equipment conflicts. While the DEIR states that construction vehicles hauling oversized equipment would operate under wide load restrictions, no detail was provided about what such restrictions would entail. Accordingly, the final version of the Traffic Management Plan and/or mitigation measures should include a strategy for minimizing potential oversize equipment hazards to recreational motorists. Additionally, the DEIR should clarify what the wide load restrictions entail and elaborate on how these restrictions would reduce safety concerns.

Response to Comment LA9-101

Please refer to responses to comments LA9-99, LA9-100, and LA9-102. In addition, the California Vehicle Code, starting with Section 35780 (State of California 1993) and California Department of Transportation (Caltrans) Transportation Permits Manual (e.g., Section 1003.5 Construction Equipment [Caltrans 1990]) are examples of existing regulations that apply to oversized equipment hauling and would inform Klamath River Renewal Corporation (KRRC's) Final Traffic Management Plan (TMP), which it has committed to in its most recent water quality certification application (KRRC 2019a).

Please also refer to Master Response CEQ-2.

Comment LA9-102

Section 3.23.5 of the Noise Section of the DEIR states that construction activities associated with dam deconstruction would occur during daytime and nighttime hours. The DEIR does not discuss potential hazards from construction related traffic operating during nighttime hours. Further, Recommended Measure TR-1 A-1 and the Traffic Management Plan do not include any traffic control devices and safety features to mitigate potential traffic safety hazards from truck hauling during nighttime hours. The DEIR should discuss potential safety hazards resulting from construction vehicle travel during nighttime hours. In addition, Recommended Measure TR-1 A-1 and/or the Traffic Management Plan should incorporate nighttime traffic control devices and safety features such as warning lights and markings on construction vehicles.

Response to Comment LA9-102

Please note that Klamath River Renewal Corporation (KRRC) has clarified that there will be no off-site nighttime hauling (Pers. comm. Seth Gentzler, AECOM on behalf of KRRC, to Parker Thaler, State Water Resources Control Board, 07/26/2019). Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic*

– *Potential Impacts and Mitigation* Mitigation Measure TR-1 provides for traffic control and safety implementation details consistent with all applicable regulatory requirements including the latest version of the Caltrans California Manual on Uniform Traffic Control Devices (Caltrans 2019a) and coordination with the noted agencies (Caltrans, Siskiyou County Public Works and Sheriff's Departments, California Highway Patrol, California Department of Forestry and Fire Protection (CALFIRE), and other emergency response agencies) as part of the detailed design phase and prior to start of construction. These requirements address the concerns expressed in the comment related to construction-related traffic during nighttime hours. For instance, the Caltrans California Manual on Uniform Traffic Control Devices references standards for both daytime and nighttime illumination and traffic control (Caltrans 2019a). Construction is usually accomplished at night because conditions are safer (i.e., less traffic and more noticeable activity); however, regardless of when construction occurs, Caltrans requires that standard traffic control measures are implemented to result in a safe transportation environment. Please refer to Master Response CEQ-2 for a discussion of why the text of the Final EIR has been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1. Please also refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 through 3.22-5 for the revisions.

Section 3.1.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-7 states that the Proposed Project's construction lighting could result in new sources of substantial light or glare that would adversely affect nighttime views in the area. This potential impact was determined to be significant and unavoidable. Please refer to Volume III Attachment 1 for the final Section 3.1 *Aesthetics*.

Comment LA9-103

The Traffic Management Plan is a series of "Recommended Measures" as it was deemed unenforceable by the SWRCB; therefore, the Proposed Project will result in significant and unavoidable impacts. As the lead CEQA agency, the SWRCB can require the preparation of a Traffic Management Plan as a condition of approval of the Proposed Project, in order to mitigate significant effects. The SWRCB should use its authority to require, and ensure, the preparation of the Traffic Management Plan in order to reduce the known significant impacts on the transportation system.

Response to Comment LA9-103

Please refer to Master Response CEQ-2.

Comment LA9-104

Section 3.23.5 of the Noise section of the DEIR states that construction activities associated with the removal of the dams would involve two shifts: a daytime shift and nighttime shift. Presumably, construction vehicles would be required during both shifts for transporting waste to off-site landfills and worker commutes.

However, construction related peak traffic noise was only evaluated against existing noise levels estimated for the daytime, as provided in Table 3.23-2. Because construction activities are scheduled to occur during nighttime, the DEIR should also evaluate peak construction related traffic noise against existing nighttime noise levels.

Response to Comment LA9-104

The Yreka Transfer Station (also known as the Pelletier Transfer Station), where offsite waste disposal would be hauled, is a daytime facility (i.e., it is open from 8 a.m. to 4 p.m.). Driving time between the Yreka Transfer Station, Copco No. 1, Copco No. 2, and Iron Gate dams would be approximately 1 hour or less based on the distances between these locations (Google Maps 2019). Including driving time, offsite waste hauling trips would be limited to the daytime, defined as 7 a.m. to 10 p.m. (USEPA 1974) and considered in the EIR. It is unnecessary to assess levels of peak construction-related traffic noise due to offsite hauling during nighttime hours. Additionally, since issuance of the Draft EIR in December 2018, the Klamath River Renewal Corporation (KRRC) has clarified that there will be no off-site nighttime hauling (Pers. Comm. Seth Gentzler, AECOM on behalf of KRRC, to Parker Thaler, State Water Resources Control Board, 7/26/2019). Regarding assessment of peak construction-related traffic noise due to worker commutes during nighttime hours, Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (page 3-1070) states the following: "Because recreational facilities at the reservoirs would be closed during the construction period, this analysis assumes that traffic associated with recreational use of the reservoirs would cease during the construction period. When the additional traffic flow from the short-term concurrent activities associated with dam removal is compared to the current traffic flow for recreational use of the reservoirs, the workforce traffic is similar to the current recreational use traffic." Therefore, it is unnecessary to assess levels of peak construction-related traffic noise due to worker commutes during nighttime hours.

Comment LA9-105

As described in the Transportation and Traffic section of the DEIR, the Proposed Project involves road, bridge, and culvert improvements. As provided in Appendix K of the 2018 Definite Plan, some of these improvement projects would occur within the vicinity of sensitive receptors. For example, construction access improvements consisting of the installation of a temporary bridge would be established adjacent to the Klamath Ranch Resort Blue Heron RV Park and within 3,400 feet of residences along Tarpon Drive. Construction access improvements consisting of the replacement of the Lakeview Road bridge would be established within 2,600 feet of residences along Tarpon road. Other construction access improvements such as pavement rehabilitation that would occur prior to and/or following dam removal activities would also occur in locations near sensitive receptors. The DEIR should evaluate whether construction noise associated with road, bridge, and culvert improvements would result in short-term increases in noise levels affecting nearby residences.

Response to Comment LA9-105

Section 3.23.4 *Noise – Impact Analysis Approach* and Section 3.23.5 *Noise – Potential Impacts and Mitigation* have been revised to clarify the nature and timing of certain project elements and reference particular aspects of the Proposed Project that would be likely to use construction equipment that would exceed Siskiyou County General Plan noise thresholds.

Del Norte County Board of Supervisors, Taylor Carsley, Lori L. Cowan

Comment LA6-1

The Del Norte County Board of Supervisors (Board) wishes to provide comment on the Lower Klamath Project License Surrender (Project) and the Draft EIR released by the State Water Resources Control Board (SWRCB).

Response to Comment LA6-1

Thank you for your comment.

Comment LA6-2

The Klamath River is a key part of the economy, culture, and natural environment of Del Norte County; where the river meets the Pacific Ocean. The Board is responsible for ensuring projects affecting the County contribute to the health and welfare of the community and the local economy.

Response to Comment LA6-2

Thank you for your comment. Please refer to Master Response GEN-2. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a). Please also refer to Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA*.

Comment LA6-3

While the Board supports the recovery of Klamath River and Pacific Ocean commercial and recreational fisheries, we do have significant concerns with regard to how the Project may exacerbate the issue of siltation and sedimentation at the Crescent City Harbor, located 15 miles north of the river mouth. Also concerning are the known unavoidable and significant impacts to oceanic and riverine fisheries resources that are so essential to our local commercial and sport-fishing industries.

Response to Comment LA6-3

Section 3.3.5.1 *Aquatic Resources – Potential Impacts and Mitigation – Suspended Sediment* provides a summary of the detailed analysis of anticipated suspended sediment effects on aquatic resources that is presented in Potential Impact 3.2-3 and Appendix E. Section 3.3.5.2 *Aquatic Resources – Potential Impacts and Mitigation – Bed Elevation and Grain Size Distribution* provides a summary of the detailed analysis of anticipated bedload sediment effects on aquatic resources that is presented in Appendix F. Appendix E and F, and Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* include detailed assessments of the anticipated effects of sediment on focal aquatic species under the Proposed Project. As reflected in Section 3.3.5.9, the EIR finds no unavoidable and significant impacts to riverine or ocean fisheries resources. In addition, Section 3.3.5.9 describes aquatic resource measures proposed by Klamath River Renewal Corporation (KRRC) (i.e., AR-1, AR-2) and mitigation measures included in the EIR (i.e., AQR-1, AQR-2). As explained in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation*, those aquatic resource measures and mitigation measures would ensure no significant impacts to riverine or oceans fisheries resources. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment LA6-4

The Draft EIR (DEIR) is clear that the proposed project will increase suspended materials to a high degree following the drawdown and dam removal phases. For example, suspended sediment concentrations (SSCs} would potentially increase 220 times the threshold of significance downstream of Copco No. 1 Dam upon drawdown with similar numbers projected for the drawdown of the other dams in California. The Board is concerned with the fact that the quantity of sediment delivered to the Pacific Ocean is still not known with certainty, and more importantly, how the material will react once delivered to the ocean. Conservative estimates place the amount of sediment discharge to the ocean as a result of drawdown and dam removal at about 5.8 million tons (4 million tons of fine sediment and 1.8 million tons of sand and larger sediment). While the DEIR estimates that the quantity released would be similar to that transported by the river to the ocean in a year with average flow, this quantity would be in addition to what is transported naturally by the river, whether it be a dry, average, or wet year. On the year of dam removal and drawdown, a significant amount of sediment will be delivered to the ocean, relative to any year without the project. Recognizing the uncertainty on where the material will settle in the ocean, it is known that normal ocean currents transport material north and there is certainty that our Harbor already has issues with dredging and dredge spoils management.

The Crescent City Harbor District is designated a "harbor of safe refuge" by the California Harbors and Navigation Code. The Harbor supports a U.S. Coast Guard cutter, commercial and sport fishing, waterfront industry, and recreational activities. A study titled "Coastal Geomorphology of the Smith River Plain" (Roberts and Dolan, 1968) found that the littoral current pattern south of Crescent City transports sediment northwestward and contributes to a continued seaward growth of sand south of the breakwater at the mouth of the Harbor. Sediment accumulating at the entrance of the Harbor travels inward and requires regular dredging to maintain a safe navigation depth of recreational and commercial vessels in the federal channels and inner boat *basins. Fine sediment accumulation is particularly problematic because is typically unsuitable for use as beach replenishment and thus more difficult to dispose of. The Harbor District's dredge materials holding site is currently at capacity and a feasible replacement site has not yet been established; complicated by the permitting hurdles between the U.S. Army Corps of Engineers and the California Coastal Commission which are less than amenable toward achieving maintenance dredging in the first place. The Harbor faces incredible challenges with managing the current amount of siltation experienced in and around its facilities, let alone potentially more as a result of the Project. Even if a very small percentage of project sedimentation impacts the Harbor, the issue could be compounded in a way that severely hampers the essential marine operations of the County. It follows that the Board needs the guarantee from the Project coalition that we will be actively supported in our efforts to acquire the necessary permits to dredge our Harbor, as these are probable future projects whose impacts must be considered cumulatively. (14 C.C.R. 15064(g).) Only by assisting the County in our ability to dredge the Harbor will the potential for impacts as a result of the Project be mitigated.*

Response to Comment LA6-4

As specified in Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance*, the significance threshold for short-term suspended sediment concentration (SSC) impacts to salmonids is 100 milligrams per liter (mg/L) over a continuous two-week exposure period. SSCs are modeled to reach maximums (i.e., peaks at one point in time) of up to 2,000-3,000 mg/L downstream of J.C. Boyle Reservoir, 7,000-8,000 mg/L downstream of Copco No. 1 Reservoir, and 7,000-14,000 mg/L downstream of Iron Gate Dam, with potential for SSCs in excess of 1,000 mg/L downstream of Iron Gate Dam on a timescale of weeks to months. Components of the Proposed Project, including increasing the drawdown rate and sediment jetting, would preferentially reduce the duration of the modeled suspended sediment impacts, although these components could also increase the modeled SSC maximums, and suspended sediments are still expected to exceed 100 mg/L for durations of over two weeks at all locations, resulting in a significant and unavoidable short-term impact (see Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Sedimentation and River Hydraulics sediment transport model (SRH-1D) model simulations (USBR 2012a) estimate that between 5.4 and 8.6 million yd^3 [1.2 to 2.3 million tons], or 36 to 57 percent of the total reservoir sediment volume, is expected to be eroded and transported downstream during the drawdown period (see Table 3.11-7 in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [pages 3-765 to 3-775]). For a discussion of how this amount compares to background annual sediment loads, please refer to the response to comment ORG46-31.

As described throughout the EIR and in Master Response GEO-1, the majority of eroded reservoir sediments are predicted to be transported to the Pacific Ocean as particles that remain suspended in the water during drawdown and in the short-term following drawdown. Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-769 to 3-770 and 3-775) describes that there would be no significant impact to the Pacific Ocean Nearshore Environment in the short- or long-term, given the relatively small amount of total sediment input from reservoir sediment release in comparison to the total annual naturally occurring sediment inputs to the nearshore environment, and because any sedimentation of the nearshore seafloor resulting from the Proposed Project would likely be transported farther offshore to the mid-shelf and into deeper water off-shelf. Furthermore, no cumulatively considerable sediment impacts have been identified (see Volume I Section 3.24.11 *Cumulative Effects – Geology, Soils, and Mineral Resources* [pages 3-1191 to 3-1194]). As discussed in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, while the direction of suspended sediment transport would be generally northward from the mouth of the Klamath River, the plume carrying reservoir sediments would likely be influenced by a range of meteorological and ocean conditions (e.g., storm and non-storm periods, differing storm directions) during the weeks to months of elevated suspended sediment concentrations. Some of the time the plume would likely be constrained to shallower nearshore waters, while at other times it would likely extend further offshore and spread more widely, before depositing along the continental shelf seaward of the mouth of the Klamath River. Overall, the total sediment input from reservoir sediment release would be well within the range of natural sediment release conditions from the Klamath River, such that any associated sediment transport and deposition in the Pacific Nearshore Ocean Environment would also be within the range of natural conditions.

Given that the sediment input will be within the natural existing range, there is no evidence to suggest that dam removal would increase the need for dredging of Crescent City Harbor. Note that the existing shoaling and dredging rate for the Entrance, Inner Harbor Basin, and Marina Access Channels is approximately 20,000 cubic yards per year, or approximately 100,000 cubic yards every 5 years [HydroPlan and Anchor QEA 2015 cited in USACE 2019]. Additionally, Crescent City Harbor is located approximately 15 miles north of the Klamath River Estuary. Due to this distance, and the fact that most of the sediment released from the reservoirs is anticipated to be fine sediment (not coarse sediments such as sand), which is easily transported, it is unlikely that significant sediment deposition will occur in the Crescent City Harbor as a result of the Project.

The comment does not provide an explanation for how the process for obtaining future permits from responsible agencies for ongoing dredging operations at the Crescent City Harbor would be affected by sediment deposition that occurs in the Pacific Ocean Nearshore Environment due to the Proposed Project. Based on the above paragraphs, there is no evidence that the Proposed Project would impinge future permits for Crescent City Harbor.

Comment LA6-5

Recreational and commercial fishing is an economic lifeline for many members of Del Norte County, where the per capita median income is below state average. Guided recreational fishing and the tourism dollars that this fishery supports make meaningful and significant impacts to our local economy. For example, we estimate that the spring-run fishery, most likely to be affected by the Project, generates close to $521,000 in revenue to our communities.

Losses in revenue of our local hospitality, restaurant, hotel, and service sector industries, not to mention licensed river guides as a result of impacts from the Project is unacceptable. The DEIR paints an optimistic picture of limited short-term impacts to anadromous fisheries as a result of the Project, and predicts significant long-term beneficial economic impacts on the coastal commercial fishing industry. But the DEIR fails to consider the short-term economic impacts that a lost year will have on the county's half-million dollar industry. Indeed, the DEIR acknowledges the short term impact that increased turbidity will have on recreators-and dismisses these impacts as temporary-but fails to consider the associated economic impacts that decreased recreation will have on tourism. (14 C.C.R. §15131.) Those impacts, even if temporary, should be considered significant to Del Norte County's economy, and specific funding mechanisms to mitigate those impacts should be included in the project. (14C.C.R §15123.4.) It is understood that substantial funding is available for the offset of unavoidable impacts to spring- and fall-run fisheries. The Board requests that a portion of funding be set aside and made available to our community that relies on these dwindling fisheries, already under pressure for special status listing from resource agencies. We simply cannot afford to mitigate the impacts associated with increased pressure on commercial and sport fisheries without financial assistance from the Project's coalition.

Response to Comment LA6-5

Please refer to Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11), which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential commercial fishing effects due to dam removal. The results of DOI's prior economic analysis of ocean sport fishing are also summarized in the EIR to provide broader context for possible increased recreational fishing opportunities given dam removal.

Comment LA6-6

While this Board can recognize certain long-term benefits of the Project, and a recent meeting with representatives from both the Klamath River Renewal Corporation (KRRC) and the Pacific Coast Federation of Fishermen's Associations (PCFFA) was reassuring, the potential impacts of siltation and sedimentation still exist and could have real impacts on the economy and livelihood of the County. Impact assessment for sedimentation on the nearshore ocean environment is lacking in the DEIR, and the results of the modelling lead to much uncertainty. The Board would be much more at ease should the project contain a plan that provides for the potential negative contingencies. If assurances could be made that impacts to our County would be directly mitigated, a more thorough level of support would be provided. One solution could be provided in the form of a fund established for monitoring and remediation of short and long-term impacts resulting from Project implementation. It has been acknowledged that KRRC has ample resources assist with these necessary contingencies through PacifiCorp customer surcharges and California Proposition 1 water bonds. Funding for the mitigation of impacts is worth very little, however, if they are not made readily available as needed. An efficient mechanism to distribute resources that alleviate the adverse effects of the project needs to be included in the DEIR. This would ensure that the SWRCB truly has a worst case scenario in mind and is willing to address the impacts of this scenario if it does indeed affect our local community in the short or long-term.

Response to Comment LA6-6

Contrary to the comment's assertion, an impact assessment for sedimentation in the Pacific Ocean Nearshore Environment is provided in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 and Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which are revised in Volume III Attachment 1. Please also refer to the response to comment LA6-5 above. Given that the EIR does not identify significant individual or cumulative sedimentation impacts from the Proposed Project on the Pacific Ocean Nearshore Environment in the vicinity of the Klamath River mouth and Crescent City Harbor, other than potential *significant and unavoidable* short-term elevated suspended sediment concentrations (SSCs), mitigation is not required for short- or long-term sediment deposition.

Please also refer to response to comment ORG47-51.1.

Comment LA6-7

We hope that our Board's concerns are considered seriously in the evaluation of and response to DEIR comments. Further, we press that in the *process of preparing findings on the feasibility of reducing and limiting potential significant environmental impacts, appropriate mitigation and monitoring is examined that addresses the issues that have been raised. It is with enthusiasm that we would support this Project if the proper mitigation funding, resources, and access to them were made available in the event that future impacts to the Crescent City Harbor and our commercial and sport-fishing industries are more severe than the DEIR makes them out to be. Thank you for the consideration of our comments.*

Response to Comment LA6-7
Thank you for your comment.

Humboldt County Board of Supervisors, Rex Bohn, Hank Seemann

Comment LA4-1
The draft Environmental Impact Report ("Draft EIR") released by the State Water Resources Control Board on December 27, 2018, for the proposed Section 401 water quality certification concludes that dam removal is the best option for improving fisheries and water quality. The Draft EIR concludes that removal of the lower four dams is superior to six alternatives and will result in many significant, long- term benefits. The data and analysis presented in the Draft EIR demonstrate that removal of the lower four Klamath River dams will improve water quality and increase runs of anadromous fish in the Klamath River. In particular, the Draft EIR concludes that dam removal will curtail blue green algae blooms and fish disease problems below the dams. This issue is critically important for Humboldt County residents who fish and recreate in the Klamath River.

Response to Comment LA4-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment LA4-2
Most negative impacts are short-term and/or can be avoided or reduced through mitigation measures. The Draft EIR concludes that sediment impacts will be temporary. Humboldt County understands that for an initial period of time the river will experience weeks and potentially months with heavy loads of suspended sediment, and we agree that these temporary impacts are worth the long-term gains in water quality and fish production.

Response to Comment LA4-2
Please refer to Master Response GEN-1.

Comment LA4-3
The Draft EIR describes loss of reservoirs for wildland fire fighting as a significant and unavoidable impact. We encourage continued discussions with the Klamath River Renewal Corporation and other parties to better define this impact and identify alternative water supply and preparedness measures.

Response to Comment LA4-3
Please refer to Master Response HAZ-2.

Comment LA4-4
Humboldt County continues to support decommissioning the lower four Klamath River dams through implementation of the Amended KHSA. Humboldt County looks forward to continuing our participation in the Clean Water Action section 401 certification process and seeing the Amended KHSA fully implemented. We appreciate the State Water Resources Control Board's consideration of our comments.

Response to Comment LA4-4
Please also refer to Master Response GEN-1.

Humboldt County Department of Health, John H. Moseman IV

Comment LA10-1
I am writing to express my full support of removal all of the dams on the Klamath River Hydroelectric Project and to have my opinion counted as part of the comment period. After I graduated HSU with a degree in Natural Resource Planning and Recreation, I worked for a planning agency (EDAW) on the Klamath River to assess Pacific Corps relicensing project at the time. I had the ability to survey folks about their opinions about the hydro-electric project there and learned a lot from the locals and users of this portion of the river.

It is my assessment that one of the greatest salmon rivers of our country is currently in an unhealthy state due to the dams on the Klamath River. Removal of the dams will benefit the people that live there as well as the ecosystems that depend on a healthy river. It took millions of years for it to evolve to its healthy state and needs the ability to return to an undammed state.

Response to Comment LA10-1
Thank you for your comment. Please refer to Master Response GEN-1.

2.3.3 Native American Tribes

This section presents written comments received on the Draft EIR from Native American Tribes and the State Water Board’s responses to those comments. Written comments and responses in this section are organized alphabetically by tribe name. To determine whether your comment is associated with an affiliation type other than Native American Tribes, please refer to Table 2-1 or Table 2-2.

Table of Written Native American Tribes Comments and Responses

Hoopa Valley Tribe, Tom Schlosser

Comment TR17-1

Technical staff of the Hoopa Valley Tribal Fisheries Department have reviewed the subject document produced by staff of the State Water Resources Control Board (Board), and provide the comments below. The Hoopa Valley Tribe (Tribe) is strongly supportive of dam removal by Klamath River Renewal Corporation, as the impacts are expected to include substantial improvements to water quality in areas downstream of the Oregon-California border, while affording anadromous fish access to habitat in both California and Oregon long blocked by hydropower facilities.

Response to Comment TR17-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR17-2

Members of the Tribe exercise fishing rights in Trinity River and Klamath River portions of the Reservation. Terms of the Water Quality Certification include some with far-reaching implications for salmon and other fishes in both rivers, and therefore we are concerned that the states of California and Oregon as well as the federal government discharge throughout the certification process their respective responsibilities for restoration and protection of anadromous fish.

Response to Comment TR17-2

The State Water Board notes the Hoopa Valley Tribe's concern that the water quality certification should protect salmon. Comments related to Oregon and federal permit terms and conditions should be submitted to the respective agencies. For information on Proposed Project impacts to Aquatic Resources (including coho and Chinook salmon), please refer to Section 3.3 *Aquatic Resources*.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Hoopa Valley Tribe's fishing rights are noted in the EIR – for example, please see Volume I Section 3.8.2.2 *Water Supply/Water Rights* –

Environmental Setting – Mid and Lower Klamath Basins – Federal Reserved Rights for Native American Tribes – Hoopa Valley Tribe and Yurok Tribe (pages 3-673 to 3-674) and Section 5.4.1.1 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resource Potentially Affected by Dam Removal – Commercial Fishing* (pages 5-5 to 5-7).

Comment TR17-3

The Tribe has established "treatment-as-a-state" under the Clean Water Act, is recognized by the federal government as having fully-vetted property rights to annual harvest of salmon and other fishes, and views its authorities as extending to active participation with the State of California as a co-manager alongside the various federal and tribal resource agencies involved. The Tribe is to be consulted with in regards to plans, investigations and reports dealing with dam removal and impacts of recovery efforts. We are committed to a collaborative effort leading to successful restoration.

Response to Comment TR17-3

This comment relates to Hoopa Valley Tribe's commitment to successful restoration and desired role in developing dam removal and restoration plans. Comment noted.

Comment TR17-4

The current document contemplates that Iron Gate Hatchery (IGH) will be transferred to the State of California and funded by Pacific Corp for eight years after 4 lower dams are removed on Klamath River. We have concerns with regard to CDFW's Technical Staff Recommendations for hatchery operations in the post-dam era which were provided to the State Board. First, establishing a sunset of eight years post dam removal for operations is arbitrary and appears to be based upon the assumption that recolonization and robust production will occur within two brood cycles of Chinook or three brood cycles of Coho. Instead, the term of operation of the hatchery should extend until verification of successful recolonization and robust production. Second, the scale of mitigation programs at the facility should not be dictated by the availability of a water source, rather clear mitigation goals need to be developed and then the facility tailored to meet the need. Third, experimental lots of fish should be trucked to just above the Trinity River confluence to evaluate improved survival and potential for straying. Finally, the significant reduction in fall Chinook yearling production presented in the technical recommendation will have immediate consequences for dependent Tribal fisheries.

With regard to an arbitrary eight-year period for post dam mitigation, we are concerned that the modified KHSA failed to define metrics which would evaluate the implied hypothesis that both fall Chinook and Coho populations would rebound in the post-dam removal era to a level equal to or exceeding contemporary mitigation at IGH (900,000 yearling, 5,100,000 smolt fall Chinook and 75,000 Coho salmon). Full IGH mitigation should instead continue until such *time that it can be demonstrated that natural production, as measured at the present location of Irongate Dam, has on average matched or exceeded an approximate 6,000,000 outmigrant fall Chinook and 75,000 Coho outmigrants. Dam removal, while implemented by the KRRC, will still be pursuant to authority of the federal government and by extension would itself be a federal action. Current levels of mitigation result in significant contributions to dependent Tribal fisheries and we do not agree that this harvest opportunity should be compromised by limited action within an arbitrary set of years (8) and should rather be supported by data showing that naturally produced fish populations have increased to levels approximating the mitigation targets today. According to the CDFW's technical recommendation, it appears that hatchery production will be scaled to availability of water. We instead would advise that production not waiver from contemporary mitigation levels, and that instead of scaling production to water availability, recirculating systems be developed to sustain contemporary mitigation. The intention would be to use as much available cold-water inflow as may be gathered from Bogus Creek or other sources and extending its usefulness through repurposing and filtration of effluent. To address concerns of the role hatchery fish may play in disease transmission to natural juvenile salmonids, we would advocate that an experimental group of marked IGH fingerlings (400,000 individuals), be trucked to immediately above the Trinity River confluence and released. Future recovery of these fish would enable scientists to evaluate the risks and benefits of off-site releases of fingerlings. The State Technical Recommendations advise that yearling fall Chinook production be reduced to just 13% of current mitigation levels during the post-dam era. Given that IGH yearlings historically outperformed fingerlings three- to six-fold, this dramatic reduction is likely to have an immediate and profound impact to Tribal fisheries. Again, our requirement would be that mitigation remain at current levels for both fall Chinook and Coho Salmon until there is compelling evidence that natural fish production would provide comparable benefits to fisheries.*

Response to Comment TR17-4

The Hoopa Valley Tribe's comment expresses concerns with the proposed eight-year term operation of hatcheries under the Proposed Project. The Hoopa Valley Tribe's comment recommends that hatchery operations should extend until verification that natural salmonid production has on average matched or exceeded 6,000,000 outmigrant fall Chinook and 75,000 coho salmon (the current hatchery production goal). Further, the Hoopa Valley Tribe suggests that the scale of mitigation programs should be tailored to meet specific production goals rather than setting hatchery targets based on available water supply, and expresses concern for potential fisheries impacts due to the reduction of the yearling production. Finally, the comment recommends a test-release of hatchery smolts just above the Trinity River, to evaluate the impacts of such an operational change on straying, disease, and escapement.

The Klamath River Renewal Corporation's (KRRC's) Proposed Project includes hatchery modifications and operations for up to eight years following dam removal. The EIR evaluates the potential environmental impacts associated with implementation of the KRRC's Proposed Project and project alternatives (including a No Hatchery Alternative).

The EIR finds that the Proposed Project would not result in a significant impact on salmonid populations, or on the tribal or commercial fisheries (see specific sections referenced below).

Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* discusses the likely effects of eight years of hatchery production following dam removal, including an analysis of the sources of hatchery and natural production likely to occur each year of dam removal and post-dam removal through post-dam removal year 10. The potential for natural production of salmon smolts upstream of the current location of Iron Gate Dam is discussed for each species in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 (fall-run Chinook salmon), Potential Impact 3.3-8 (spring-run Chinook salmon), and Potential Impact 3.3-9 (coho salmon). The analysis is based on scientific literature, and in the case of fall-run Chinook salmon (Potential Impact 3.3-7), a quantitative life-cycle model (Hendrix 2011). This analysis concludes that successful fall-run Chinook salmon recolonization and robust production following dam removal and eight years of hatchery operations is likely to occur under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3. *Aquatic Resources*. Please also refer to Master Response AQF-2 regarding the suggestion to increase and/or extend hatchery production.

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, analyzes the anticipated effects of a reduction in hatchery production on the escapement of fall-run Chinook salmon, and Potential Impact 3.12-9 analyzes the potential impacts of reduced hatchery production on tribal fisheries. Please refer to Volume III Attachment 1 for the final Section 3.3. *Aquatic Resources*. Please also refer to Master Response AQF-3 regarding the concern regarding salmon abundance available for harvest.

Additionally, the Hoopa Tribe noted that under the Proposed Project the reduction in yearling production is far greater than the reduction in smolt production. Based on coded wire tagging between 1990 and 2015, adult hatchery returns of smolts has averaged 0.178 percent, and returns of hatchery yearlings has averaged 0.352 percent (Giudice and Knechtle 2018). Despite higher survival of yearling releases, the substantially higher number of smolt releases results in most hatchery adult returns being fish released as age-0 smolts. Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 has been revised to include this information.

Karuk Tribe, Alex Watts-Tobin

Comment TR22-1

As the Karuk THPO, I appreciate the opportunity to comment on the State Water Board's draft EIR for the Water Quality 401 Certification of the Lower Klamath Hydroelectric Project. The project was discussed at the February 5th, 2019 Karuk Resources Advisory Board Meeting. The THPO attended the Public Meeting on this issue in Yreka in the evening of February 5th, together with one staff member. Both of these staff members and Karuk Vice-Chair Robert Super made comments on the project at that meeting. Other staff members attended the meeting in Orleans on February 7th.

Response to Comment TR22-1

Thank you for your comment. Oral comments provided during public scoping meeting are also considered in this Final EIR. Please refer to Volume III Section 2.4.1 *Yreka Public Meeting—February 5, 2019* and 2.4.3 *Orleans Public Meeting—February 7, 2019* for comment responses to oral comments provided during the Yreka and Orleans public meetings.

Comment TR22-2

The Karuk THPO office concurs with the comments of Karuk Chairman Attebery filed February 26, 2019.

Response to Comment TR22-2

Please refer to responses to comments TR18-1 through TR18-67.

Comment TR22-3

Overall, the Karuk Tribe and the THPO office strongly support the Board's findings and conclusions – namely that that the proposed project (removal of lower four dams) is superior to the six alternatives analyzed.

Response to Comment TR22-3

Please also refer to Master Response GEN-1.

Comment TR22-4

I would like to make some detailed comments on the dEIR, especially with respect to section 3.12, the Cultural Resources section.

The Ethnography section for Karuk draws substantially on the section on Karuk by William Bright in Heizer's Handbook of North American Indians, vol 8. This is, by common consent, not Bright's best work. The work by John Salter and Craig Tucker, which is referenced by Chair Attebery in his comment letter, is a much more up-to-date and accurate account of Tribal practices,, river conditions, and environment. Likewise, Thomas King's work on the Klamath Riverscape is also superior to Bright's summary. Both of these works draw directly on considerable anthropological research and ethnographic testimony from Karuk Tribal members.

Response to Comment TR22-4
Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography – Northwest California Culture Area – Ethnography – Karuk* has been updated based on the comment provided by Chair Attebery. Please refer to Volume III Attachment 1 Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography – Northwest California Culture Area – Ethnography – Karuk* for the revisions. Please also refer to response to comment TR18-19.

Please note that the Bright (1978) citations referenced in this comment are carried over from the Karuk ethnography sections of the 2012 KHSA EIS/EIR. Additionally, the State Water Board appreciates that the Karuk Tribe has provided the Salter and Tucker (2010) summary of history and ethnography, thus including the associated information in the record for the Lower Klamath Project EIR.

Comment TR22-5
The THPO concurs with the other comments provided by Chair Attebery on Section 3.12 of the Draft EIR.

Response to Comment TR22-5
Comment noted. Please refer to responses to comments TR18-1 through TR18-67.

Karuk Tribe, Chairman Attebery

Comment TR18-1
Please accept the attached comment letter and associated document from Karuk Tribe as our comments on the dEIR on the Lower Klamath Project.

Response to Comment TR18-1
Thank you for your comment.

Comment TR18-2
On September 23, 2016, PacifiCorp and the Klamath River Renewal Corporation (KRRC) filed a joint license transfer application with the Federal Energy Regulatory Commission (FERC). Pursuant to the amended KHSA, PacifiCorp and the KRRC seek to transfer the lower four dams (J.C. Boyle; Copco No. 1; Copco No. 2; and Iron Gate) to the KRRC for the purpose of decommissioning and removal. Before FERC can accept a license surrender application, PacifiCorp and the Klamath River Renewal Corporation must obtain water quality certification under Section 401 of the Clean Water Act (33 U.S.C. § 1341) from the State Water Board. Under Section 401 conditions of a water quality certification become conditions of any federal license or permit for the project. The State Water Board is the agency authorized to issue certification of any

potential discharge from an activity that requires a FERC license or amendment. The State Water Board adopted the Water Quality Control Plan for the North Coast Region (Basin Plan). The Basin Plan includes the Beneficial Uses and Water Quality Objectives necessary to protect the Beneficial Uses. Together these constitute the Water Quality Standards that must be met before the State Water Board can issue Water Quality Certification. Issuance of a water quality certification is a discretionary action subject to CEQA compliance. The State Water Board has correctly chosen to prepare an Environmental Impact Report (EIR) because there are potentially significant impacts associated with dam transfer and removal. On December 27, 2018 the California State Water Resources Control Board issued a draft Environmental Impact Report for the surrender of the Lower Klamath Hydroelectric Project (LKHP). Under the California Environmental Quality Act (CEQA) a Lead Agency is required to solicit comments from interested parties and the public. The Karuk Tribe is submitting comments as a long-term participant in the Klamath Hydroelectric Project decommissioning process and a signatory to the amended Klamath Hydroelectric Settlement Agreement (KHSA). Our participation in this process is driven by the unequivocal fact that reduced fish populations and poor water quality are a direct result of the operation of the Klamath Hydroelectric Project. Furthermore, operation of the Klamath Hydroelectric Project has had profound negative impacts on the traditional cultural practices and the health of Karuk Tribal members.

Response to Comment TR18-2

Thank you for your comment. In addition to the potential impact analyses presented in Section 3.2 *Water Quality* and Section 3.3 *Aquatic Resources*, the potential for impacts to tribal cultural resources due to the Proposed Project is analyzed in Section 3.12 *Historical Resources and Tribal Cultural Resources*, including Potential Impact 3.12-10, which discusses the ability of tribes to use the Middle and Lower Klamath River for ceremonial and other purposes given seasonal adverse water quality and nuisance and/or noxious blue-green algae blooms. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, Section 3.3 *Aquatic Resources*, and Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Comment TR18-3

CEQA requires a lead agency to analyze the impacts of a project as defined in the CEQA Guidelines. In the case of an existing hydroelectric project that has been in operation before the adoption of the Clean Water Act and Endangered Species Act the ongoing impacts of the project will not register as significant. While CEQA considers the existing conditions as the baseline for analysis of project impacts, the State Water Board must analyze the existing operations to determine compliance with the Clean Water Act. We assert that the LKHP has been operating in violation of the Clean Water Act, and potentially other State and Federal Laws, for decades and this must be disclosed in a discussion of the baseline conditions. We assert that the LKHP cannot be brought into *compliance with State and Federal Laws without being removed. Clearly, dam removal and the expected discharge of sediments will have an immediate negative impact on water quality downstream of the LKHP. However, the expected long-term benefits are enormous and have been thoroughly researched and described in the 2012 EIR/EIS on Klamath Facilities Removal and further expanded on in the Klamath Dam Removal Overview Report for the Secretary of Interior (October 2012). We are pleased that in their own analysis the Board correctly concludes that the proposed project (removal of lower four dams) is superior to the six alternatives analyzed.*

Response to Comment TR18-3
Comment noted. Please refer to Master Response GEN-1. For the Proposed Project, the CEQA document analyzes the impacts of the Proposed Project to existing conditions and this evaluation does not take into consideration ongoing impacts of continued operations of the Lower Klamath Project. The water quality certification process analyzes the Proposed Project impacts from the context of water quality standards which is different from the existing conditions (baseline) evaluated in CEQA. Please note, the No Project Alternative (Volume I Section 4.2) does acknowledge that it is not clear that if the Lower Klamath Project dams and reservoirs remained in place, if they would be able to comply with California water quality standards. Additionally, the Continued Operations with Fish Passage Alternative (Volume I Section 4.4) also acknowledges that in 2007 FERC's EIS found that PacifiCorp's proposal for relicensing of the Klamath Hydroelectric Project (KHP) failed to address the project's water quality impairments within and downstream of the Hydroelectric Reach (FERC 2007), and since 2007, PacifiCorp has developed several iterations of a Reservoir Management Plan to address water quality impairments associated with operations of Lower Klamath Project facilities. While study results indicate the actions listed its Reservoir Management Plan can improve some of the project's impacts to water quality, it has not demonstrated compliance with all water quality impacts associated with the project.

Please also note that the EIR uses the phrase "existing adverse conditions" instead of "existing conditions" in situations where the environmental resource under consideration is impaired or can result in adverse impacts on an environmental receptor(s). Use of this phrase is intended to provide appropriate and helpful context for the general reader to understand the nature of the existing condition in light of the CEQA requirement to consider the baseline condition as existing conditions (CEQA Guidelines Section 15125(a)).

Comment TR18-4
We appreciate the hard work of the California Water Board, Board staff, and consultants on developing this document.

Response to Comment TR18-4
Comment noted.

Comment TR18-5

In general, we find that fisheries and aquatic resources were adequately addressed and therefore we have very few comments. There is very good coverage of fisheries issues and impacts to fish to the point where there is almost too much information and redundancy.

Response to Comment TR18-5

Comment noted.

Comment TR18-6

General Comment on Sediment Concentrations--The largest threat to fish described under the proposed action is suspended sediment concentrations (SSC) downstream of the dams. The document does a good job in laying out the time frames of the treat (year 1 and year 2) and scenarios base on water year types ranging from dry to wet years and the longitudinal effects from upstream reaches to downstream reaches. Given the project is located below upper Klamath Lake where water is stored and could be released to increase the flushing rate of sediments, we suggest that this could be included as an alternative. Could some volume of water be stored in UKL to be later used as a flushing flow during reservoir drawdown to increase the rate of flushing and lessen the impact to fish and decrease the duration of fish exposures to high SSC?

Response to Comment TR18-6

Upper Klamath Lake is operated by the United State Bureau of Reclamation (USBR) as part of the Klamath Irrigation Project and is not part of either the Klamath Hydroelectric Project (KHP) or the Lower Klamath Project.

Lake level elevations and flow releases from Upper Klamath Lake are currently dictated by a 2019 Biological Opinion for the protection of listed lost river sucker, shortnose sucker, and coho salmon. Any flow changes in the Klamath River would be from the Biological Opinion revision process, rather than implementation of the Proposed Project. As such, use of Upper Klamath Lake for additional flushing flows during drawdown of Lower Klamath Project reservoirs is not a feasible alternative to consider in CEQA.

Please note, four sediment transport modeling scenarios were analyzed by Stillwater Sciences (2008) to examine the potential for using Upper Klamath Lake or an upstream reservoir to alter inflows to downstream reservoirs in order to reduce downstream suspended sediment concentration's (SSCs) during drawdown.

The exact flow conditions in the four modeled scenarios are slightly different from flow conditions proposed by the comment (i.e., typical Klamath River inflow for the water year type plus an additional flushing flow release from Upper Klamath

Lake), but model results from the four scenarios quantify the relative change in the magnitude and duration of SSCs resulting from an increase in Klamath River flow into the reservoirs during drawdown.

In the four modeled scenarios, an increase in the flow to the reservoirs during drawdown did not result in an overall decrease in the potential impacts from SSCs. In one modeled scenario, SSCs initially decreased during the increase in flow to the reservoirs, but a second spike in SSCs followed the flow increase and resulted in SSCs exceeding the threshold of significance (i.e., 100 milligrams per liter [mg/L]) during a period that otherwise would not have occurred under typical Klamath River flow conditions. Additionally, the flow increase produced minimal to no benefit in reducing SSCs during subsequent flow increases (e.g., spring storm events) and the duration SSCs exceeded the threshold of significance (i.e., 100 mg/L) slightly increased in the spring. In the other three modeled scenarios, the increase in Klamath River flow also had minimal to no benefit in reducing SSCs (Stillwater Sciences 2008). As such, a flushing flow during reservoir drawdown using water from Upper Klamath Lake would potentially increase the amount of reservoir sediments transported during drawdown, but it was not evaluated as an alternative or adopted as a potential mitigation measure to reduce the potential impacts to SSCs and fish exposure to high SSCs due to the infeasibility of such action, and to the potential for flushing flows to increase the duration SSCs exceed the threshold of significance (i.e., 100 mg/L) or to generate a minimal to negligible decrease in SSCs. Therefore, even if adjustments to flow releases from Upper Klamath Lake were feasible, modeling evidence does not indicate that this would reduce the potential impacts of the Proposed Project.

The issue raised in the comment does not introduce a feasible project alternative or mitigation measure considerably different from others previously analyzed that would clearly lessen the environmental impacts of the project (CEQA Guidelines Section 15088.5(a)(3)).

Comment TR18-7

The document does a good job in describing fish species and utilization under current and proposed conditions and impacts. We found a few minor inaccuracies in descriptions of the Pacific Lamprey life cycle where there was no mention of the “transformer” stage or metamorphosis from ammocoetes to adults. There an assumption that lamprey juvenile out migration occurs in the spring (like salmon smolts) when SSC would be high following reservoir drawdown. This may not be accurate because outmigration trapping in the Klamath during the fall months shows that seaward migration of juvenile “transformers” occurs during the late summer and fall months. Thus, the impact to lamprey may be over stated.

Response to Comment TR18-7
Volume I Section 3.3.2.1 *Aquatic Species – Environmental Setting – Aquatic Species – Fish – Anadromous Fish Species – Pacific Lamprey* has been modified to clarify the "transformer" stage; please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Species – Environmental Setting – Aquatic Species – Fish – Anadromous Fish Species – Pacific Lamprey* for the revision.

Please refer to revised Section 3.3 in Volume III Attachment 1, specifically, Table 3.3-8 for a summary of available data on outmigration timing of Pacific lamprey in the Klamath River Basin. Table 3.3-8 illustrates that juvenile outmigration does occur during late summer and fall months as explained by the commenter.

Comment TR18-8
Section 2.6.1 Water Conflicts Timeline Page 2-21. Despite being the topic of at least 3 feature films and receiving extensive national and international media coverage, there is no mention of the coalition of Tribes, fishermen, and conservationists that protested 3 Scottish Power Shareholder meetings in Scotland (2004-2006) follow by the disruption and protest of 3 Berkshire Hathaway Meetings in Omaha NE (2008-2010). These events were clearly more influential and significant than many of the other items included in the timeline. Additionally, despite being extensively covered by national and international media and being led in part by California Governors Schwarzenegger and Brown, there is no mention of the Klamath Hydroelectric Settlement Agreement and the Klamath Basin Restoration Agreement signed by over 40 parties in 2010. The Agreements were unprecedented in scale, scope, and bipartisan support for a Western water conflict resolution and although the agreements were not ratified by congress, they clearly led the current project under consideration.

Response to Comment TR18-8
The events described in the comment are noted and included in the record for consideration. The introduction to the timeline in Volume I Section 2.6.1 *Project Background – Water Conflicts in the Klamath River Basin* has been modified to further clarify that it is not intended to be a comprehensive history. Additionally, the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III. Please refer to Volume III Attachment 1 Section 2.6.1 *Project Background – Water History* for this revision.

Please note that Volume I Section 2.6.3 *Proposed Project – Project Background – Klamath Settlement Agreements* (pages 2-23 to 2-24) discusses the Klamath Hydroelectric Settlement Agreement (KHSA) and the Klamath Basin Restoration Agreement (KBRA).

Comment TR18-9
Timeline should also include dates of dam construction and FERC license expiration.

Response to Comment TR18-9

The events described in the comment are noted and included in the record for consideration. The introduction to the timeline in Volume I Section 2.6.1 *Project Background – Water Conflicts in the Klamath River Basin* has been modified to further clarify that it is not intended to be a comprehensive history. Please also note that the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III. Please refer to Volume III Attachment 1 Section 2.6.1 *Project Background – Water History in the Klamath River Basin* for the revisions.

Please note that the term of the Federal Energy Regulatory Commission (FERC) annual license is included in Volume I Section 2.6.2 *Proposed Project – Project Background – Relationship with Klamath Hydroelectric Project* (page 2-22). The dam construction dates are provided at the beginning of each of the facility-specific sections: Volume I Section 2.3.1 *Proposed Project – Existing Lower Klamath Project Features – J.C. Boyle Dam and Associated Facilities* (page 2-8), Volume I Section 2.3.2 *Proposed Project – Existing Lower Klamath Project Features – Copco No. 1 Dam and Associated Facilities* (page 2-11), Volume I Section 2.3.3 *Proposed Project – Existing Lower Klamath Project Features – Copco No. 2 Dam and Associated Facilities* (page 2-13), and Volume I Section 2.3.4 *Proposed Project – Existing Lower Klamath Project Features – Iron Gate Dam and Associated Facilities* (page 2-13).

Comment TR18-10

The "Major fish die-off" of 2002 should be referred to directly as a "fish kill." The fish did not die of old age – they were killed by anthropogenic factors including operation of the Lower Klamath Project. The CDFG report referenced here is not included in the references at end of section. Although initial reports put the body count at 33,000, later reports included the one referenced here suggest the actual total was twice that amount.

Response to Comment TR18-10

The phrases "fish kill" and "fish die-off" are both used to describe the 2002 event in reports authored by responsible agencies referenced in this EIR, and both phrases are likewise used in this EIR. The primary reference for the 2002 fish kill (CDFG 2004) is included as a full reference in Section 3.3.6 *Aquatic Resources – References*.

Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to clarify that the California Department of Fish and Game (CDFG) analysis indicates the total fish kill may have been twice the conservative estimate of 34,056. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

<u>Comment TR18-11</u>

Timeline should include that in 2006, in the first proceeding of its kind under recent amendments to the Federal Power Act, an Administrative Law Judge ruled that there was indeed suitable habitat upstream of Iron Gate Dam for anadromous fishes.

Response to Comment TR18-11

The events described in the comment are noted and included in the record for consideration. The introduction to the timeline in Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* has been modified to further clarify that it is not intended to be a comprehensive history. Please also note that the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III. Please refer to Volume III Attachment 1 Section 2.6.1 *Project Background – Water History in the Klamath River Basin* for the revisions.

Please note that the determinations of the dispute resolution proceeding are used as a reference in the EIR.

<u>Comment TR18-12</u>

2.6.4 Prior/Related Environmental Reviews Page 2-24. This section should note that the 2007 FERC EIS recommended relicensing with trap and haul; however, the fish agencies later filed mandatory terms and conditions pursuant to section 4e of the Federal Power Act mandating volitional fish passage. This mandate by the agencies was challenged in court by PacifiCorp who alleged there was no viable fish habitat upstream of the dams. In 2006, the Administrative Law Judge overseeing PacifiCorp's appeal of agency terms and conditions ruled that fish habitat does indeed exist above the dams and affirmed the agency mandates.

Response to Comment TR18-12

Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* is a summary of the environmental reviews conducted in relation to the Proposed Project, and it does not include details regarding the determinations of the 2006 Administrative Law Judge. Please refer to Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis – Continued Operation with Fish Passage Alternative* (pages 4-3 to 4-4). For information on the Continued Operations with Fish Passage Alternative that discusses its incorporation of the 2007 FERC staff Alternative along with the mandatory fish passage conditions required agencies. Additionally, please refer to the Volume I Section 4.4 *Continued Operations with Fish Passage Alternative* for evaluation of various fish passage options if the Lower Klamath Project continued to operation which includes trap and haul as well as volitional fish passage as required by mandatory conditions during relicensing of the Klamath Hydroelectric Project KHP).

Comment TR18-13

3.2.3 Significance Criteria Page 3-43 – The Significance Criteria includes water quality control plans for the Hoopa Valley Tribe and Yurok Tribe but not that of the Karuk Tribe. This exclusion of the Karuk Tribe continues throughout the section. The Karuk Tribe water quality control plan and our pending 'Treatment as a State' application to EPA are attached for inclusion.

Response to Comment TR18-13

The State Water Board notes the receipt of the Karuk Tribe's water quality control plan and has included it in the record.

Comment TR18-14

Section 3.3.2.1 Aquatic Species Page 3-194 The Karuk Tribe and the Salmon River Restoration Council recently submitted a petition to list Upper Klamath Trinity River Spring Chinook salmon the California Endangered Species List. (petition attached). On February 6, 2019 the California Fish and Game Commission voted unanimously to make Upper Klamath Trinity River Spring Chinook a candidate for listing while the petition undergoes a 12-month review. Table 3.3-1 should break out Upper Klamath Trinity River Spring Chinook from the more generic Chinook salmon category.

Response to Comment TR18-14

The Upper Klamath-Trinity River Spring-run Chinook salmon has been added to Section 3.3.1 *Aquatic Resources – Environmental Setting – Aquatic Species* Table 3.3-1. Please refer to Volume III Attachment 1 Section 3.3.1 *Aquatic Resources – Environmental Setting – Aquatic Species* for the revisions.

Comment TR18-15

Table 3.3-2 Misrepresents the population of wild Upper Klamath-Trinity Spring Chinook by including Trinity River spawners that are of hatchery origin. Wild Upper Klamath-Trinity Spring Chinook spawn almost exclusively in the Salmon River and South Fork Trinity Rivers and have averaged 786 individuals since 1981. See CDFW staff presentation on the petition to list Spring Chinook to the CA Fish and Game Commission on February 6, 2019 (https://videobookcase.com/california/fish-game-commission/february-6-2019-2/).

Response to Comment TR18-15

Section 3.3.1 *Aquatic Resources – Environmental Setting – Aquatic Species* Table 3.3-2 has been revised to clarify that California Department of Fish and Wildlife (CDFW) reports do not distinguish wild and hatchery origin for spring-run Chinook spawners, and that values are based on fish that returned to the hatchery. Please refer to Volume III Attachment 1 Section 3.3.1 *Aquatic Resources – Environmental Setting – Aquatic Species* for the revisions.

Comment TR18-16

Page 3-202 Refers to Salmon River Watershed Council – should be Salmon River Restoration Council.

Response to Comment TR18-16

Section 3.3.2.1 Aquatic Resources – Environmental Setting – Aquatic Species – Chinook Salmon has been revised to clarify the change from the Salmon River Watershed Council to the Salmon River Restoration Council. Please refer to Volume III Attachment Section 3.3.2.1 Aquatic Resources – Environmental Setting – Aquatic Species –Chinook Salmon for the revisions.

Comment TR18-17

Page 3-204 Should refer to Prince et al. 2017 and Thompson et al. 2018 for a more robust discussion of the status of Upper Klamath-Trinity River Spring Chinook population (attached). Thompson et al. 2018 includes physical evidence of the presence of Upper Klamath-Trinity River Spring Chinook above the dams.

Response to Comment TR18-17

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Resources – Spring-Run Chinook Salmon* has been revised to clarify genetic information as requested. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Resources – Spring-Run Chinook Salmon* for the revisions.

Comment TR18-18

Section 3.12.2.1 Tribal Cultural Chronology and Ethnology P3-794 The Karuk Tribe opposes mention of Ruffey Rancheria as representing the Shasta People. The founder and namesake of the Ruffey Rancheria, Old Man Ruffey, as well as the final distributees of the Rancheria, were all Karuk Indians. The present-day descendants of Old Man Ruffey and the final distributees who qualify by blood quantum are enrolled with the Karuk Tribe. A subgroup of Shasta People recently tried to use the terminated Ruffey Rancheria to congressionally establish their own Tribe. The Karuk Tribe's challenge to this group's claim to the Ruffey Rancheria effectively killed this effort. This EIR is an inappropriate venue to re-litigate the issue therefore mention of Ruffey Rancheria should be dismissed from the document or else Karuk's communications to congress should be included herein (attached).

Response to Comment TR18-18

Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People* has been clarified to remove the phrase referencing the Ruffey Rancheria. Please refer to Volume III Attachment 1 Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including*

Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People for the revisions.

Comment TR18-19

P3-797 1979 was not the date when the Karuk Tribe became federally recognized. In that year, the Karuk Tribe re-established a government to government relationship with the United States.

The Karuk Tribe does not view Bright (1978) as a particularly good source to describe our ethnography. Attached is an ethnographic report we developed with a detailed bibliography. We also refer you to consider the ethnographic section of the 2012 Klamath Facilities Removal EIS/EIR as a reasonable attempt to describe Karuk Ethnography. See https://klamathrestoration.gov/sites/klamathrestoration.gov/files/Additonal%20Files%20/1/Chapter%203 %20-%20Affected%20Environment_Environmental%20Consequences.pdf

Response to Comment TR18-19

Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography – Northwest California Culture Area – Ethnography – Karuk* has been revised to clarify that in 1979 the Karuk Tribe re-established a government to government relationship with the United States. Please refer to Volume III Attachment 1 Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography – Northwest California Culture Area – Ethnography – Karuk* for the revisions.

Please note that the 2012 KHSA EIS/EIR was used as a source of information for developing Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods)*. The Bright (1978) citations referenced in this comment are carried over from the Karuk ethnography sections of the 2012 KHSA EIS/EIR. Additionally, the State Water Board appreciates that the Karuk Tribe has provided the Salter and Tucker (2010) summary of history and ethnography, thus including the associated information in the record for the Lower Klamath Project EIR.

Comment TR18-20

Section 3.12.2.2 Historic Period P3-803 The description of the 'Historic Period' is highly sanitized and offensive. Although there is reference to the growth of Euro American settlers, the document fails to mention the magnitude of the genocide waged against Indian People by those settlers. We refer you to Madley's An American Genocide: The United States and the California Indian Catastrophe, 1846-1873, or Lindsay's Murder State: California's Native American Genocide, 1846-1873.

The description of the Klamath Hydroelectric Project and the "significant role" it played in the area's economic development should also include the role it played in destroying the area's robust eco-tourism. Similarly, it should describe the preferential power rate that the California/Oregon Power Company was required to provide the Klamath Irrigation Project with was terminated in 2006.

Response to Comment TR18-20
Section 3.12.2.2 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods)* has revised to clarify that the development of the Klamath Hydroelectric Project (KHP) played a significant role that was both positive and negative in the area's development. Please refer to Volume III Attachment I Section 3.12.2.2 *Historical Resources and Tribal Cultural Resources – Environmental Setting* – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) for the revision.

Comment TR18-21
P3-812 Klamath Cultural Riverscape The Board correctly includes a discussion of the Klamath Cultural Riverscape which provides important context for the document.

Response to Comment TR18-21
Comment noted.

Comment TR18-22
Section 3.12.5.1 Potential Impacts to Tribal Cultural Resources

Page 3-818 Mitigation Measure TCR-1 Develop and Implement a Tribal Cultural Resources Management Plan

The Karuk Tribe strongly supports this measure.

Response to Comment TR18-22
Comment noted.

Comment TR18-23
Mitigation Measure TCR-2 − Develop and Implement a Looting and Vandalism Prevention Program. The Karuk Tribe strongly supports this measure.

Response to Comment TR18-23
Comment noted.

Comment TR18-24
Mitigation Measure TCR-3 − Develop and Implement Inadvertent Discovery Plan (IDP) The Karuk Tribe strongly supports this measure.

Response to Comment TR18-24
Comment noted.

Comment TR18-25
Mitigation Measure TCR-4 − Endowment for Post-Project Implementation The Karuk Tribe asserts that the construction and operation of the Klamath Hydroelectric Project has had devastating impacts on Traditional Cultural Resources (TCRs) of every Tribe in the Klamath Basin. An endowment to protect and enhance TCRs should not be limited to the TCR's in the project area, but to all TCRs impacted by the construction and/or operation and/or removal of the dams.

Response to Comment TR18-25
CEQA requires that the lead agency analyze a proposed project's impacts to California environmental resources. Impacts of the proposed project are determined by comparing the actions of the proposed project to the existing environmental conditions which are usually established at the time CEQA was initiated. If there is a potentially significant impact compared to the baseline condition, then the EIR evaluates mitigation measures.
Mitigating for legacy impacts associated with prior project approvals and existing conditions (that together constitute the baseline) is not appropriate for this CEQA process.

Comment TR18-26
Mitigation Measure TCR-6 − Land Transfer Page 3-841 The Karuk Tribe tentatively agrees with the Board's interpretation of the KHSA Section 7.6.4. However, given the Board's acknowledgement that "The process for determining future land uses under KHSA Section 7.6.4 has not advanced to the point at which competing uses, financial limitations, parcel access requirements, or other constraints have become clear," and "it is too early in the process to determine the feasibility of such [a land] transfer" we see TCR-6 as overly specific and inappropriate to include as a mitigation measure.

Response to Comment TR18-26
During development of the Draft EIR, the State Water Board conducted formal Assembly Bill 52 (AB 52) consultation with the Shasta Nation, Shasta Indian Nation, and Yurok Tribe. In consultation with the Shasta Indian Nation and the Klamath River Renewal Corporation (KRRC), it was agreed upon by all three parties, that an appropriate mitigation measure to reduce impacts to Native American Tribal Cultural Resources (TCRs) associated with implementation of the Proposed Project would include the potential for land transfer of Project lands to Native American Tribal entities, which is consistent with Section 7.6.4 of the Klamath Hydroelectric Settlement Agreement (KHSA).

Mitigation Measure TCR-7 is similarly consistent with Section 7.6.4 of the KHSA, and provides for consideration of a range of potential real property instruments in the process for disposition of Parcel B Lands. Neither it nor any other measure in this section of the EIR commits the KRRC to transfer specific portions of lands to specific Native American entities, or to adopt conservation easements or other real property protections for any particular parcel. The process outlined in Section 7.6.5 of the KHSA provides for input from KHSA signatories and other potentially affected tribes on the ultimate disposition of Parcel B lands.

CEQA provides that real property mitigation measures should be considered and are available for mitigation for tribal cultural resources impacts (Public Resources Code section 21084.3). Further, CEQA provides for identification of mitigation measures in tribal consultation, and for inclusion of such measures in the EIR (Public Resources Code sections 21080.3.2, 21082.3).

Comment TR18-27

Potential Impact 3.12-9 Klamath Cultural Riverscape Contributing Aspect – Combined effects on the Klamath River fishery of dam removal, changes in hatchery production, and increased habitat for salmonids and 3.3.2.3Habitat Attributes Expected to be Affected by the Proposed Project Page 3-247 Fish Hatcheries

These sections presume that the impact of hatcheries on Klamath basin fisheries is positive. The Karuk Tribe urges the Board to broaden the discussion and consider peer reviewed evidence to the contrary. Quinones et al. makes a compelling argument that Iron Gate Hatchery has served to reduce native wild Chinook salmon in the Klamath Basin. Furthermore, recent studies suggest that hatchery reared salmon suffer impaired survival rates due to epigenetic factors.

Response to Comment TR18-27

Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* includes an analysis of the effects of the Iron Gate Hatchery, including referencing research articles and studies specific to the Klamath River Basin. The analysis in the EIR includes consideration of research indicating potential positive and negative effects of hatcheries, including consideration of research consistent with Quinones et al. (2013) and the epigenetic study by Le Luyer et al. (2017), which have been included in the record. Consideration of the additional research referenced by commenter does not alter the analysis or conclusions reached by the EIR. Please also refer to responses to comments ORG34-14 and ORG42-9.

Comment TR18-28

Potential Impact 3.20-5 Changes to or loss of river conditions that support whitewater boating While it is true that dam removal will impact the current business model associated with commercial rafting the Hell's Corner reach, changes in river conditions and the restoration of the river channel will create new runs that may be commercially viable year-round. These new runs may *require a change in the business model (e.g. inflatable kayaks as opposed to guided 14-foot rafts or multi-day wilderness trips). In addition, the discussion here fails to highlight or mention how many of these 'user days' are marred by water quality impairments. This reach is commonly posted for blooms toxic blue green algae. This should be included in the discussion. The Karuk Tribe asserts that impacts to Hell's Corner are avoidable if the mitigation included assistance in re-writing existing business plans and you consider water quality improvements associated with dam removal.*

Response to Comment TR18-28

State Water Board does not anticipate that consideration of the number of whitewater boating user days lost in the Hell's Corner Reach due to existing conditions water quality impairments would change the determination that the Proposed Project would result in the total loss of opportunity to raft Class IV+ rapids for three months during the late summer and early fall and this would be a significant and unavoidable impact. It is certainly possible that other recreational boating opportunities would become available under the Proposed Project; however, the degree to which this may happen is speculative and thus cannot be relied upon under CEQA for a significance determination.

Comment TR18-29

The only mitigation measure that we have questions about is the arsenic testing and remediation (WQ-3 - Monitoring and potential remediation of reservoir sediments deposited along the Middle and Lower Klamath River floodplain) (see specific comment below in 3.2.5.7)

The proposed water quality monitoring plan is inadequate. Our main concerns with the water quality monitoring plan here:

1) Add a site at Walker Bridge. There is a 60 mile gap in monitoring stations between Iron Gate Dam and Seiad Valley, and that reach of river will experience both the greatest short-term impacts and long-term changes following dam removal. A site should be added at Walker Bridge to address this concern. While it notes in the Definite Plan (Appendix B-Definite Plan Appendix M) that Walker Bridge site was dropped due to access issues, USGS staff have been working on securing a location for a Walker Bridge monitoring location.

Response to Comment TR18-29

Please refer to response to comment TR18-56 regarding Mitigation Measure WQ-3.

The commenter is expressing concerns that the Klamath River Renewal Corporation's (KRRC's) water quality monitoring plan, put forth in the Definite Plan, is inadequate. Additionally, the commenter asserts that the June 7, 2018, water quality monitoring and adaptive management plan required by the State Water Resources Control Board's draft water quality certification is also inadequate. The commenter notes that it has provided comments on the State Water Resources Control Board's draft water quality certification.

The EIR analyzes the potential for environmental impacts due to implementation of the KRRC's Proposed Project and alternatives to the Proposed Project. The requests regarding monitoring and data collection are not raised in connection with concerns regarding the EIR's evaluation of potential environmental impacts of the Proposed Project, or mitigation for such impacts. The comment expresses general support for the EIR's impact analysis of fisheries impacts (please refer to comment TR18-5), and raises concerns regarding the EIR's water quality analysis with respect to only one mitigation measure regarding remediation for sediment deposits that is not a part of the water quality monitoring and data collection concerns.

Please note that the State Water Resources Control Board has made several revisions to its water quality monitoring and adaptive management plan that will be included in its final water quality certification, including in response to comments by the Karuk Tribe.

Please refer to Volume I Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* (pages 2-97 to 2-99) for a general summary of the water quality monitoring included in the Definite Plan. Volume I Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* provides a general discussion of the water quality monitoring with regards to the individual water quality parameters (see Potential Impact 3.2-1 for water temperature; Potential Impact 3.2-3 for suspended sediments; Potential Impact 3.2-7 for nutrients; Potential Impact 3.2-9 for dissolved oxygen; Potential Impact 3.2-11 for pH; Potential Impact 3.2-12 for chlorophyll-a and algal toxins; and, Potential Impact 3.2-14 for inorganic and organic contaminants). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR18-30

Increase/adjust parameters collected for water quality monitoring. There is a substantial reduction in the number of stations and water quality parameters in the proposed water quality monitoring plan relative to the Klamath Hydroelectric Settlement Agreement (KHSA) Interim Measure 15 (IM15) monitoring program which has been collecting baseline data since 2009. Aside from the sonde and suspended sediment monitoring, the current monitoring plan only calls for total nitrogen, total phosphorous, and blue green algae speciation monthly. Monthly nutrient sampling should also include the other forms of nitrogen and phosphorous as well as dissolved carbon that are currently being collected as part of IM15. Total nitrogen and total phosphorous alone are not adequate in analyzing changes in nutrient loads from the proposed project. Phytoplankton speciation should be focused more in the seasonal growing period (May to October) rather than monthly throughout the year and should include not only *speciation of microcystin-producing algae but also concentrations of microcystin. Adding sites at state line (Shovel Creek) and Walker Bridge will allow for a more comprehensive analysis of water quality impacts by the project.*

Response to Comment TR18-30
Please refer to response to comment TR18-29.

Comment TR18-31
Work with USGS and KRRC to ensure that enough event-based suspended sediment concentrations (SSC) samples will be collected. An adequate number of samples need to be collected to be able to combine with continuous turbidity and flow data to construct the sediment budgets that are necessary to understand the ultimate fate of reservoir sediments. Consider adding tributary sites as well (Shasta, Scott, Salmon, Trinity), particularly to aid in the development of the sediment budget.

Response to Comment TR18-31
Please refer to response to comment TR18-29.

Comment TR18-32
We would also suggest that monitoring should continue for at least five years post-drawdown. The massive scale of the proposed dam removal project merits a monitoring plan sufficiently detailed that it will adequately assess the results of the project. It is our understanding that the water quality monitoring plan is still in development, and that the SWRCB will have the final word on what needs to be included. Please ensure that the monitoring plan will provide enough information to determine if the actual effects of the dam removal matched the predictions, with the ancillary benefit of using this once-in-a-lifetime opportunity to provide crucial information needed to guide long-term river management.

Response to Comment TR18-32
Please refer to response to comment TR18- 29.

Comment TR18-33
The Comments on Specific Details section below is organized by section and page number. It provides suggested edits to improve the EIR's technical accuracy.

Response to Comment TR18-33
Comment noted.

Comment TR18-34
Similar text is often repeated on multiple pages within the DEIR. In general, our comments here specifically reference only one page (or section) but are intended to apply to multiple pages/sections if the text we reference also appears elsewhere in the DEIR.

Response to Comment TR18-34
Comment noted.

<u>Comment TR18-35</u>
2.7.8.7 Water Quality Monitoring and Construction BMPs

USGS did not collect sediment samples in 2017 from the reservoirs. We suggest contacting Ben Swann of CDM Smith to see which consultants to KRRC collected the samples.

Response to Comment TR18-35
Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* has been updated to clarify that the Klamath River Renewal Corporation (KRRC) collected reservoir sediment core samples from November 28, 2017 to December 1, 2017. Please refer to Volume III Attachment 1 Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* for the revisions.

<u>Comment TR18-36</u>
Please improve the water quality monitoring plan with suggestions listed above.

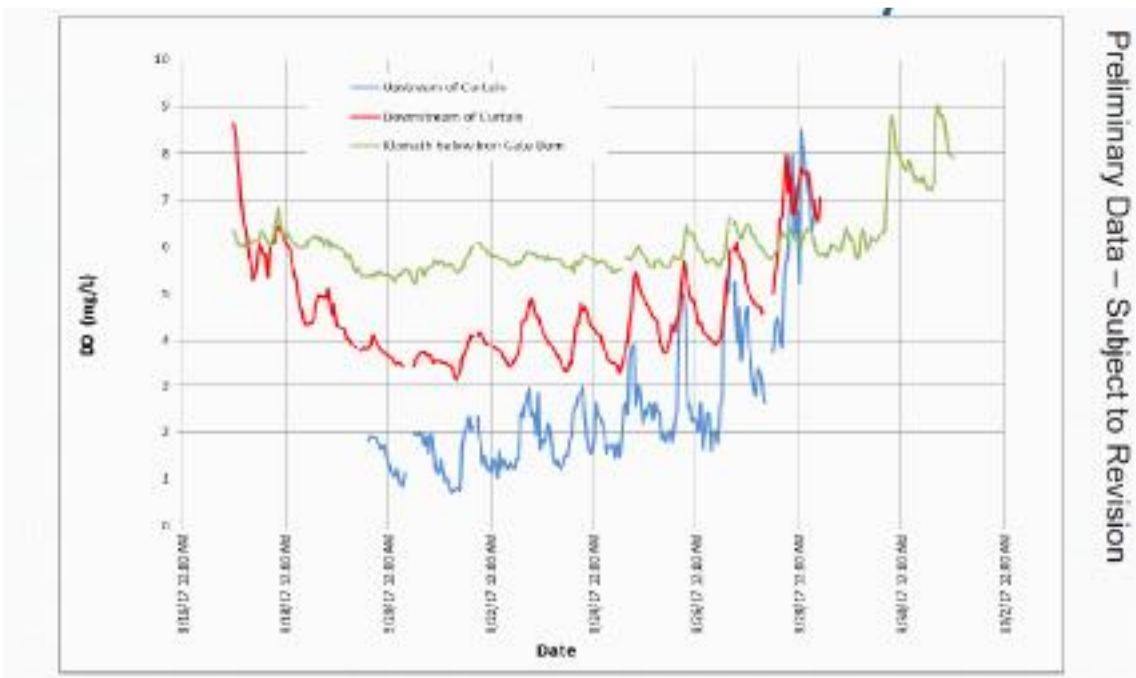
Response to Comment TR18-36
Please refer to response to comment TR18-29.

<u>Comment TR18-37</u>
Page 3-22: "The relatively shallow depth and short hydraulic residence times do not support thermal stratification in J.C. Boyle Reservoir (FERC 2007; Raymond 2008a, 2009a, 2010a) and thus this reservoir does not directly alter summertime water temperatures in further downstream reaches (NRC 2004)." We recommend adding ", other than reducing the magnitude of diel (i.e., 24-hour cycle) fluctuations" to the end of the sentence.

Response to Comment TR18-37
J.C. Boyle Reservoir itself does not alter the magnitude of the diel water temperature fluctuations in the J.C. Boyle Bypass Reach downstream of the dam. The magnitude of diel water temperatures is reduced due to bypass operations from J.C. Boyle Dam that reduce the relative proportion of flow in the river from upstream and increase the relative proportion of flow from groundwater springs in the J.C. Boyle Bypass Reach. Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify the influence of bypass operations on water temperatures in the J.C. Boyle Bypass Reach based on the comment recommendation. Please refer to Volume III Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for these revisions.

Comment TR18-38

Page 3-23 (and also applicable to many other section of the DEIR): We recommend that any text discussing the effects of the Iron Gate Reservoir curtain should also note that during intense algae blooms the curtain has the detrimental side-effect of reducing dissolved oxygen concentrations in water released downstream. Operationally, this means that the curtain must be raised during intense blooms to avoid reducing dissolved oxygen downstream, which limits the curtain's usefulness for reducing algae. The preliminary data in the following slide from PacifiCorp's October 16, 2017 presentation to the Interim Measures Implementation Committee (there is not yet a draft report that includes these data) shows low dissolved oxygen values in late September 2017 downstream of the curtain (red line) and below Iron Gate Dam (green line):



Response to Comment TR18-38

The preliminary dissolved oxygen data from PacifiCorp's October 16, 2017 presentation to the Interim Measures (IMs) Implementation Committee that is provided in the comment is too limited to draw broad conclusions about the influence of the Iron Gate Reservoir powerhouse intake curtain on dissolved oxygen conditions downstream of Iron Gate Dam. However, in its 2018 report, PacifiCorp acknowledges that it had to raise the curtain several times after the curtain was deployed to access water with higher dissolved oxygen concentrations and comply with water quality standards, potentially limiting the effectiveness of the curtain to reduce transport of cyanobacteria into the Klamath River downstream of Iron Gate Dam (PacifiCorp 2018a). Section 3.2.2.2 *Water Quality – Existing Conditions – Water Temperature* and other water quality sections discussing the powerhouse intake curtain have been clarified to acknowledge that the potential beneficial effects of the intake curtain on algae and water temperature in the Klamath River downstream of Iron Gate Dam may be reduced when the curtain is raised in response to low dissolved oxygen concentrations. Please refer to Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Existing Conditions – Water Temperature*, Section 3.2.2.7 *Water Quality – Existing Conditions – Chlorophyll-a and Algal Toxins*, Section 4.2.2 *No Project Alternative – Water Quality – Water Temperature*, Section 4.2.2 *No Project Alternative – Water Quality – Chlorophyll-a and Algal Toxins,* Section 4.4.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature*, Section 4.4.2.2 *Continued Operations with Fish Passage Alternative – Water Quality – Suspended Sediments*, Section 4.4.2.4 *Continued Operations with Fish Passage Alternative – Water Quality – Dissolved Oxygen, and Section 4.4.2.6 Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins* these revisions.

Comment TR18-39

Page 3-24 "Species present in the Klamath River capable of producing microcystin include Microcystis aeruginosa and Anabaena flos-aquae, while species present in the Klamath River in the genus Anabaena can produce anatoxin-a and saxitoxin." Other species capable of producing microcystin have been detected in the Klamath River as well (even though they never dominate). These are Gloeotrichia and Planktothrix/Oscillatoria (Genzoli and Kann 2017, E&S Environmental Chemistry, Inc. 2018, Asarian and Kann 2006). Additional potentially toxin producing genera found in the Klamath River and/or reservoirs include Limnothrix (E&S Environmental Chemistry, Inc. 2018) and Pseudanabaena (Genzoli and Kann 2017).

Response to Comment TR18-39

Please note that the sentence quoted in the comment and attributed to page 3-24 is actually found on page 3-34.

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify using language similar to that requested in the comment. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-40

Page 3-26 "However, in the summer months, organic suspended materials can increase in the Klamath River between Iron Gate Dam and Seiad Valley (RM 132.7) due to the transport of in-reservoir algal blooms to downstream reaches of Klamath River as well as resuspension of previously settled organic materials (YTEP 2005; Sinnott 2008; Armstrong and Ward 2008; Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016). Further downstream, near the confluence with the Scott River (RM 145.1) concentrations of organic suspended materials tend to decrease with distance as phytoplankton gradually settle out of the water column farther downstream or are diluted by *tributary inputs (see Appendix C for more detail)." The Scott River is downstream of Seiad Valley, so it is potentially confusing to use the term "further downstream" here.*

Response to Comment TR18-40

Section 3.2.2.3 Water Quality – Environmental Setting – Suspended Sediments has been revised to clarify the location near the Scott River confluence. Please refer to Volume III Attachment 1 Section 3.2.2.3 Water Quality – Environmental Setting – Suspended Sediments for the revision.

<u>Comment TR18-41</u>

Page 3-28: The sentence "TP and TN concentrations in the Klamath River vary with flow, with the highest concentrations tending to occur during low flow years (e.g., 2001-2004) and the lowest concentrations tending to occur during high flow years (e.g., 2006, 2010, 2011) (Asarian and Kann 2013)" should be revised to note that it pertains only to the low-flow season (summer and early fall). TP can be very high during peak winter and spring flows due to suspended sediment.

Response to Comment TR18-41

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify that the statement pertains to summer through early fall. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions.

<u>Comment TR18-42</u>

Page 3-34: The sentence previous to this one "Diatoms (i.e., unicellular, photosynthetic microalgae) typically dominate in spring then decrease due to zooplankton grazing and the onset of water column stratification, which results in the diatoms settling out of the water column below the lake or reservoir surface layer (epilimnion)." refers to longitudinal trends including those for the riverine reaches, but this quoted sentence focuses on lentic (i.e., non-flowing) waters only- it should be revised to note that, since the dynamics do not apply to free-flowing river reaches.

Response to Comment TR18-42

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify when the results being discussed are related to river or lake/reservoir conditions. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

<u>Comment TR18-43</u>

Page 3-36: "Phycocyanin, a pigment produced by blue-green algae, has been collected between May and November at some monitoring sites in the Klamath River downstream of Iron Gate Dam since 2007. At Seiad Valley (RM 132.7), phycocyanin is typically low from May through early August, increases to a peak *in early September, and decreases until reaching low levels again by the end of October (Asarian and Kann 2013). Phycocyanin concentrations generally coincide with chlorophyll-a concentrations for the portion of the Klamath River at Seiad Valley." We recommend that these sentences should be revised/replaced. Genzoli and Kann (2016) has a much more comprehensive analysis of Klamath River phycocyanin data than Asarian and Kann (2013). In addition, phycocyanin is measured by continuous probes, so it would be more accurate to say "measured" rather than "collected".*

Response to Comment TR18-43

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify phycocyanin data in the Klamath River according to the comment. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-44

Page 3-37 The text citing the Otten et al. (2015) study should also be revised to briefly mention the genetic evidence for Iron Gate Reservoir being the source for Microcystis in the lower Klamath River. This genetic evidence is mentioned in section 3.4 Phytoplankton and Periphyton. Otten et al. (2015) document with genetic analysis that algal production in Iron Gate Reservoir is the principal source of Microcystis aeruginosa responsible for the observed public health exceedances occurring in the Klamath River downstream from Iron Gate Dam.

Response to Comment TR18-44

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* been revised to clarify that the genetic analysis of *Microcystis aeruginosa* populations included Copco No. 1, Iron Gate Reservoir, and Klamath River sites and *Microcystis aeruginosa* populations in Iron Gate Reservoir likely contribute to *Microcystis aeruginosa* public health exceedances in the Klamath River below Iron Gate Reservoir. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-45

Page 3-37: Genzoli and Kann (2017) serves as a recent compilation of Microcystis and microcystin trends in the middle Klamath River, including diel, seasonal and longitudinal trends. Although this document is covered elsewhere (e.g., page 3-403; 3-414; 3-417, 3-431) it would be useful to cite here as well.

Response to Comment TR18-45

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been clarified as requested. Please refer to EIR Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-46

Page 3-38 contains the following paragraph regarding anatoxin-a:

"Anatoxin-a produced by the genus Anabaena of blue-green algae species was detected in Iron Gate Reservoir on September 3, 2005, in testing by the California Department of Health Services (Kann 2007a; Kann 2008b). In additional, monitoring conducted for the Karuk Tribe during 2005, 2006, 2007, 2008 in Copco No. 1 or Iron Gate reservoirs found no anatoxin-a detected (Kann and Corum 2006, 2007, 2009; Kann 2007b). At Lower Klamath River monitoring sites, anatoxin-a was not detected above the reporting limit in water samples collected during 2008 and 2009 (Fetcho 2009, 2011). In recent years, anatoxin-a has been measured in the Klamath River downstream of Iron Gate Reservoir on several occasions, typically in the lower reaches including at monitoring sites near Weitchpec and Orleans (Otten 2017). While concentrations of Anabaena flos-aquae cells have continued to be monitored, anatoxin-a concentrations are not available for Lower Klamath Project reservoir and Klamath River sites in recent years."

We recommend that this paragraph be updated to reflect more recent Klamath River data, the uncertainty in the sources of anatoxin, and the potential contribution of benthic sources (i.e. periphyton) in anatoxin-a production. The issue of potential benthic contributions to anatoxin-a production also applies to several other places within the DEIR. In our opinion, potential benthic production of anatoxin would not change any of the effects determinations in DEIR but should probably be included for the sake of completeness. Here is a replacement paragraph to consider using in place of the paragraph quoted above:

"Anatoxin-a has been detected in the Klamath River system, although the timing, distribution, and sources of anatoxin-a production in the Klamath is not well understood. Cyanobacterial species from a number of genera are capable of producing anatoxin-a, including Dolichospermum (planktonic species previously considered part of the genus Anabaena are now called Dolichospermum), Anabaena (previously included planktonic and benthic species whereas it is now only benthic species), Aphanizomenon, Cylindrospermopsis, Planktothrix (Oscillatoria), and Phormidium (Chorus and Bartram 1999, Quiblier et al. 2013, U.S. EPA 2014, Bouma-Gregson et al. 2018). Although toxin-producing phytoplankton are more well studied, periphyton can also produce toxins including anatoxin-a (Heath et al. 2011, Quiblier et al. 2013). In many California rivers and streams not impounded by dams, periphyton are assumed to be the primary sources Anatoxin-a (Fetscher et al. 2015), including species in genus Anabaena and Phormidium in tributaries of the Eel River located south of the Klamath River (Asarian and Higgins 2018, Bouma-Gregson et al. 2018). Anatoxin-a was detected in Iron Gate Reservoir on September 3, 2005, in testing by the California Department of Health Services (Kann 2007a; Kann 2008b),

while monitoring conducted for the Karuk Tribe during 2005-2008 in Copco No. 1 and Iron Gate reservoirs did not detect anatoxin-a (Kann and Corum 2006, 2007, 2009; Kann 2007b). At Lower Klamath River monitoring sites, anatoxin-a was not detected in water samples collected during 2008 and 2009 (Fetcho 2009, 2011). In more recent years (2010, 2015, 2016), anatoxin-a was detected in the Klamath River from sites directly below Iron Gate Dam to the Klamath River Estuary (unpublished data from the Yurok and Karuk Tribes). Genetic tools that detect the presence of an anatoxin-a synthase gene came back positive for 19.5% of 123 samples from throughout the Klamath River system, although how the presence of the synthase gene relates to toxin concentrations is still unknown (Otten 2017). The detection of anatoxin-a over many years suggest that anatoxin-a poses a persistent public health threat for the Klamath River, yet the timing, spatial scale, and sources of the toxin are poorly understood due to limited monitoring for anatoxin-a."

Response to Comment TR18-46

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the discussion of uncertainty for anatoxin-a distribution and sources and which cyanobacteria species are capable of producing anatoxin-a. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-47

Page 3-54: Table 3.2-7 lists the Hoopa Valley Tribe's water quality objectives that are to be used (along with the applicable objectives from the NCRWQCB and Yurok Tribe) to evaluate thresholds of significance for water quality impacts. The table has a footnote that:

'HVTEPA (2008) includes a natural conditions clause which states, "If dissolved oxygen standards are not achievable due to natural conditions, then the COLD and SPAWN standard shall instead be dissolved oxygen concentrations equivalent to 90% saturation under natural receiving water temperatures." USEPA has approved the Hoopa Valley Tribe definition of natural conditions; the provision that site-specific criteria can be set equal to natural conditions and the procedure for defining natural conditions have not been finalized as of December 2018.'

There is also a second similar footnote regarding total nitrogen and total phosphorus. While not strictly wrong, those footnotes are incomplete because they do not mention that until the Tribe establishes the procedure for defining natural conditions, and EPA approves that procedure, the natural conditions do not have any legal weight. The exact wording in EPA's Feb 14, 2008 approval letter was: "with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing Natural Condition reference conditions, the stated numerical criteria... will constitute the operative criteria for all purposes."

Therefore, we recommend that "USEPA has approved the Hoopa Valley Tribe definition of natural conditions; the provision that site-specific criteria can be set equal to natural conditions and the procedure for defining natural conditions have not been finalized as of December 2018" be replaced with "USEPA has approved the Hoopa Valley Tribe definition of natural conditions with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing Natural Condition reference conditions, the stated numerical criteria will constitute the operative criteria for all purposes."

Response to Comment TR18-47
Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance* Table 3.2-7 has been revised to include reference that United States Environmental Protection Agency (USEPA) has approved the Hoopa Valley Tribe definition of natural condition with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing the "natural conditions" reference condition, the stated numerical criteria will constitute the operative criteria for all purposes. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance* Table 3.2-7 for the revisions.

Comment TR18-48
Page 3-59 and page 3-60: The overall approach for assessing the significant of impacts for nutrients makes sense, but we are unclear on why this section mentions the TMDL targets for Total Nitrogen (TN) and Total Phosphorus (TP) but not the Hoopa Valley Tribe's objectives for TN and TP?

Response to Comment TR18-48
Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Nutrients* has been revised to clarify a refence to Hoopa Valley Tribe Total Phosphorus (TP) and Total Nitrogen (TN) numeric targets. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Nutrients* for the revisions.

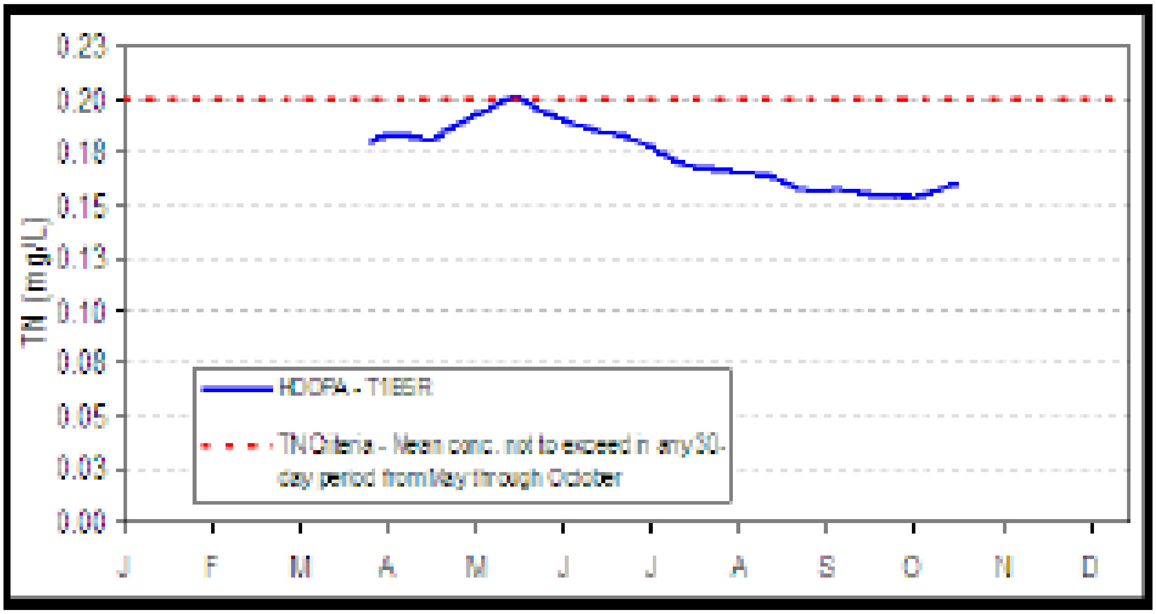
Please note, the minor clarifications raised by the comment do not change an environmental impact or mitigation measure analyzed in the EIR because the Hoopa Valley Tribe numeric TP and TN surface-water quality objectives already had been used in the Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR18-49
Page 3-117 includes the following sentence:

"Klamath River TMDL model results indicate that while resulting TP levels would meet the existing Hoopa Valley Tribe numeric water quality objective (0.035 mg/L TP) in all months at the Hoopa reach (approximately RM 45) of the Klamath

River, TN levels would continue to be in excess of the existing objective (0.2 mg/L TN) in all months, as would TN levels for the modeled 'natural conditions' (T1BSR) and the modeled 'dams-in' scenario (T4BSRN) (for the months of October through June) (North Coast Regional Board 2010)."

The second half of this sentence is incorrect, so we recommend that it be revised. The TN concentrations predicted in the final version of the 'natural conditions' (T1BSR) scenario exceeded the Hoopa Valley Tribe's criteria only for a few days in May, not 'in all months'. In addition, the magnitude of the exceedance is so small that it can reasonably be considered de minimis, as shown in the following figure from the North Coast Regional Board (2010):



The incorrect statement on TN exceedances may be a result of outdated information. Initial versions of the 'natural conditions' (T1BSR) scenario did indicate substantive exceedances of the Hoopa Valley Tribe's TN objective; however, these exceedances were caused by unrealistically high TN concentrations assigned to tributaries. Once these tributary concentrations were corrected to more closely represent available data, the exceedances essentially disappeared in the final official version of the model (i.e., see figure above).

Response to Comment TR18-49

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been revised to clarify the Hoopa Valley Tribe numeric water quality Total Nitrogen (TN) objective exceedance information for Total Maximum Daily Load (TMDL) model results. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

Comment TR18-50

Page 3-117 "While there would be a slight increase in absolute nutrient concentrations entering the Middle Klamath River under the Proposed Project, phytoplankton, especially blue-green algae, would be limited in their ability to use those nutrients for growth and reproduction without calm reservoir habitat (Potential Impact 3.4-2)." We recognize that word choices are subjective, but "slight" is probably not the most accurate word to describe the expected increase, unless it is specifically in reference to annual time scales, not seasonal time scales. As noted on page 3-116, the increases in TN for the July through September period are expected to be in the range of 48-55%. We suggest replacing "a slight increase" with "an increase".

Response to Comment TR18-50

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

Comment TR18-51

Page 3-118: "In general, although dam removal would result in a slight long-term increase in TP and TN away from the numeric targets, such an increase would not support the growth of nuisance and/or noxious phytoplankton or nuisance periphyton." Similar to our previous comment above regarding page 3-117, it would be more accurate to replace "a slight long-term increase in TP and TN" with "a long-term increase in TP and TN" or "a slight long-term increase in annual TP and TN".

Response to Comment TR18-51

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

Comment TR18-52

Page 3-135: "…monitoring data at multiple locations further downstream in the Middle and Lower Klamath River indicate that pH patterns over a 24-hour period are driven primarily by photosynthesis and respiration of periphyton (Ward and Armstrong 2010; Asarian et al. 2015; see Section 3.4.2.2 Periphyton) rather than phytoplankton." A direct quantification of the relative contributions to primary production in the Middle Klamath River is provided by Genzoli and Hall (2016). Even though Genzoli and Hall's (2016) analysis did not specifically evaluate pH, we recommend that it should still be cited here.

Response to Comment TR18-52

The reference provided in the comment (i.e., Genzoli and Hall 2016) supports the premise of Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH*

Potential Impact 3.2-11 discussion and analysis, which is that, in the absence of a reservoir phytoplankton bloom that is subsequently transported into the Middle and Lower Klamath River, periphyton are relatively more important for influencing diel fluctuations in water quality conditions (e.g., dissolved oxygen and pH) compared to phytoplankton. As the EIR analysis is focused on pH changes in the river, while the reference provided in the comment focuses on primary productivity in grams oxygen per square meter per day (g $O_2/m^2/d$) rather than pH, the reference provided in the comment has not been added to the pH analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR18-53

Page 3-136: "Since N-fixing species dominate the periphyton communities in the lower portions of the Middle Klamath River as well as the Lower Klamath River where inorganic nitrogen concentrations are low (Asarian et al. 2010, 2014, 2015), changes in nutrients due to dam removal are not expected to alter the periphyton community in these reaches (see Potential Impact 3.4-5)." The species composition of the periphyton community may well shift, but the biomass is not expected to increase substantially. We suggest that this end of this sentence be revised to "…are not expected to substantially alter total periphyton biomass in these reaches (see Potential Impact 3.4-5)."

Response to Comment TR18-53

Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 has been revised to clarify that changes in the periphyton species composition under the Proposed Project would not significantly alter the total periphyton biomass in the Middle and Lower Klamath River. Please refer to Volume III Attachment 1 Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 for the revisions.

Comment TR18-54

Page 3-137. While reservoir phytoplankton are by far the dominant source of algal toxins in the Klamath River, Section 3.2.5.6 Chlorophyll-a and Algal Toxins should probably also mention that river periphyton are capable of producing cyanotoxins including anatoxin-a. This would not change the effects determinations but should be mentioned for the sake of completeness. See comments regarding page 3-38 above for details.

Response to Comment TR18-54

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been updated to note that cyanotoxins (including anatoxin-a) can be produced by riverine periphyton in addition to phytoplankton. Please refer to Volume III Attachment I Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for these revisions.

Please note, while some periphyton species are capable of producing algal toxins, including microcystin and anatoxin-a (Heath et al. 2011; Quiblier et al. 2013; see Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins*), all available data indicate that algal toxin presence (i.e., microcystin and anatoxin-a) in the Klamath River corresponds to high concentrations of phytoplankton blue-green algae cells (i.e., algae blooms of *Microcystis aeruginosa* for microcystin or *Anabaena flos-aquae* for anatoxin-a) (Kann and Corum 2006, 2007, 2009; Kann 2006, 2007a,b,c,d, 2008b; Jacoby and Kann 2007; CH2M Hill 2008; Kann et al. 2010a; Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016; Otten et al. 2015). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Clarifications based on this comment do not change effects determinations in Section 3.2 *Water Quality*.

Comment TR18-55

"While algal toxins and chlorophyll-a produced in Upper Klamath Lake may still be transported downstream after dam removal, existing data indicate that microcystin concentrations in the Klamath River decrease to below California water quality objectives (see Section 3.2.3.1 Thresholds of Significance) by the upstream end of J.C. Boyle Reservoir, regardless of the microcystin concentration measured leaving the Upper Klamath Lake (Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016)."

There have been high microcystin levels on occasion in JC Boyle at Topsy Campground. It is more correct to say that microcystin concentrations in the Klamath River decrease to below California water quality objectives downstream of JC Boyle. (e.g., E&S Environmental Chemistry, Inc. 2018). Then the following sentence is still correct: "Thus, algal toxins and chlorophyll-a production upstream of J.C. Boyle Dam would not be expected to be transported into California and result in algal toxin or chlorophyll-a concentrations in a manner that would cause or substantially exacerbate an exceedance of water quality standards or would result in a failure to maintain existing beneficial uses currently supported."

Response to Comment TR18-55

Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* Potential Impact 3.2-12 (pages 3-137 to 3-139) has been revised to clarify that high microcystin levels have been detected in J.C. Boyle Reservoir at Topsy Campground and the potential for localized *Microcystis aeruginosa* growth and high microcystin concentrations in J.C. Boyle would be reduced under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR18-56

Page 3-150: Mitigation Measure WQ-3 (Monitoring and potential remediation of reservoir sediments deposited along the Middle and Lower Klamath River floodplain) proposes that following dam removal, floodplain deposits in areas with agricultural and residential land use should be tested for arsenic and then remediated (removal or soil capping) if arsenic levels exceed background levels found in adjacent soils and USEPA or CalEPA human health residential screening levels. According to information presented on page 3-142 of the DEIR, soils in the Klamath Basin have naturally high arsenic levels, and arsenic levels in samples from reservoir sediments were within those natural ranges. Remediating arsenic-rich soils along the river corridor could be quite expensive and is not a decision to be taken lightly. Floodplains are naturally dynamic environments and healthy floodplains experience both sediment deposition and erosion. Floodplain soils are heterogeneous with deposits of varying ages and source compositions. Basing the decision about whether to remediate a particular reservoir-derived sediment deposit on a comparison to arsenic levels in adjacent soils seems subject to a high degree of uncertainty and luck of the draw (e.g. what particular portion of reservoir sediment ended up settling on top of what particular floodplain deposit). How will decisions be made about the definition "exceed" (e.g., does that mean that the average has to be 0.1% higher, or some greater threshold? What if any statistical tests will be used?) And how many samples will need to be collected and over what geographic area? There is definitely value in remediating truly contaminated soils that have arsenic concentrations substantially higher than ambient conditions, but is how will such thresholds be determined?

Response to Comment TR18-56

Comment noted. As described in Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-15, remediation is required only in instances where (1) there are visibly obvious sediment deposits that are consistent with physical sediment properties associated with Lower Klamath Project reservoir sediments (2) these are in agricultural or residential areas (with heightened ingestion potential) and (3) when these sediments have arsenic levels that are both higher than local background levels and exceed health residential screening levels. Please note that the State Water Board has revised Mitigation Measure WQ-3 to add additional reporting on and oversight of test methods and remediation in order to allow for appropriate tailoring of testing and remediation to the individual circumstance that arises.

Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Mitigation Measure WQ-3 for the revisions.

Comment TR18-57

Page 3-397: Need to distinguish planktonic "Anabaena" which is now called Dolichospermum, from benthic forms still referred to as Anabaena.

Response to Comment TR18-57

Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton – Anabaena flos-aquae* has been revised to clarify that the EIR continues to use the *Anabaena* name for both planktonic and benthic species since *Anabaena* was more frequently used in the literature cited and it is still commonly used in descriptions of this species. Please refer to Volume III Attachment 1 Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting –Phytoplankton – Anabaena flos-aquae* for the revisions.

Comment TR18-58

Page 3-403: "Monitoring at multiple locations along the Middle and Lower Klamath River indicates that dissolved oxygen and pH patterns over a 24-hour period are driven primarily by photosynthesis and respiration of periphyton (Ward and Armstrong 2010, Asarian et al. 2015)." A citation of Genzoli and Hall (2016) should be added here (see comment above regarding page 3-135 for justification).

Response to Comment TR18-58

Section 3.4.2.2 *Phytoplankton and Periphyton – Environmental Setting – Periphyton* has been revised to clarify the relative influence of phytoplankton and periphyton on dissolved oxygen and pH in the Middle and Lower Klamath River. Please refer to Volume III Attachment 1 Section 3.4.2.2 *Phytoplankton and Periphyton – Environmental Setting – Periphyton* for the revisions.

Comment TR18-59

Page 3-413: "Nuisance blooms of periphyton have not been documented in the riverine portions of the Hydroelectric Reach. In the J.C. Boyle Peaking Reach, it has been noted that periphyton tends to be absent from the margins of the river that are alternately dried and wetted during peaking operations (E. Asarian, pers. comm., 2011)." We recommend that the end of this sentence be re-structured with different references, so that it ends with "periphyton tends to be absent from the margins of the river that are alternately dried and wetted during peaking operations (Karuk Tribe 2006), due to reasons described by PacifiCorp (2005)". Note that the PacifiCorp (2005) report is unavailable online but we have it in our files; please contact us if you need a copy.

Response to Comment TR18-59

Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* has been revised to clarify that the lack of periphyton along the margins of the J.C. Boyle Peaking Reach is due to turbid conditions that limit light availability for photosynthesis, high water velocities that limit establishment and growth of periphyton, and the variable flow regime that causes cycles of drying and rewetting. Please refer to Volume III Attachment 1 Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* for the revisions.

Comment TR18-60

Page 3-431: This sentence suggests that river growth of BGA is causing exceedances:

"Some phytoplankton growth may still occur after dam removal in calm, slow-moving habitats along shorelines and protected coves and backwaters during low-flow periods in the Middle and Lower Klamath River, but these habitats already support growth of blue-green algae, including Microcystis aeruginosa, that results in occasional exceedances of 2016 CCHAB secondary thresholds and WHO guidelines (Falconer et al. 1999; Kann et al. 2010; State Water Board et al. 2010, updated 2016; Genzoli and Kann 2016, 2017)."

It is not likely that these slow-moving and backwater areas support growth of blue-green algae, but rather are sites where upstream sources accumulate as slowed velocity allows them to settle or become trapped in vegetation. Thus the exceedances currently detected in such areas would decrease with dam removal. There is no evidence that we are aware of for actual growth of planktonic cyanobacteria in the Middle and Lower Klamath.

Response to Comment TR18-60

Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 has been revised to clarify blue-green algae and microcystin entrapment and accumulation in backwater areas of the Klamath River from upstream sources. Please refer to Volume III Attachment 1 Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 for the revisions

Comment TR18-61

Page 3-717. This section mentions that the DEIR's method for estimating methane emissions from Klamath Hydroelectric Project reservoirs was adapted from Karuk Tribe's (2006) comments which multiplyied the reservoirs' area by areal emissions rates from reservoirs around the world with similar water quality characteristics. The Karuk Tribe's estimates were best the information available at that time, but there is now new information available including a global synthesis (Deemer et al. 2016) and field measurements of methane emissions available from J.C. Boyle Reservoir and Keno Reservoir (Harrison et al 2017) using methods from Deemer et al. (2011). We also encourage SWRCB to consider incorporating these recent studies into the EIR.

Response to Comment TR18-61
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment TR18-62
During our review of the DEIR we noticed a few minor/insignificant errors, which we present in this separate list to avoid cluttering our other comments.

Response to Comment TR18-62
Comment noted. This comment indicates that a few minor/insignificant errors were noticed, and are provided in comments below.

Comment TR18-63
Page 2-98: "Microcystin [-Producing Blue-green Algae] Cell Count" is odd phrasing that doesn't match the conventions used in the rest of the DEIR. Should be "Microcystin-Producing Blue-green Algae Cell Count"?

Response to Comment TR18-63
Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* summarizes the Klamath River Renewal Corporation (KRRC) Proposed Water Quality Monitoring Plan included in the Proposed Project (see Volume II Appendix B: *Definite Plan – Appendix M*). In the Proposed Project Water Quality Monitoring Plan, one parameter to monitor is called "Microcystin Cell Count", but this is likely a typo because microcystin is only chemical compound that does not have a cellular structure that can be counted. It is assumed that the "Microcystin Cell Count" parameter is meant to refer to microcystin-producing blue-green algae cell counts, a commonly measured blue-green algae parameter. Thus, Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* Table 2.7-18 (page 2-98) lists the parameter name as specified in the Proposed Project Water Quality Monitoring Plan, but it uses brackets [ ] to clarify what the parameter name actually means (i.e., microcystin-producing blue-green algae cell counts).

Comment TR18-64
Page 3-35: The last sentence on this page references the wrong figure regarding chlorophyll-a (should be Figure 3.2-5, not Figure 3.2-25).

Response to Comment TR18-64
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the refence to Figure 3.2-5, which originally incorrectly referred to Figure 3.2-25. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revision.

Comment TR18-65

page 3-58: "the clarity or murkiness of the water causes by small particles" should be "the clarity or murkiness of the water caused by small particles"

Response to Comment TR18-65

Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* for the revision.

Comment TR18-66

Page 3-137: "Microcystis aeruginosa" should be italicized at line bottom of the page

Response to Comment TR18-66

Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* Potential Impact 3.2-12 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* for the revision.

Comment TR18-67

Page 3-717: This page cites Appendix N for greenhouse gas emissions but it should actually be Appendix O instead?

Response to Comment TR18-67

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Quartz Valley Indian Reservation, Crystal Robinson

Comment TR20-1

Attached is a scientific review, from the Quartz Valley Tribal Environmental Program, of the Draft Environmental Impact Report for the Lower Klamath Project License Surrender, State Clearinghouse No. 2016122047.

If there are any questions, please contact me.

Response to Comment TR20-1

Thank you for your comment. Comment noted.

Comment TR20-2

We have reviewed, with the help of our consultants Kier Associates, portions of the California State Water Resources Control Board's (SWRCB) draft Environmental Impact Report for the lower Klamath Project License Surrender, State Clearinghouse No. 201612204v(DEIR) that was circulated for public comment in December of 2018. We focused our review almost exclusively on *the portions of the following sections most relevant to water quality: Executive Summary, 3.2 Water Quality, and 3.4 Phytoplankton and Periphyton. We did not review Appendix C - Water Quality Supporting Technical Information or Appendix D - Water Quality Environmental Effects Determination Methodology Supplemental Information, but some of our comments on other sections are likely applicable to those appendices.*

We recognize the long-term benefits of removal of the four Klamath River dams far outweigh the short-term impacts. Overall, the sections of the DEIR that we reviewed do a good job of characterizing the impacts and benefits of the proposed dam removal project, and the proposed mitigation measures seem reasonable. The only mitigation measure that we have questions about is the arsenic testing and remediation (WQ-3 - Monitoring and potential remediation of reservoir sediments deposited along the Middle and Lower Klamath River floodplain).

Response to Comment TR20-2

This comment expresses general support for the analysis in the sections the commenter reviewed, and notes a concern with Mitigation Measures WQ-3. Comment noted. With respect to Mitigation Measure WQ-3, please refer to response to comment TR20-25.

Comment TR20-3

Our biggest concern is the proposed water quality monitoring plan. The plan proposed by the Klamath River Renewal Corporation (KRRC) is inadequate , as are the proposed monitoring requirements in the SWRCB's June 2018 draft Water Quality Certification for the Lower Klamath Project. During the June 2018 public comment period for the draft Water Quality Certification, we provided detailed comments regarding the draft monitoring plan that we will not repeat here given that the current public comment opportunity is focused on the DEIR's proposed mitigation measures and descriptions of environmental impacts. However, we are compelled to reiterate our main concerns with the water quality monitoring plan here: 1) the 60 mile gap in monitoring stations between Iron Gate Dam and Seiad Valley, the reach of river that will experience both the greatest short-term impacts and long-term changes following dam removal, 2) the substantial reduction in the number of stations in the proposed water quality monitoring plan relative to the Klamath Hydroelectric Settlement Agreement (KHSA) Interim Measure 15 (IM15) monitoring program which has been collecting baseline data since 2009, 3) lack of enough event-based suspended sediment concentrations (SSC) sampling to be able to combine with continuous turbidity and flow data to construct the sediment budgets that are necessary to understand the ultimate fate of reservoir sediments, and 4) given the Klamath River's high interannual hydrologic variability, monitoring should continue for at least five years post-drawdown. The massive scale of the proposed dam removal project merits a monitoring plan sufficiently detailed that it will adequately assess the results of the project. It is our understanding that the *water quality monitoring plan is still in development, and that the SWRCB will have the final word on what needs to be included. Please ensure that the monitoring plan will provide enough information to determine if the actual effects of the dam removal matched the predictions, with the ancillary benefit of using this once-in-a-lifetime opportunity to provide crucial information needed to guide long-term river management.*

Response to Comment TR20-3

The commenter is expressing concerns that the Klamath River Renewal Corporation's (KRRC's) water quality monitoring plan, put forth in the Definite Plan, is inadequate. Additionally, the commenter asserts that the June 7, 2018, water quality monitoring and adaptive management plan required by the State Water Resources Control Board's draft water quality certification is also inadequate. The commenter notes that it has provided comments on the State Water Resources Control Board's draft water quality certification.

The EIR analyzes the potential for environmental impacts due to implementation of the KRRC's Proposed Project and alternatives to the Proposed Project. The requests regarding monitoring and data collection are not raised in connection with concerns regarding the EIR's evaluation of potential environmental impacts of the Proposed Project, or mitigation for such impacts. The comment expresses general support for the EIR's impact analysis and raises concerns as to only one mitigation measure that is not a part of the water quality monitoring and data collection concerns. See response to comment TR20-2.

Please note that the State Water Resources Control Board has made several revisions to its water quality monitoring and adaptive management plan that will be included in its final water quality certification, including in response to comments by the Quartz Valley Indian Reservation.

Please refer to Volume I Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* (pages 2-97 to 2-99) for a general summary of the water quality monitoring included in the Definite Plan. Volume 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* provides a general discussion of the water quality monitoring with regards to the individual water quality parameters (Potential Impact 3.2-1 for water temperature; Potential Impact 3.2-3 for suspended sediments; Potential Impact 3.2-7 for nutrients; Potential Impact 3.2-9 for dissolved oxygen; Potential Impact 3.2-11 for pH; Potential Impact 3.2-12 for chlorophyll-a and algal toxins; and, Potential Impact 3.2-14 for inorganic and organic contaminants). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR20-4

The Comments on Specific Details section below is organized by section and page number. It provides suggested edits to improve the EIR's technical accuracy.

COMMENTS ON SPECIFIC DETAILS

Similar text is often repeated on multiple pages within the DEIR. In general, our comments here specifically reference only one page (or section) but are intended to apply to multiple pages/sections if the text we reference also appears elsewhere in the DEIR.

Response to Comment TR20-4
Comment noted.

Comment TR20-5
As described in the summary at the beginning of our comments above, and in our previous comments on the June 2018 draft Water Quality Certification for the Lower Klamath Project, the water quality monitoring plan proposed by KRRC is inadequate and needs to be substantially improved.

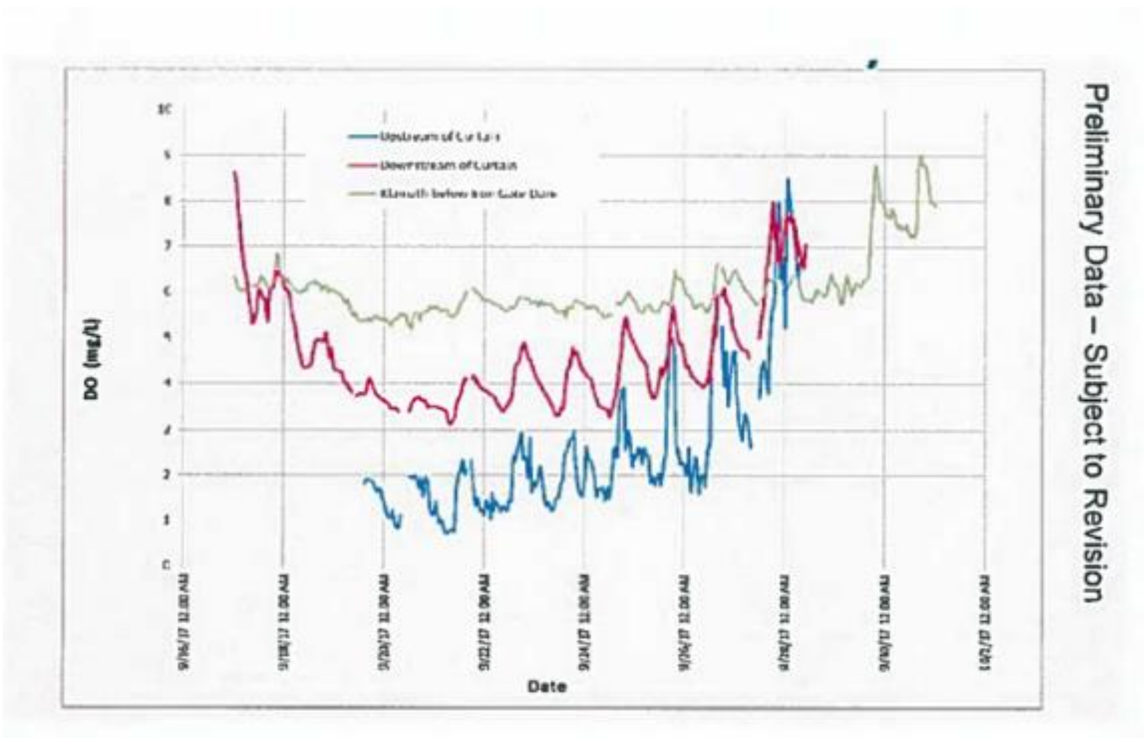
Response to Comment TR20-5
Please see response to comment TR20-3.

Comment TR20-6
Page 3-22: "The relatively shallow depth and short hydraulic residence times do not support thermal stratification in J.C. Boyle Reservoir (FERC 2007; Raymond 2008a, 2009a, 2010a) and thus this reservoir does not directly alter summertime water temperatures in further downstream reaches (NRC 2004). "We recommend adding", other than reducing the magnitude of diel (i.e., 24-hour cycle) fluctuations" to the end of the sentence.

Response to Comment TR20-6
J.C. Boyle Reservoir itself does not alter the magnitude of the diel water temperature fluctuations in the J.C. Boyle Bypass Reach downstream of the dam. The magnitude of diel water temperatures is reduced due to bypass operations from J.C. Boyle Dam that reduce the relative proportion of flow in the river from upstream and increase the relative proportion of flow from groundwater springs in the J.C. Boyle Bypass Reach. Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify the influence of bypass operations on water temperatures in the J.C. Boyle Bypass Reach based on the comment recommendation. Please refer to Volume III Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for these revisions.

Comment TR20-7
Page 3-23 (and also applicable to many other section of the DEIR): We recommend that any text discussing the effects of the Iron Gate Reservoir curtain should also note that during intense algae blooms the curtain has the detrimental side-effect of reducing dissolved oxygen concentrations in water released

downstream. Operationally, this means that the curtain must be raised during intense blooms to avoid reducing dissolved oxygen downstream, which limits the curtain's usefulness for reducing algae. The preliminary data in the following slide from PacifiCorp's October 16, 2017 presentation to the Interim Measures Implementation Committee (there is not yet a draft report that includes these data) shows low dissolved oxygen values in late September 2017 downstream of the curtain (red line) and below Iron Gate Dam (green line):



Response to Comment TR20-7

The preliminary dissolved oxygen data from PacifiCorp's October 16, 2017 presentation to the Interim Measures Implementation Committee (IMIC) that is provided in the comment is too limited to draw broad conclusions about the influence of the Iron Gate Reservoir powerhouse intake curtain on dissolved oxygen conditions downstream of Iron Gate Dam. However, in its 2018 report, PacifiCorp acknowledges that it had to raise the curtain several times after the curtain was deployed to access water with higher dissolved oxygen concentrations and comply with water quality standards, potentially limiting the effectiveness of the curtain to reduce transport of cyanobacteria into the Klamath River downstream of Iron Gate Dam (PacifiCorp 2018a). Section 3.2.2.2 *Water Quality – Existing Conditions – Water Temperature* and other water quality sections discussing the powerhouse intake curtain have been clarified to acknowledge that the potential beneficial effects of the intake curtain on algae and water temperature in the Klamath River downstream of Iron Gate Dam may be reduced when the curtain is raised in response to low dissolved oxygen concentrations. Please refer to Volume III Attachment 1 Section 3.2.2.2 *Water*

Quality – Existing Conditions – Water Temperature, Section 3.2.2.7 *Water Quality – Existing Conditions – Chlorophyll-a and Algal Toxins*, Section 4.2.2 *No Project Alternative – Water Quality – Water Temperature*, Section 4.2.2 *No Project Alternative – Water Quality – Chlorophyll-a and Algal Toxins,* Section 4.4.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature*, Section 4.4.2.2 *Continued Operations with Fish Passage Alternative – Water Quality – Suspended Sediments*, Section 4.4.2.4 *Continued Operations with Fish Passage Alternative – Water Quality – Dissolved Oxygen, and Section 4.4.2.6 Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins* these revisions.

Comment TR20-8

Page 3-24 "Species present in the Klamath River capable of producing microcystin include Microcystis aeruginosa and Anabaena flos-aquae, while species present in the Klamath River in the genus Anabaena can produce anatoxin-a and saxitoxin." Other species capable of producing microcystin have been detected in the Klamath River as well (even though they never dominate). These are Gloeotrichia and Planktothrix/Oscillatoria (Genzoli and Kann 2017, E&S Environmental Chemistry, Inc. 2018, Asarian and Kann 2006). Additional potentially toxin producing genera found in the Klamath River and/or reservoirs include Limnothrix (E&S Environmental Chemistry, Inc. 2018) and Pseudanabaena (Genzoli and Kann 2017).

Response to Comment TR20-8

Please note that the sentence quoted in the comment and attributed to page 3-24 is actually found on page 3-34.

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify using language similar to that requested in the comment. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-9

Page 3-26 "However, in the summer months, organic suspended materials can increase in the Klamath River between Iron Gate Dam and Seiad Valley (RM 132.7) due to the transport of in-reservoir algal blooms to downstream reaches of Klamath River as well as resuspension of previously settled organic materials (YTEP 2005; Sinnott 2008; Armstrong and Ward 2008; Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016). Further downstream, near the confluence with the Scott River (RM 145.1) concentrations of organic suspended materials tend to decrease with distance as phytoplankton gradually settle out of the water column farther downstream or are diluted by tributary inputs (see Appendix C for more detail)." The Scott River is downstream of Seiad Valley, so it is potentially confusing to use the term "further downstream" here.

Response to Comment TR20-9
Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* has been revised to clarify the location near the Scott River confluence. Please refer to Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* for the revision.

Comment TR20-10
Page 3-28: The sentence "TP and TN concentrations in the Klamath River vary with flow, with the highest concentrations tending to occur during low flow years (e.g., 2001-2004) and the lowest concentrations tending to occur during high flow years (e.g., 2006, 2010, 2011) (Asarian and Kann 2013)" should be revised to note that it pertains only to the low-flow season (summer and early fall). TP can be very high during peak winter and spring flows due to suspended sediment.

Response to Comment TR20-10
Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify that the statement pertains to summer through early fall. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions.

Comment TR20-11
Page 3-34: The sentence previous to this one "Diatoms (i.e., unicellular, photosynthetic microalgae) typically dominate in spring then decrease due to zooplankton grazing and the onset of water column stratification, which results in the diatoms settling out of the water column below the lake or reservoir surface layer (epilimnion)." refers to longitudinal trends including those for the riverine reaches, but this quoted sentence focuses on lentic (i.e., non-flowing) waters only- it should be revised to note that, since the dynamics do not apply to free-flowing river reaches.

Response to Comment TR20-11
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify when the results being discussed are related to river or lake/reservoir conditions. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-12
Page 3-36: "Phycocyanin, a pigment produced by blue-green algae, has been collected between May and November at some monitoring sites in the Klamath River downstream of Iron Gate Dam since 2007. At Seiad Valley (RM 132.7), phycocyanin is typically low from May through early August, increases to a peak in early September, and decreases until reaching low levels again by the end of October (Asarian and Kann 2013). Phycocyanin concentrations generally coincide with chlorophyll-a concentrations for the portion of the Klamath River at Seiad Valley." We recommend that these sentences should be revised/replaced.

Genzoli and Kann (2016) has a much more comprehensive analysis of Klamath River phycocyanin data than Asarian and Kann (2013). In addition, phycocyanin is measured by continuous probes, so it would be more accurate to say "measured" rather than "collected".

Response to Comment TR20-12
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify phycocyanin data in the Klamath River according to the comment. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-13
Page 3-37 The text citing the Otten et al. (2015) study should also be revised to briefly mention the genetic evidence for Iron Gate Reservoir being the source for Microcyslis in the lower Klamath River. This genetic evidence is mentioned in section 3.4 Phytoplankton and Periphyton. Otten et al. (2015) document with genetic analysis that algal production in Iron Gate Reservoir is the principal source of Microcystis aeruginosa responsible for the observed public health exceedances occurring in the Klamath River downstream from Iron Gate Darn.

Response to Comment TR20-13
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* been revised to clarify that the genetic analysis of *Microcystis aeruginosa* populations included Copco No. 1, Iron Gate Reservoir, and Klamath River sites and *Microcystis aeruginosa* populations in Iron Gate Reservoir likely contribute to *Microcystis aeruginosa* public health exceedances in the Klamath River below Iron Gate Reservoir. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-14
Page 3-37: Genzoli and Kann (2017) serves as a recent compilation of Microcystis and microcystin trends in the middle Klamath River, including diel, seasonal and longitudinal trends. Although this document is covered elsewhere (e.g., page 3-403; 3-414; 3-417, 3-431) it would be useful to cite here as well.

Response to Comment TR20-14
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been clarified as requested. Please refer to EIR Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-15
Page 3-38 contains the following paragraph regarding anatoxin-a:

"Anatoxin-a produced by the genus Anabaena of blue-green algae species was detected in Iron Gate Reservoir on September 3, 2005, in testing by the California Department of Health Services (Kann 2007a; Kann 2008b). In addition, monitoring conducted for the Karuk Tribe during 2005, 2006, 2007, 2008 in Copco No. 1 or Iron Gate reservoirs found no anatoxin-a detected (Kann and Corum 2006, 2007, 2009; Kann 2007b). At Lower Klamath River monitoring sites, anatoxin-a was not detected above the reporting limit in water samples collected during 2008 and 2009 (Fetcho 2009, 2011). In recent years, anatoxin-a has been measured in the Klamath River downstream of Iron Gate Reservoir on several occasions, typically in the lower reaches including at monitoring sites near Weitchpec and Orleans (Otten 2017). While concentrations of Anabaena flos-aquae cells have continued to be monitored, anatoxin-a concentrations are not available for Lower Klamath Project reservoir and Klamath River sites in recent years."

We recommend that this paragraph be updated to reflect more recent Klamath River data, the uncertainty in the sources of anatoxin, and the potential contribution of benthic sources (i.e. periphyton) in anatoxin-a production. The issue of potential benthic contributions to anatoxin-a production also applies to several other places within the DEIR. In our opinion, potential benthic production of anatoxin would not change any of the effects determinations in DEIR but should probably be included for the sake of completeness. Here is a replacement paragraph to consider using in place of the paragraph quoted above:

"Anatoxin-a has been detected in the Klamath River system, although the timing, distribution, and sources of anatoxin-a production in the Klamath is not well understood. Cyanobacterial species from a number of genera are capable of producing anatoxin-a, including Dolichospermum (planktonic species previously considered part of the genus Anabaena are now called Dolichmpermum), Anabaena (previously included planktonic and benthic species whereas it is now only benthic species), Aphanizome11011, Cylindrmpermopsis, Planktothrix (Oscillatoria), and Phormidium (Chorus and Bartram 1999, Quiblier et al. 2013, U.S. EPA 2014, Bouma-Gregson et al. 2018). Although toxin- producing phytoplankton are more well studied, periphyton can also produce toxins including anatoxin-a (Heath et al. 2011, Quiblier et al. 2013). In many California rivers and streams not impounded by dams, periphyton are assumed to be the primary sources Anatoxin-a (Fetscher et al. 2015), including species in genus Anabaena and Phormidium in tributaries of the Eel River located south of the Klamath River (Asarian and Higgins 2018, Bouma-Gregson et al. 2018). Anatoxin-a was detected in Iron Gate Reservoir on September 3, 2005, in testing by the California Department of Health Services (Kann 2007a; Kann 2008b), while monitoring conducted for the Karuk Tribe during 2005-2008 in Copco No. I and Iron Gate reservoirs did not detect anatoxin-a (Kann and Corum 2006, 2007, 2009; Kann 2007b). At Lower Klamath River monitoring sites, anatoxin-a was not detected in water samples collected during 2008 and 2009 (Fetcho 2009,

2011). In more recent years (2010, 20 I 5, 2016), anatoxin-a was detected in the Klamath River from sites directly below Iron Gate Dam to the Klamath River Estuary (unpublished data from the Yurok and Karuk Tribes). Genetic tools that detect the presence of an anatoxin-a synthase gene came back positive for I 9.5% of 123 samples from throughout the Klamath River system, although how the presence of the synthase gene relates to toxin concentrations is still unknown (Otten 2017). The detection of anatoxin-a over many years suggest that anatoxin-a poses a persistent public health threat for the Klamath River, yet the timing, spatial scale, and sources of the toxin are poorly understood due to limited monitoring for anatoxin-a."

Response to Comment TR20-15

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the discussion of uncertainty for anatoxin-a distribution and sources and which cyanobacteria species are capable of producing anatoxin-a. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-16

Page 3-54: Table 3.2-7 lists the Hoopa Valley Tribe's water quality objectives that are to be used (along with the applicable objectives from the NCRWQCB and Yurok Tribe) to evaluate thresholds of significance for water quality impacts. The table has a footnote that:

'HVTEPA (2008) includes a natural conditions clause which states, "If dissolved oxygen standards are not achievable due to natural conditions, then the COLD and SPAWN standard shall instead be dissolved oxygen concentrations equivalent to 90% saturation under natural receiving water temperatures." USEPA has approved the Hoopa Valley Tribe definition of natural conditions; the provision that site-specific criteria can be set equal to natural conditions and the procedure for defining natural conditions have not been finalized as of December 2018.'

There is also a second similar footnote regarding total nitrogen and total phosphorus. While not strictly wrong, those footnotes are incomplete because they do not mention that until the Tribe establishes the procedure for defining natural conditions, and EPA approves that procedure, the natural conditions do not have any legal weight. The exact wording in EPA's Feb 14, 2008 approval letter was: "with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing Natural Condition reference conditions, the stated numerical criteria... will constitute the operative criteria for all purposes." Therefore, we recommend that "USEPA has approved the Hoopa Valley Tribe definition of natural conditions; the provision that site-specific criteria can be set equal to natural conditions and the procedure for defining natural conditions have not been finalized as of December 2018" be replaced with "'USEPA has *approved the Hoopa Valley Tribe definition of natural conditions with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing Natural Condition reference conditions, the stated numerical criteria will constitute the operative criteria for all purposes."*

Response to Comment TR20-16
Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance* Table 3.2-7 has been revised to include reference that United States Environmental Protection Agency (USEPA) has approved the Hoopa Valley Tribe definition of natural condition with the understanding that unless and until the Hoopa Valley Tribe completes the process of establishing the "natural conditions" reference condition, the stated numerical criteria will constitute the operative criteria for all purposes . Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance* Table 3.2-7 for the revisions.

Comment TR20-17
Page 3-59 and page 3-60: The overall approach for assessing the significant of impacts for nutrients makes sense, but we are unclear on why this section mentions the TMDL targets for Total Nitrogen (TN) and Total Phosphorus (TP) but not the Hoopa Valley Tribe's objectives for TN and TP?

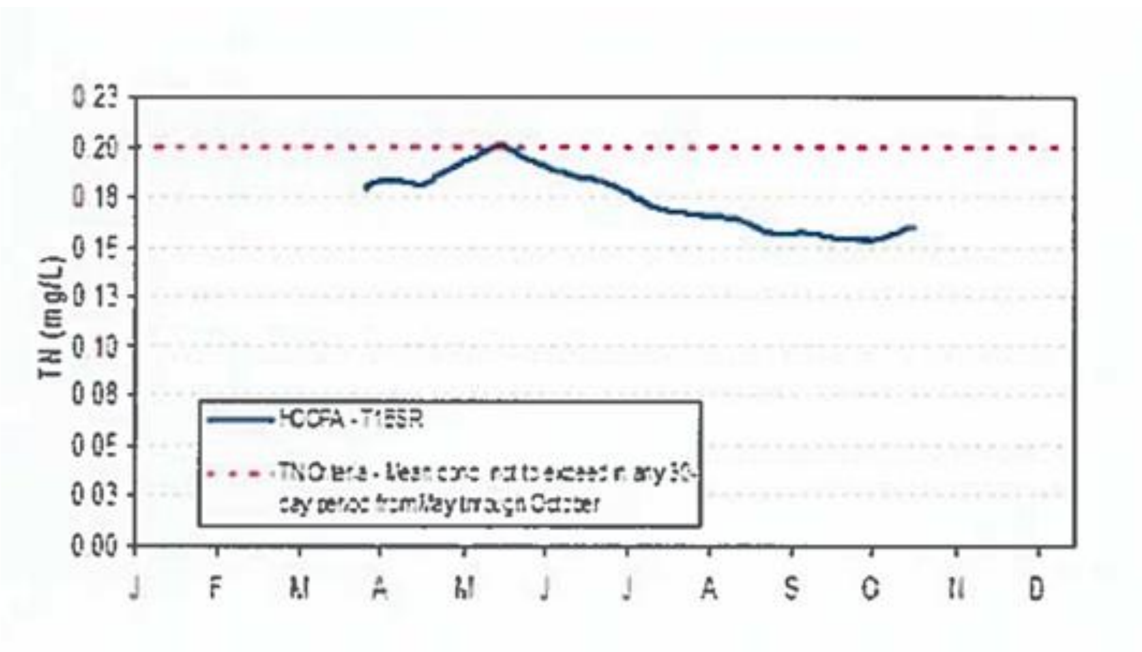
Response to Comment TR20-17
Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Nutrients* has been revised to clarify a refence to Hoopa Valley Tribe Total Phosphorus (TP) and Total Nitrogen (TN) numeric targets. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Nutrients* for the revisions.

Please note, the minor clarifications raised by the comment do not change an environmental impact or mitigation measure analyzed in the EIR because the Hoopa Valley Tribe numeric TP and TN surface-water quality objectives already had been used in the Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR20-18
Page 3-117 includes the following sentence:

'"Klamath River TMDL model results indicate that while resulting TP levels would meet the existing Hoopa Valley Tribe numeric water quality objective (0.035 mg/L TP) in all months at the Hoopa reach (approximately RM 45) of the Klamath River, TN levels would continue to be in excess of the existing objective (0.2 mg/L TN) in all months, as would TN levels for the modeled 'natural conditions' (Tl BSR) and the modeled 'dams- in' scenario (T4BSRN) (for the months of October through June) (North Coast Regional Board 2010)."

The second half of this sentence is incorrect, so we recommend that it be revised. The TN concentrations predicted in the final version of the 'natural conditions' (TI BSR) scenario exceeded the Hoopa Valley Tribe's criteria only for a few days in May, not 'in all months'. In addition, the magnitude of the exceedance is so small that it can reasonably be considered de minimis, as shown in the following figure from the North Coast Regional Board (2010):



The incorrect statement on TN exceedances may be a result of outdated information. Initial versions of the •natural conditions' (Tl BSR) scenario did indicate substantive exceedances of the Hoopa Valley Tribe's TN objective; however, these exceedances were caused by unrealistically high TN concentrations assigned to tributaries. Once these tributary concentrations were corrected to more closely represent available data, the exceedances essentially disappeared in the final official version of the model (i.e., see figure above).

Response to Comment TR20-18

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been revised to clarify the Hoopa Valley Tribe numeric water quality Total Nitrogen (TN) objective exceedance information for Total Maximum Daily Load (TMDL) model results. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

<u>Comment TR20-19</u>

Page 3-117 "While there would be a slight increase in absolute nutrient concentrations entering the Middle Klamath River under the Proposed Project, phytoplankton, especially blue-green algae, would be limited in their ability to use *those nutrients for growth and reproduction without calm reservoir habitat (Potential Impact 3.4-2)." We recognize that word choices are subjective, but "slight" is probably not the most accurate word to describe the expected increase, unless it is specifically in reference to annual time scales, not seasonal time scales. As noted on page 3-116, the increases in TN for the July through September period are expected to be in the range of 48- 55%. We suggest replacing "a slight increase" with "an increase".*

Response to Comment TR20-19

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

Comment TR20-20

Page 3-118: "In general, although dam removal would result in a slight long-term increase in TP and TN away from the numeric targets, such an increase would not support the growth of nuisance and/or noxious phytoplankton or nuisance periphyton." Similar to our previous comment above regarding page 3-117, it would be more accurate to replace "a slight long-term increase in TP and TN" with "a long-term increase in TP and TN" or "a slight long-term increase in annual TP and TN".

Response to Comment TR20-20

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

Comment TR20-21

Page 3-135: "....monitoring data at multiple locations further downstream in the Middle and Lower Klamath River indicate that pH patterns over a 24-hour period are driven primarily by photosynthesis and respiration of periphyton (Ward and Armstrong 2010; Asarian et al. 2015; see Section 3.4.2.2 Periphyton) rather than phytoplankton." A direct quantification of the relative contributions to primary production in the Middle Klamath River is provided by Genzoli and Hall (2016). Even though Genzoli and Hall's (2016) analysis did not specifically evaluate pH, we recommend that it should still be cited here.

Response to Comment TR20-21

The reference provided in the comment (i.e., Genzoli and Hall 2016) supports the premise of Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 discussion and analysis, which is that, in the absence of a reservoir phytoplankton bloom that is subsequently transported into the Middle and Lower Klamath River, periphyton are relatively more important for influencing diel fluctuations in water quality conditions (e.g., dissolved oxygen and pH) compared to phytoplankton. As the EIR analysis is focused on pH changes in the river, while the reference provided in the comment focuses on primary productivity in grams oxygen per square meter per day (g $O_2/m^2/d$) rather than pH, the reference provided in the comment has not been added to the pH analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment TR20-22

Page 3-136: "Since N-fixing species dominate the periphyton communities in the lower portions of the Middle Klamath River as well as the Lower Klamath River where inorganic nitrogen concentrations are low (Asarian et al. 2010, 2014, 2015), changes in nutrients due to dam removal are not expected to alter the periphyton community in these reaches (see Potential Impact 3.4-5)." The species composition of the periphyton community may well shift, but the biomass is not expected to increase substantially. We suggest that this end of this sentence be revised to "...are not expected to substantially alter total periphyton biomass in these reaches (see Potential Impact 3.4-5)."

Response to Comment TR20-22

Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 has been revised to clarify that changes in the periphyton species composition under the Proposed Project would not significantly alter the total periphyton biomass in the Middle and Lower Klamath River. Please refer to Volume III Attachment 1 Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 for the revisions.

Comment TR20-23

Page 3-137. While reservoir phytoplankton are by far the dominant source of algal toxins in the Klamath River, Section 3.2.5.6 Chlorophyll-a and Algal Toxins should probably also mention that river periphyton are capable of producing cyanotoxins including anatoxin-a. This would not change the effects determinations but should be mentioned for the sake of completeness. See comments regarding page 3-38 above for details.

Response to Comment TR20-23

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been updated to note that cyanotoxins (including anatoxin-a) can be produced by riverine periphyton in addition to phytoplankton. Please refer to Volume III Attachment I Section 3.2.2.6 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for these revisions.

Please note, while some periphyton species are capable of producing algal toxins, including microcystin and anatoxin-a (Heath et al. 2011; Quiblier et al. 2013; see Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins*), all available data indicate that algal toxin presence (i.e., microcystin and anatoxin-a) in the Klamath River corresponds to high concentrations of phytoplankton blue-green algae cells (i.e., algae blooms of *Microcystis aeruginosa* for microcystin or *Anabaena flos-aquae* for anatoxin-a) (Kann and Corum 2006, 2007, 2009; Kann 2006, 2007a,b,c,d, 2008b; Jacoby and Kann 2007; CH2M Hill 2008; Kann et al. 2010a; Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016; Otten et al. 2015). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Clarifications based on this comment do not change effects determinations in Section 3.2 *Water Quality*.

Comment TR20-24

Page 3-138. This statement merits correction:

"While algal toxins and chlorophyll-a produced in Upper Klamath Lake may still be transported downstream after dam removal, existing data indicate that microcystin concentrations in the Klamath River decrease to below California water quality objectives (see Section 3.2.3.1 Thresholds of Significance) by the upstream end of J.C. Boyle Reservoir, regardless of the microcystin concentration measured leaving the Upper Klamath Lake (Watercourse Engineering, Inc. 2011a, 2011b, 2012, 2013, 2014, 2015, 2016)."

There have been high microcystin levels on occasion in JC Boyle at Topsy Campground. It is more correct to say that microcystin concentrations in the Klamath River decrease to below California water quality objectives downstream of JC Boyle. (e.g., E&S Environmental Chemistry, Inc. 2018). T hen the following sentence is still correct: "Thus, algal toxins and chlorophyll-a production upstream of J.C. Boyle Dam would not be expected to be transported into California and result in algal toxin or chlorophyll-a concentrations in a manner that would cause or substantially exacerbate an exceedance of water quality standards or would result in a failure to maintain existing beneficial uses currently supported."

Response to Comment TR20-24

Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* Potential Impact 3.2-12 (pages 3-137 to 3-139) has been revised to clarify that high microcystin levels have been detected in J.C. Boyle Reservoir at Topsy Campground and the potential for localized *Microcystis aeruginosa* growth and high microcystin concentrations in J.C. Boyle would be reduced under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* for the revisions.

Comment TR20-25

Page 3-150: Mitigation Measure WQ-3 (Monitoring and potential remediation of reservoir sediments deposited along the Middle and Lower Klamath River *floodplain) proposes that following dam removal, floodplain deposits in areas with agricultural and residential land use should be tested for arsenic and then remediated (removal or soil capping) if arsenic levels exceed background levels found in adjacent soils and USEPA or CalEPA human health residential screening levels. According to information presented on page 3-142 of the DEIR, soils in the Klamath Basin have naturally high arsenic levels, and arsenic levels in samples from reservoir sediments were within those natural ranges. Remediating arsenic-rich soils along the river corridor could be quite expensive and is not a decision to be taken lightly. Floodplains are naturally dynamic environments and healthy floodplains experience both sediment deposition and erosion. Floodplain soils are heterogeneous with deposits of varying ages and source compositions. Basing the decision about whether to remediate a particular reservoir-derived sediment deposit on a comparison to arsenic levels in adjacent soils seems subject to a high degree of uncertainty and luck of the draw (e.g. what particular portion of reservoir sediment ended up settling on top of what particular floodplain deposit). How will decisions be made about the definition "exceed" (e.g., does that mean that the average has to be 0.1% higher, or some greater threshold? What if any statistical tests will be used?) And how many samples will need to be collected and over what geographic area? There is definitely value in remediating truly contaminated soils that have arsenic concentrations substantially higher than ambient conditions, but is how will such thresholds be determined?*

Response to Comment TR20-25

Comment noted. As described in Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-15, remediation is required only in instances where (1) there are visibly obvious sediment deposits that are consistent with physical sediment properties associated with Lower Klamath Project reservoir sediments (2) these are in agricultural or residential areas (with heightened ingestion potential) and (3) when these sediments have arsenic levels that are both higher than local background levels and exceed health residential screening levels. Please note that the State Water Board has revised Mitigation Measure WQ-3 to add additional reporting on and oversight of test methods and remediation in order to allow for appropriate tailoring of testing and remediation to the individual circumstance that arises.

Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Mitigation Measure WQ-3 for the revisions.

Comment TR20-26

Page 3-397: Need to distinguish planktonic "Anabaena" which is now called Dolichospermum, from benthic forms still referred to as Anabaena.

Response to Comment TR20-26

Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton – Anabaena flos-aquae* has been revised to clarify that the EIR continues to use the *Anabaena* name for both planktonic and benthic species since *Anabaena* was more frequently used in the literature cited and it is still commonly used in descriptions of this species. Please refer to Volume III Attachment 1 Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting –Phytoplankton – Anabaena flos-aquae* for the revisions.

Comment TR20-27

Page 3-403: “Monitoring at multiple locations along the Middle and Lower Klamath River indicates that dissolved oxygen and pH patterns over a 24-hour period are driven primarily by photosynthesis and respiration of periphyton (Ward and Armstrong 2010, Asarian et al. 2015)." A citation of Genzoli and Hall (2016) should be added here (see comment above regarding page 3- I 35 for justification).

Response to Comment TR20-27

Section 3.4.2.2 *Phytoplankton and Periphyton – Environmental Setting – Periphyton* has been revised to clarify the relative influence of phytoplankton and periphyton on dissolved oxygen and pH in the Middle and Lower Klamath River. Please refer to Volume III Attachment 1 Section 3.4.2.2 *Phytoplankton and Periphyton – Environmental Setting – Periphyton* for the revisions.

Comment TR20-28

Page 3-413: "Nuisance blooms ofperiphyton have not been documented in the riverine portions of the Hydroelectric Reach. In the J.C. Boyle Peaking Reach, it has been noted that periphyton tends to be absent from the margins of the river that are alternately dried and wetted during peaking operations (E. Asarian, pers. comm., 2011)." We recommend that the end of this sentence be re-structured with different references, so that it ends with "periphyton tends to be absent from the margins of the river that are alternately dried and wetted during peaking operations (Karuk Tribe 2006), due to reasons described by PacifiCorp (2005)". Note that the PacifiCorp (2005) report is unavailable online but we have it in our files; please contact us if you need a copy.

Response to Comment TR20-28

Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* has been revised to clarify that the lack of periphyton along the margins of the J.C. Boyle Peaking Reach is due to turbid conditions that limit light availability for photosynthesis, high water velocities that limit establishment and growth of periphyton, and the variable flow regime that causes cycles of drying and rewetting. Please refer to Volume III Attachment 1 Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* for the revisions.

Comment TR20-29

Page 3-431: This sentence suggests that river growth of BOA is causing exceedances:

"Some phytoplankton growth may still occur after dam removal in calm, slow-moving habitats along shorelines and protected coves and backwaters during low-flow periods in the Middle and Lower Klamath River, but these habitats already support growth of blue- green algae, including Microcystis aeruginosa, that results in occasional exceedances of 2016 CCI-IAB secondary thresholds and WHO guidelines (Falconer et al. 1999; Kann et al. 2010; State Water Board et al. 2010, updated 2016; Genzoli and Kann 2016, 2017)."

It is not likely that these slow-moving and backwater areas support growth of blue-green algae, but rather are sites where upstream sources accumulate as slowed velocity allows them to settle or become trapped in vegetation. Thus, the exceedances currently detected in such areas would decrease with dam removal. There is no evidence that we are aware of for actual growth of planktonic cyanobacteria in the Middle and Lower Klamath.

Response to Comment TR20-29

Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 has been revised to clarify blue-green algae and microcystin entrapment and accumulation in backwater areas of the Klamath River from upstream sources. Please refer to Volume III Attachment 1 Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 for the revisions

Comment TR20-30

Page 3-717. This section mentions that the DEIR's method for estimating methane emissions from Klamath Hydroelectric Project reservoirs was adapted from Karuk Tribe's (2006) comments which multiplied the reservoirs' area by areal emissions rates from reservoirs around the world with similar water quality characteristics. The Karuk Tribe's estimates were the best information available at that time, but there is now new information available including a global synthesis (Deemer et al. 2016) and field measurements of methane emissions available from J.C. Boyle Reservoir and Keno Reservoir (Harrison et al 2017) using methods from Deemer et al. (2011). We also encourage SWRCB to consider incorporating these recent studies into the EIR.

Response to Comment TR20-30

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment TR20-31
During our review of the DEIR we noticed a few minor/insignificant errors, which we present in this separate list to avoid cluttering our other comments.

Response to Comment TR20-31
Comment noted. This comment indicates that a few minor/insignificant errors were noticed, and are provided in comments below.

Comment TR20-32
Page 2-98: "Microcystin [-Producing Blue-green Algae] Cell Count" is odd phrasing that doesn't match the conventions used in the rest of the DEIR. Should be '"Microcystin-Producing Blue- green Algae Cell Count"?

Response to Comment TR20-32
Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* summarizes the Klamath River Renewal Corporation (KRRC) Proposed Water Quality Monitoring Plan included in the Proposed Project (see Volume II Appendix B: *Definite Plan – Appendix M*). In the Proposed Project Water Quality Monitoring Plan, one parameter to monitor is called "Microcystin Cell Count", but this is likely a typo because microcystin is only chemical compound that does not have a cellular structure that can be counted. It is assumed that the "Microcystin Cell Count" parameter is meant to refer to microcystin-producing blue-green algae cell counts, a commonly measured blue-green algae parameter. Thus, Section 2.7.8.7 *Proposed Project – Proposed Project – Other Project Components – Water Quality Monitoring and Construction BMPs* Table 2.7-18 (page 2-98) lists the parameter name as specified in the Proposed Project Water Quality Monitoring Plan, but it uses brackets [ ] to clarify what the parameter name actually means (i.e., microcystin-producing blue-green algae cell counts).

Comment TR20-33
Page 3-35: The last sentence on this page references the wrong figure regarding chlorophyll-a (should be Figure 3.2-5, not Figure 3.2-25).

Response to Comment TR20-33
Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the refence to Figure 3.2-5, which originally incorrectly referred to Figure 3.2-25. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revision.

Comment TR20-34
page 3-58: "the clarity or murkiness of the water causes by small particles" should be "the clarity or murkiness of the water caused by small particles"

Response to Comment TR20-34

Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* for the revision.

Comment TR20-35

Page 3-137: "Microcystis aeruginosa" should be italicized at line bottom of the page

Response to Comment TR20-35

Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* Potential Impact 3.2-12 has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* for the revision.

Comment TR20-36

Page 3-717: This page cites Appendix N for greenhouse gas emissions, but it should actually be Appendix O instead?

Response to Comment TR20-36

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Shasta Indian Nation, Chair Janice Crowe, Sami Jo Difuntorum

Comment TR23-1

Thank you for the opportunity to comment on the California State Water Resource Control Board's Draft Environmental Impact Report (DEIR) for the Lower Klamath Project License Surrender (Project). Our comments will focus on Tribal Cultural Resources and other Project activities under consideration as they pertain to Tribal Cultural Resources.

The Shasta Indian Nation's membership is comprised principally of the Shasta Indian descendants who were impacted by the construction of the Copco No. 1 Dam. Our ancestors owned property that was taken by eminent domain for its construction. Although the Federal government arranged for our Tribe to live on land nearby, this dam's construction disrupted our community in significant ways. Some of our traditional villages, burial grounds, and fishing sites were inundated by rising waters and remain submerged today. Ongoing dam operations have impacted our Tribe's ability to access sacred places for prayers and ceremonies. One of our most sacred places known as K'uč'ux·warax in our language and which we sing about in our prayer songs, is oil limits to us.

Our ancestors cried when the Copco No. 1 Dam was constructed. They knew how devastating it would be to the lives of our people and to our Tribe. One of our elders died as she was removed from her home. There is no way to turn back time and to mitigate these impacts.

The Project now proposes the decommissioning and removal of four dams (J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate) and associated facilities, to re-establish a free-flowing Klamath River. The dam's removal will also result in significant impacts to our now inundated villages, burial grounds, fishing sites, and sacred places, as well as to non-inundated Tribal Cultural Resources located within the Project area.

Response to Comment TR23-1
The potential for impacts to tribal cultural resources due to the Proposed Project is analyzed in Section 3.12 *Historical Resources and Tribal Cultural Resources*. As noted in this section, the Shasta Indian Nation requested consultation under AB 52 and met with the State Water Board and the Klamath River Renewal Corporation (KRRC) in a series of confidential consultation meetings within the timeframe of February 2017 through October 2018. The consultations with the Yurok Tribe and the Shasta Indian Nation resulted in identification of potentially-impacted resources, articulation of potential impacts, and development of, and agreement on, specific mitigation measures (see Section 3.12.5.1 *Potential Impacts to Tribal Cultural Resources*, TCR-1 through TCR-8). Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

State Water Board staff have valued the information and perspectives shared by the Shasta Indian Nation during consultation. Information shared by the Shasta Indian Nation has assisted the State Water Board in understanding the scope, scale, and significance of Shasta Indian Nation tribal cultural resources located in the Proposed Project area. Details on our consultation process have been included in Volume I Confidential Appendix Q and distributed to the Shasta Indian Nation.

Comment TR23-2
The California State Water Resource Control Board's DEIR finds that this Project will result in significant and unavoidable impacts to Tribal Cultural Resources. We support this finding. The Shasta Indian Nation also concurs with the proposed DEIR that these impacts include:

1) Pre-dam-removal activities that involve disturbance of the landscape, including construction or improvement of associated roads, bridges, water supply lines, staging areas, disposal sites, hatchery modifications, recreation site removal and/or development, and culvert construction and improvements that could result in potential exposure of or damage to known Tribal Cultural Resources through ground-disturbing construction and disposal activity and increased access to sensitive areas;

2) The drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs that could result in shifting, erosion, and exposure of known or unknown, previously submerged Tribal Cultural Resources;

3) The removal of Iron Gate, Copco No. 1, and Copco No. 2 Dams that could result in physical disturbance to known Tribal Cultural Resources from blasting or other removal techniques;

4) Ground disturbance associated with reservoir restoration, recreation site removal and/or development, and disposal site restoration could physically disturb known Tribal Cultural Resources;

5) Increased potential for looting of Tribal Cultural Resources during Project activities;

6) Exposure of or disturbance to Tribal Cultural Resources following reservoir drawdown and prior to vegetation establishment/full stabilization of sediment deposits; and

7) Increased looting opportunities and surface and subsurface erosion of Tribal Cultural Resources over the long-term.

To address these impacts, a comprehensive mitigation plan has been proposed in the DEIR. These measures have been developed in consultation with affected Tribes including the Shasta Indian Nation. These measures include:

1. The development and implementation of a Tribal Cultural Resources management plan

2. The development and implementation of a looting and vandalism prevention program.

3. The development and implementation of inadvertent discovery program.

4. Acknowledgement that the transfer of Parcel B and other lands, the ultimate disposition of which is determined through KHSA Section 7.6.4., to tribal ownership and control will foster tribal cultural conservation practices, promote tribal identity and begin to address the impacts of the past disturbances of Tribal Cultural Resources caused during construction of Iron Gate Dam, Copco No. 1 Dam, and Copco No. 2 Dam and the associated reservoirs, and to mitigate the impacts to Tribal Cultural Resources during and following Project implementation.

5. To create an endowment for post-project activities related to Tribal Cultural Resources protection.

The Shasta Indian Nation supports and endorses these mitigation measures strongly, which were developed in consultation. Should the Klamath River Renewal Corporation implement the mitigation measures as they are currently written, the significant impacts to Tribal Cultural Resources caused by decommissioning and removing the dams and associated facilities will be mitigated successfully.

Response to Comment TR23-2

Thank you for your comment concurring with Shasta Indian Nation tribal cultural resource impacts and mitigation measures listed in Volume I Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Comment TR23-3

Additionally, the California State Water Resource Control Board's DEIR identified a final recreation plan as a requirement for the proposed Project. The Shasta Indian Nation has ongoing concerns about post-dam removal recreation plans that have been developed for the Project without tribal consultation. The Shasta Indian Nation opposes the proposed "Copco Valley" Recreation Site (#5) because it will result in new negative impacts to Tribal Cultural Resources caused by earthwork and grading as well as increased access to the immediate area. The proposed DEIR mitigation measures are inadequate to address new adverse impacts that will result from the siting and construction of this proposed recreation site. There may also be negative impacts to Tribal Cultural Resources at the proposed "Fall Creek Boat Launch" Recreation Site (#6). We understand that a recent proposal moves the launch 1/3 mile downstream from the original site. Moving the launch site downstream past the confluence of Fall Creek will lessen the possibility of impact.

Response to Comment TR23-3

Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* Potential Impact 3.12-5 includes consideration of ground disturbance associated with recreation site removal and/or development that could physically disturb known Tribal Cultural Resources. Neither the Klamath River Renewal Corporation's (KRRC) Definite Plan nor the most recent water quality certification application, received December 2, 2019, identify the specific sites referenced in the comment; however, regardless of whether these sites or different sites were to be developed as new recreation sites under the Proposed Project, the KRRC would be required to implement Mitigation Measures TCR-1 (Tribal Cultural Resources Management Program [TCRMP]), TCR-2 (Looting and Vandalism Prevention Program [LVPP]), TCR-3 (Inadvertent Discovery Program [IDP]), and TCR-4 (Endowment) to reduce these impacts considerably, and, for most resources to avoid impacts completely. Further, as stated in Potential

Impact 3.12-5, the impact would remain significant and unavoidable. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

As listed in Mitigation Measure TCR-1, the KRRC shall develop, in consultation with Affected Tribes, a Historic Properties Management Plan (HPMP), which would include the development of a TCRMP. In part, the TCRMP shall include site-specific mitigation measures for potentially affected Tribal Cultural Resources (TCR). The TCRMP shall provide for ongoing consultation or site-specific mitigation refinement with the relevant Affected Tribe(s) with a traditional and cultural affiliation to an impacted TCR, as appropriate and feasible consistent with the schedule for Project implementation.

Though no Recreation Plan has been provided to the State Water Board, the above site-specific mitigation and consultation requirements of the TCRMP would be required for TCRs potentially affected by any new proposed recreation site.

<u>Comment TR23-4</u>

We welcome opportunities to engage in ongoing consultation and dialogue with the California State Water Resource Control Board and with the Klamath River Renewal Corporation about the Project. We gratefully acknowledge the California State Water Resource Control Board's good faith interest in the protection of the Shasta Indian Nation's Tribal Cultural Resources throughout this process consistent with the requirements under the California Environmental Quality Act. Please feel free to contact either me or Sami Jo Difuntorum, Tribal Cultural Resources Coordinator, for any questions or additional matters.

Response to Comment TR23-4

Thank you for your comment. State Water Board staff has valued the time and efforts invested by the Shasta Indian Nation during the consultation process.

Shasta Nation, Chairman Roy Hall

<u>Comment TR24-1</u>

I will be quoting some of the materials that have been submitted and commenting on each.

The next statements in Quotes are misleading and/or False and should be looked at carefully or removed from the Draft EIR.

Response to Comment TR24-1

Thank you for your comments. The structure of comment letter noted.

<u>Comment TR24-2</u>
Regarding: "Volume 1, 3. 12-15 December 2012. Establishment of the Klamath Tribes Interim Fishing Site could result in impacts/effects of Trust Resources and other Traditional used resources."

Comment 1

The fishing site in question located between Iron Gate and Federal Interstate highway 5 (I-5).

The area designated is wholly within the aboriginal lands of the Shasta Nation and its establishment is unacceptable. If the Klamath tribe believe that taking the dams out will 'make the fish return' to their lands then why would they ask for fishing sites below the dams?

In Pre-contact times the Klamath tribe asked permission to come onto Shasta lands to fish. They did so because the fish were met with natural barriers and hotsprings and NEVER traveled up the Klamath River into the Klamath Tribes lands.

The Klamath Tribes did not protest the dams. They were offered fish ladders but refused because the fish would still not be able to get up the river past the hot springs to their lands. Trucking fish up stream was also declined because the river is a hostile environment for spawning and immature fish.

Response to Comment TR24-2
Please see Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People* for the EIR's description of Shasta aboriginal lands, informed by consultation with the Shasta Nation under AB 52. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources*. Please note that the material referenced by the commenter is from the USBR's 2012 document that analyzed dam removal in combination with other actions. The Proposed Project does not include establishment of a Klamath Tribes fishery below Iron Gate Dam, which was part of the now-expired Klamath Basin Restoration Agreement (KBRA). Additionally, regarding historic salmonid abundance, please refer to AQF-4.

<u>Comment TR24-3</u>
Regarding: "Appendix V KHSA 2012 EIS/EIR Section 3.12 Tribal Trust December 218 Volume II (Page:Vol, 3.12-16 December 2012)

3.12.3.2 Quartz Valley Community

3.12.3.2.1 Quartz valley Community History.

Quartz Valley Community History. Most of the Quartz valley Community's Tribal Members are descendants of people of Karuk Ancestry, although a few tribal members are also of Shasta Ancestry."

"(Therefore, their cultural traditions are similar to those described in the Karuk section of this report.)"

Comment 2

The two tribes do not have the same customs or cultures. Shasta's had rules and structure. The Karuk tribe lived a life without structure or laws. Prior to contact time, the Shasta did not interact with the Karuk unless absolutely necessary.

Response to Comment TR24-3

Please note that the appendix referenced in this comment is reprinted from the USBR's 2012 document. The following text changes have been made to clarify the history of the Quartz Valley Indian Community (Volume I page 3-799).

"Quartz Valley Indian Community

The Quartz Valley Community is a federally recognized tribe mainly representing people of Karuk and Shasta ancestry, with 174 acres of reservation lands in the Scott Valley, near Fort Jones, California. Karuk cultural history is described in Section 3.12.2.1 *Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northwest California Culture Area – Ethnography –* Karuk (pages 3-798 to 3-799), and Shasta cultural history is described in Section 3.12.2.1 *Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People* (pages 3-794 to 3-797). ~~Their cultural history is similar to that described for the Karuk, as most members are of Karuk ancestry (Appendix V – 2012 KHSA EIS/EIR *Section 3.12 Tribal Trust*).~~ The Quartz Valley Indian Community's reservation lands are located near the community of Fort Jones. The Quartz Valley Indian Community initially filed their constitution and bylaws with the Office of Indian Affairs in 1939 (DOI 1939)."

Please also refer to Master Response GEN-2.

Comment TR24-4

"The Quartz valley Community is a federally recognized tribe representing people of middle Klamath (Karuk) and Shasta Indian ancestry."

Comment 3

Quartz Valley is a Reservation that was created by the sole efforts of Fred Wicks, a Shasta Indian.

The reservation was established for the Shasta Indians who lived in Scott and Shasta Valleys and for the Shasta Indians on the upper Klamath. (Upper Klamath refers to the Shasta Indian on the mid river. It does not mean 'upriver' as the Karuks call themselves). Karuks were allowed to become members of Quartz Valley because they were homeless and there were allotments available. That does not make them aboriginal to Scott Valley.

Response to Comment TR24-4
Please refer to Master Response GEN-2.

Comment TR24-5
"Some tribal members are descendants of the same tribal leaders that signed the unratified 1851 Treaty 'R' negotiated between Indian agent Redick McKee and Indian inhabitants of Scott valley and the upper Trinity and Klamath Rivers."

Comment 4

Very misleading and incorrect. Only Shasta Indians signed Treaty "R" in Scott Valley. The Karuk tribe signed their own treaty down the River near the mouth of Salmon River. (The Karuk's treaty is Treaty Q/Supplement to 'the aforementioned treaty' signed by the Hoopa and Yurok)

Response to Comment TR24-5
Please note that the appendix referenced in this comment is reprinted from the USBR's 2012 document. Please refer to Master Response GEN-2.

Comment TR24-6
Comment 5

Everything in this EIR re: Quartz Valley Shasta Reservation IS FALSE AND MUST BE DELETED.

'Refer to the Karuk History to learn about the Shasta Indians' is an insult to the separate customs, cultures and heritage the tribes fight hard to preserve.

You have an excellent document in your possession to explain/ reveal the Shasta Nation history. The History of the Shasta by Brian Daniels. Use it.

Response to Comment TR24-6
Please refer to Master Response GEN-2. Section 3.12.2 *Historical Resources and Tribal Cultural Resources – Environmental Setting –Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People* provides a description of the Shasta People, which includes information obtained from Daniels (2006). Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.* Additional information

on the Shasta People was also included in Volume II Confidential Appendices P and Q, which also incorporate information obtained from Daniels (2006).

The following text changes have been made to clarify the history of the Quartz Valley Indian Community (Volume I page 3-799).

"Quartz Valley Indian Community
The Quartz Valley Community is a federally recognized tribe mainly representing people of Karuk and Shasta ancestry, with 174 acres of reservation lands in the Scott Valley, near Fort Jones, California. Karuk cultural history is described in Section 3.12.2.1 *Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northwest California Culture Area – Ethnography – Karuk* (pages 3-798 to 3-799), and Shasta cultural history is described in Section 3.12.2.1 *Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northern Interior California Culture Area – Ethnography – Shasta People* (pages 3-794 to 3-797). ~~Their cultural history is similar to that described for the Karuk, as most members are of Karuk ancestry (Appendix V – 2012 KHSA EIS/EIR *Section 3.12 Tribal Trust*).~~ The Quartz Valley Indian Community's reservation lands are located near the community of Fort Jones. The Quartz Valley Indian Community initially filed their constitution and bylaws with the Office of Indian Affairs in 1939 (DOI 1939)."

Comment TR24-7
Comment 6

The Shasta Nation has worked with and submitted information and relevant laws and California statutes directly related to the issues of dam removal, The Shasta Nation has been met either silence on all issues with no responses, resulting in default and dishonor. The dishonorable practice of KRRC inviting and involving any and all alien tribes to get a favorable consensus to move forward without Shasta Nation consent is biased and racist. Any and all tactics are acceptable as the Shasta Nation's Constitutional rights, Customs, Culture and Tribal Sovereignty is not recognized or respected.

To address these biases, and racist attitudes and actions, we must revisit these issues to comply with working with the appropriate Native American Indian Tribe, Tribes.

Response to Comment TR24-7
The State Water Board appreciates the consultation with the Shasta Nation that has informed the EIR. The comment raises concerns with consultation, with the legality of the dam removal proceedings and with the Klamath River Renewal Corporation's (KRRC's) tribal outreach and involvement. These comments are noted. Please note that CEQA documents analyze significant effects on the physical environment. (CEQA Guidelines, § 15131(a).)

Comment TR24-8
Comment 7

The Shasta Nation is in support of clean, renewable, hydro power, rule of law, protecting property rights, and affordable power rates.

The Shasta Nation supports Siskiyou County Supervisors, Siskiyou water users, and other local agencies and organizations who support re-licensing and keeping the dams on the Klamath River.

Response to Comment TR24-8
Please refer to Master Response GEN-1. Please also refer to Master Response ENR-1 for a discussion of power rates. With respect to renewable hydropower, please note that this comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

In relation to the comment's reference to the rule of law and property rights please refer to Volume I Section 1.1 *Introduction – Authorization, Purpose and Use of EIR* (page 1-1) and to Volume I Section 2.8 *Proposed Project – Intended Uses of the EIR* (pages 2-110 to 2-111).

Comment TR24-9
Comment 8

The Shasta Nation would like to see curtailing excessive off shore salmon fishing and unsupervised salmon take by tribes down river. Those two activities have a great impact on the returning salmon count. They deplete our returning salmon population and decimates the ability of the few returning fish to spawn and increase the amount of salmon produced by the river.

Tribal tradition on the Klamath River is constantly being pushed in the comments. It was necessary, if all the Indians were to have plenty of salmon for food and spawning, and was strictly adhered to by ALL the tribes.

Each tribe (Yurok, Karok, Shasta) had people watch the salmon come up the river. When enough fish had gone by for the villages and tribes up the river, and for spawning, then, and only then, did the tribes start to take their share of the salmon run.

Response to Comment TR24-9
Commercial and tribal ocean and in-river fisheries are regulated by the Pacific States Marine Fisheries Commission (PSMFC). The PSMFC is an interstate compact agency that helps resource agencies and the fishing industry sustainably manage Pacific Ocean resources. Managing, or curtailing, harvest of salmonids does not address water quality concerns related to the Lower Klamath

Project facilities, or address the migration barriers these facilities present. As described in Volume I, Section 4.1 Alternatives – *Alternatives Selection Overview* (page 4-1) an alternative that does not address the underlying purpose of the proposed project is not a feasible alternative. Further, fisheries management is not under the purview of the Klamath River Renewal Corporation, is not a part of the Proposed Project, nor is it part of the Klamath Hydroelectric Project (KHP). Therefore, such management was not evaluated as a feasible alternative in the EIR.

Yurok Tribe, Vice Chairman Franklin Joseph Myers, Michael Belchik

Comment TR19-1

The Yurok Tribe hereby provides comments on the December 2018 Public Review Draft of the Environmental Impact Report for the Lower Klamath Project License Surrender (DEIR). As you know, the Klamath River is the axis around which Yurok cultural and spiritual beliefs and practices are centered. The Yurok Tribe is the largest California Tribe. The Yurok Reservation straddles the lower 45 miles of the Klamath River, for a mile on each side providing the Yurok Tribe with regulatory authority over the lands and river within the Reservation. The Tribe maintains senior water and fishing rights on the River. For the Yurok Tribe, there is no other river; no alternatives exist with regard to the restoration of the Klamath River. We have long believed that restoring the river is necessary and for true restoration to take place, landscape-scale actions must be implemented, including removal of the four dams along the mainstem river. We appreciate the Board's insights and creative thinking on how to mitigate the short-term impacts to the river so that the long-term benefits of dam removal and river restoration can be realized.

Response to Comment TR19-1

Thank you for your comments regarding river restoration and its importance to the Yurok Tribe.

Comment TR19-2

The Yurok Tribe fully supports the full removal alternative as described in the DEIR as well as the partial removal alternative as long as the river itself is restored to a free-flowing condition and any serious environmental impacts by remaining structures are adequately addressed. Years of study have led to a comprehensive understanding of the potential impacts of this project and we are past the time for additional studies—it is now time for action.

Response to Comment TR19-2

Please refer to Master Response GEN-1.

Comment TR19-3

In general, we support the impacts analyses and believe that sufficient study and analysis has happened to support moving forward with dam removal on an aggressive time schedule.

Response to Comment TR19-3
Comment noted. The comment refers to the sufficiency of the EIR analysis.

Comment TR19-4
We offer the following comments with regard to these specific areas:

- *Tribal Cultural Resources and the Fate of the Parcel B Lands*
- *Water Quality*
- *Restoration and Construction Activities*
- *Fisheries and Aquatic Resources*
- *Emergency Response*

Response to Comment TR19-4
The specific concerns raised are addressed below in responses to comments TR19-EMAIL-5 through TR19-EMAIL-16.

Comment TR19-5
One of the Yurok Tribe's most serious concerns has to do with the ultimate fate of the Parcel B lands as they become exposed when the reservoirs are drained.

The Yurok Tribe does not support mitigation measure seven regarding land transfer and recommends the mitigation measure be stricken from the document. The measure regards lands referred to as "parcel B" in the Klamath Hydroelectric Settlement Agreement ("KHSA"), Section 7.6.4 and identifies that the Shasta Indian Nation has proposed to transfer the lands to the Kikaceki Land Conservancy. The proposal is included in the mitigation measure for analysis in the Environmental Impact Report. The mitigation measure does not disclose details of the Shasta Indian Nation's proposal such as location of the lands or amount of acreage.

As the Yurok Tribe has previously expressed, it is inappropriate for the State Water Board to include this proposal in the Environmental Impact Report as: 1) doing so potentially circumvents the process in KHSA Section 7.6.4, 2) the record before the State Water Board is incomplete with respect to other tribal entities that may have traditional or cultural ties to the lands, and 3) the details of the proposal are confidential which prohibits other entities from determining whether the proposal has negative impacts on their legal rights. While Yurok acknowledges the mitigation measure does not undue the process in KHSA Section 7.6.4, it does give the proposal preferential treatment and an unfair advantage over other proposals by completing environmental work required for transfer. The Yurok Tribe recommends the reference to the proposal be stricken from the document.

Instead, the State Water Board should defer mitigation and any predetermination of the fate of these lands to a future time as prescribed in the KHSA 7.6.4. If *proposals come forward in the future regarding the fate of these lands, a separate environmental analysis could then be conducted.*

Response to Comment TR19-5

Thank you for your comment. The State Water Board notes that the Yurok Tribe has concerns regarding the land transfer mitigation measure, and that land transfer presents a sensitive issue.

The EIR's analysis of the disposition and transfer of Parcel B lands is at a general level since the specific impacts associated with the transfers and any future land uses remain uncertain, and subject to the process described in the Klamath Hydroelectric Settlement Agreement (KHSA 2010) Section 7.6.4..Please note that ultimate disposition of Parcel B lands, and specific environmental impacts from future land uses, are speculative at this point. The EIR provides a general analysis of broadly applicable construction-related impacts to water quality and terrestrial resources and assesses the availability of generally accepted best management practices as mitigation measures (e.g., Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-18 and Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-28; please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*). Any specific proposal to alter Parcel B lands would require further assessment. Please note that CEQA guidelines provide for a categorical exemption from CEQA for land transfers for purposes of protecting natural, historical and archaeological resources.

During development of the Draft EIR, the State Water Board conducted formal AB 52 consultation with the Shasta Nation, Shasta Indian Nation, and Yurok Tribe. In consultation with the Shasta Indian Nation and the Klamath River Renewal Corporation (KRRC), it was agreed upon by all three parties that an appropriate mitigation to reduce impacts to Native American Tribal Cultural Resources associated with implementation of the Proposed Project could include the potential transfer of Project lands to Native American Tribal entities, and particular resources were identified for which land transfer might be appropriate as a mitigation measure. As with other confidential information regarding the location of tribal cultural resources, this information is not disclosed in the public portions of the EIR. Any decision regarding whether transfer of these lands is ultimately feasible in light of other land use needs – and to whom the land would be transferred – would be made through the process established in Section 7.6.4 of the Klamath Hydroelectric Settlement Agreement (KHSA 2010).

Mitigation Measure TCR-7 is similarly consistent with Section 7.6.4 of the KHSA (2010), and it provides for consideration of a range of potential real property instruments in the process for disposition of Parcel B properties. Neither it nor any other measure in this section of the EIR commits the KRRC to transfer specific portions of lands to specific Native American entities, or to adopt conservation easements or other real property protections for any particular parcel. The process outlined in Section 7.6.5 of the KHSA (2010) provides for input from KHSA signatories and other potentially affected tribes on the ultimate disposition of Parcel B lands.

CEQA provides that real property mitigation measures should be considered and are available for mitigation for tribal cultural resources impacts. (Public Resources Code section 21084.3.) Further, CEQA provides for identification of mitigation measures in tribal consultation, and for inclusion of such measures in the EIR. (Public Resources Code sections 21080.3.2, 21082.3.).

Comment TR19-6

*Additionally, the Yurok Tribe does have specific concerns with some of the language in the Tribal Cultural Resources section of the document, and we herein provide alternative language below that addresses these concerns. (See page 3-799). Language requested for deletion is in ~~strikeout type~~, language for addition is underlined, and comments notes for consideration are in **Bold**. Plain text language is quoted from the DEIR.*

Yurok

*Pilling (1978) summarizes ethnographic information regarding Yurok collected by Waterman (1920), Waterman and Kroeber (1934), and others. Sloan (2003, 2011) also presents a summary of the ethnography of the Yurok and the relationship to the tribe to the Klamath River. Yurok are members of the Algonquian language family. ~~Yurok ancestral territory extends along the Pacific coast of California from Crescent City in the north to Trinidad in the south and along the Klamath River from the coast to a point near the confluence of the Klamath andTrinity Rivers and the town of Weitchpec (Pilling 1978).~~ The Ancestral Lands of the Yurok Tribe extend unbroken along the Pacific Ocean coast (including usual and customary off-shore fishing areas) from Damnation Creek, its northern boundary, to the southern boundary of the Little River drainage basin, and unbroken along the Klamath River, including both sides and its bed, from its mouth upstream to and including the Bluff Creek drainage basin. Included within these lands are the drainage basin of Wilson Creek, the drainage basins of all streams entering the Klamath River from its mouth upstream to and including the Bluff Creek and Slate Creek drainage basins, including the village site at Big Bar (except for the drainage basin upstream from the junction of Pine Creek and Snow Camp Creek), and the Canyon Creek (also known as Tank Creek) drainage basin of the Trinity River, the drainage basins of streams entering the ocean or lagoons between the Klamath River and Little River (except for the portion of the Redwood Creek drainage basin beyond the McArthur Creek drainage basin and except for the portions of the Little River drainage basin which lies six miles up from the ocean). **[NOTE: Cite the Yurok Constitution for consistency as the existing reference isn't correct.]** The Yurok Tribe's reservation currently consists of a strip of land beginning at the*

Pacific Ocean and extending upstream a mile along each side of the Klamath River for approximately 45 miles.

The Yurok life, language, ceremonies, society, and economy are linked with the Klamath River. There are Yurok stories that reinforce the Yurok belief that the River was created in a distinct way in order to provide Yurok people with the best of worlds (Sloan 2003, 2011). Yurok refer to the river as HeL kik a wroi or "watercourse coming from way back in the mountains." Contemporary Yurok often refer to the Klamath River as the "Yurok Highway" emphasizing its comparison to a blood vessel that provides the main flow of sustenance. Karuk, Yurok, and Hupa share similar cultural traits and traditional stories state that the Klamath River was created to facilitate their interaction with each other and with salmon

*The Yurok had permanent settlements with substantial architectural features including houses, smokehouses, and storage facilities (Kroeber and Barrett 1910, Pilling 1978). ~~Pilling (1978) cites 44 villages, 97 fishing spots, 82 significant cultural places (e.g., places used for ceremonies, gathering, and hunting), and 41 places of cultural significance along the Klamath River in Yurok~~ **~~territory~~ [NOTE: Not an accurate count. Can keep sentence if numbers are removed or add a sentence that says a minimum of…The Tribe has documented over 70 villages in our ancestral territory]***

The Yurok represent a socially complex hunter-gatherer population in California (Fredrickson 1984, Kroeber 1925) that used marine and salmon resources. Organizing labor to capture the short-duration salmon runs, preserving fish by smoking, then packing and storing the fish suggests a high degree of sociopolitical differentiation.

There is also evidence of a maritime expression to Yurok culture involving marine mammal hunting more than 10 miles offshore. The most telling argument for an open- ocean maritime adaptation comes from the presence of the large amount of northern fur seal fauna in the Stone Lagoon midden. Jones and Hildebrandt (1995) argued that pinnipeds were extirpated early on shore by Native Americans, who then developed watercraft to hunt offshore.

The material culture of the Yurok people includes, to this day, dugout redwood canoes, split-plank houses, storage boxes, sweathouse pillows and stools, many fishing devices, baskets and leather, shell, straw and feather garments and ceremonial regalia.

Transportation along the rivers and streams is essential to Yurok ceremonial activity. One of the most important aspects of Yurok technology was the river- and ocean-going canoe or yoch, which were carved from selected redwood trees (Sloan 2003, 2011).

There are historic accounts of expeditions traveling up to 180 miles along the coast (Sloan 2003, 2011). A typical river canoe measured 16 to 20 feet in length and 3 to 4 feet in width. River canoes were customarily paddled and/or pushed with a long pole. Yurok technology and facilities do not only serve utilitarian functions, but also include ceremonial aspects of Yurok culture. For example, facilities, such as fishing weirs, were created specifically to signify the time of sacred ceremonies (e.g., the White Deerskin and Jump ceremonies).

Fishing places along the Klamath River are owned by individuals, families, or groups of individuals. Fishing places can be borrowed, leased, inherited, or bought and sold (Sloan 2003, 2011). Some ownership rights at fishing places depended on species of fish caught at the site, while others depended on the water level (i.e., individuals owned the right to fish at a place if the river was below or above a certain level). Yurok still recognize this traditional form of resource management and use of the river. Families and individuals continue to use and own rights to fishing places on the Klamath River.

Like the Karuk, the religious and ceremonial practices highlight the Yurok relationship to the Klamath River and its associated resources. Of particular importance were the Jump, White Deerskin, Boat, and Brush Dance ceremonies. The Jump and White Deerskin ceremonies were held in late fall to give thanks for food resources abundance collected during the year and to insure a continued abundance of food resources for the next year (Sloan 2003, 2011). Affluent individuals and religious leaders conduct most ceremonies, and wealthy individuals were expected to feed salmon to everyone attending the ceremonies.

The Boat Ceremony is part of the White Deerskin Ceremony. In this ceremony, several boats filled with participants travel down the Klamath River. The participants thank the river for continuing to flow and provide resources. The Brush Dance Ceremony unfolds over a ten day period and is for the healing of a sick child or individual. This ceremony highlights the importance of Klamath River resources to Yurok. For example, baskets made of plant materials collected at the water's edge are used to hold food and ceremonial medicine; acorns are cooked in the baskets using cooking stones gathered at specific river bars; ceremonial regalia is made from various plant and animals that live along the river; ceremonial bathing is performed; and participants listen to the sounds made by the Klamath River (King 2004).

The social and ceremonial significance of the Klamath River is evident in and reinforced by Yurok traditions. For example, there are at least 77 Yurok stories that make direct reference to the Klamath River (Sloan 2003, 2011). These Yurok stories reinforce the belief that the Klamath River was created to provide Yurok with a very good place to live.

Spanish explorers and vessels traveling from the Philippines interacted with Yurok along the coast in the late 1700s. ***[NOTE: Bodega visited the Village of***

Tsuri and the Vancouver expedition followed shortly after.] *Other explorers such as Peter Skene Odgen and Jedediah Smith certainly encountered Yurok along the Klamath River in the early 1800s. Regardless, Euro American settlement and use of Yurok territory did not begin until after the discovery of gold in California in early 1850. With strikes along the Klamath and Trinity rivers, gold prospectors inundated the region affecting Yurok traditional culture (Pilling 1978). In 1851 a "Treaty of Peace and Friendship" was signed between the United States Government and the Klamath River Indians, but the United States Congress did not ratify this treaty. Subsequently, on November 16, 1855, the Klamath River Reserve, also known as the Klamath Indian Reservation, was established by Executive Order. The Order designated the reservation lands from the mouth of the Klamath River, one mile on each side extending approximately 20 miles upriver to Tectah Creek (Sloan 2003, 2011).*

Escalating conflict between Yurok and Euro Americans during the 1860s and 1870s over encroachment onto the Klamath Indian Reservation resulted in the ~~gradual~~ attempted displacement of Lower Klamath Indians further upriver (Sloan 2003, 2011). Euro Americans on the reserve resisted attempts to remove them, including eviction in 1879 by the United States Army (Sloan 2003, 2011). After decades of struggle to keep their traditional homelands, the Yurok Tribe was re-organized and was granted its own reservation in 1988. As a result of the 1988 Hoopa-Yurok Settlement Act (PL-100-580), the Yurok Indian Reservation was established.

The ancestral lands of the Yurok Tribe extend unbroken along the Pacific Ocean coast (including usual and customary off-shore fishing areas) from Damnation Creek, its northern boundary, to the southern boundary of the Little River drainage basin, and unbroken along the Klamath River, including both sides to the associated tributary watershed boundaries from the mouth upstream to the Bluff Creek drainage basin. The Yurok Tribe considers cultural resources sites along and associated with the Klamath River to be part of a larger ethnographic riverscape (King 2004, Yurok Tribe 2012).

Sites include fishing areas; a fish dam (weir) site; many different types of resource gathering sites, complex trail systems that connect villages, camps, the river, ceremonial sites, gathering areas, and other Tribes; and 47 villages with graves/cemeteries.

The Yurok Tribe is the largest tribe in California, with over 6,200 enrolled tribal members and over 300 tribal government employees. The Yurok Tribe is actively pursuing economic development and management of fisheries, forestry, and cultural programs, both on the reservation and Yurok ancestral lands.

Resighini Rancheria: *The Resighini Rancheria is located on the southern banks of the Klamath River Estuary, surrounded by the Yurok Reservation. The Rancheria is composed of Indians <u>relocated through the Homeless Indian Act</u>*

which include some individuals with Yurok ancestry, ~~and has~~ other homeless Indians from central California.

NOTE: Major shifts in federal Indian policy at the national level during the late 19th century exacerbated the Indian problems in California. Passage of the General Allotment Act in 1887 opened part of the limited lands in California to non-Indian settlement. In 1905 the public was finally advised of the 18 unratified treaties. Citizens sympathetic to the economic and physical distress of California Indians encouraged Congress to pass legislation to acquire isolated parcels of land for homeless California Indians. Between 1906 and 1910 a series of appropriations were passed that provided funds to purchase small tracts of land in central and northern California for landless Indians of those areas. The land acquisitions resulted in what has been referred to as the Rancheria System in California.

Land known as the Resighini Rancheria was designated by Secretarial Order and was officially declared a reservation in 1939. In 1975, a group of Indians stood together and formally created a non-traditional form of government with a constitution and bylaws which was approved and ratified by the last Indian Commissioner Bruce Thompson from the Department of Interior of the United States. However, the disastrous flooding of 1964 (see also Figure 3.6-14) led to the temporary evacuation of Resighini Rancheria.

Today, the tribal government consists of a General Council with an elected Tribal Council to operate our governmental and private tribal affairs as well as represent the tribal needs of our small membership. The Tribal Council consists of five tribal members who are elected annually by staggered two-year terms of Chairman, Vice Chairman, Secretary, Treasurer and Councilperson. Their general membership serves on boards, committees, commission and corporations to assist the Tribal Council.

Response to Comment TR19-6

Section 3.12.2.1 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northwest California Culture Area – Ethnography – Yurok* has been clarified to include additional information that did not result in changes to the impact analysis, including clarification based on the comments provided . Please refer to Volume III Attachment 1 3.12.2.1 *Tribal Cultural Chronology and Ethnography (including Historic and Pre-Historic Periods) – Northwest California Culture Area –Ethnography – Yurok* for the revisions.

Comment TR19-7

The Yurok Tribe's Environmental Program (YTEP) has reviewed the document and does not have substantive comments except to say that they support the conclusions of the DEIR and the methods used. Most, if not all of our previous *concerns with regard issues related to water quality appear to have been resolved to the best of our knowledge.*

Response to Comment TR19-7
Comment noted. The comment regards agreement with the conclusions and methods in the EIR's water quality analysis.

Comment TR19-8
With regard to proposed restoration activities and construction, the Yurok Tribe fully supports the Proposed Project as described in the Draft EIR document distributed on December 2018. The tribe specifically supports the following proposed actions listed in the DEIR and the Definite Plan Appendix H including:

- *Overall Project Implementation Schedule*
- *Reservoir Drawdown Schedule*
- *Road Access and Bridge Improvements*
- *Spoils and Staging Area Development*
- *Deconstruction Activities*
- *Sediment management during reservoir drawdown including Sediment Jetting*
- *All Restoration Actions within and outside the Reservoir Footprints including: Revegetation Seeding and Planting, Habitat Restoration and Enhancement Actions, Tributary and Floodplain Connectivity Actions, and Upland Restoration components.*

Response to Comment TR19-8
Comment noted. The comment relates to Volume II Appendix B: *Definite Plan – Appendix H*.

Comment TR19-9
Page 2-8: the storage volumes given for the various project facilities are misleading because much of it is dead storage which cannot be released under normal operations. Please revise table with available storage and dead storage.

Response to Comment TR19-9
Table 2.3-1 provides built storage capacity. Section 2.3 *Proposed Project – Existing Lower Klamath Project Features* Table 2.3-1 has been revised to include a footnote on "Reservoir storage volume" which clarifies that volumes reflect the total storage volume following dam construction, not just active storage. Please refer to Volume III Attachment 1 Section 2.3 *Proposed Project – Existing Lower Klamath Project Features* for the revisions.

Additionally, please refer to Volume I Section 3.8 *Water Supply/Water Rights* (pages 3-667–3-684), where the cumulative total active storage volume of the Upper Klamath Lake is discussed, which provides 98 percent of the active water storage in the Klamath watershed.

Comment TR19-10

Page 2-20: It should be noted that Article X (10) of the Klamath River Compact states that "To deprive any individual Indian, tribe, band or community of Indians of any rights, privileges, or immunities afforded under federal treaty, agreement or statute."

Response to Comment TR19-10

Comment noted. The timeline referenced presents examples of major events associated with water-related disputes in the Klamath Basin, and the short summaries are not intended to be comprehensive. Please also see Master Response CEQ-4, which provides additional information on the Klamath River Basin Compact.

Comment TR19-11

Not sure what purpose 2.6.1 serves, given that dam removal is only peripherally related to water management. Certainly the Yurok Tribe would add 1994 to the list of water conflicts where the Klamath River flows were taken down to less than 400 cfs at Iron Gate Dam. Recommend deleting entire section as needlessly controversial and not entirely relevant. A better approach might be to sum up from a 20,000 ft level "Water management in the Klamath Basin has been controversial in the past few decades with farm shortages, commercial salmon fishery failures and uncertainty and other effects all occurring frequently." Or something similar.

Response to Comment TR19-11

Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* presents examples of major events associated with water-related disputes in the Klamath Basin and is not intended to be a comprehensive history of water use and/or management in the basin. The section provides relevant points of context for the Proposed Project and its objectives. Text has been added prior to introducing the timeline to further explain the reason for its inclusion. Please also note that the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III. Please refer to Volume III Attachment 1 Section 2.6.1 *Proposed Project – Project Background – Water History in the Klamath River Basin* for the revisions.

Comment TR19-12

Page 2-67: even if coarser sediment is only 0.5% of the total of over 12,000,000 cu. yd. that's still over 60,000 yards of coarse sediment. This is an immensely important amount of sediment for macroinvertebrates and can be more easily mobilized than the current armored condition of the bed. Furthermore, fine sediment that does settle near the removal location is important to lamprey ammocoetes and other species.

Response to Comment TR19-12

Consistent with the comment, the potential effects of increased bedload supply and transport on channel bed elevations and grain size under the Proposed Project are described in Volume II Appendix F and summarized in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775). Effects of more natural sediment transport process on macroinvertebrates are specifically discussed in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-20, and effects on Pacific lamprey are discussed in Potential Impact 3.3-11. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment TR19-13

Section 2.7.6.1 (page 2-78) currently reads: "percent of Bogus Creek flow during part of each year, especially during October, November, April, and May. In spring/early summer of 2014, Bogus Creek flows were insufficient to meet the proposed full water needs of the hatchery. These results may be due to the short duration of the dataset or drought conditions between 2013 and 2017 that may not represent long-term conditions. The KRRC proposes that if Bogus Creek flows are insufficient to meet minimum operational needs while balancing flow requirements in the creek, water reuse (recirculation) from the rearing raceways could be utilized. In addition to recirculation, early release of smolts (i.e., prior to April 1) may occur to reduce water use requirements in the hatchery. The effectiveness of recirculation and early smolt release would be studied to determine whether they could be used to meet minimum operational flow and water temperature needs in the hatchery given annual variations in Bogus Creek flow and water temperature during the early release period." Comment: The above statement should more clearly state what recirculation capacity will exist at the hatchery. It should also clearly state that the "early smolt release" option will only be used after exhausting Bogus Creek diversion and recirculation options. Due to competition with natural rearing fish in the Klamath River, release of smolts early should only be done as a last resort. The above text leaves too much latitude to use recirculation OR early release of smolts.

Response to Comment TR19-13

Volume I Section 2.7 *Proposed Project – Proposed Project* summarizes information provided in the KRRC's Fish Hathery Plan, found in Section 7.8 of the Klamath River Renewal Corporation's (KRRC's) Definite Plan (see Volume II Appendix B pages 273 to 294). The Fish Hatchery Plan provides additional detail on the potential need for early hatchery releases and constraints for using recirculation. It states: "CDFW and NMFS would establish numeric trigger thresholds to determine whether CDFW would release some or all fish early (e.g., Bogus Creek 24-hour average water temperature exceeds 18 to 19 degrees C; see Figure 7.8-3)." California Department of Fish and Wildlife (CDFW) would also utilize water reuse/recirculation to extend release dates when Bogus Creek flow is low, but water temperature is sufficient to recirculate in the raceways without exceeding trigger thresholds. With regard to the potential for early hatchery releases, please refer to response to comment ORG46-68.

Comments on the KRRC's Hatchery Plan included in their Proposed Project should be directed to the KRRC.

Comment TR19-14

Page 4-17: Suggest inserting the following language. "In 2018 and continuing into 2019 , the Bureau of Reclamation has initiated formal consultation under the ESA for the operation of the Klamath Project. The resulting BiOp is expected to govern water operations for the next 10 years from implementation. Although the Bureau of Reclamation released its Biological Assessment in late December 2018 and has stated its intention to finish consultation by April 1, 2019, it is speculative to forecast what hydrology may result from implementation of the proposed action. NMFS and USFWS may either or both require modification of the proposed action in ways that are not foreseeable at this time. Therefore, this DEIR uses current hydrology as described in the previous few paragraphs.

Response to Comment TR19-14

In March 2019, the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) issued a final biological opinion (2019 BiOp) for the Klamath Irrigation Project that sets the current operational flow requirements for the Klamath River. Section 4.2.1.1 *No Project Alternative – Alternative Description* has been revised to clarify how the 2019 BiOp is considered in the EIR. Please also refer to Master Response HYD-1.

Comment TR19-15

Page 4-68: The Yurok Tribe does not agree that the probability of dam removal is low for the KHP. Iron Gate Dam, for example, has no emergency spillway, has recently been raised due to an increase in the maximum probable flood estimate, and the emergency drain tunnel has never actually been used. Because the tunnel and penstock have relatively low capacities, the bulk of large flood flows must pass over the spillway, which is located immediately adjacent to the face of the dam. If the spillway should fail (as happened on Oroville Dam) there is no emergency action that can save the dam from catastrophic failure. In fact, spillway failure nearly brought the dam down in the 1964 flood, after which the spillway was lined with concrete. This concrete lining, while it is presumably inspected, is vulnerable to failure as was seen in Oroville.

Response to Comment TR19-15

Volume I Section 4.2 *No Project Alternative* (pages 4-15 to 4-74) analyzes the No Project Alternative and describes the environment should the Klamath River Renewal Corporation's (KRRC's) Proposed Project to decommission the Lower Klamath Project not proceed. The EIR does not assess the probability of dam removal absent the Proposed Project.

Volume I Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 has been revised to clarify the discussion of risks of dam failure under existing conditions, during reservoir drawdown, and dam deconstruction; as well as the most recent (2019) Division of Safety of Dams ratings and hazard classifications for the three California dams. Please refer to Volume III Attachment 1 Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 for the revisions.

Comment TR19-16

The Tribe urges the State Water Board to reconsider its finding that the restoration of the free-flowing Klamath River will permanently decrease response ability for catastrophic fire. Although reservoirs provide more options for emergency aerial water tanker response, this is a very small portion of the overall response to fire danger. Safe evacuation routes (which will be left in an improved state due to necessary upgrades for demolition activities), fuels management, and a host of other factors go into this determination. We believe that other activities (a renewed focus on fuels management, for example) can offset the loss of flatwater areas for refilling aerial tankers. It is also possible for restoration projects to deliberately include off-channel areas suitable for filling water buckets via helicopter

Response to Comment TR19-16

Volume I Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* Potential Impact 3.21-8 (pages 3-1051 to 3-1054) acknowledges that water for fighting wildfires could be obtained from the Klamath River, Lake Ewauna, and Upper Klamath Lake, and that there is the potential to ameliorate the impact by, for example, providing replacement water sources.

Wildfire risk is complex, multifaceted and highly unpredictable. The State Water Board acknowledges that to the extent Project-related road improvements improve area roads, this improvement has the potential to improve ground fire response and evacuation in some situations. Any such improvement would depend on the particularities of the wildfire, the road improvements and the response, and cannot be quantified. The EIR's conservative assessment errs on the side of disclosure: "where suitable replacement water sources cannot be identified in close proximity to a fire in a location for which the reservoirs would otherwise have been the nearest water source, long-term impacts to the public's risk of loss from wildfires remain significant and unavoidable." Such a conservative approach remains appropriate in light of the number of houses abutting Very High Fire Hazard Severity Zones surrounding the currently existing reservoirs.

Improved fuel management in the basin post-dam removal, as suggested in the response, is not a feasible mitigation measure as there is no articulated path for developing, funding and implementing such a plan, and in light of federal preemption.

Please note, on December 3, 2019, the Klamath River Renewal Corporation (KRRC) filed an updated water quality certification application with the State Water Board that identifies that the KRRC will develop an updated Fire Management Plan with the intent to avoid a material net increase of fire risk as compared to baseline conditions in the Project area, and to enhance both short and long-term fire prevention, detection, and suppression in the Klamath River Basin. These commitments improve the likelihood that the risk conservatively identified in the EIR will be eliminated. However, due to the ongoing nature of the analysis to support the ultimate fire risk maintenance and reduction goals of the Fire Management Plan, in combination with federal preemption, the State Water Board does not rely on this commitment to change the significance determination.

Please also refer to Master Response HAZ-2 and CEQ-2.

Comment TR19-17

The Yurok Tribe has reviewed the DEIR and has found it to be a thorough and sound document, above comments notwithstanding. The DEIR appropriately uses the voluminous material generated in previous environmental analysis efforts for the FERC relicensing itself as well as the Secretarial Determination EIS that was a product of the first version of the KHSA.

The full dam removal project, as well as the partial removal alternative, would be the largest fisheries restoration project in the history of the United States, and would represent a major boost to the economy of the west coast. It is also a very important step toward protecting the Yurok Tribe's federally reserved fishing rights. Additionally, this type of landscape-scale restoration effort is essential for providing for diverse Tribal, farming, and environmental interests to peacefully coexist in the Klamath Basin. We urge the timely implementation of this project as soon as possible.

Response to Comment TR19-17

Comment noted. The comment references the overall quality of the EIR and describes potential benefits of dam removal.

2.3.4 Organizations

This section presents written comments received on the Draft EIR from organizations and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by organization name. To determine whether your comment is associated with an affiliation type other than organizations, please refer to Table 2-1 or Table 2-2.

Table of Written Comments and Responses from Organizations

American Rivers, Mark Busto

Comment ORG48-1

I write in support of the conclusions of the draft EIR. The Klamath is an historic, iconic river that used to support large runs of steelhead and salmon that cannot recover without removal of the dams. Here in the State of Washington, we know first-band the tremendous impact that dam removal can have on the health of a river with the removal of the two dams on the Elwha River. I urge you to adopt the Draft EIS and keep the project on track.

Response to Comment ORG48-1

Thank you for your comment. Please also refer to Master Response GEN-1.

American Rivers, California Trout Incorporated, Trout Unlimited, Sustainable Northwest, Steve Rothert, Curtis Knight, Brian Johnson, Greg Block

Comment ORG27-1

American Rivers, California Trout, and Trout Unlimited [SNW?] submit these comments on the Draft Environmental Impact Report (DEIR) for the Lower Klamath Project License Surrender (FERC Project No. 14803).

American Rivers is a national river conservation organization founded in 1973 to restore and protect our rivers for the benefit of people, fish and wildlife. We have 15 offices around the country including Oregon and California, with 110,000 supporters including more than 10,000 in California and Oregon. Our members use and enjoy the Klamath River, which has been one of our highest national priorities for two decades.

California Trout is a statewide conservation organization whose mission is to ensure resilient wild fish in healthy waters for a better California. California Trout was founded in 1971 and has over 7,500 members statewide. California Trout operates offices in San Francisco, San Diego, Ventura, Mammoth Lakes, Arcata, Davis and Mt. Shasta. California Trout's Mt. Shasta office is located in Siskiyou County where three of the four Klamath dams, providing a local presence in the community. California Trout members use and enjoy the Klamath River in the areas surrounding the Project for recreational, aesthetic, and educational purposes, including sport-fishing for trout, steelhead and salmon.

Trout Unlimited (TU) is the largest and oldest sportsmen's organization dedicated to the conservation of trout and salmon and their habitats in North America. TU has some 14,000 members in California and Oregon who rely on the Klamath River for sportfishing opportunities and as vital habitat for salmon and steelhead. We have offices in Mt. Shasta, Klamath Falls, Emeryville, Ft. Bragg, Truckee, and Carmel Valley. Our members use and enjoy the Klamath River, which, historically, was the third most productive watershed for salmon and steelhead on the West Coast.

Sustainable Northwest is a conservation non-profit working at the intersection of economy, environment, and community, pioneering natural resource solutions that work for people and nature. For well over a decade, Sustainable Northwest has been working with stakeholders to form agreements over the Basin's long-standing water resource challenges. We believe dam removal is a key step to resolving longstanding disputes in the Klamath Basin and is critical to improving the long-term water quality issues facing the health of the river and the community it supports.

American Rivers, California Trout, Trout Unlimited, and Sustainable Northwest are active participants in finding durable solutions for the Klamath River fisheries and communities. AR, CalTrout, and TU have actively participated in PacifiCorp's dam relicensing proceeding beginning in 2000 and with tribes and agencies coordinated our efforts during the Energy Policy Act proceeding in 2006 that up held the federal government prescriptions for volitional fish passage, and Sustainable Northwest has been active in various collaborative projects for water and fish for the same period of time. Our groups have been actively involved in settlement negotiations and the four groups are signatories to the Klamath Hydroelectric Settlement Agreement (KHSA). Our groups are also represented on the Board of the Klamath River Renewal Corporation.

The KHSA is a remarkable multi-party agreement between stakeholders with divergent interests in the Klamath Basin to resolve decades of litigation and other controversies in the region over the future of the Klamath River. Under the agreement, the parties agreed to facilitate the physical removal of all or part of each of the Lower Klamath Project dams to achieve a free-flowing condition and volitional fish passage along the Klamath River below the Keno Dam. Critically, the agreement provides that the proposed removal of the Lower Klamath Project facilities would be completed in a manner that achieves site remediation and restoration and with the implementation of measures to avoid or minimize downstream impacts.

The undersigned strongly support the proposed project to remove four dams (J. C Boyle, Copco No. 1; Copco No. 2, and Iron Gate) and associated facilities that comprise the Lower Klamath Project pursuant to the terms of the KHSA. The purpose of the proposed project is to restore free-flowing river conditions and volitional fish passage for salmon and steelhead along more than 400 stream-miles of historic spawning habitat upstream of the dams on the Klamath River. Our support for other measures in the Klamath Basin to improve water quality and security for both people and fish – including collaborative water supply, economic redevelopment and habitat restoration projects in the upper basin – is just as strong.

The DEIR confirms that implementation of the proposed project will meet water quality objectives. It is the only alternative that does this and achieves the *project purpose. The DEIR further confirms that the project will contribute to the restoration of native anadromous and other fish species; and benefit the local economy by providing commercial and fishing job opportunities. As the Oregon and California Public Utility Commissions have found, the project will also benefit PacifiCorp's ratepayers, as the costs of removal of the dams would be less than the upgrades that would otherwise be necessary to relicense the dams.*

The environmental analysis of this project required under the California Environmental Quality Act (CEQA) underscores the scientific rationale for removing the dams. Numerous fish species—some of which are listed under federal or state Endangered Species Acts—use the Klamath Basin during all or phases of their life histories. The dams harm river ecosystems and aquatic life and provide little no benefit power generation and no benefit for water supply. They block passage to upstream tributaries and mainstem habitat that salmon, steelhead and other native fishes require for population recovery and for sustaining now at-risk recreational, commercial and tribal fisheries.

We support the DEIR conclusion that the environmentally superior alternative is the proposed project. As the Draft EIR finds, the removal of the Lower Klamath Project's dams would provide a wide range of beneficial impacts, including: short- and long-term improvements in water quality that would promote substantial progress towards achievement of water quality objectives; long-term benefits to aquatic species listed under the Endangered Species Act; long-term beneficial effects on riparian habitat and listed species that rely on such riparian habitat; and long-term benefits for Native American tribes that depend on the Lower Klamath River for fisheries and ceremonial purposes. Removing the Klamath dams will improve spawning opportunities and reduce the incidence of fish disease that has resulted in massive fish die-offs in some years. Moreover, per the DEIR, impacts related to release or migration of sediment will be temporary while the benefits long-term for improved water quality are considerable.

Restoring the Klamath River and its fisheries could help facilitate resolution of long-term water conflicts in the Klamath Basin, watershed-scale environmental and habitat restoration, and a beneficial ripple effect for fisheries in both the river and marine environments. Recovering the Klamath's legendary runs of salmon and steelhead is key to revitalizing fishing-based communities and cultures in this region and to bolstering the regional economy more broadly.

KRRC appreciates the State Water Board's detailed examination of a number of other alternatives that potentially would meet some, but not necessarily all, of the proposed project's objectives. Restoration of free-flowing river conditions per the proposed project will provide the maximum benefits to the Klamath River's water quality and ecosystem.

In summary, we concur with the key findings of the DEIR that the proposed project is the environmentally superior alternative. It is the only option that fully *meets the project purpose and meet the water quality objectives. We urge the Water Board to certify the EIR and issue the water quality certification required under Sec. 401 of the Clean Water Act for the proposed project.*

Response to Comment ORG27-1
Thank you for your comment. The State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement.

Please also refer to Master Response GEN-1.

Endangered Habitat League, Dan Silver

Comment ORG35-1
Endangered Habitats League (EHL) appreciates the opportunity to comment. For your reference, EHL is a Southern California regional conservation group.

We support for the full removal of the lower four Klamath River dams.

The DEIR supports dam removal as the best option for water quality. Removal is also best for fisheries, yet removal will not affect agriculture. The dams are also not needed for flood control.

All evidence points to removal of all four dams.

Response to Comment ORG35-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Friends of Del Norte, Eileen Cooper

Comment ORG36-1
Thank you for the opportunity to express our full support for the alternative that will removal all four dams on the Klamath River. The benefits to the vitality of our fishery and local economy cannot be overstated:

The removal would "…advance the long-term restoration of natural fish populations in the Klamath Basin, including having a significant beneficial effect on commercial fisheries and associated significant beneficial economic impact on the coastal commercial fishing industry." (Environmental Impact Report)

The EIR report brings more good news for the Crescent City Harbor. Although dam removal will unlock some sediment trapped in the reservoirs, Crescent City Harbor should not be affected, with the DEIR stating:

"…it is expected that the amount of sediment released during the year of drawdown and dam removal would be similar to that transported by the Klamath

River to the Pacific Ocean in a year with average flow, much less than that transported by the Klamath River in a wet year…."

We appreciate all the hardwork and persistence by our community to make this dream come true.

Response to Comment ORG36-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Institute for Trade, Standards and Sustainable Development, Inc., Lawrence Kogan

Comment ORG44-1
I write out of conscience, as the former counsel retained during 2016 by two local Oregon and California state instrumentalities, the Klamath Irrigation District, Klamath Falls, Oregon, and the Siskiyou County Board of Supervisors, Yreka, California, and as the former counsel retained during 2016-2017, by a private citizens-operated nonprofit organization, the Siskiyou County Water Users Association. Each of these entities, during my tenure as retained counsel, was integrally involved in the public debate surrounding the removal of the above-referenced dams and decidedly against their removal.

The ITSSD and I thank the California State Water Resources Control Board for the opportunity to participate in this open stakeholder process, and hereby submit the attached comments for the Board's review.

Please don't hesitate to contact us should you have any questions.

Response to Comment ORG44-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG44-2
There is no genuine material difference between the substance of the discussion about dam reservoir sediments in the December 2018 "Draft Environmental Impact Report for the Lower Klamath Project License Surrender" prepared by Stillwater Sciences, and the September 2011 CDM report which Stillwater Sciences helped prepare, entitled, "Screening-Level Evaluation of Contaminants in Sediments from Three Reservoirs and the Estuary of the Klamath River, 2009-2011." In both reports, the authors omit material information about the toxicity of the reservoir sediments at each of the four PacifiCorp owned and operated Klamath River dams slated for removal (John C. Boyle, Copco 1, Copco 2 and Iron Gate).

More specifically, there is little to no information about the hazards such sediments would pose to human health and welfare when they are released upon dam removal, and there are no bona fide human health risk assessment-related data of the potential exposure from dam reservoir sediments at each of the four

Klamath River dams. This strongly suggests that USEPA has performed no human health risk assessments at all which the California State Water Resources Control Board ("SWRCB") or the California Environmental Protection Agency ("EPA") has publicly disclosed. Rather there are only perfunctory data of screened contaminants in dam reservoir sediments which were gathered and publicly disclosed by the U.S. Department of Interior's Fish and Wildlife Service.

Response to Comment ORG44-2

Please refer to Master Response WQ-6.

Comment ORG44-3

Indeed, the legal pathway the former Obama administration had used to initiate this process – i.e., the Clean Water Act § 401 certification process – had intentionally been chosen because the U.S. Department of Energy's Federal Energy Regulatory Commission ("FERC") would retain jurisdiction over this process to assure a favorable dam removal outcome. This was and remains a pure case of 'the ends justifying the means,' no matter the projected wildlife losses dam sediment release upon removal would engender, and completely without regard to the potential risks to human health and welfare that dam sediment releases would pose.

Had the proper legal pathway been selected – the Clean Water Act §§ 303(d) process – EPA would have retained jurisdiction over the calculation by California of the total maximum daily load for the lower Klamath River, including the dam reservoirs, and EPA would have been required to conduct human health risk assessments to evaluate the potential human exposure to sediments released at each of the four dam reservoirs. This would have especially been the case if EPA had determined that any one or more of the dam reservoirs constituted a Superfund site under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA").

It is quite remarkable that the State of California EPA has not yet admitted to the members of the public how USEPA had previously conditioned its prior approval of the North Coast Regional Water Quality Control Board's December 2010 TMDLs for the Klamath River on the State's quiet agreement to treat the incremental impairments it had calculated from the dams as something other than a TMDL load allocation.

In sum, the California EPA, rather than the SWRCB should be the primary agency involved in evaluating the pros and cons of dam removal, and the process should be one of addressing each dam's contribution to the total maximum daily load of the impaired lower Klamath River, rather than one of water quality certification relating to FERC dam license transfer and termination and hydroelectric decommissioning. The State of California has unnecessarily continued to deceive the public in favor of its political agenda of dam removal, and to deny it the material facts concerning the potential hazards to human *health and welfare the release of toxic sediments from the four Klamath River dam impoundments would trigger upon removal.*

Response to Comment ORG44-3
Please refer to Master Response CEQ-2 and WQ-5.

Comment ORG44-4
Historic and Recent Sources of Toxic Contamination in the Upper Klamath Basin

During the 2004, the National Research Council issued a report describing the historic human activities that shaped the Klamath River Basin and ultimately endangered and threatened fish in the Basin. These activities included significant cattle ranching and pasturing in Klamath County, Oregon during the 1950's and 1960's with only slight declines in the 1990's and increased cattle production intensity by 2002. "In 1998, the Environmental Protection Agency's Index of Watershed Indicators estimated that at least 110,000 acres of the watershed had been converted to irrigated pasture or other agricultural activities." "The effects of grazing in the watershed were probably profound but are impossible to quantify. […] Grazing can mobilize nutrients and sediments, both of which are of concern in the upper Klamath basin."[1]

These activities also included substantial commercial logging over more than two-thirds (e.g., 73%) of the upper Klamath Basin which subjected the forest land to severe erosion.[2] Logging had accelerated during the late 1910's because of national demand for ponderosa pine, and by 1918, "large amounts of reservation timber were being sold to private parties." "[B]y 1920, annual harvest rates had increased to 120 million board ft.[,…and p]eak lumber production occurred in 1941, when 22 lumber mills processed a total of 808.6 million board ft within the upper basin. Harvest has dropped to about 400 million board ft in recent year."[3]

During 2012, the U.S. Geological Survey issued a report documenting the historical contamination of the Klamath River. It stated that "[d]ocumented contaminant impacts within the Klamath Basin date back to at least the 1960's when wildlife deaths were linked to organochlorine pesticides (such as dichlorodiphenyltrichloroethane [DDT]) that were commonly applied to the National Wildlife Refuges and surrounding agricultural land."[4] "Organochlorines (OCs) are a class of pesticide introduced in the 1940s that experienced widespread and heavy use through the subsequent 20 to 30 years. DDT, aldrin, dieldren, toxaphene, chlordane, and heptachlor were among the most commonly used compounds, and their popularity was due, in part, to their high insect toxicity, relatively low acute mammalian toxicity, and their persistence in the environment."[5]

Subsequent research on the environmental effects of these compounds, however, revealed that many were highly bioaccumulative and non-degrading. As the result, "they caused significant impacts to upper trophic level fish, birds, *and mammals."[6] "Organochlorine use in the Upper Basin was widespread from the 1940s to the 1960s, with some applications of a few compounds continuing into the 1970s."[7] "The last applications of DDT, toxaphene, and dieldrin reported in the Klamath basin (California side) were in 1971, 1982, and 1976, respectively. […] However, dicofol (which commonly contained DDT and DDE as contaminants) was used until 1981."[8] "[T]wo major pesticide classes, organophosphate and carbamate insecticides, emerged as major constituents of post-1960s pest management in agricultural lands of the Klamath Basin." Although there was increased use of "a suite of herbicides, fungicides, and fumigants" for pest control during this period, "there is[, however,] limited information on their distribution and pathways through the Klamath basin ecosystem."[9]*

The USGS report further documented how, in 1988, mercury (Hg) distribution had been quantified "in abiotic and biotic matrices in the Upper Klamath Basin. Although aqueous concentrations were less than reporting limits, sediment concentrations of total [mercury] Hg (THg; inorganic + [methylmercury] MeHg) were similar to geometric mean values for soils in the Western United States, with the exception of sediments downstream of the Link River Dam, which had concentrations that exceeded the rest of the basin by at least 4-fold."[10] Moreover, the USGS report documented anthropogenic sources of arsenic in the upper Klamath basin including industrial processes and wood preservatives. "The environmental toxicity of arsenic strongly depends on its speciation. The most common inorganic forms are arsenite (As (III)) and arsenate (As (V)), with arsenite being substantially more toxic. […] The inorganic speciation (and thus environmental risk) of arsenic is reliant on pH and redox conditions, with As (V) being reduced to As (III) under anoxia."[11] Since "the measured arsenic was not speciated," the environmental risks of their findings were unclear."[12] Nevertheless, "arsenic in water was highest (62 μg/L) at Lower Klamath Lake unit 12C (range <1–62 μg/L, median = 7 μg/L, N=18) and arsenic in bottom sediment was highest at Klamath Straits Drain at pumping plant FF (range 0.6–16 μg/g, median = 6.3 μg/g, N=13)."[13]

Additionally, the report expressed uncertainty regarding the extent of major lead sources in the Klamath basin. "It is currently unclear if there are any major lead sources in the Klamath Basin, but some evidence exists for substantial lead exposure in wildlife in the area."[14]

The USGS report also documented more recent sources of contamination in the Klamath basin. For example, it states that "use of numerous pesticides, combined with the active management of irrigation and drain water present the possibility of pesticide exposure in fish and wildlife species through overspray, runoff, and dissolution and transport." (emphasis added).[15] "Pesticide use on the lease lands averages approximately 52,125 kg of active ingredient per year across more than 30.8 km2 of agricultural land."[16] "Annual pesticide use patterns likely reflect a combination of changes in (1) use requirements or restrictions, (2) *type of crops grown, (3) pest outbreaks, and (4) water availability. Herbicide and fungicide applications have seen steady decreases since the late 1990s, from 7,000 to 8,000 kg of active ingredient per year to just more than approximately 4,000 kg of active ingredient per year in 2009 (fig. 6). Conversely, fumigant use has increased sharply over that time period from less than 10,000 to more than 90,000 kg of active ingredient per year."*[17] *"Some chemical classes, such as chloronitrile (fungicide), organophosphates (insecticides), phenoxycarboxylic acid (herbicide), and triazinone (herbicide) have seen relatively consistent annual use between 1998 and 2009. […A] handful of classes, such as arylphenoxypropionate (herbicide/fungicide), biopesticide bacterium (insecticide), carbamates (insecticide), carboximide (fungicide), chloroacetamide (herbicide), cyclohexidione derivitives (fungicide), dithiocarbamates (fumigant), halocarbons (fumigant), and strobilurin (fungicide) have seen a steady or recent increase in their use ."*[18]

"Importantly, the leased lands within the Refuge boundaries represent only a very small proportion of total agricultural activity in the Basin. Within the Upper Basin alone, agriculture accounts for nearly 2,000 km2 of land area of which 68 km2 are the lease lands. Moreover, 80 percent of the agriculture in Klamath and Siskiyou Counties and 27 percent of the agriculture in Modoc County occurs within the boundaries of the Klamath Basin." (emphasis added).[19]
"Additionally, much of the irrigated cropland surrounding the refuge is hydrologically connected to the refuge via canals that are part of the Klamath Project (National Research Council, 2004). Farmers within those adjacent and nearby agricultural properties are not restricted in their pesticide use in the same ways as those that use the leased lands. Thus, there exists the possibility for wildlife and fish within the Refuge boundaries to be exposed to chemicals that are not approved for refuge use. In fact, in 2008 and 2009 there were a total of 189 different chemicals reportedly used as pesticide in those three counties, and only 41 of them (22 percent) were approved for refuge use (table 6). […] Moreover, some of those compounds were either used at exceptionally high rates (for example, methyl bromide), or are particularly toxic (for example, acrolein, diazinon, ethoprop, etc.). Thus, it is important to consider ecological exposure potential for these compounds as well."[20]

"Elemental analysis of recent sediment cores taken from the three major upstream reservoirs, and the Klamath Estuary, show relatively low concentrations of chromium and nickel within the reservoir sediments, and substantially more elevated concentrations in the sediments from the Estuary (fig. 20). Conversely, arsenic and lead data in reservoir sediments were substantially more elevated than in the estuary." (emphasis added).[21]

The report, moreover, reveals that "based on EPA databases, there are at least 2 superfund sites, 8 brownfields, 3 pesticide producers, 3 major NPDES dischargers, and 21 minor NPDES dischargers that are identified within the Basin (fig. 21). These sites are associated with a broad range of contaminants, *including: petroleum products, asbestos, volatile organic compounds (VOCs), lead and other heavy metals, dioxins, polyaromatic hydrocarbons (PAHs), and other organic contaminants (fig. 22). The extent to which contaminants from these potential sources reach the surrounding environment is unclear, but there is a possibility that at least some of these sites result in exposure of the Basin's biological resources. Further, human population centers are often situated adjacent to water resources and are frequently associated with various contaminants they may enter the environment, but the specific compounds are not readily documented and potential effects of exposure to biota are not well understood." (emphasis added).* [22]

Response to Comment ORG44-4

Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 (pages 3-139 through 3-151) includes analysis of inorganic and organic contaminants relevant to the Proposed Project and includes the following EIR citations; Eagles-Smith and Johnson (2012), CDM (2011), USEPA (2010), and Shannon & Wilson, Inc. (2006). Please refer to Volume III Attachment 1 Section 3.2.5.7 Potential Impact 3.2-13 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 for the revisions.

Section 3.2.4.7 *Water Quality – Impact Analysis Approach – Inorganic and Organic Contaminants* (pages 3-73 through 3-74) includes a determination of potential toxicity and bioaccumulation with respect to aquatic species and humans under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2.4.7 *Water Quality – Impact Analysis Approach – Inorganic and Organic Contaminants* for the revisions.

Comment ORG44-5

Looking upstream from the mouth of the Klamath River at the Pacific Coast, the Iron Gate Dam, completed in 1962, is located between river mile (RM) 190.1 and RM 196.9 (encompassing a total of approximately 7 RM). The Iron Gate hydroelectric dam reservoir "impounds a reservoir of 944 surface acres," "contains about 50,941 acre-feet of total storage capacity (at elevation 2,328.0 feet) and 3,790 acre-feet of active storage capacity."[23] *It has "a maximum depth of 162 feet."*[24] *The Iron Gate dam has been operational for approximately 56 years, and thus its large reservoir/impoundment, contains 56 years' worth of accumulated sediment.*

Copco 2 Dam, completed in 1925, is located between RM 198.3 and RM 198.6 (encompassing a total of approximately 1/3 RM). The Copco 2 hydroelectric dam reservoir "is about 0.25 miles long and has a relatively small storage capacity of 73 acre-feet."[25] *The Copco 2 dam has been operational for approximately 93 years, and thus, its reservoir/impoundment contains 93 years' worth of accumulated sediment.*

Copco 1 Dam, completed in 1918, is located between RM 198.6 and RM 203.1 (encompassing a total of approximately 4.5 RM). The Copco 1 hydroelectric dam reservoir "impounds a reservoir of 1,000 surface acres," "contains approximately 33,724 acre-feet (40,000 acre-feet26) of total storage capacity at elevation 2,607.5 feet and approximately 6,235 acre-feet of active storage capacity. The normal maximum and minimum operating levels of the reservoir are at elevations 2,607.5 and 2,601.0 feet, respectively."27 It has a maximum depth of 115 feet.28 The Copco 1 Dam has been operational for approximately 100 years, and thus, its large reservoir/impound contains 100 years' worth of accumulated sediment.

John C. Boyle Dam, completed in 1958, is located between RM 220.4 and RM 228.3 (encompassing a total of approximately 8 RM).[29] The John C. Boyle hydroelectric dam reservoir impounds "420 surface acres of water," "contains approximately 3,495 acre-feet of total storage capacity and 1,724 acre-feet of active storage capacity."[30] It's "maximum depth is about 40 feet."[31] The John C. Boyle dam has been operational for approximately 61 years, and thus, its reservoir/impoundment contains 61 years' worth of accumulated sediment.

PacifiCorp has not frequently or recently reported about the composition of the sediment at the bottom of the four dam reservoirs/impoundments; it has reported, however, about the reservoir water quality. During 2004, PacifiCorp reported that both Copco and Iron Gate reservoirs are dominated by thermal stratification, where water temperature, pH, and chlorophyll are lower at lower reservoir surface levels in both reservoirs.[32] The 2004 report notes that, "[h]owever, Copco reservoir has a much higher concentration of ammonia, orthophosphate, total phosphorous and TKN [Kjeldahl nitrogen]" in the upper reservoir surface water levels. In "Iron Gate reservoir those constituents are the same concentration in both" the upper and lower reservoir surface water levels.[33]

And, in 2012, PacifiCorp similarly reported about the variations in water temperature in the John C. Boyle reservoir's upper and lower surface water levels,[34] and about the nutrients load in the upstream and downstream ends of said reservoir. According to the 2012 report, "J.C. Boyle is not appreciably retaining (reducing) nutrient [nitrogen and phosphorous] levels under typical conditions. This is in contrast to the larger downstream Copco and Iron Gate reservoirs which retain (reduce) significant amounts of the annual load of nutrients that flow into those reservoirs."[35] The report also notes that the John C. Boyle reservoir experiences low dissolved oxygen levels at the deeper portions near the bottom, and receives organic matter input that reduces dissolved oxygen levels primarily from upstream sources.[36] "J.C. Boyle reservoir is eutrophic because of the large nutrient load from upstream sources and seasonally warm temperatures."[37]

The 2012 report also relays that the Copco reservoir complex experiences seasonal water temperature stratification, "acts as an annual net sink for both total nitrogen and total phosphorous," and produce "[n]uisance bloom-forming *blue-green algae […] in the summer." "Sustained Microsystis blooms in Copco reservoirs are consistent with the potentially elevated levels of inorganic nitrogen (ammonia) and organic matter in influent waters."[38] The report admits that the Copco reservoir "bears the burden of accepting and processing the water quality that is ultimately borne out of Upper Klamath Lake and any agricultural and municipal/industrial return flows."[39]*

Moreover, the 2012 report concedes that Iron Gate reservoir "is eutrophic largely due to nutrient inputs (organic and inorganic) from upstream sources."[40] It also admits that, "[a]t times, the upstream conditions from Upper Klamath Lake and Keno reservoir may produce large quantities of organic matter and can increase the nutrient fluxes into both Copco and Iron Gate reservoirs substantially."[41] "[M]eteorological conditions, hydrology, and upstream water quality conditions playing important roles in the species timing, and magnitude, persistence, and duration of algal standing crop."[42] According to the report, "Iron Gate reservoir is the second relatively large mainstem reservoir on the Klamath River below Upper Klamath Lake. Iron Gate reservoir receives large hydraulic and nutrient loads from the inflowing Klamath River. The result of these substantial upstream loads is a eutrophic reservoir."[43]

Only the U.S. Environmental Protection Agency, ("EPA"), and neither the U.S. Department of Interior Fish and Wildlife Service, nor the Federal Energy Regulatory Commission, is responsible for enforcing the provisions of the U.S. Clean Water Act ("CWA") in waters of the United States ("WOTUS") within the State of California. If California State water quality standards are inadequate to protect a WOTUS (e.g., the Klamath River that flows from southern Oregon through northern California on its way to the Pacific Ocean) via imposition of point source (i.e., discrete conveyance (pipe or tunnel)) pollution effluent limitations or permitting adjustments, then California must identify and list the Klamath River as "impaired," pursuant to CWA§ 303(d). California would then be required, pursuant to CWA § 303(d)(1)(A), to identify the Klamath River and, pursuant to CWA § 303(d)(1)(C), to determine the "total daily maximum load" ("TMDL") for each problematic pollutant in said river. The TMDL, generally is the calculation of the maximum amount of each such pollutant that can occur in the waterbody (i.e., the Klamath River) without causing it not to meet State water quality standards.[44]

Pursuant to USEPA rules, the California's TMDL for the Klamath River must allocate the necessary reductions to one or more pollution sources, including nonpoint sources, in order to implement the State's applicable water quality standards.[45] See Pronsolinoz v. Nastri, 291 F.3d 1123, 1139 (9th Cir. 2002). Nonpoint sources of pollution are non-discrete sources, including, for example, sediment run-off from timber harvesting or agriculture. 291 F.3d at 1126. They must be part of the TMDL calculation. 291 F.3d at 1139, citing Alaska Center for the Environment v. Browner, 20 F. 3d 981, 985 (9th Circ. 1994) (holding that "Congress and the EPA have already determined that establishing TMDLs is an *effective tool for achieving water quality standards in waters impacted by non-point source pollution.").*

Furthermore, California is authorized to determine TMDLs also with respect to waterbodies that are affected mostly, if not, entirely by nonpoint source pollution. Pronsolinoz v. Nastri, 291 F.3d at 1139. In fact, USEPA has directed states, including California, to calculate TMDLs for waterbodies and watersheds where nonpoint source pollution arises from different land use activities upstream from a dam.[46] "Soil erosion has been determined to be the major source of suspended solids, nutrients, organic wastes, pesticides, and sediment that combined form the most problematic form of NPS pollution."[47]

It is well-known that upstream agricultural and urban land use can "contribute to contaminant and sediment loads [of dam] reservoirs," and that dam operations "can determine the fate of" pollutants accumulated in reservoir sediment, and "potentially downstream as water is released from the dam." (emphasis added).[48] And, techniques, such as "selective withdrawal, can enable near-surface and below-surface withdrawals of warmer and cooler reservoir waters, respectively, to accommodate the temperature and water quality needs of fish populations in the summer and winter months."[49] However, these techniques offer no guarantee against downstream discharges of contaminated and polluted reservoir sediments potentially threatening human health and welfare.

USEPA has emphasized, for example, how dams act as barriers to the flow of water and to the materials the water transports, which can impact water quality both in the dam's impoundment/reservoir and downstream from the dam.[50] The longer the period of time waters and materials are retained in a dam reservoir and are prevented from flowing freely downstream, the more significantly the chemical and physical qualities of that retained water will change.[51] "Water held in a small basin behind a run-of-river dam may undergo minimal alteration," while "water stored for months or even years behind a large storage dam can undergo drastic changes that impact the downstream environment " (emphasis added) and population centers when released. [52]

According to USEPA, "[a] storage dam that impounds a large reservoir of water for an extended time period will cause more extensive impacts to the physical and chemical characteristics of the water than a smaller dam with little storage capacity."[53] "The nature and severity of impacts will depend on the location in the river or stream, in relation to the upstream or downstream side of the dam, the storage time of the impounded water, and the operational practices at the dam." (emphasis added).[54] Physical changes include changes in instream water velocities, timing and duration of flows, flow rates, sediment transport capacities, turbidity, temperature and dissolved gases. Chemical changes include changes in nutrients, alkalinity and pH, metals and other toxic pollutants, and organic matter. And, physical and chemical changes can be interrelated. "For example, changes in temperature may result in changes in dissolved oxygen levels or *changes to pH may result in changes to nutrient dynamics and the solubility of metals."[55]*

As USEPA has found, "[w]hen the stream flow behind a dam slows, the sediment carrying capacity of the water decreases and the suspend sediment settles onto the reservoir bottom. Any organic compounds, nutrients, and metals that are absorbed to the sediment also settle and can accumulate in the reservoir bottom."[56] The longer the holding time in the reservoir, and the more planktonic algal growth in a reservoir, the more likely periodic episodes of turbidity from upstream storm events carrying sediment rich stormwater will result, especially "if the sediment is predominantly very fine clay particles."[57] In addition, the greater the depth of a reservoir, the lower the volume of water that will be exposed to solar radiation and ambient temperatures, and the greater the likelihood of thermal stratification, with reservoir surface water layers bearing different temperatures, different water quality and biological processes, and different water density gradients.[58] Furthermore, the impoundment of accumulated upstream nutrients can cause a dam reservoir to become eutrophic and trigger algal and aquatic plant growth that consumes oxygen and eventually dies, leaving microbially decomposed material that depletes bottom waters of dissolved oxygen and produces potentially toxic concentrations of gases such as hydrogen sulfide.[59] Studies show that microbial decomposition can result in increased levels ammonia and hydrogen sulfide concentrations that affect the pH of reservoir waters. "Highly acidic (or highly alkaline) waters tend to convert insoluble metal sulfides to soluble forms, which can increase the concentration of toxic metals in reservoir waters."[60]

The key question, therefore, that must be answered for CWA purposes, is whether the pollutants and contaminants attributable to upriver nonpoint sources that have long flowed into and accumulated, aggregated and synergized in the reservoir sediments and/or water columns of the John C. Boyle, Copco 1, Copco 2 and Iron Gate Dams have incrementally impaired the water quality of the Klamath River. If the answer to this question is Yes, as it should be, then the States of Oregon and California should have properly characterized and included these dam-related impairments as a load allocation under CWA § 303(d)/40 CFR Part 130 in calculating the TMDL of the Klamath River, for purposes of ensuring that the release of pollutant-laden sediments from each dam's reservoir pursuant to the amended Klamath Hydropower Settlement Agreement ("KHSA") implementation would not adversely impact public health and welfare.

Oregon's integrated 2010 Total Maximum Daily Load (TMDL) and Water Quality Management Plan (WPMP) for the Upper Klamath and Lost River Subbasins reveals, consistent with CWA § 303(d) requirements, that the state had identified inter alia point sources and nonpoint sources and developed load allocations for nonpoint sources where the four PacifiCorp dams scheduled for removal are located.[61] In addition, the integrated plan reveals that ODEQ and California's North Coast Regional Water Quality Control Board ("NCRWQCB") had *cooperatively developed a TMDL that "adopt[ed] the Upper Klamath Lake phosphorus TMDL total phosphorus as a boundary condition for developing the Klamath River and lost River TMDLs."[62] ODEQ had intended for this TMDL to cover the Lost River and the Klamath Straits Drain, as well as, the Klamath River from Link River to the Pacific Ocean.[63]*

In March 2010, California submitted to USEPA its 2010 Action Plan for the Klamath River64 as a CWA § 303(d) amendment to the NCRWQCB's Water Quality Control Plan ("WQCP"). The Action Plan, which had aimed to establish the Klamath River Total Maximum Daily Loads (TMDLs) addressing temperature, dissolved oxygen,[65] nutrients,[66] and microcystin[67] impairments in the Klamath River, also referenced the Lower Lost River TMDLs that USEPA had previously established.[68] The 2010 Action Plan reflected USEPA's 2008 decision, in the face of litigation,[69] to reconsider its prior approval of California's omission of microcystin toxins as an additional cause of impairment of the Klamath River segment known as "Klamath River [hydrologic unit] HU, Middle [hydrologic area] HA, Oregon to Iron Gate" from the state's 2006 CWA § 303(d) list submission.[70]

The NCRWQCB's 2010 integrated TMDL/WQMP plan, furthermore, indicated that Oregon and California had worked cooperatively and aligned with "USEPA and its contractor Tetra Tech, Inc. to develop a uniform water quality model of the basin and conduct joint analyses to ensure compatible TMDLs," with each state "establish[ing] independently the TMDLs for those portions of the basin within their respective jurisdiction."[71] This information appears to have been consistent with the Memoranda of Agreements that ODEQ and NCRWQCB had signed with USEPA Regions 9 and 10 in 2008 and 2010, respectively, to develop[72] and implement[73] the Klamath River/Lost River TMDL.

In November 2010, USEPA subsequently approved the NCRWQCB's amended WQCP, in part,[74] and clarified the scope of two Klamath River segments properly included in California's CWA § 303(d) (TMDL) list because of impairments due to sediments – the segments spanning from Scott River to Trinity River, and from Iron Gate Dam to Scott River.[75] USEPA, however, did not fully agree with how California had calculated the TMDLs for the Klamath River to address the temperature, dissolved oxygen, nutrients, and microcystin impairments identified. Principally, it disagreed with the state's categorization of these impairments as a TMDL load allocation.[76]

According to USEPA, "'the incremental impairment from a dam' occurs because river waters containing pollutants (usually nutrients) are impounded, and the resulting change in physical conditions (velocity, depth, etc.) can create conditions in the reservoir that lead to violations or increased violation of water quality standards in the reservoir."[77] USEPA also admitted that "States around the country have taken different approaches to characterizing these incremental impairments from dams" which the agency had approved. As an example, USEPA cited how the State of Washington's Spokane River Dissolved Oxygen

(DO) TMDL, which USEPA had approved, "first identified the incremental impairment from a dam and then assigned that incremental impairment to the dam operator as a 'responsibility' that would be implemented under the CWA 401 certification process."[78] USEPA then noted the complexity of calculating the extent of the Washington dam's impairment of the Spokane River's water quality.

The State first simulated the —natural DO condition of the river by leaving the dam in place and assuming no other sources of pollution; this approach was used to represent the current critical condition (i.e., the dam is there, and there are no plans to remove it). Then the incremental impairment from the dam was calculated as the difference between the current critical condition DO conditions in the reservoir and the impairments that would occur in the reservoir when phosphorus concentrations entering the lake are at minimal levels of human impact, as represented by EPA's ecoregional criterion.[79]

USEPA expressed its disagreement with California's taking of a different approach in calculating its TMDL, asserting that California incorrectly "included the incremental impairments from the Klamath River dams in its load allocation to the dam owner" - PacifiCorp.

USEPA's disagreement with California's approach, however, is based on its thinly veiled belief that the scope of a State's list of "impaired" or "threatened" waterbodies need not be the same as its obligation to do TMDLs. USEPA's position boils down to a previously withdrawn 1999 proposed regulation wherein it disingenuously reasons how it "sees great value in listing waterbodies impaired or threatened by both pollutants and pollution" (emphasis added) pursuant to CWA § 303(d)(1)(A), while requiring states to address only waterbodies "impaired" or "threatened" by pollutants under CWA § 303(d)(1)(C).[80] USEPA's logic, however, is laid bare in its explanation of why the upstream nonpoint source pollutants that have deposited themselves in the reservoirs of each of the four PacifiCorp dams for decades should not be considered a 'load' or 'wasteload' for TMDL purposes.

EPA believes that the incremental impairments from a dam, as discussed above, are not properly characterized as a 'load allocation' under CWA Section 303(d) or its implementing regulations at 40 CFR Part 130. Under CWA Section 303(d)(1)(C), a state is to develop TMDLs for 'pollutants.' EPA does not believe it is appropriate to categorize the incremental impairments from a dam of the kind described in the Final TMDL Report for the Klamath River as a 'load' or 'wasteload' allocation because the dam is not contributing impairment-causing 'pollutants' as defined in CWA Section 502(6).[81]

The slyness of USEPA's position becomes quite apparent when this explanation is compared to how Washington State's TMDL calculation had been reached. Clearly, Washington State had calculated the incremental impairment of the Spokane River attributable to nonpoint source pollutants settling in the dam *reservoir "by leaving the dam in place" (emphasis added).[82] USEPA also had ceded federal jurisdiction to FERC under the auspices of the CWA §401 water quality certification process (i.e., hydroelectric generation-related environmental matters) incident to the dam owner's application for relicensure. Furthermore, USEPA left to the State of Washington the decision regarding whether to act on the FERC-licensed dam owner's application for a water quality certificate within a reasonable time period in order to address the nonpoint source pollution issue, or to waive that right and thereby cede jurisdiction to FERC.[83]*

By analogy, in the case of the Klamath River Dams, USEPA had taken the position that, there can be no load-contributing pollutants at dam reservoirs that will be/have been removed as "the anticipated endpoint" of the KHSA/Amended KHSA process.[84] Therefore, it had decided it should cede jurisdiction to FERC under the auspices of the CWA §401 water quality certification process (i.e., hydroelectric generation-related environmental matters) incident to PacifiCorp's application for license transfer to the Klamath River Renewal Corporation KRRC. USEPA also had decided to leave to the State of California the decision regarding whether to act on KRRC's prospective water quality certificate application to address water quality protection upon removal. Presumably, California recognizes that if it and KRRC were to engage in repeated withdrawal and refiling of applications for water quality certifications, as PacifiCorp had previously done, and thereby failed to provide an expeditious state decision, FERC could interpret those actions as being contrary to the public interest and to the spirit of the Clean Water Act, and thus, as a "waiver" by the State of its CWA §401 authority to require such a certificate.[85] This would result in FERC reasserting its authority to authorize the proposed activity upon license transfer.

In both cases, USEPA conveniently stepped aside and ceded jurisdiction to FERC and the State, when arguably it should have retained federal jurisdiction under CWA § 303(d) to ensure the protection of the public and the environment. The problem is that, in the present case, Klamath River dam removal will pose a genuine threat to human health and welfare which USEPA cannot ignore.

Consequently, USEPA conditioned its December 2010 approval of California's proposed TMDLs upon the NCRWQCB's agreement to characterize and treat the incremental impairments from the four Klamath River dams "as something other than a TMDL load allocation."[86] "Conditioned on this clarification of the characterization of the incremental impairments from dams, EPA concludes that the State Board's submittal meets the requirements of CWA Section 303 and the underlying regulations at 40 CFR Part 130."[87]

In light of USEPA's refusal to treat nonpoint source pollutants and contaminants accumulated, aggregated and synergized in the four Klamath River dam reservoir sediments and water columns as a separate point source of pollution, it also is likely that the agency had not considered any discharge from the four Klamath River dams as a "stormwater" discharge into navigable waters requiring *a National Pollutant Discharge Elimination System (NPDES) permit under CWA § 311 and accompanying regulations.*[88]

In conclusion, without proper notice and comment required by the Administrative Procedure Act, USEPA effectively reinterpreted/changed the CWA § 303(d)/40 CFR Part 130 rules for calculating TMDLs as applied to nonpoint source dam-related impairments to water quality. It also compelled California and Oregon to calculate their jointly developed Klamath River basin TMDLs for temperature, dissolved oxygen, nutrients, and microcystin impairments consistent with that interpretation to ensure they did not reflect the incremental nonpoint source impairments arising from the John C. Boyle, Copco 1, Copco 2 and Iron Gate Dams upon planned dam removal. USEPA compelled this behavior, by otherwise refusing to approve these states' CWA § 303(d) submissions. USEPA, thereafter, in its comments approving the Interior Department Bureau of Reclamation's Draft[89] *and Final*[90] *Environmental Impact Statements/Reports for Dam Removal, expressed biased support for dam removal, without regard to the public health and welfare impacts the release of NPS pollutants and contaminants accumulated in dam reservoir sediments and water columns to the Klamath River would engender upon dam removal. USEPA also granted Interior such approval notwithstanding its "concerns regarding potential impacts to wetlands and the short-term effects on fisheries and water quality from dam deconstruction," because it "believe[d] that those concerns [could] be addressed through the implementation of mitigation measures."*[91] *USEPA, furthermore, supported the Department of Interior's assessment of the environmental benefits to be realized from the KHSA [and Amended KHSA] process*[92] *following dam removal even though those results were uncertain at best.*[93]

Response to Comment ORG44-5

Please refer to Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* (pages 2-60 to 2-69) for a discussion of the reservoir sediment deposits, including an estimate of annual sediment deposition rates for years following the United States Bureau of Reclamation's (USBR) original sediment core sampling and sediment volume estimates and a discussion of uncertainty in the estimates.

Section 3.2.2 *Water Quality – Environmental Setting* and Appendix C *Water Quality Support Technical Information* discuss the water quality in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment under existing conditions, including the water temperature, suspended sediment, nutrient (i.e., nitrogen and phosphorus), dissolved oxygen, pH, chlorophyll-a and algal toxins, and inorganic and organic contaminant conditions measured from 2000 through 2017. Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* specifically discusses the inorganic and organic contaminants measured in the reservoir sediments. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C

Water Quality Support Technical Information. Please also refer to Master Response WQ-1 for further discussion of the role of the Lower Klamath Project Dams/Reservoirs with respect to overall water quality in the Klamath River and Master Response WQ-6 for further discussion of the potential contaminants in reservoir sediments. The environmental setting information in this comment is added to the record, but does not result in changes to the EIR's description of the environmental setting, which includes a broader set of sources, including more recent sources.

Portions of this comment make assertions regarding the Environmental Protection Agency's role in Clean Water Act 303(d) listing and total maximum daily loads (TMDLs), including the Klamath River TMDL process. With respect to the comment's assertion that the existing TMDLs for the Klamath River are improperly framed with respect to non-point source pollution originating from upstream of the Lower Klamath Project, this issue relates to basin planning efforts that are not part of the Proposed Project.

Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* analyzes the potential water quality impacts under the Proposed Project, including potential impacts to water bodies on the 303(d) List within the water quality Area of Analysis (see Table 3.2-3). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to Master Response CEQ-2 regarding the role of FERC and the State Water Board.

Comment ORG44-6

USEPA Failed to Exercise its Primary CERCLA Jurisdiction Over the Presence of the Virtually Unexamined and Unreported Decades-Old Contaminants in the Sediments of the Four Klamath River Dam Reservoir Bottoms

Since at least 2006,[94] PacifiCorp, the current owner of the four FERC-licensed Klamath River dams the former Interior Secretary had designated for removal pursuant to the Klamath Hydroelectric Settlement Agreement process, has known about the presence of nonpoint source ("NPS") hazardous substances and pollutants and contaminants attributable to various decades-long upstream Oregon-based industrial activities, which have settled, accumulated and become stored in the sediments at the reservoir bottoms and water columns of each said dam over many decades. However, PacifiCorp has apparently failed to submit the required CERCLA notification to the former and current EPA Administrators to apprise them of such substances at these sites, even though a number of these substances, including heavy metals (such as arsenic and nickel, as well as, chromium, mercury and zinc[95] and inorganic chemicals (such as dieldrin, dioxin, DDT and pentachlorophenol) appeared on the Clean Water Act and CERCLA lists of hazardous substances and would have required further EPA study.[96]

The facts reveal that samples of reservoir bottom sediments had been taken from these locations/sites during 2004-2005 and, again, during 2009-2011, as the 2011 DOI Draft and 2012 Final Environmental Impact Statements' ("DEIS" and "FEIS") discussion of sediment contaminants disclosed.[97] PacifiCorp, therefore, knew or should have known, or should have at least suspected that some of these substances had been released when it discharged reservoir waters from the gates of its facilities. Arguably, EPA became aware of these toxic sediments only because it had participated in Interior Department Klamath Technical Management Team preliminary efforts to evaluate reservoir bottom sediments samples taken from each of the four dams, and had found that there were then "no current public health concerns from direct human exposure to reservoir sediments."[98]

In other words, it is arguable that PacifiCorp knowingly failed to notify the USEPA Administrator of the possibility (probability) of decades of hazardous substances stored (accumulated/aggregated) in the reservoir bottoms of John C. Boyle, Copco 1, Copco 2 and Iron Gate dams.[99] And at least one PacifiCorp consultant had previously identified the potential for CERCLA liability in connection with dam removal, and the need to consider the use of a CERLA § 122 administrative order as a possible risk mitigation tool.[100] It is unknown whether USEPA had ever quietly pursued the negotiation of a settlement agreement to address remedial actions PacifiCorp would need to take that also could be entered as an enforceable consent judgment.[101] CERCLA likely applies in this case, even though there is no record that USEPA has yet added these four PacifiCorp-owned and operated Klamath River dams to the National Priorities List (NPL), commonly known as "Superfund."[102]

The Obama administration USEPA Administrator had been well aware that removal of the four PacifiCorp-owned and operated Klamath River dams pursuant to the Klamath Hydroelectric Agreement (Amended KHSA) process, and consequent release of nonpoint source pollutants, contaminants and hazardous substances which have accumulated and become stored in the bottom sediments of the reservoirs of these dams would pose a substantial threat to human health and welfare. CERCLA requires the USEPA Administrator to ensure that U.S. Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR")[103] performed assessments of the health risks associated with such NPS pollutants, contaminants and hazardous substances, taking into account the potential migration of any hazardous substance or pollutant or contaminant through such surface water to downstream sources of drinking water. However, the administrative record does not reflect that USEPA or ATSDR has yet conducted any such health-related risk assessment. In fact, the draft and final versions of the Interior Secretary's environmental impact statements ("DEIS" and "FEIS"), which were intended to satisfy only the requirements of the National Environmental Policy Act ("NEPA"), clearly indicated otherwise.

Although "[a]s part of the Klamath Dam Removal Secretarial Determination studies, a sediment evaluation [had been] undertaken during 2009–2011 to evaluate potential environmental and human health impacts of the downstream release of sediment deposits currently stored behind the dams under the Proposed Action [dam removal],"[104] "[…] special evaluations […] such as risk assessments [had…] not [been] utilized for this [the Secretarial Determination sediment] evaluation." (emphasis added).[105]

When samples were found to exceed human health screening levels, the DOI response was to rely upon Stillwater and Gathard studies claiming the risk would be minimized once the dams were removed because the chemicals were highly volatile and would evaporate or otherwise dissipate rapidly upon exposure to the air.[106]

The Obama administration's former USEPA Administrator also had failed, like the current administration's former USEPA Administrator, to conduct assessments of the indirect risks to human health posed by those hazardous substances known to have "accumulated in invertebrate tissues (i.e., acenaphthene, arsenic, benzo(a)pyrene, DDT/DDE, endosulfan I, endosulfan II, endosulfan sulfate, fluoranthene, hexachlorobenzene, lead, mercury, phenanthrene, pyrene, total PBDEs, total PCBs)" (e.g., crustaceans) that humans could potentially consume.[107] The DEIS and FEIS also clearly stated that, "fish tissue samples […] collected in Copco 1 and Iron Gate Reservoirs and analyzed for total mercury […]" exceeded federal and state criteria and guidelines.[108]

USEPA likely did not conduct assessments of human health risks directly and indirectly tied to the chemicals of concern ("COCs"), hazardous substances, pollutants and/or contaminants contained in the dam reservoir bottom sediments because the methodologies, protocols and processes USEPA had previously utilized in its Integrated Risk Information System ("IRIS") to conduct risk assessments on hazardous substances such as dichlorodiphenyltrichloroethane ("DDT"), dieldrin and pentachlorophenol[109] were then considered questionable, at best. Indeed, in 2011, the National Academy of Sciences had determined EPA's IRIS human and ecological toxicological risk assessment process had been seriously flawed and in need of substantial revision.[110]

In addition, that bore samples taken had been few in number for the total reservoirs' surface acreage and generally taken at relatively shallow depths, would seem to indicate the federal agencies intended to downplay the toxicity of the sediments containing chemicals included on the CWA and CERCLA hazardous substance lists. For example, as the Bureau of Reclamation explained, the 2009 Gathard Engineering Consulting study methods used to analyze the physical and chemical properties of the sediments [were] adequate and the number of samples collected seem[ed] reasonable for an appraisal-level analysis. Appraisal-level designs and cost estimates represent an early stage of *project development based on available data, and are used to determine whether more detailed investigations of a potential project are justified. Reclamation does not use appraisal-level cost estimates to seek Congressional authorization. Approximately 26 samples were collected in the reservoirs and none of these samples contained hazardous material based upon criteria established under the Puget Sound Dredged Disposal Analysis program. The samples were spaced throughout the reservoirs in a reasonable manner, but only one sample was collected at a depth greater than 10 feet of the sediment stored in the reservoir. Considering the size of the impoundments and the costs of removal, the Team recommends collecting additional samples for feasibility design. There would be three reasons for collecting additional samples: 1) to verify the absence of hazardous material at all sediment depths, 2) to obtain physical sediment properties at all sediment depths, and 3) to improve the estimate of the stored sediment volume. The Team believes that it is highly unlikely that hazardous materials exist in the reservoir sediment because with 26 samples collected there would have been at least some indication of contamination. However, this needs to be verified at all sediment depths and for more locations within the reservoir.*[111]

It is rather unfathomable that only 26 bore samples had been taken from the reservoir bottoms of the four dams three of which cover approximately 2,400 surface acres. And although the under-detection of COCs from the few reservoir composite samples was thereafter reported as possibly giving rise to biased results,[112] *DOI (USGS)*[113] *and USEPA, nevertheless, found from the limited data on sediment quality behind the dams that the risk-based and effects-based values for dioxins did not exceed estimated regional background concentrations.*[114] *When samples were found to exceed human health screening levels, as in the case of microcystin growth in dam reservoirs, the DOI response was to claim the risk would be minimized once the dams were removed despite the presence of such toxic substances throughout the Klamath River.*

The record does not reflect, furthermore, that the USEPA Administrator had conducted, as had been required, an assessment of permanent solutions and alternative treatment technologies, or resource recovery technologies that would result in a permanent and significant decrease in the toxicity, mobility, or volume of such hazardous substances, pollutants, and contaminants.[115] *Moreover, the record does not reflect that the EPA Administrator had addressed the long-term effectiveness of various alternatives, taking specific account inter alia of the short- and long-term potential for adverse health effects from human exposure, and the potential threat to human health and the environment associated with excavation, transportation, and redisposal, or containment. Furthermore, the EPA Administrator failed to select a remedial action that is protective of human health as well as the environment.*[116]

Lastly, the record does not reflect that the USEPA Administrator had assessed the human health risks associated with the contamination or potential contamination resulting from the release upon dam removal of the nonpoint *source runoff of upstream-derived hazardous substances, pollutants and contaminants that had settled in the water columns of the four dam reservoirs, and consequently, in the reservoir's surface waters used for recreation. In addition, the Obama administration USEPA Administrator had failed to assess the potentially severe human health risks associated with the release upon dam removal of toxic microcystin[117] occurring in these reservoirs which greatly exceeded recommended federal and state thresholds,[118] and which are acknowledged as also being currently present downriver of the dams[119] and as likely to be present following the dams' removal.[120]*

Response to Comment ORG44-6

Please refer to Master Responses WQ-7 and CEQ-2. Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants* and Appendix C Section C.7 *Inorganic and Organic Contaminants* specifically discuss the inorganic and organic contaminants under existing conditions, including a summary of the inorganic and organic contaminants detected in 25 sediment cores collected during 2006 (Shannon & Wilson, Inc. 2006), the inorganic and organic contaminants detected in 37 sediment cores collected during 2009 to 2010 (USBR 2011), and the subsequent analysis of those sediment cores to evaluate potential impacts from the downstream release of reservoir sediment deposits (CDM 2011). No sediment cores were collected from the reservoirs during 2004 to 2005. Sediment cores collected by Shannon & Wilson, Inc. (2006) occurred in 2006 and the 2012 Klamath Facilities Removal Final Environmental Impact Statement/Environmental Impact Report misstated these sediment cores were collected during 2004 to 2005. While 26 locations were listed for reservoir sediment coring by Shannon & Wilson, Inc. (2006), only 25 locations had reservoir sediment samples collected and no reservoir sediment samples were collected at one location. Overall, the inorganic and organic contaminants were measured at 62 locations on and off the center of the historical river channel with on-site geologists verifying that the 37 sediment cores collected during 2009 and 2010 reached the reservoir-deposited/pre-reservoir sediment boundary to characterize the inorganic and organic contaminants throughout the entire depth of the existing reservoir sediments. The discussion in the comment of only 26 sediment cores collected from the Lower Klamath Project reservoirs neglects to consider the additional 37 sediment cores taken during 2009 to 2010 (USBR 2011). The subsequent analysis by CDM (2011) concluded from multiple lines of evidence, including the inorganic and organic contaminants detected in reservoir sediment cores, that the sediment quality of reservoirs does not appear to be notably contaminated based on the detected chemicals of potential concern in reservoir sediments and comparisons to ecological freshwater and marine Pacific Northwest Sediment Evaluation Framework (SEF), U.S. Army Corp of Engineers Dredge Material Management Program, National Oceanic and Atmospheric Administration Screening Quick Reference Tables (SQuiRT), and Oregon Department of Environmental Quality (ODEQ) bioaccumulative screening levels (SLs) along with comparisons to human health SLs, including U.S. Environmental Protection

Agency residential (total carcinogenic and total non-carcinogenic) regional screening levels (RSLs), California Environmental Protection Agency (CalEPA) Office of Environmental Health Hazard Assessment (OEHHA) California Human Health Screening Levels (CHHSLs), or ODEQ bioaccumulation (human subsistence and human general) SLs. Microcystin concentrations and growth of *Microcystis aeruginosa* in the Klamath River under existing conditions are discussed separately in Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins*, Appendix C Section C.6 *Algal Toxins and Chlorophyll-a*, and Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-422). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Support Technical Information*. Please also refer to Volume III Attachment 1 Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* for revisions to this section.

Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* specifically analyzes the human (i.e., Potential Impact 3.2-13) and freshwater and marine aquatic species (i.e., Potential Impact 3.2-14) exposure to inorganic and organic contaminants under the Proposed Project due to releases of reservoir sediments during drawdown and interactions with sediment deposits remaining within the reservoir footprints after reservoir drawdown is completed. Additionally, Mitigation Measures WQ-2 and WQ-3 are specified to reduce the short-term significant impact of human exposure to inorganic and organic contaminants in the Middle and Lower Klamath River and the Klamath River Estuary to less than significant. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG44-7

FERC Should Not Have Federal Jurisdiction Over Klamath River Dam Removal

USEPA Retained Primary Jurisdiction Over Dam Removal Under CWA and CERCLA:

The Obama administration USEPA likely recognized that the Federal Energy Regulatory Commission ("FERC") has exclusive authority, under the Federal Power Act ("FPA") (16 U.S.C. §§ 791-828c), to license all nonfederal hydropower projects located on navigable waters. "The hydropower dam relicensing process offers an opportunity to assess the balance between natural resources and the generation of electricity and to address some areas that are determined to be problematic. […] In conjunction with FPA licensing requirements, states and authorized tribes certify that discharges (including those that originate from dams) meet water quality standards under section 401 of the Clean Water Act (CWA)."[121]

On June 16, 2016, the FERC granted "PacifiCorp's May 6, 2016 motion to hold in abeyance the processing of the relicense application for the Klamath

Hydroelectric Project No. 2082,"[122] consistent with the amended Klamath Hydroelectric Settlement Agreement ("KHSA") process.[123] In its ruling, FERC noted that, consistent with the amended KHSA process, "PacifiCorp and a new entity, the Klamath River Renewal Corporation (Renewal Corporation), will jointly file on or around July 1, 2016, an application to transfer the four developments to the Renewal Corporation."[124] In addition, the agency noted that "on or around July 1, 2016, the Renewal Corporation will file an application with the Commission to surrender and remove the four dams, and applications for water quality certifications under section 401 of the Clean Water Act for dam removal with the California State Water Resource Control Board (California Water Board) and Oregon Department of Environmental Quality (Oregon DEQ)."[125]

On June 24, 2016, "with the relicensing proceeding in abeyance,[126] and consistent with Section 6.5.2 of the amended KHSA," PacifiCorp filed with FERC a request to withdraw the prior November 10, 2015 applications for water quality certification it had filed with the California State Water Resources Control Board Oregon Department of Environmental Quality to ensure the California and Oregon portions of Project No. P-2082 were in compliance with CWA § 401 and the respective state requirements.[127] Tongue-in-cheek, PacifiCorp reserved the right to reactivate these applications if the circumstances changed, apparently emboldened that FERC had previously ruled that it would not conclude that repeated withdrawal and refiling of license applications violated the letter of the Clean Water Act.[128] As previously discussed, FERC would, even under these circumstances, retain jurisdiction over the transfer of the four PacifiCorp dam licenses to KRRC, and over KRRC's eventual dam license terminations and decommissions. However, as previously discussed, it is because of USEPA's shrewd maneuver during the last presidential administration that FERC has since retained jurisdiction over the dams.

On January 29, 2019, however, the U.S. Court of Appeals for the District of Columbia Circuit ruled the repeated withdrawal and resubmission of water quality certification requests pursuant to the CWA § 401 process that had been agreed upon between PacifiCorp and the States of California and Oregon did not toll each state's one-year waiver period, and thus, did not trigger new statutory periods of review. Thus, the Court found that FERC had acted arbitrarily and capriciously when it treated each PacifiCorp resubmission of an application over the course of a decade as an independent request subject to a new period of review. "Such an arrangement does not exploit a statutory loophole; it serves to circumvent a congressionally granted authority over the licensing, conditioning, and developing of a hydropower project." Hoopa Valley Tribe v. Federal Energy Regulatory Commission, No. 14-1271 (D.C. Cir. Jan. 25, 2019), slip op. at 11.[129] According to the Court, "Congress intended [CWA] Section 401 to curb a state's dalliance or unreasonable delay." Slip op at 12 citing 115 Cong. Rec. 9264 (1969). The Circuit Court's decision directs FERC "to proceed with its review of, and licensing determination for, the Klamath Hydroelectric Project" (slip op. at 14) (i.e., with the license transfers from PacifiCorp to KRRC), and ultimately, to

KRRC's decommissioning of each dam's hydroelectric transmission, without regard for the risk to human health and welfare that the release of the accumulated toxins in the dam reservoir bottoms would create.

Notwithstanding this recent ruling, USEPA arguably should have jurisdiction over the dam removal process because of the four dam's demonstrated contribution to the impairment of the Klamath River. As the result of the decades-old aggregation of nonpoint source pollutants in each dam's reservoir bottom, the release of those accumulated toxic sediments upon dam removal seriously threatens public health and welfare, within the meaning of CWA § 303(d).

In Clark Fork and Blackfoot, LLC,[130] the FERC ruled that it no longer had jurisdiction over the 120-mile Milltown Project (dam) site located along the Clark Fork River in southwestern Montana where USEPA had designated it as a Superfund site within the meaning of CERCLA,[131] made its remedy selection upon adopting a final three-stage Record of Decision ("ROD"),[132] and the only actions to be undertaken under the proposed license amendment/USEPA ROD concerned the cessation of generation and the dismantling and complete removal of the project.[133] FERC explained that, under these circumstances, it was reasonable to conclude, consistent with CERCLA § 121(e)(1), that no license amendment tantamount to a "permit" would be necessary,[134] since all remedial and restorative actions to be undertaken pursuant to the ROD which USEPA would direct and implement, effectively "transferred […] complete regulatory control […] from the Commission to EPA."[135] According to FERC, There is therefore nothing remarkable about the constraint on our jurisdiction embodied in CERCLA section 121(e)(1). […] The cessation of generation and complete removal of the project by EPA under CERCLA transfers effective regulatory control over the entire project to EPA and leaves the Commission with nothing to regulate. The only authority we can exercise in these unique circumstances is the authority, pursuant to FPA section 6, to accept surrender of the project license. License surrender is not subject to the comprehensive development standard of section 10(a)(1), but to a broad 'public interest' standard, which is not the same thing. [fn] We continue to believe that the public interest is best served if all matters pertaining to decommissioning of the project and removal of the dam pursuant to EPA's remedy selection are addressed by EPA itself.[136]

In the present case, the amended KHSA process calls for the planned decommissioning and removal of the four Klamath River dams. In addition, PacifiCorp arguably should have, but failed, in violation of CERCLA, to notify USEPA of the presence of hazardous substances and chemicals of concern contained in the sediments and water columns of the dam reservoir bottoms that appear in the CERCLA "list of lists," in violation of CERCLA § 103(c). Furthermore, USEPA, knowing of the presence of such substances by virtue of its participation in the amended KHSA process, failed to undertake the type of thorough human health risk assessments of those substances that would have *enabled it to determine whether to properly list the dam sites as falling under the Superfund law (CERCLA), in violation of CERCLA § 105(c)(2).*

Arguably, neither the Interior Department nor FERC should have exercised or had active control and influence over the dismantling and complete removal of the Klamath River dams given the potentially adverse impacts on human health and welfare the removal of the four dams will have, considering the decades-old aggregation of nonpoint source pollutants and toxic contaminants now present in the four dams' reservoir bottoms. Consequently, based on the FERC's prior ruling in Clark Fork and Blackfoot, LLC, FERC's jurisdiction over the Klamath Hydroelectric Project should terminate once it orders the transfers of the four PacifiCorp licenses to KRRC. Thereafter, USEPA should properly retain jurisdiction over all subsequent activities involving the dams which the amended KHSA process anticipates will result in their decommissioning and removal. However, since the removal plan for these dams fail to include the development of an adequate plan of remediation and restoration as prescribed by CERCLA § 121(a) and § 121 (b)(1), since USEPA had failed to previously conduct a robust human health risk assessment consistent with the Clean Water Act and the Safe Drinking Water Act,137 and since USEPA also had failed to ensure that the U.S. Interior Department had conducted a robust evaluation of the composition of the sediment bottoms of each dam's reservoir/impoundment bottom, USEPA must first conduct each such assessments before it can decide that dam removal is in the best interests of the public.

Response to Comment ORG44-7

The commenter asserts that United States Environmental Protection Agency (USEPA), rather than Federal Energy Regulatory Commission (FERC) should have jurisdiction over the proposed dam removal. The comment cites *Clark Fork and Blackfoot, LLC* 110 FERC 61160, which holds that FERC loses jurisdiction when a hydropower facility is being removed under a USEPA Comprehensive Environmental Response, Compensation, and Liability Act *(*CERCLA) remediation plan. However, the Proposed Project is not a removal proposed under a CERCLA remediation plan. *Clark Fork and Blackfoot, LLC* 110 FERC 61160 does not stand for the proposition that FERC does not maintain jurisdiction over license surrender proceedings.

The issue raised by the commenter relates to the actions of federal agencies. Comment noted. Please also refer to Master Response CEQ-2.

Comment ORG44-8

Congress Must Consent to and Ratify the Klamath Basin Agreements Before the Four Klamath River Hydroelectric Power Dams Can be Removed:

The authorization by the States of California and Oregon to remove the four Klamath River dams and their reservoirs, pursuant to the Klamath Basin agreements (i.e., the Amended KHSA process), violates Congress' authority *under Article I, Section 8 (the Commerce Clause) and Article I, Section 10, Clause 3 (the Compact Clause) of the United States Constitution, and under relevant and applicable United States Supreme Court jurisprudence.*

The federal government holds at least seven (7) paramount federal interests in the Klamath River that trump, subordinate and subjugate the rights of the States of California and Oregon to effectively reallocate Klamath River water and use rights among its citizens and the adjacent Indian nations by removing these dams and reservoir-impoundments, especially, in the interest of the privately-owned PacifiCorp, a Federal Energy Regulatory Commission licensee. These paramount federal interests include: 1) the federal navigation servitude; 2) the federal assurance of affordable power; 3) federal flood control; 4) the federal irrigation project operation and management; 5) the federal regulation of environmental protection and pollution control; 6) the federal protection of fish and wildlife; and 7) the federal trust obligation to protect tribal rights.

Furthermore, Congress' and the President's prior legally valid enactment of the Klamath River Basin Compact into federal law in 1957 reaffirmed these paramount federal interests, and further established Congress' primary jurisdiction over the disposition of the four (4) Klamath River hydroelectric power dams in question, pursuant to Article VI, Clause 2 (the Supremacy Clause) of the United States Constitution.

The Klamath Basin Restoration Agreement ("KBRA"), Klamath Hydroelectric Settlement Agreement ("KHSA"), Upper Klamath Basin Comprehensive Agreement ("UKBCA"), the Amended Klamath Hydroelectric Settlement Agreement ("Amended KHSA"), Klamath Power Facility Agreement ("KPFA"), and the prior Wyden-Merkley legislation (SA 3288) collectively address the same federal interests the Klamath River Basin Compact ("KBRC"), which Congress and the President enacted into law in 1957, addressed. Since these agreements would collectively amend the 1957 KRBC, either directly through changes to the KRBC text, or indirectly, through supplements to (protocols implementing) the KRBC text, such agreements and their effective changes to the KRBC, a federal-interstate compact, require the consent and ratification of Congress and the signature of the President to enact such changes into federal law.

The memorandum of law accompanying this submission, which was dispatched recently to various members of Congress explains in detail why Congress has primary interest in and primary jurisdiction over the disposition of the four Klamath River dams in question.

Response to Comment ORG44-8

The issue raised by the commenter relates to the actions of Congress and federal agencies and does not focus on the sufficiency of the EIR in identifying and analyzing the possible impacts of the Proposed Project on the environment and ways in which the significant effects of the project might be avoided or mitigated (CEQA Guidelines section 15204(a)). Please also refer to Master Response CEQ-4.

Klamath River Renewal Corporation, Laura Zagar, Mark Bransom

<u>Comment ORG47-1</u>
GENERAL COMMENTS

General Comment 1. The Proposed Project will provide more environmental benefits to the Klamath River as compared to the other action alternatives considered in the Draft EIR.

We support the Draft EIR's conclusion that the environmentally superior alternative is the Proposed Project, under which the four dams in the Lower Klamath Project would be removed to create free-flowing river conditions. See p. ES-24. As the Draft EIR finds, the removal of the Lower Klamath Project's dams will comply with applicable water quality requirements and provide a wide range of beneficial impacts, including: benefits to aquatic species listed under the Endangered Species Act; long-term beneficial effects on riparian habitat and listed species that rely on such riparian habitat; and benefits for Native American tribes that depend on the Lower Klamath River for fisheries and ceremonial purposes (Draft EIR, Executive Summary, pp. ES-9 to ES-10; ES-24 [finding that the Proposed Project as the environmentally superior alternative]).

KRRC appreciates the State Water Board's detailed examination of a number of other alternatives that potentially would meet some, but not all, of the Proposed Project's objectives. Restoration of free-flowing river conditions per the Proposed Project will provide the maximum benefits to the Klamath River's water quality and ecosystem.

Response to Comment ORG47-1
Thank you for your comments and comment noted.

<u>Comment ORG47-2</u>
General Comment 2. As conditions of license surrender, KRRC will implement comprehensive measures to avoid and minimize the Proposed Project's adverse environmental impacts.

While the Proposed Project will have substantial environmental benefits, we recognize that it will have adverse effects on environmental quality, absent the implementation of appropriate mitigation measures. The scope of state and local authority to require such mitigation measures is limited, because the Proposed Project is under the licensing jurisdiction of the Federal Energy Regulatory Commission (FERC) under the Federal Power Act (California v. Federal Regulatory Commission et al., 495 U.S. 490 (1990)). While regulating the Proposed Project under the non-preempted authority of Clean Water Act Section 401, the State Water Board has authority to require mitigation measures as *necessary to assure compliance with water quality objectives and related water quality requirements (Draft EIR, p. ES-11). However, it does not have jurisdiction to require mitigation of other potentially adverse impacts. Where the Draft EIR identifies potentially adverse impacts that fall outside of the State Water Board's water quality certification authority, the State Water Board has chosen to identify these impacts as significant and unavoidable impacts since they cannot ensure implementation of mitigation measures to reduce the impacts (Draft EIR, Page ES-24).*

The Draft EIR does not reflect, however, that FERC and other agencies considering KRRC's applications for regulatory approvals can and should implement measures to reduce the Proposed Project's adverse effects. Such approvals include the license surrender order, the Biological Opinion under the Endangered Species Act, dredge-and-fill permit under Clean Water Act section 404, and other applicable regulatory authorizations. Before such approvals can be issued, the Proposed Project will also be subject to additional environmental review under the National Environmental Policy Act (NEPA). In addition, the Federal Power Act requires FERC to include terms and conditions in the surrender order that are determined by FERC to be necessary to protect environmental resources and public safety during project decommissioning activities and will serve the public interest.

KRRC has proposed a comprehensive set of mitigation measures for the purpose of license surrender. These measures are described in the Draft EIR as well as in KRRC's Definite Plan, attached to the Draft EIR as Appendix B. The KRRC proposes to implement these measures through the following plans or project components:

- *Risk Management Plan*
- *Draft Recreation Plan*
- *Reservoir Area Management Plan*
- *Cultural Resources Plan*
- *Water Quality Monitoring Plan*
- *Groundwater Well Management Plan*
- *Fire Management Plan*
- *Traffic Management Plan*
- *Downstream Flood Control Improvements*
- *Hazards Material Management Plan*
- *Emergency Response Plan*
- *Noise and Vibration Control Plan*
- *Aquatic Resource Measures*
- *Terrestrial Resource Measures*
- *Road Improvements*

- *Yreka Water Supply Improvements*
- *Recreation Facilities Removal and Development Plan*

We derived many of these mitigation measures from the recommendations in the Final Environmental Impact Statement/Environmental Impact Report completed by the Department of Interior and the California Department of Fish and Wildlife in 2012 (2012 EIS/EIR). KRRC then worked closely with a number of federal and state resource agencies and impacted tribes to carefully review the 2012 EIS/EIR's measures to evaluate the efficacy of those measures and to update the measures where appropriate based on additional data gained from recent dam removal projects in the Western United States.

KRRC has also committed to implement additional measures to reduce the Proposed Project's impacts. For example, we are committed to implement mitigation measures to avoid or minimize any impacts to historical and tribal cultural resources. We developed these measures with Native American tribes that requested consultation under Assembly Bill (AB) 52 (Draft EIR, Chapter 3.12). KRRC will continue to work with these and other tribes in the Klamath Basin as we complete both the National Historic Preservation Act Section 106 consultation process associated with the ongoing FERC surrender proceeding and the Tribal Cultural Resources Management Program as part of a comprehensive Historic Properties Management Plan.

Finally, KRRC is working with state and local agencies participating in the FERC process to develop agreements, referred to in the Draft EIR as "good neighbor agreements," to provide FERC with joint recommendations related to mitigation of the Proposed Project's potential impacts to the extent such impacts are not adequately addressed through KRRC's commitments or the State Water Board's required mitigation measures outlined in the Draft EIR (Draft EIR, ES-11). KRRC is working diligently to reach agreements with key state and local stakeholders in an effort to ensure that their concerns are sufficiently addressed prior to the Proposed Project's implementation.

Response to Comment ORG47-2

This comment concerns the Klamath River Renewal Corporation's (KRRC's) commitment to implement mitigation measures. Comment noted. Please also refer to Master Response CEQ-2.

Comment ORG47-3

General Comment 3. As a condition of license surrender, KRRC will address any potential increased response time and associated wildland fire risk due to implementation of the Proposed Project.

The Draft EIR finds that implementation of the Proposed Project may increase risk associated with wildland fire during the Proposed Project's construction activities and after construction is complete due to the loss of reservoirs as a *potential source of water for fire suppression crews. KRRC is committed to addressing this impact and to reduce any increase in wildland fire risk for the Klamath Basin due to the implementation of the Proposed Project. To that end, KRRC is working closely with CAL FIRE to develop effective ways that KRRC can reduce any increased wildland fire risk during the Proposed Project's construction activities, and to identify ways that KRRC can assist improving emergency response in the Klamath Basin after the Proposed Project is implemented.*

KRRC has prepared a draft Fire Management Plan, which sets forth the initial framework by which KRRC will work with local emergency responders to reduce response time and any associated additional risk attributable to the Proposed Project (Draft EIR, Appendix B [Definite Plan, Appendix 01]). The Fire Management Plan details how KRRC will comply with applicable regulations and requirements set forth by the fire suppression agencies in the Proposed Project vicinity. In the draft Fire Management Plan, KRRC commits to having a designated Safety Officer who will be on-call 24 hours a day, 7 days a week who will be the primary on-site contact for emergency responders and will be responsible for implementing the fire suppression and elimination measures. The Safety Officer will be onsite during the removal of the dam facilities. The Safety Officer and KRRC's contractor will work closely with California and Oregon fire suppression agencies to develop broad scale contingency plans for fire suppression within their respective jurisdictions. During construction, KRRC will take precautionary, pre-suppression and suppression measures to ensure public safety, and will comply with applicable fire season regulations and requirements in California and Oregon (Id., p. 33-35). KRRC will carefully monitor weather patterns that may increase fire hazards during construction and will update operations and fire response plans to address changing environmental conditions while closely communicating with relevant fire suppression agencies (Id, p. 34-35). KRRC will also work closely with emergency responders to ensure that construction operations will not impede emergency vehicles or impede public access to evacuation routes.

The draft Fire Management Plan also includes a preliminary analysis concerning potential sources of replacement water that can be used by fire suppression crews to replace the reservoirs eliminated by the Proposed Project (Id., Chapter 6). KRRC recognizes that fire suppression efforts in the Klamath Basin rely on helicopter crews. As reflected in the draft Fire Management Plan, KRRC has confirmed with CAL FIRE that helicopter fire suppression will be able to draw water from the Klamath River (Id., p. 41; pers. comm., M. Hebrard, February 2019). Because the water must be a certain depth to extract water, KRRC is working with CAL FIRE to identify which specific portions of the Klamath River are suitable for extraction by helicopter crews during wildland fires (Id., p. 41). KRRC appreciates the feedback from the State Water Board that certain potential replacement measures, such as dry hydrants, will not be an effective replacement source of water. However, KRRC continues to work with CAL FIRE *to identify not only replacement sources of water, but ways in which KRRC can facilitate the reduction of overall emergency response times through communications and roadway improvements. KRRC intends to expeditiously finalize the Fire Management Plan in conjunction with our contactor, federal, state, and local fire suppression agencies, and emergency responders.*

Response to Comment ORG47-3
While no text revisions are necessary to the Executive Summary, the additional clarification provided in the comment is noted.

Please also refer to additional information regarding wildfire found in Master Response HAZ-2.

Comment ORG47-4
General Comment 4. The Proposed Project will not result in the procurement of additional fossil fuel generation.

The implementation of the Proposed Project will result in the elimination of a source of hydropower, which PacifiCorp would need to replace in its portfolio. As the Draft EIR correctly concludes, the power that PacifiCorp will procure to replace the Lower Klamath Project's generation will not increase overall greenhouse gas (GHG) emissions (Draft EIR, pp. 2-727 to 730).

As a preliminary matter, PacifiCorp has already accounted for the loss of the generation from the Lower Klamath Project in its Integrated Resource Plan (IRP). Substantial evidence demonstrates that the Lower Klamath Project will not be replaced through the procurement of fossil fuel generation. However, the loss of production attributable to the decommissioning of the Lower Klamath Project loss is many, many times offset by PacifiCorp's acquisition of renewable resources. PacifiCorp's 2017 IRP states that, through the end of 2036, the updated preferred portfolio includes over 2,700 megawatts (MW) of new wind resources, 1,860 MW of new solar resources, 1,877 MW of incremental energy efficiency resources, and approximately 268 MW of direct-load control resources. The 2017 IRP contains no new natural gas resources through the 20-year planning horizon. This is the first time an IRP has not included new fossil-fueled generation as a least-cost, least-risk resource for PacifiCorp. This was reinforced in PacifiCorp's 2017 IRP Update, in which the preferred portfolio continues to assume existing owned coal capacity will be reduced by 3,650 MW through the end of 2036.

The fact that the Lower Klamath Project generation will not be replaced with newly procured fossil fuels is underscored by the energy policies in both California and Oregon. Both states have enacted aggressive renewable energy and carbon reduction goals. In addition to the goals set forth in the Draft EIR, Governor Jerry Brown signed Senate Bill (SB) 100, which accelerates the state's Renewables Portfolio Standard (RPS) to require utilities and other load serving *entities derive 60% of their energy from renewable sources by 2030. SB 100 also requires the state to obtain all of its electricity from carbon-free sources by 2045.*

The State of Oregon also has a state policy to reduce GHG emissions in Oregon to meet certain GHG reduction goals by 2020 and 2050; ORS 468A.205 et seq. In 2016, Governor Kate Brown signed legislation that increased the state's RPS to require utilities to procure at least 50% of its power from renewable resources by 2040. Currently, the Oregon legislature is evaluating a number of bills to further its state policy to reduce GHG emissions. This legislation includes House Bill 2020, which would set new GHG reduction goals for 2035 and 2050 and establish a new "cap and trade" regulatory program administered by a new state agency, the Carbon Policy Office, to address GHG emissions by (1) placing a cap on the total anthropogenic GHG emissions by setting annual allowance budgets for 2021 and 2050; and (2) providing a market-based mechanism for covered entities, which includes certain electric companies, to demonstrate compliance with the program.

In light of aggressive efforts by California and Oregon to increase carbon reduction goals and PacifiCorp's stated intention to replace existing fossil fuel generation with an increasing amount of renewable energy, there is substantial evidence that the loss of the Lower Klamath Project's generation will not result in the procurement of fossil fuel generation.

Response to Comment ORG47-4
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

<u>Comment ORG47-5</u>
ES-5. Clarify that the timing of the drawdown at Copco No. 2 would be before breaching Copco No. 1 dam, not after.

Suggested revision (second paragraph, second sentence):

"Copco No. 2 Reservoir is substantially smaller than the other three dams and the KRRC proposes to drawdown this reservoir ~~after~~ <u>before</u> Copco No. 1 Dam has been breached to final grade in May of dam removal year 2."

Response to Comment ORG47-5
The Executive Summary has been clarified as requested. Please refer to Volume III Attachment 1 *Executive Summary* for the revision.

Comment ORG47-6
ES-5. To clarify, the capacity of the embankment dam crest is related to the passage of a 1 in 150 probable seasonal flow, which would be a higher standard than the annual rate (i.e., 100-year flood event).

Suggested revision (third paragraph, last sentence):

"During Iron Gate Dam removal, the embankment dam crest would be retained at a level to accommodate the passage of a ~~100-year flood event~~ 1 in 150 probable seasonal flow."

Response to Comment ORG47-6
The Executive Summary has been clarified as requested. Please refer to Volume III Attachment 1 *Executive Summary* for the revision.

Comment ORG47-7
ES-5. Clarify the first sentence to describe the sequencing of the dam removal and reservoir drawdowns.

Suggested revision (second paragraph, first sentence):

"Copco No. 1 Reservoir would be drawn down first (~~November–March of dam removal year 1~~ November of dam removal year 1 to March of dam removal year 2)[1], followed by J.C. Boyle (Oregon) and Iron Gate reservoirs (January–March of dam removal year 2)."

Response to Comment ORG47-7
The Executive Summary has been clarified as requested. Please refer to Volume III Attachment 1 *Executive Summary* for the revision.

Comment ORG47-8
ES-11. Clarify how the State Water Board's limited scope of jurisdiction restricts the scope of mitigation it may require through its water quality certification jurisdiction, resulting in a greater number of determinations of "significant and unavoidable" impacts than would actually happen during the Proposed Project's implementation. Many of these significant impacts will be reduced by the commitments that KRRC has made to fully mitigate adverse impacts of the Proposed Project to the extent feasible. In addition, many of these significant impacts will also be reduced during the additional layers of environmental review and regulatory approvals of FERC, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. Through this extensive regulatory process, these agencies will add additional terms and conditions under which KRRC must comply in the implementation of the Proposed Project that will further reduce significant impacts identified in the EIR.

Suggested revision (last paragraph, "Significant Unavoidable Adverse Impacts")

"Below is a summary, by resource area, of impacts found to be 'significant and unavoidable' with or without mitigation (Table ES-1). Please note, many of these impacts determinations are based on the limitations of the State Water Board's jurisdiction based on the proposed issuance of a water quality certification. This is the first of many agencies' review of the Proposed Project. Before KRRC could implement the Proposed Project, the Proposed Project would undergo additional environmental review and permitting by FERC, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. On balance, this robust federal environmental review and regulatory oversight will result in a reduction of the impacts identified by the State Water Board in this Draft EIR. Because that review has not yet occurred, however, the State Water Board has made significance determinations based only on the scope of mitigation that it can enforce, resulting in a greater number of significant and unavoidable determinations than might actually occur during the Proposed Project's implementation. These impact characterizations are thus conservative from a legal standpoint, and reflect the fact that the State Water Board, by itself, cannot ensure that the significant impacts at issue cannot be mitigated to less than significant levels. For many of these impacts, however, binding mitigation obligations imposed by other regulatory agencies will likely ensure that the impacts will ultimately be mitigated to less than significant levels.

In addition, KRRC has made a wide range of commitments to implement measures to reduce the environmental impacts of this Project. T~~t~~he KRRC proposes to further develop Proposed Project actions relating to certain state and local regulatory requirements for several resource areas that fall outside of State Water Board's water quality certification authority. KRRC anticipates entering into Memoranda of Understanding (MOUs or "good neighbor agreements") with certain state or local agencies, under which KRRC and the relevant agency would provide joint recommendations to FERC to include those terms and conditions in FERC's surrender order.

The State Water Board anticipates implementation of additional measures (e.g., good neighbor agreements between the KRRC and relevant state or local agencies, recommended measures in this EIR, and any modifications developed through the FERC process that provide the same or better level of protection for the resource in question) would reduce impacts. The EIR notes where such protection would eliminate the potential for a significant impact. However, the State Water Board cannot ensure implementation of good neighbor agreements, recommended measures included in this EIR, or modifications anticipated to be developed through the FERC process. Therefore, the State Water Board has identified impacts that rely on implementation of such agreements or recommended measures to reduce impacts to less than significant levels in this EIR as significant and unavoidable in this EIR."

Response to Comment ORG47-8

Please refer to Master Response CEQ-2 regarding the scope of federal preemption and the resulting impact on mitigation measures and findings of significance. The last paragraph of Volume I *Executive Summary – Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts – Significant and Unavoidable Impacts* (page ES-11) has been clarified in light of the information in Master Response CEQ-2 and the textual recommendations in the comment.

Comment ORG47-9

ES-14. Clarify under bullet one under Public Service that it is a short-term increase on response times during construction activities. It is also recommended to clarify that the potential increase in response time is unknown at this time. There are a number of factors that contribute to the severity and extent of a wildland fire. It is hard to predict whether any specific factor will contribute to the severity of a fire (pers. comm., M. Hebrard, February 2019). In addition, as conditions of license and surrender, KRRC has committed to implement Recommended Measure PS-1, which will substantially reduce impacts to emergency response time in suppressing wildland fire. KRRC will work closely with fire suppression agencies to finalize the Fire Management Plan consistent with Recommended Measure PS-1.

Suggested revision (top of page, "Public Services")

- *"Short term i~~I~~ncreases in public service response times for emergency fire, police, and medical services due to construction and demolition activities, including construction related traffic; and*
- *~~Substantial~~ Potential increase in response times for suppressing wildland fires where suitable replacement water sources cannot be identified in close proximity to a fire in a location for which the Lower Klamath Project reservoirs would otherwise have been the nearest water source."*

Response to Comment ORG47-9

The *Executive Summary – Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts – Significant Unavoidable Adverse Impacts – Public Services – Public Services* first bullet has been revised to clarify that increases in public service response times are related to short-term impacts during construction activities. Please refer to Volume III Attachment 1 *Executive Summary – Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts – Significant Unavoidable Adverse Impacts – Public Services* for the revisions. No changes were made to the second bullet because the term "substantial" reflects the standard of significance that is assessed as part of Potential Impact 3.17-2 in Volume I Section 3.17.5 *Public Services – Potential Impacts and Mitigation* (pages 3-915 to 3-919).

Comment ORG47-10

ES-24. Clarify how the State Water Board's limited scope of jurisdiction restricts the scope of mitigation it may require through its water quality certification jurisdiction, resulting in a greater number of determinations of "significant and unavoidable" impacts than would actually happen during the Proposed Project's implementation. Many of these significant impacts will be reduced by the commitments that KRRC has made to fully mitigate adverse impacts of the Proposed Project to the extent feasible. In addition, many of these significant impacts will also be reduced during the additional layers of environmental review and regulatory approvals of FERC, the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the National Marine Fisheries Service. Through this extensive regulatory process, these agencies will add additional terms and conditions under which KRRC must comply in the implementation of the Proposed Project that will further reduce significant impacts identified in the EIR.

Suggested revision (last paragraph):

"The KRRC proposes to further develop Proposed Project actions related to certain state and local regulatory requirements that fall outside of the State Water Board's water quality certification authority. The State Water Board anticipates that implementation of additional measures, ~~(e.g.,~~ measures that are ultimately recommended through the good neighbor agreements between the KRRC and relevant state or local agencies, KRRC's commitment to implement certain recommended measures in this EIR, and any modifications developed through the FERC, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and/or National Marine Fisheries Service processes that provide the same or better level of protection for the resource in question) would ultimately reduce many of the Proposed Project's impacts to less than significant levels.

In certain instances, the EIR notes where such protection is anticipated to eliminate the potential for a significant impact. However, the State Water Board cannot ensure implementation of good neighbor agreements, recommended measures included in this EIR, or modifications anticipated to be developed through the FERC, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, the National Marine Fisheries Service processes. Therefore, the State Water Board has conservatively identified impacts that rely on FERC's adoption of measures included in ~~implementation of~~ such agreements, the terms and conditions that may be imposed by FERC, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and National Marine Fisheries Service, or recommended mitigation measures in this EIR as significant and unavoidable. As noted above, these impact characterizations are thus conservative from a legal standpoint, and reflect the fact that the State Water Board, by itself, cannot ensure that the significant impacts at issue cannot be mitigated to less than significant levels. For many of these impacts, however, binding mitigation obligations imposed by other regulatory agencies will likely ensure that the impacts will ultimately be mitigated to less than significant levels."

Response to Comment ORG47-10

Please refer to Master Response CEQ-2. Additionally, the *Executive Summary* has revised to clarify how the EIR addresses implementation of measures to reduce potential environmental impacts for resource areas that fall outside of the State Water Board's water quality certification authority. Please refer to Volume III Attachment 1 *Executive Summary* for the revisions.

Comment ORG47-11

ES-26. Table ES-1 currently distinguishes between categories of impacts that are "significant and unavoidable" and categories of impacts that are "significant and unavoidable with mitigation." This is a useful and helpful distinction. KRRC believes that Table ES-1 would be even more informative, however, if the table also identified an additional basis for differentiating amongst these significant unavoidable impacts. KRRC suggests that the table be modified to show a distinction between, on the one hand, impacts that are significant and unavoidable because the State Water Board cannot identify any mitigation measures—including any that might be beyond the State Water Board's regulatory jurisdiction—that would reduce the impacts below applicable significance thresholds; and on the other hand, impacts that the State Water Board considers significant and unavoidable simply because the Board lacks the regulatory authority to impose mitigation on its own. The table is currently misleading insofar as it portrays the Proposed Project as causing a larger number of significant unavoidable impacts than will truly exist once agencies other than the Water Board issue regulatory approvals and the KRRC develops the good neighbor agreements with relevant state and local agencies. As is clear from pages ES-9 through ES-11, the Proposed Project is, on balance, a project that is very beneficial to the environment, and in particular to long-term water quality and the long-term health of fisheries, by reestablishing a free-flowing river condition and volitional fish passage on the Lower Klamath River.

Suggested revision:

Table ES-1 should be modified to include asterisks and other symbols, defined in a key, to indicate whether particular significant unavoidable impacts are labeled as such (i) due to the Water Board's jurisdictional limitations, or (ii) due to the fact that no known mitigation—as imposed by any agency or as imposed by KRRC on itself—is available to reduce the impacts at issue to less than significant levels.

Response to Comment ORG47-11

EIR *Executive Summary* Table ES-1 does distinguish impacts that are significant and unavoidable due to jurisdictional limitations from otherwise significant and unavoidable impacts (i.e., significant impacts for which there is no known mitigation that could be implemented by any agency or Klamath River Renewal Corporation (KRRC) itself, using as asterisk at the end of the impact title. The asterisk is defined at the end of the table as follows: "* Indicates a Significant and Unavoidable Impact that would be reduced to No Significant Impact with Mitigation if one or more Recommended Measures were to be implemented. Due to federal preemption the State Water Board cannot guarantee the implementation of Recommended Measures."

Comment ORG47-12
ES-42. Mitigation Measure TER-5 is applicable to "Potential Impact 3.5-6. Short-term and long-term impacts on culturally significant species in riparian and wetland habitats" in the short-term for the Proposed Project and other alternatives including the Partial Removal Alternative, the Two Dam Removal Alternative, the Three Dam Removal Alternative, and the No Hatchery Alternative.

Suggested revision:

Add TER-5, as revised in later comments, to Potential Impact 3.5-6 in Table ES-1.

Response to Comment ORG47-12
Under the Proposed Project there is no need for Mitigation Measure TER-5 (please refer to Volume I Section 4.4.5.1 *Alternatives – Continued Operations with Fish Passage Alternative – Terrestrial Resources – Vegetation Communities* page 4-165) because the Proposed Project includes a wetland delineation that would be conducted within the Limits of Work at the Lower Klamath Project dams and associated facilities, access and haul roads, and disposal sites, in accordance with the 1987 USACE Wetland Delineation Manual. Mitigation Measure TER-5 is only necessary under alternatives that involve construction of a fish ladder because activities associated with fish ladder construction would not otherwise include a wetland delineation. The State Water Board has modified Mitigation Measure TER-5 in response to ORG47-41. Please refer to Volume III Attachment 1 Section 4.4.5.1 *Alternatives – Continued Operations with Fish Passage Alternative – Terrestrial Resources – Vegetation Communities* for these revisions. The State Water Board has also added Mitigation Measure TER-5 to the alternatives where fish ladder construction would occur (i.e., the Two Dam Removal and Three Dam Removal alternatives). Please refer to Volume III Attachment 1 Section 4.5.5 *Alternatives – Two Dam Removal Alternative – Terrestrial Resources – Vegetation Communities* and Section 4.6.5 *Alternatives – Three Dam Removal Alternative – Terrestrial Resources – Vegetation Communities* for these revisions.

Comment ORG47-13
2-8. Since Table 2.3-1 refers to existing features, the word "modified" should be removed from the description of the diversion tunnels at Copco No. 1. The diversion tunnel at Copco No. 1 would only be modified as part of the Proposed Project.

Suggested revision (Table 2.3-1):

Under column "Copco No. 1": "Overflow spillway with larger control gate and ~~modified~~ diversion tunnel"

Response to Comment ORG47-13
Section 2.3 *Proposed Project – Existing Lower Klamath Project Features* Table 2.3-1 has been clarified as requested. Additionally, based on comment ORG46-44, Table 2.3-1 has been revised to clarify the type of feature that allows water to flow past each of the dams under existing conditions. References to diversion culverts/tunnels are no longer associated with J.C. Boyle and Copco No. 1 dams in Table 2.3-1, since these features are not functional under existing conditions. Please refer to Volume III Attachment 1 Section 2.3 *Proposed Project – Existing Lower Klamath Project Features* Table 2.3-1 for the revisions.

Comment ORG47-14
2-20. Clarify the title of Section 2.6.1 with the following language.

Suggested revision:

"2.6.1 Water ~~Conflicts~~ History in the Klamath River Basin"

Response to Comment ORG47-14
This EIR section focuses on major events associated with water-related disputes in the Klamath Basin and is not intended to be a comprehensive history of water use and/or management in the basin.

The title for Section 2.6.1 of the EIR has been revised for clarity in Volume III.

Comment ORG47-15
2-27. In Table 2.7-1, J.C. Boyle does not require any canal modifications in preparation for drawdown.

Suggested revision:

Under J.C. Boyle tasks:" ~~Modify canal and~~ Prepare for drawdown"

Response to Comment ORG47-15
Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 has been clarified as requested. Please refer to Volume III Attachment 1 Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 for the revisions.

Comment ORG47-16

2-27. In Table 2.7-1, under Copco No. 1 tasks "Modify diversion tunnel, prepare for drawdown" and "Dam modifications" are the same, and one or the other should be removed.

Suggested revision:

Table 2.7-1, under Copco No. 1: ~~Dam modifications~~

Response to Comment ORG47-16

Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 has been clarified as requested by removing references to dam modifications to prevent duplicate references. Please refer to Volume III Attachment 1 Section 2.7 *Proposed Project – Proposed Project Features* Table 2.7-1 for the revision.

Comment ORG47-17

2-27. In Table 2.7-1, revise the schedule under Copco No. 1 for "Power generation facilities demolition" to November 4 to April 14.

Suggested revision:

Under Copco No. 1: "Power generation facilities demolition" to take place November 4 to April 14 (change from October to January).

Response to Comment ORG47-17

Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 date range has been updated to be November 4 to April 14. Please refer to Volume III Attachment 1 Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 for the revision.

Comment ORG47-18

2-32. No improvements to the Access Road from Overlook Point Recreational Facility to Copco Road are envisioned for the project. This bullet point should be removed.

Suggested revision (bottom of page):

- *"Access Road from Long Gulch Recreational Facility to Lakeview Road—some road surface rehabilitation during construction.*
- ~~*Access Road from Overlook Point Recreational Facility to Copco Road—some road surface rehabilitation during construction."*~~

Response to Comment ORG47-18

Section 2.7.1.2 *Proposed Project – Copco No. 1 Dam and Powerhouse – Construction Access and Road Improvements – Road and Bridge Improvements/Replacements* has been revised to remove the reference to the road surface rehabilitation during construction activities on the access road from Overlook Point Recreational Facility to Copco Road. For consistency, Section 3.22.2.3 *Transportation and Traffic – Environmental Setting – Road Conditions– Road and Bridge Improvement/Replacements* has also been revised. Please refer to Volume III Attachment 1 Section 2.7.1.2 *Proposed Project – Copco No. 1 Dam and Powerhouse – Construction Access and Road Improvements – Road and Bridge Improvements/Replacements* and Section 3.22.2.3 *Transportation and Traffic – Environmental Setting – Road Conditions– Road and Bridge Improvement/Replacements* for these revisions.

Comment ORG47-19

2-43. Clarify that KRRC is committed to returning the roads to their "pre-project condition."

Suggested revision (first paragraph, second sentence):

"The KRRC proposes to return roads used for the Proposed Project to an acceptable state <u>(i.e., their pre-project condition)</u>, including mitigating any potential reduction in function attributed to the dam removal work."

Response to Comment ORG47-19

Section 2.7.1.3 *Proposed Project – Dam and Powerhouse Deconstruction – Copco No. 2 Dam and Powerhouse – Construction Access and Road Improvements* has been revised to clarify that the roads would be returned to their pre-project condition. The revision does not change any potential impact assessments, recommended measures, or significance determinations associated with road conditions in the EIR. Please refer to Volume III Attachment 1 Section 2.7.1.3 *Proposed Project – Dam and Powerhouse Deconstruction – Copco No. 2 Dam and Powerhouse – Construction Access and Road Improvements* for these revisions.

Comment ORG47-20

2-46. The first paragraph of this page describes flood release capacity. KRRC's analysis shows that the 1% seasonal flow is about 4,200 cubic feet per second (cfs) for the second half of June and less than 3,000 cfs for July through September, which is different than what is stated in the document. The flow updates should not affect the impact determination. The Proposed Project will maintain flood protection for a 1 in 150 probable flow during dam removal from June 15 to September 30.

Suggested revision (first paragraph):

"The KRRC proposes to remove Iron Gate Dam and its associated facilities following spring runoff of dam removal year 2 (approximately June 1). The embankment dam crest would be retained at a level needed for flood protection, with a minimum flood release capacity of approximately ~~7,000~~ <u>3,000</u> cfs in July (reservoir water surface elevation 2,242.3 feet) and 3,000 cfs in August and

September (reservoir water surface elevation 2,194.3 feet), in order to accommodate the passage of at least a 1 percent probable flood for that time of year. Excavation of the embankment section at Iron Gate Dam would not begin before June 1 of dam removal year 2, and it would be complete by September 30 to minimize the risk of flood overtopping. During excavation, rockfill would be temporarily stockpiled for placement on the downstream slope of a temporary cofferdam. Throughout excavation, access would be provided to the gate control house at the base of the intake tower for flow control."

Response to Comment ORG47-20

The statement has been revised in Section 2.*7.1.4 Proposed Project – Dam and Powerhouse Deconstruction – Iron Gate Dam and Powerhouse – Deconstruction Activities* has been revised to clarify the correct minimum flood release capacity for Iron Gate Dam in July. The revision does not change any potential impact assessments, mitigation measures, or significance determinations in the EIR. Please refer to Volume III Attachment 1 Section 2.*7.1.4 Proposed Project – Dam and Powerhouse Deconstruction – Iron Gate Dam and Powerhouse – Deconstruction Activities* for these revisions.

Comment ORG47-21

2-57. See comment above regarding the flow analysis conducted by KRRC. The flow for Iron Gate in July would be 4,200 cfs, not 7,700 cfs. Text should be clarified with the updated information.

Suggested revision (last paragraph):

"June – approximately ~~7,700~~ 4,200 cfs
July – approximately ~~7,000~~ 3,000 cfs
August/September – approximately 3,000 cfs"

Response to Comment ORG47-21

Section 2.7.2 *Proposed Project – Reservoir Drawdown* has been clarified as requested to indicate the correct minimum flood release capacities for Iron Gate Dam in June and July. The revision does not change any potential impact assessments, mitigation measures, or significance determinations in the EIR. Please refer to Volume III Attachment 1 Section 2.7.2 *Proposed Project – Reservoir Drawdown* for these revisions.

Comment ORG47-22

2-81. An additional location for the settling pond at the existing lower raceways at Fall Creek Hatchery should also be included in the description of the hatchery. This third location is situated within the footprint of existing infrastructure and therefore would have lesser impacts than the other sites being considered.

Suggested revision: (first paragraph, fourth sentence):

"The settling pond would be constructed on one of three ~~two~~ potential nearby sites located on Parcel B lands downstream of the Fall Creek Hatchery, including a location at the existing lower raceways at the hatchery, with a minimally buried or at-grade conveyance pipeline transporting flows from the hatchery to the settling pond."

Response to Comment ORG47-22
Section *2.7.6.2 Proposed Project – Hatchery Operations – Fall Creek Hatchery* has been revised as requested to clarify that the Proposed Project includes constructing the settling pond at one of three potential sites, including a location at the existing lower raceways at the Fall Creek Hatchery (FCH). Please refer to Volume III Attachment Section *2.7.6.2 Proposed Project – Hatchery Operations – Fall Creek Hatchery* for these revisions.

Comment ORG47-23
3-82 Significance Finding for Potential Impact 3.2-1. The Draft EIR finds that the Proposed Project will have beneficial impacts or no significant adverse impacts on water temperature, varying by Project reach, due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-23
Comment noted.

Comment ORG47-24
3-84 Significance Finding for Potential Impact 3.2-2. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on seasonal water temperature, due to morphological changes, due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-24
Comment noted.

Comment ORG47-25
3-106 Significance Finding for Potential Impact 3.2-3. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on water quality in the long term from sediment release due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-25
Comment noted.

<u>Comment ORG47-26</u>
3-109 Significance Finding for Potential Impact 3.2-5. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on water quality in the long term from the alteration in inorganic suspended material, due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-26
Comment noted.

<u>Comment ORG47-27</u>
3-110 Significance Finding for Potential Impact 3.2-6. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on water quality in the long term from the alterations in organic suspended material, due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-27
Comment noted.

<u>Comment ORG47-28</u>
3-111 Significance Finding for Potential Impact 3.2-7. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on water quality in the short term from the release of sediment associated nutrients, due to conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-28
Comment noted.

<u>Comment ORG47-29</u>
3-119 Significance Finding for Potential Impact 3.2-8. The Draft EIR finds that the Proposed Project will have no significant adverse impacts on alterations in nutrients in the long term due to the removal of the dams and will have a beneficial impact on water quality due to the cessation of seasonal releases of total nutrients and the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-29
Comment noted.

<u>Comment ORG47-30</u>
3-124 Significance Finding for Potential Impact 3.2-9. The Draft EIR finds that the Proposed Project will have no significant adverse impacts to dissolved oxygen due to the short term increases in oxygen demand in the lower reaches, due to the removal of the dams and the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-30
Comment noted.

<u>Comment ORG47-31</u>
3-131 Significance Finding for Potential Impact 3.2-10. The Draft EIR finds that the Proposed Project will have long term beneficial impacts to the summer and fall variabilities in dissolved oxygen and will have no significant adverse impacts to dissolved oxygen for the daily variability due to the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-31
Comment noted.

<u>Comment ORG47-32</u>
3-136 Significance Finding for Potential Impact 3.2-11. The Draft EIR finds that the Proposed Project will have no significant adverse impacts to pH levels in the Hydroelectric Reach from the Oregon-California state line and the lower reaches in the short and long term and will have beneficial impacts to pH levels from Copco No.1 to Iron Gate due to the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-32
Comment noted.

<u>Comment ORG47-33</u>
3-139 Significance Finding for Potential Impact 3.2-12. The Draft EIR finds that the Proposed Project will have beneficial impacts to levels of chlorophyll-a and algal toxins in the short and long term due to the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-33
Comment noted.

Comment ORG47-34
3-160 Significance Finding for Potential Impact 3.2-14. The Draft EIR finds that the Proposed Project will have no significant adverse impacts to freshwater and marine aquatic species in the short and long term due to the removal of the dam and the conversion from reservoir areas to free-flowing conditions.

Suggested revision: None. We concur.

Response to Comment ORG47-34
Comment noted.

Comment ORG47-35
3-161. In Potential Impact 3.2-15, update the pre-construction activities at Iron Gate by removing "canal" in the description.

Suggested revision (first paragraph, first sentence):

"Under the Proposed Project, pre-construction activities that would potentially affect water quality include ~~canal and~~ diversion tunnel modifications, road improvements, Iron Gate and Fall Creek hatchery modifications, Yreka pipeline modifications, and dam site preparation between June and November of dam removal year 1 (Table 2.7-1)."

Response to Comment ORG47-35
Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-15 has been revised to clarify the description of Proposed Project pre-construction activities at Iron Gate Dam facilities by removing "canal" from the description of activities.

For consistency, the description of the Proposed Project pre-construction activities at Iron Gate Dam facilities was also updated in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-4 by removing "canal" from the description of activities. Please refer to Volume III Attachment 1 Section 3.2.5 for these revisions.

Comment ORG47-36
3-166. "Short term" for the hatchery is defined in the Draft EIR as the 8-year operation period. Depending on hatchery operations, discharge water temperatures that are above the receiving water temperatures may occur for short periods, but not consistently for 8-years. Although discharge water temperature increases may occur, it is likely that they would last only a matter of hours. Short duration discharges of minimally higher temperature water would unlikely have an effect on receiving water temperatures and the effect would not

be a continuous 8-year impact. The impact is measured to the receiving water not the discharge water.

Suggested revision (first paragraph):

"While the increase in Fall Creek water temperature and subsequent potential increase in Klamath River water temperature due to hatchery discharges would be small, any increase in water temperature would exceed Thermal Plan water temperature water quality standard for COLD interstate waters, and there potentially would be a significant and unavoidable impact without mitigation on water temperature in the Hydroelectric Reach of the Klamath River due to Fall Creek Hatchery under the Proposed Project. <u>It should be noted that although discharge temperatures may be elevated during the short term, the changes would be very short in duration and would not occur continuously during the 8-year period of operation."</u>

Response to Comment ORG47-36
Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17 has been revised to clarify the time when elevated water temperatures in the Fall Creek Hatchery (FCH) discharges would be expected to occur under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

<u>Comment ORG47-37</u>
3-212. Clarify text reference to Table 3.3-7. The text should refer to steelhead, not spring Chinook salmon as is currently specified.

Suggested revision (second paragraph, last sentence):

"Table 3.3-7 provides a generalized life history periodicity for ~~spring-run Chinook~~ <u>steelhead</u> ~~salmon~~ life stages, with additional timing provided in Appendix E.3.1.4."

Response to Comment ORG47-37
Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Winter Steelhead* has been revised to correct the typographical error noted in the comment. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Winter Steelhead* for these revisions.

<u>Comment ORG47-38</u>
3-324. In the short term, it is likely that summer and winter steelhead would use the additional 80 miles of mainstream and tributary habitat in the Hydroelectric Reach for spawning and rearing (not just migration) beginning in the winter/spring of year 2. Spawning would primarily take place in tributaries and

possibly within riffles or newly formed side channels within the previously inundated reservoir areas. See full reference for text revisions below:

- *Hamilton, J.B., G.L. Curtis, S.M. Snedaker, and D.K. White. 2005. Distribution of anadromous fishes in the Upper Klamath River watershed prior to hydropower dams – a synthesis of the historical evidence. Fisheries, 30:10-20.*

Suggested revision (third paragraph):

"In the short term, adults could first access this reach in winter (summer steelhead) or fall (winter steelhead) of dam removal year 2. <u>Because redband /rainbow trout (Oncorhynchus mykiss sp.) are already present in all free-flowing portions of the Hydroelectric Reach and resident O. mykiss have similar life history requirements for spawning and rearing habitats as steelhead, it is probable that steelhead will rapidly use these reaches once the habitats become accessible. Further, Hamilton et al. (2005) summarizes historical evidence of steelhead using tributary streams in the Hydroelectric Reach, including Camp Creek, Spencer Creek, Shovel Creek, Scotch Creek, and Fall Creek.</u> Steelhead could use this reach as a migration corridor, as most sediment released from the reservoirs would likely be eroded within the first six months after reservoir drawdown (by June of dam removal year 2) and would not impede upstream movement. By late spring of removal year 2, elevated SSCs resulting from dam removal would likely have returned to low levels unlikely to impact steelhead."

Response to Comment ORG47-38

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-10 has been revised to incorporate the recommended text. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for these revisions.

<u>Comment ORG47-39</u>

3-336. There is research that supports the conclusion that the return of anadromous species will deliver marine-derived nutrients to the Upper Klamath Basin, which could bolster the population of fish species. See suggested revision below. The full references are included here:

- *Bilby, R. E, B. R. Fransen, and P. A. Bisson. 1996. Incorporation of nitrogen and carbon from spawning coho salmon into the trophic system of small streams: evidence from stable isotopes. Can. J. Fish. Aquat. Sci. 53:164-173.*
- *Cederholm CJ, Kunze MD, Murota T., Sibatani A. 1999. Pacific salmon carcasses: Essential contributions of nutrients and energy for aquatic and terrestrial ecosystems. Fisheries 24: 6– 15.*
- *Wipfli, M. S., J. P. Hudson, and J. P. Caouette. 1998. Influence of salmon carcasses on stream productivity: response of biofilm and benthic*

macroinvertebrates in southeastern Alaska, U.S.A. Can. J. Fish. Aquat. Sci. 55:1,503-1,511.

In the long term, the return of anadromous species to the Upper Klamath Basin will deliver marine-derived nutrients (MDN), potentially bolstering the forage base for Lost River and shortnose suckers.

Suggested revision (last paragraph):

"In the long term, reservoir removal associated with dam removal under the Proposed Project would eliminate habitat availability and affect Lost River and shortnose suckers in Lower Klamath Project reservoirs. All individual suckers occurring within these reservoirs would likely be lost within the short term and would not be replaced in the long term. <u>However, the return of anadromous species to the Upper Klamath Basin will deliver marine-derived nutrients (MDN), potentially bolstering the forage base for Lost River and shortnose suckers. The delivery of MDN by spawning anadromous fish and their resulting decomposing carcasses has been linked with the enrichment of aquatic and terrestrial ecosystems through numerous studies (Cederholm et al. 1999). MDN are utilized by stream biota through a variety of pathways and may bolster forage items for native fish species directly, such as through the consumption of eggs, fry, and flesh (Bilby et al. 1996); and indirectly by increasing primary productivity in stream ecosystems, thereby increasing the abundance and biomass of other forage items such as macroinvertebrates (Wipfli et al. 1998)."</u>

Response to Comment ORG47-39

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-13 has been revised to include discussion of the benefits of marine derived nutrients from adult salmon accessing habitat upstream of Iron Gate Dam. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for these revisions.

<u>Comment ORG47-40</u>

3-341. There is research that supports the conclusion that the return of anadromous species will deliver marine-derived nutrients, which could bolster the population of fish species. See suggested revision below.

Suggested revision (fourth paragraph):

"The Proposed Project would restore access for anadromous salmon and steelhead to habitat upstream of Iron Gate Dam, as described in detail above. Restoration of access would result in anadromous salmon and steelhead potentially interacting with resident redband trout and bull trout, with the potential for competition and predation. These species evolved together in the Upper Klamath Basin of the Klamath River, and co-existed prior to the construction of

dams (Goodman et al. 2011). The return of anadromous species to the Upper Klamath Basin will deliver MDN, potentially bolstering the forage base for bull trout, redband, and other native species. The delivery of MDN by spawning anadromous fish and their resulting decomposing carcasses has been linked with the enrichment of aquatic and terrestrial ecosystems through numerous studies (Cederholm et al. 1999). MDN are utilized by stream biota through a variety of pathways and may bolster forage items for native fish species directly, such as through the consumption of eggs, fry, and flesh (Bilby et al. 1996); and indirectly by increasing primary productivity in stream ecosystems, thereby increasing the abundance and biomass of other forage items such as macroinvertebrates (Wipfli et al. 1998)."

Response to Comment ORG47-40
Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-18 has been revised to clarify more information regarding marine derived nutrients. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for these revisions.

Comment ORG47-41
3-519. Currently, Mitigation Measure TER-1, standing alone, does not provide for unavoidable wetlands impacts. Therefore, it should be clarified that TER-1 works together with TER-5 for all action alternatives to ensure that the Project achieves the net zero loss of wetland function and value standard. Recommend including TER-5 as revised below in the comment on page 4-166 to mitigation for Potential Impact 3.5-1. For reference, our suggested revised version of TER-5 is included below.

Suggested revision (third paragraph, Potential Impact 3.5-1):

"Mitigation Measure TER-1 Establish a 20-foot buffer around delineated wetlands. The KRRC shall establish a minimum of a 20-foot buffer around all delineated wetlands potentially affected by construction impacts to ensure there will not be any significant environmental impacts to wetlands by deterring heavy machinery from traversing the wetland and preventing runoff pollution from directly entering the wetland where doing so would not result in a significant environmental impact. The buffer may be adjusted (e.g., made larger or smaller) based on site-specific conditions, as determined by a qualified biologist acceptable to USACE, as necessary to ensure adequate protection of the delineated wetlands. To the extent that impacts to wetlands cannot be avoided, KRRC shall comply with mitigation measure TER-5 to ensure no net loss of functions and values. The State Water Board has the authority to include this mitigation measure in its water quality certification for the project, and the measure is therefore feasible and used in this analysis to make a significance determination.

Mitigation Measure TER-5 − Identification, protection, and restoration of wetland and riparian habitats. The KRRC shall conduct a wetland delineation within the limits of construction in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and applicable Regional Supplements (i.e., Western Mountains, Valleys, and Coast Region [USACE 2010] and Arid West [USACE 2008]). The results of the wetland delineation shall be incorporated into all alternatives, except for the No Project Alternative, ~~the Continued Operations with a Continued Operations with Fish Passage Alternative design~~ to avoid and minimize direct impacts on wetlands to the maximum extent feasible, and wetland areas adjacent to the construction Limits of Work shall be fenced to prevent inadvertent entry. Where avoidance is not feasible the KRRC shall develop a restoration plan to re-vegetate all areas disturbed during construction with a goal requirement of no net loss of wetland or riparian habitat acreage or no net loss of overall functions and values. The restoration plan shall include details on revegetation native seed mixes based on existing species that will be impacted and installation techniques for container plants and seeds. Wetlands established in restored areas would be monitored for five years or until the performance criteria, as defined in the restoration plant that shall be developed, have been met."

Response to Comment ORG47-41

Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Mitigation Measure TER-1 has been modified as requested, except that this sentence "To the extent that impacts to wetlands cannot be avoided, Klamath River Renewal Corporation (KRRC) shall comply with mitigation measure TER-5 to ensure no net loss of functions and values" has not been added because it is not necessary. Under the Proposed Project there is no need for Mitigation Measure TER-5 because the Proposed Project includes a wetland delineation that has been conducted within the Limits of Work at the Lower Klamath Project dams and associated facilities, access and haul roads, and disposal sites, in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual. Mitigation Measure TER-5 is only necessary under alternatives that involve construction of a fish ladder because activities associated with fish ladder construction would not otherwise include a wetland delineation. Please refer to Volume III Attachment I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Mitigation Measure TER-5 has been modified as requested. Please refer to Volume III Attachment 1 Section 4.4.5.1 *Alternatives – Continued Operations with Fish Passage Alternative –Terrestrial Resources – Vegetation Communities* for these revisions. Mitigation Measure TER-5 has been added to the alternatives where fish ladder construction will occur (i.e., the Two Dam Removal and Three Dam Removal alternatives). Please refer to Volume III Attachment 1 Section 4.5.5 *Alternatives – Two Dam Removal Alternative –Terrestrial Resources – Vegetation Communities* and Section 4.6.5 *Alternatives – Three*

Dam Removal Alternative –Terrestrial Resources – Vegetation Communities for these revisions.

Comment ORG47-42

3-530. Clarify the wording of Mitigation Measure TER-2.

Suggested revision (second paragraph, last sentence):

"These features of TER-2 will be implemented to reduce the impacts to less than significant ~~such that there is no significant impact~~ on special-status amphibians and reptiles."

Response to Comment ORG47-42

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for these revisions.

Comment ORG47-43

3-531. Clarify the wording of Mitigation Measure TER-3

Suggested revision (first paragraph, last sentence):

"These features of TER-3 will be implemented to reduce the impacts to less than significant ~~such that there is no significant impact~~ on western pond turtles."

Response to Comment ORG47-43

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for these revisions.

Comment ORG47-44

3-561. This statement appears to be missing words between "frogs" and "loosen," or otherwise requires clarification: "If suspended sediment settles further downstream, and/or foothill yellow-legged frogs are present, the presence of settled fine silt in slow moving portions of the river reaches would not likely affect the adhesion of egg masses based on foothill yellow-legged frogs loosen algae and sediment that could enhance the ability of egg masses to adhere to the substrate (Rombough and Hayes 2005)."

Suggested revision: Clarify sentence.

Response to Comment ORG47-44

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* has been revised to clarify the typo and sentence structure. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for these revisions.

Comment ORG47-45

3-562. Based on surveys conducted in 2018, biologist noted the great blue heron colony is no longer active at Copco 1, but has now become active at the Copco Bypass. Suggest removing reference to the great blue heron colony at Copco 1, as it is no longer active.

Suggested revision:

"The loss of aquatic reservoir habitat would also reduce foraging opportunities for fish-eating birds including bald eagle, osprey, merganser, cormorant, egret, and heron ~~(including the great blue heron rookery documented at Copco No. 1 Reservoir~~ (PacifiCorp 2004b)."

Response to Comment ORG47-45

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* has been revised as requested. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for the revisions.

Comment ORG47-46

3-567. Surveys in 2018 indicated a change in the number of turtles at Copco No. 1 and Iron Gate. See revisions below for updated information. This should not change the impact determination.

Suggested revision (third paragraph, fifth sentence):

"Surveys conducted in Copco No. 1 Reservoir in 2002 documented 12 turtles while surveys in 2018 documented ~~31 to 36~~ 42, which ~~are~~ is similar to the anticipated density estimate. Surveys conducted in Iron Gate Reservoir in 2002 documented 8 turtles, while surveys in 2018 also documented ~~17~~ 8, which is lower than the anticipated density estimates."

Response to Comment ORG47-46

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* has been revised to clarify the number of western pond turtles observed. Please refer to Volume III Attachment 1 Section 3.5.5.3 Terrestrial Resources – Potential Impacts and

Mitigation – Special-status Species and Rare Natural Communities for these revisions.

<u>Comment ORG47-47</u>

3-571. The text in the second paragraph describes the use of herbicides. During informal consultation with NMFS under Section 7 of the Endangered Species Act, additional guidance on the use of herbicides was provided by NMFS. See revised language below.

Suggested revision (second paragraph):

Include the following input KRRC received from NMFS during informal Endangered Species Act Section 7 consultation, as applicable, in a revised discussion on herbicides:

<u>"KRRC's evaluation of herbicides for the Biological Assessment concluded that glyphosate formulation Rodeo is associated with the relatively lowest aquatic toxicity among agency-approved herbicides and should be considered if chemical control is determined to be a best practice for IEV management near or adjacent to aquatic systems, presenting less risk than the other herbicides evaluated to aquatic wildlife (including Coho salmon and their prey). Care must be taken to select adjuvants (additions like surfactants) that have low toxicity.</u>

- *<u>Aquatic formulations of glyphosate and imazapyr are favorable for use with adjuvants that have low toxicity.</u>*
- *<u>Glyphosate is effective for control of nearly all of the IEV in the action area. In addition, glyphosate has a short half-life in soil, and thus is less prone to leaching than other herbicides. For these reasons, glyphosate is recommended as the primary herbicide for control of IEV in the action area.</u>*
- *<u>For [Invasive Exotic Vegetation] IEV not easily controlled by glyphosate (i.e., bearded creeper), dicamba and metsulfuron may be preferable due to low average half-lives in soil compared to other herbicides."</u>*

Response to Comment ORG47-47

The text cited in the comment is associated with Section 3.5.5.2 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-24. This potential impact analysis focuses on the potential for adverse impacts on terrestrial species (e.g., raptors, terrestrial mammals) as a result of herbicide use during reservoir restoration activities in the newly exposed areas of the reservoir footprints as well as in upland areas. The text revisions suggested in the comment reference herbicide application near or adjacent to aquatic systems, and they reference the potential for aquatic toxicity, which is a related but separate topic that is discussed in EIR Potential Impact 3.2-16 *Short-term impacts to aquatic biota from herbicide application during restoration of the reservoir areas* (pages 3-162 and 3-163).

Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-24 has been revised to clarify that potential impacts on aquatic biota are analyzed elsewhere in the EIR. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for these revisions.

Additionally, Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Mitigation Measure WQ-4 has been revised to clarify that Rodeo is an acceptable aquatic formulation of glyphosate and to distinguish that POEA and R-11 are surfactants that shall be avoided for the purpose of herbicide application. The other revisions suggested in the comment are unnecessary because Mitigation Measure WQ-4 is already consistent with the use of other herbicides possessing the proper characteristics that would minimize toxicity to aquatic biota. However, the guidance from National Marine Fisheries Service (NMFS) is noted and included in the record. Please refer to Volume III Attachment 1 Section 5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Mitigation Measure WQ-4 for these revisions.

Comment ORG47-48

3-601. In Table 3.6-4 the units for depth should be feet, not feet above mean sea level. Recommend revising table column headers.

Suggested revision:

"Average Depth" and "Maximum Depth": "(feet ~~amsl).~~"

Response to Comment ORG47-48

Section 3.6.2.2 *Flood Hydrology – Environmental Setting Basin Hydrology – Upper Klamath Basin – Upper Klamath Lake and Link River Dam* Table 3.6-4 has been slightly revised to clarify units of reservoir depth.

Comment ORG47-49

3-701. Section 3.9.4, Clarify text with following revision (note all text would be added to the 2018 EIR, but the strikeout/underline in text below indicates changes from the 2012 EIS/EIR mitigation measure):

Suggested revision (third paragraph):

"Appendix N contains an estimate of "uncontrolled emissions" and an estimate of emissions after implementation of mitigation measures that were proposed as part of the analysis in the 2012 KHSA EIS/EIR. These included Mitigation Measures Air Quality (AQ)-1 (Off-road construction equipment), AQ-2 (On-road construction equipment), AQ-3 (trucks used to transport materials), and AQ-4 (Dust control measures). <u>As conditions of license surrender, KRRC has</u>

committed to implement the following mitigation measures from Appendix N as updated below: ~~Mitigation Measures AQ-1 through AQ-3 required off-road construction equipment and on-road construction equipment and trucks to be equipped with engines that meet certain model year emissions standards. Mitigation Measure AQ-4 required dust control measures to minimize fugitive dust emissions during construction activity.~~

- *AQ-1 – For the construction activities occurring within California, any off-road construction equipment (e.g., loaders, excavators, etc.) that are 50 horsepower or greater must be equipped with engines that meet the EPA Tier 4 Final emission standards for off-road compression-ignition (diesel) engines, unless such an engine is not available for a particular item of equipment. To the extent allowed by California Air Resources Board Off-Road Diesel Fueled Fleets regulations, Tier 3 and Tier 4 interim engines will be allowed when the contractor has documented, with appropriate evidence, that no Tier 4 Final equipment or emissions equivalent retrofit equipment is available or feasible. Documentation may consist of signed written statements from at least two construction equipment rental firms.*
- *AQ-2 – Any heavy-duty on-road construction equipment must be equipped with engines that meet the MY 2010 or newer on-road emission standards.*
- *AQ-3 – Any heavy-duty trucks used to transport materials to or from the construction sites must be equipped with engines that meet the MY 2010 or later emission standards for on-road heavy-duty engines and vehicles. Older model engines may also be used if they are retrofitted with control devices to reduce emissions to the applicable emission standards.*
- *AQ-4 – Dust control measures will be incorporated to the maximum extent feasible during blasting operations at Copco No. 1 Dam. The following control measures will be used during blasting activities as applicable: Conduct blasting on calm days to the extent feasible. Wind direction with respect to nearby residences must be considered. To the extent that blasting cannot be limited to calm days, install wind fencing for control of windblown dust during blasting activities. Design blast stemming to minimize dust and to control fly rock.*
- *These updated Mitigation Measures AQ-1 to AQ-4 are more protective than those in the 2012 KHSA EIS/EIR. Even with the implementation of these mitigation measures, ~~the 2012 KHSA EIS/EIR determined~~ construction emissions from the Proposed Project would still result in significant and unavoidable impacts from NOx and PM10."*

Response to Comment ORG47-49

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*).

Comment ORG47-50

3-737. Paragraph 1 and Table 3.11-1: Table 3.11-1 includes Cedar Mountain fault zone but not Meiss Lake fault, which is the closest active fault to the Lower

Klamath Project and is within the Cedar Mountain fault zone. However, the text discusses the Meiss Lake fault, but not its relation to the Cedar Mountain fault zone. Recommend reconciling the table information and the text with the following revisions.

Suggested revision (first paragraph, second sentence):

"In California, the nearest active fault to the Lower Klamath Project is the Meiss Lake fault<u>, which is part of the Cedar Mountain fault zone and</u> approximately 5 miles east of the Klamath River near the California-Oregon State line in Siskiyou County."

In Table 3.11-1 under Fault include: "Cedar Mountain fault <u>– Meiss Lake fault.</u>"

Response to Comment ORG47-50
Section 3.11.2.1 *Geology, Soils, and Mineral Resource – Environmental Setting – Regional Geology* has been revised to clarify that the Meiss Lake fault is part of the Cedar Mountain fault zone. Please refer to Volume III Attachment 1 Section 3.11.2.1 *Geology, Soils, and Mineral Resource – Environmental Setting – Regional Geology* for the revision.

<u>Comment ORG47-51</u>
3-765. Mitigation Measure GEO-1: KRRC is committed to protecting surrounding properties throughout drawdown. For example, materials will be stockpiled on-site for immediate road repairs (continuous access will be needed by KRRC and other state agencies, in addition to local residents). Potentially affected properties will be mitigated in advance (buy-out, slope reinforcement, or temporary relocation of resident during drawdown and monitoring). Additional details will be provided in the final Rim Stability Analysis.

Suggested revision (second paragraph):

"~~Following~~ <u>Throughout</u> drawdown activities, and <u>when</u> ~~once~~ the areas are safe to inspect, the KRRC shall inspect any slope failures and implement slope stabilization measures, as appropriate. <u>Additional details will be included in the final Rim Stability Analysis prepared for the project.</u> For any large slope failure that occurs during drawdown or the year following drawdown, KRRC will offset potential impacts by implementing the following actions:

1. Move affected structures or purchase affected property,
2. Re-align affected road segments,
3. Engineer structural slope improvements (e.g., drilled shafts or other structural elements that could be installed to resist slope movement), and
4. Revegetate affected areas."

Response to Comment ORG47-51

Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation,* Mitigation Measure GEO-1 in Potential Impact 3.11-3 has been revised to reflect changes agreed to by the Klamath River Renewal Corporation (KRRC) on March 7, 2020. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 for the final Mitigation Measure GEO-1. The Klamath River Renewal Corporation's (KRRC's) agreement to the final Mitigation Measure GEO-1 supersedes the KRRC's 2019 comments proposing edits to Draft EIR Mitigation Measure GEO-1.

Comment ORG47-51.1

While the best available science suggests that there will not be significant impacts from sediment delivery to the Pacific Ocean nearshore environment, KRRC suggests including language to confirm that KRRC will have sufficient insurance coverage to the extent sediment delivery to the Pacific Ocean nearshore environment requires dredging to maintain marine navigation in, for instance, Crescent City Harbor.

Suggested revision (seventh sentence, first paragraph):

"The short-term (less than two years following dam removal) and long-term (2–50 years following dam removal) effects of the Proposed Project on sediment delivery to the Pacific Ocean would be less-than significant, given the relatively small amount of total sediment input from reservoir sediment release in comparison to the total annual naturally occurring sediment inputs to the nearshore environment. Although the best available science indicates no measurable impacts to the Pacific Ocean nearshore environment, KRRC has committed, as a condition of license surrender, to implement mitigation measures as necessary to address such impacts should they occur and to protect maritime navigation in, for instance, Crescent City Harbor."

Response to Comment ORG47-51.1

The Klamath River Renewal Corporation (KRRC) indicates in this comment that they have committed, as a condition of license surrender, to implement measures as necessary to address impacts to Pacific Ocean Nearshore Environment in the vicinity of the Klamath River mouth should they occur and to protect maritime navigation (e.g., Crescent City Harbor). The EIR does not identify significant individual or cumulative sedimentation impacts from the Proposed Project on the Pacific Ocean Nearshore Environment in the vicinity of the Klamath River mouth and Crescent City Harbor. Therefore, CEQA does not require mitigation for short- or long-term sediment deposition.

Comment ORG47-52

3-826. Clarify text describing various resources that could be eligible for inclusion on the National Register of Historic Places.

Suggested revision (last sentence, first paragraph):

"Resources identified as villages, cairns or burial sites, or other sites eligible for the National Register of Historic Places in a subsequent compilation by Cardno ENTRIX (2012) were also considered as part of this analysis."

Response to Comment ORG47-52

Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* has been revised as requested. Please refer to Volume III Attachment 1 Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* for the revision.

Comment ORG47-53

3-828. Clarify the sentence describing historic artifacts that are present in the Hydroelectric Reach from the Oregon-California state line to Copco No. 1.

Suggested revision (second sentence, first paragraph):

"Historic period refuse scatters, ~~an~~ historical hotel ruin sites, historical ranching sites, and historic roads are also present."

Response to Comment ORG47-53

Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* has been revised as requested. Please refer to Volume III Attachment 1 Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* for the revision.

Comment ORG47-54

3-832. Include Copco No.1 to make the sentence on existing TCRs more specific to that dam.

Suggested revision (first sentence, third paragraph):

"There is at least one TCR that was present at Copco No. 1 before dam construction that would be potentially impacted."

Response to Comment ORG47-54

Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* has been revised as requested. Please refer to Volume III Attachment 1 Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* for the revision.

<u>Comment ORG47-55</u>

3-838. Include Shasta Indian Nation to the list of tribes with TCRs in the Area of Analysis Subarea 1. Resources from other tribes are not known to be in this area.

Suggested revision (first sentence, fifth paragraph):

"Tribal cultural resources known to the Shasta Nation <u>and Shasta Indian Nation</u> to be within the Area of Analysis Subarea 1 include resources identified in PacifiCorp (2004a) and Daniels (2006), as updated by Confidential Appendix Q, Attachment 4."

Response to Comment ORG47-55

Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* has been revised to refer to the Shasta people rather than to a specific Native American entity. Please refer to Volume III Attachment 1 Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* for the revision.

<u>Comment ORG47-56</u>

3-913. Potential Impact 3.17-1 – Suggested revision to reflect the commitments that KRRC intends to implement to reduce the risk of increased public services response times for emergency fire, police, and medical services due to the Proposed Project's construction and demolition activities.

Suggested revision (last paragraph):

"The Proposed Project could result in a significant impact if it results in substantial increases in emergency response times within the Area of Analysis. <u>KRRC has committed to developing a Traffic Management Plan, a draft of which is attached as Appendix O2 to the Definite Plan (Appendix B of this Draft EIR).</u> ~~In general, development of an adequate Traffic Management Plan (Traffic Management Plan)~~ <u>This Traffic Management Plan</u> would mitigate the potential short-term impacts of construction-related traffic and therefore minimize changes to public service response time. Under the Proposed Project, demolition and construction areas would be closed off to the public to reduce hazards. Due to the rural nature and low concentration of roads in the area, most existing roads are currently used, and would continue to be used, by emergency responders and for evacuation routes in the event of fire or other emergencies. The use of these roads for construction activities could interfere with emergency response and evacuation. The potential for substantial interruptions to road access for property owners within the public services Area of Analysis during construction activities would not be a significant impact since alternative routes are or would be made available as part of the proposed Traffic Management Plan ~~(Traffic Management Plan)~~ (Section 3.22 Transportation and Traffic). The KRRC's

Traffic Management Plan is a specialized program tailored to minimize impacts by applying a variety of techniques, including the following:

- *Public Information – use of telephone hotlines, a Traveler Information System via the Project website, local community outreach (meetings, newsletters, etc.), press release(s), and local news media, as appropriate, to ensure the public have easy access to current or upcoming interruptions to the local or state road network*
- *Motorist Information – use of portable changeable message signs, stationary mounted signs, and highway advisory radio to provide advanced notice to motorists of potential traffic delays throughout the project sites and associated access routes*
- *Incident Management – traffic procedures to be adopted in the case of an incident on a road or highway, developed in collaboration with local and state agencies, and in accordance with local and state requirements*
- *Construction Strategies – scheduling of road closures and notifying the public of detours; planning signage and traffic control, including with respect to work zones and construction vehicles; scheduling haul trips to avoid peak hours; identifying emergency detours; managing potential safety hazards from haul vehicles and dust; and providing access for pedestrians and bicycles.*

As a condition of license surrender, the ~~major objectives of the~~ KRRC is committed to ensure that the Traffic Management Plan ~~are to~~ will maintain efficient and safe movement of vehicles through the construction zone covered by activities in the Definite Plan and to provide public awareness of potential impacts to traffic on both haul routes and access roads to the four dams and associated facilities. The Traffic Management Plan outlines the structure and key requirements that would be incorporated by the KRRC's contractor into a final Traffic Management Plan. The final Traffic Management Plan would be informed by KRRC's contractor's specific means and methods for construction~~,~~ and input received from relevant local jurisdictions, which could refine the approach to access and traffic management. KRRC proposes that the final Traffic Management Plan would meet applicable regulatory permit requirements, as well as applicable state and local ordinances, as appropriate (Appendix B: Definite Plan – Appendix O2). By reducing the potential for traffic incidents during construction and demolition activities, implementation of the final Traffic Management Plan would reduce the potential for increased public services response times for emergency fire, police, and medical services.

Construction activities would involve staging and stockpiling areas and equipment that would be kept on-site for the duration of construction. The Limits of Work (Figures 2.7-2 and 2.7-4) would include activities that may result in accidental spills of flammable liquids or use of equipment that generates heat, such as welding, grinding, torch-cutting, gas and diesel generators. Other construction activities could result in open sparks or flame in vegetated open space that could further aggravate the risk of fire. Emergency and Security *services would be provided by the construction contractor, therefore the Proposed Project would not increase the need for emergency services or the number of emergency responders. What is important for the reduction of impacts is that all construction workers have the knowledge and resources to respond to emergencies and all emergency preparation and work are overseen by a designated health and safety manager, which is proposed as part of the Proposed Project. In addition, the Proposed Project (Appendix B: Definite Plan) proposes that responding agencies and departments are made aware of the activities during the construction period so that they can implement their existing regulatory framework, establish an emergency contact process, and include inspections as needed throughout the process.*

In particular, the Proposed Project includes a Hazardous Materials Management Plan (Appendix B: Definite Plan – Appendix 03) to address the management of hazardous materials during Project construction. The Hazardous Materials Management Plan identifies potential hazardous materials that may be encountered at J.C. Boyle, Copco No. 1 and No. 2, and Iron Gate dams and their powerhouses, and the anticipated sampling, testing, abatement, and disposal of hazardous materials. KRRC will update the Hazardous Materials Management Plan, as appropriate, based on the Phase I-Environmental Site Assessment visits and interviews and the Phase II Site Investigation, if needed. The Final Hazardous Materials Management Plan will be submitted to the State Water Board Deputy Director for review and approval. By reducing the potential for hazardous materials incidents during construction and demolition activities, implementation of the Final Hazardous Materials Management Plan would reduce the potential for increased public services response times for emergency fire, police, and medical services.

Mitigation Measure HZ-1 and Recommended Measure TR-1 would reduce the potential impacts related to construction activities since these measures require that the KRRC and its contractor(s) for the Proposed Project submit the additional documentation/details included in the final Emergency Response Plan, Fire Management Plan, Traffic Management Plan, and a Hazardous Materials Management Plan, and they work with applicable agencies prior to the start of construction. Implementation of these two measures would reduce the potential for a short-term increase in personal and public health and safety risks due to the Proposed Project as related to emergency response services. There would be no long-term impacts due to the Proposed Project construction-related activities since the construction would be completed in the short term."

Response to Comment ORG47-56

This comment is generally consistent with Mitigation Measure TR1 – Traffic Management Plan and contains additional statements already in Klamath River Renewal Corporation's (KRRC's) Definite Plan (Volume II *Definite Plan – Appendix O-2 Traffic Management Plan*). The State Water Board acknowledges KRRC's commitment to addressing any potential for impacts to public services due to construction related traffic as a condition of license surrender. Additionally, as noted by KRRC in their comment and elsewhere in the EIR, KRRC will be coordinating efforts with emergency service providers as part of their Emergency Response Plan (ESP), Fire Management Plan (FMP) and Hazardous Materials Management Plan (HMMP). Potential Impact 3.17-1 has been revised to reflect that Recommended Measure TR-1 has been changed to Mitigation Measure TR-1. Please also refer to Master Response CEQ-2.

Please also refer to Master Response HAZ-1.

Comment ORG47-57

3-919. Though outside of the State Water Board's jurisdiction, as a condition of the license surrender, KRRC is committed to working with CAL FIRE to update the Fire Management Plan and to implement Recommended Measure PS-1.

Suggested revision (last paragraph):

"Recommended Measure PS-1 − Fire Management Plan. The KRRC and/or its Contractor(s) shall develop a post-dam removal Fire Management Plan in consultation with the CAL FIRE Siskiyou Unit. The Fire Management Plan shall identify long-term water sources for helicopter and ground crews (including construction and use of proposed dry hydrants, dip ponds, or other alternatives). After reaching agreement on the Fire Management Plan with CAL FIRE Siskiyou Unit, the KRRC and/or its Contractor(s) shall submit the Final Fire Management Plan to the CAL FIRE Siskiyou Unit and implement any portions of the plan for which the KRRC has identified responsibilities. As a condition of license surrender, KRRC is committed to complying with this mitigation measure to reduce any increased challenges in responding to wildland fire in the Klamath Basin due to the implementation of the Proposed Project."

Response to Comment ORG47-57

Please refer to Master Response HAZ-2. While no text revisions are necessary to Recommended Measure PS-1, the additional clarification provided in the comment is noted.

Comment ORG47-58

3-1010. The discussion of Potential Impact 3.20-4 did not incorporate the requirement to conduct project-specific review for individual recreation projects through the use of a checklist authorized by CEQA Guidelines Section 15168(c). In addition, KRRC would implement all applicable mitigation measures set forth in the Draft EIR related to the construction of any new recreational facilities.

Suggested revision:

"As described previously, the Proposed Project involves the development and implementation of a plan to construct new recreational facilities and river access

points along the restored river channel between the California-Oregon border and Iron Gate Dam following dam removal activities. Replacement of recreation facilities would not necessarily be 'like for like', but rather would be designed to accommodate similar levels, if different types of use. This would require the creation of new gravel roads, parking areas and other improvements for vehicle and visitor access to and use of the new river-based recreation sites, which could result in construction-related impacts to the environment, including potential impacts to water quality, terrestrial resources, and historical and/or tribal cultural resources.

While new recreation facilities are part of the Proposed Project, the final location, size, and design of the facilities are still under development. ~~and will be the subject of subsequent approvals. It is thus too soon to conduct a meaningful environmental analysis of the replacement facilities. However, construction and operation of new recreational facilities would undergo any environmental review necessary for the subsequent approvals ,~~The recreation plan takes a programmatic approach to developing recreational facilities and mitigating any impacts attributable to these developments. New recreational facilities are being evaluated in a process that includes California and Oregon state officials, Siskiyou County, Klamath County, the Bureau of Land Management, PacifiCorp, economic development organizations including chambers of commerce, tourism organizations, recreation businesses, local communities, and the broader public. A Final Recreation Plan will be submitted to FERC, and this plan will include any new recreation facilities that are proposed by KRRC. The Final Recreation Plan will be subject to environmental review under NEPA, and mitigation measures will be determined by FERC. If implementation of this plan (at FERC's direction) requires any further state or local approvals, then written checklists will be prepared pursuant to CEQA Guidelines Section 15168, subdivision (c) to ascertain whether formal site-specific environmental review for individual recreational projects will be necessary. Such individual projects shall be subject to applicable best management practices and mitigation measures required by FERC, applicable mitigation measure in this EIR such as Mitigation Measures WQ-1, TER-1 through TER-3, and TER-5, TCR-1 through TCR-3, and any other measures required by an agency with jurisdiction over those individual recreational projects. ~~and any impacts of the construction and operation of the facilities would be mitigated, if feasible, to levels that comply with all applicable laws, regulations, and environmental standards. Because this component of the Proposed Project would not be approved until a later date, for the purposes of this EIR the impacts of this component are not significant.~~ The potential environmental impacts of these new recreational facilities will be reviewed at a project level in subsequent evaluations prior to their development."

Response to Comment ORG47-58

Please refer to Master Response REC-2 for a discussion of how new recreational facilities are considered in the EIR given that the Klamath River Renewal Corporation's (KRRC's) Recreation Plan takes a programmatic approach to developing these facilities and mitigating any impacts attributable to their development.

Comment ORG47-59

3-1034. Include other treated wood such as wood utility poles as noted in Tables 2.7.3, 2.7.5 and 2.7.7 into this section to maintain consistency.

Suggested revision (last paragraph, fourth sentence):

"The dams and hydroelectric facilities within the Proposed Project area may also include items such as transformers, batteries, bushings, oil storage tanks, bearing and hydraulic control system oils, lead bearings, soils or other material contaminated with lead from the use of lead-based paints or plumbing and 700 tons of creosote-treated wood in the wooden stave penstock at Copco No. 2 Dam, as well as wood utility poles (see also Appendix B: Definite Plan – Appendix O3)."

Response to Comment ORG47-59

Section 3.21.2.3 *Hazards and Hazardous Materials – Environmental Setting – Contaminants/Contaminated Sites* has been revised as requested. Please refer to Volume III Attachment 1 Section 3.21.2.3 *Hazards and Hazardous Materials – Environmental Setting – Contaminants/Contaminated Sites* for the revisions.

Comment ORG47-60

3-1050. KRRC commits to working with all federal, state, and local fire suppression agencies to reduce any potential risk of wildland fire attributable to the implementation of the Proposed Project. As CAL FIRE has confirmed, helicopter crews can extract water on the Klamath River and KRRC is working with CAL FIRE to identify specific locations in the Klamath River that are suitable for such extraction. KRRC also proposes changes that better reflect feedback from CAL FIRE regarding the potential impacts of the Proposed Project's implementation on wildland fires in the Klamath Basin. Finally, KRRC agrees with and commits to implement the Recommended Measure PS-1.

Suggested revision (fifth paragraph):

"The Proposed Project would result in the removal of one readily available water source for wildfire services or increased emergency response times if other sources of water are not as readily available. Under the Proposed Project, removal of the Copco No. 1, Copco No. 2, and Iron Gate reservoirs would remove a long-term water source for fire suppression crews after the reservoirs are removed. Absent the identification of replacement sources of water, ~~T~~the removal of the reservoirs could increase turn-around time for helicopters or ground crews refilling with water for fire abatement purposes. However, the initial response times for existing aircraft with fire retardant would not be changed by the loss of the reservoirs. Following dam removal, CAL FIRE has confirmed

that helicopters and ground crews would still be able to extract water from the Klamath River (both the current channel and the channel reaches to be exposed in the current reservoirs following drawdown), Lake Ewauna, and Upper Klamath Lake. Retrieving water directly from the Klamath River is consistent with how wildfires are suppressed along the Klamath River downstream of Iron Gate Dam under current conditions. Ground crews would be adversely affected unless access to Klamath River water continues to be supported under the Proposed Project. Loss of the reservoirs would not affect the use of fire retardant, which is loaded onto aircraft at regional airports (i.e., Redding, Montague, Klamath Falls) and then applied directly to wildfire sites.

With respect to Klamath River access, most helicopter water tanks require three feet of water depth to fill properly, so only deeper pools in the Klamath River would be able to be used by helicopters. CAL FIRE uses the closest available water source that is suitable for fire-fighting, where suitability is determined by local conditions including water flow, depth of pool (2- to 3-foot minimum), amount of debris in pool, shoreline vegetation, and surrounding terrain. Rotor blade length and the length of bucket lines are also determinants, since there must be a safe amount of space to enter and exit the pool site. Individual pilots use their discretion to determine the closest and safest locations from which to withdraw water. KRRC is working with CAL FIRE to assist in mapping exact locations along the Klamath River that are suitable for water extraction during a wildfire based on applicable parameters, which will be included in the final Fire Protection Plan.

Analysis of aerial photos (Google Maps 2018) suggests the presence of pools with suitable conditions for helicopter filling in the currently free-flowing reaches of the Middle and Upper Klamath River, particularly in the reaches between Copco No. 1 and J.C. Boyle reservoirs and downstream of Iron Gate Dam. While source water would be available in the Klamath River in pools located in the river reaches exposed following reservoir drawdown, the travel time involved in accessing the newly formed pools ~~would be~~ may be greater than that for the existing Lower Klamath Project reservoirs because retrieval of water from relatively smaller, more narrow, river pools is more difficult than dipping directly from the broad water surface of a lake or reservoir, and only one helicopter at a time would have access to a given river pool versus multiple helicopters that can draw at one time from a large reservoir. Thus, response and travel times between water fills for helicopter crews ~~would be expected to~~ could increase with the loss of the reservoirs. Wildfires can spread at a rapid speed, and involve high risks. There are a number of factors that contribute to the severity and extent of a wildland fire. It is hard to predict whether any specific factor will contribute to the severity of a fire. In an abundance of caution, the State Water Board finds that ~~A~~any amount of additional response time compared with existing conditions could result in a substantial increased risk of loss, injury, or death involving wildland fires and this would be a significant impact.

To compensate for the loss of reservoir water supply, the Proposed Project includes providing alternate water supply through dry hydrants that would be accessible to ground crews following removal of the dams. Flows in the Klamath River and tributaries are not expected to substantially change post-dam removal, as compared to current flows, and firefighting ground crews could still use the river as a water supply as long as physical access to water is provided. A dry hydrant is a passive, unpressurized system, with a screened intake placed in the channel above the channel bed. An above-ground fire hose is used to connect the intake to truck-mounted pumps (Figure 3.17-1). Placement of the dry hydrant must be in a location of satisfactory depth (during dry conditions), flow rate, and channel stability. The Definite Plan states that dry hydrants are commonly used as water supply for fighting fires in rural areas, and typical dry hydrants and fire truck pumps can supply over 1,500 gallons per minute, which is sufficient for rapid filling of typical water tankers and firefighting apparatus (Appendix B: Definite Plan – Appendix O1).

To assist ground-based firefighting efforts, the Fire Management Plan proposes the development of eight sites near the Copco No. 1 Reservoir and four sites near the Iron Gate Reservoir for installation of permanent dry hydrants from which water trucks and fire engines could draw directly from the Klamath River and larger tributaries (Figures 3.17-2 and 3.17-3). The Proposed Project also includes an evaluation of the potential for riverine pool features to be used for helicopter water filling and development of an associated map of resources that can be used by air-based firefighting crews.

The proposed dry hydrants are likely to be of limited use for firefighting compared with existing conditions because only ground crews can access them (i.e., they are of no use to aerial crews that can access the reservoirs under existing conditions). Hook-ups to the dry hydrants would require standard specifications and existing CAL FIRE pumper trucks would require special equipment such as hard suction lines (a flexible hose would collapse) to successfully draft from the dry hydrants. The ground crews would need to be able to get close to the river to draft from the dry hydrants because firetrucks typically can only lift water over short vertical distances (i.e., 10 to 14 feet, with a maximum 15-foot height from the intake) and drafting from bridges may require too much lift. Decreased response time associated with dry hydrants as compared with aerial crew access of reservoir water via helicopters would be a significant impact since it would increase the risk of loss, injury, or death involving wildland fires. Direct withdrawal from the river using a boat ramp, pumping stations equipped with pumps connected to wells or deep pools in the river, above-ground storage tanks with ready access for transferring water to pumper trucks, are likely to be better options than the dry hydrants proposed by KRRC because these alternatives would be easier to use and thus would reduce ground crew response time. Section 3.17 Public Services includes Recommended Measure PS-1 that requires the KRRC or the Contractor's Safety Officer for the Proposed Project to submit a final Fire Management Plan after reaching agreement with CAL FIRE

Siskiyou Unit on a long-term water source replacement for helicopter and ground crews (including construction and utilization of proposed dry hydrants, dip ponds or other alternatives). KRRC commits to complying with this mitigation measure to reduce any risk in wildland fire in the Klamath Basin due to the implementation of the Proposed Project."

Response to Comment ORG47-60

Please refer to Master Response HAZ-2. While no text revisions are necessary to the identified paragraph, the additional clarification of Klamath River Renewal Corporation's (KRRC's) intentions to reduce risk of wildfires in the comment is noted.

Comment ORG47-61

3-1060. Copco Road description should be updated. The road is approximately 32 feet wide (paved), not 27 feet wide as written.

Suggested revision (fifth sentence):

"Copco Road is a paved, two-lane road in generally good pavement condition between I-5 and Ager Road with few pavement cracks or ruts and is approximately 32 27 feet wide."

Response to Comment ORG47-61

Section 3.22.2.1 *Transportation and Traffic – Environmental Setting – Traffic Flow – Roadways – Copco Road has been revised to clarify that Copco Road* at the designated section is 32 feet rather than 27 feet wide. Please refer to Volume III Attachment 1 Section 3.22.2.1 *Transportation and Traffic – Environmental Setting – Traffic Flow – Roadways – Copco Road* for this revision.

Comment ORG47-62

3-1073. KRRC is committed to implementing the Recommended Measure TR-1 and recommends the following revisions to the language of the measure.

Suggested revision (second paragraph):

"Recommended Measure TR-1 – Transportation and Traffic.

A. The KRRC and/or its contractor(s) shall develop a final Traffic Management Plan (TMP) that provides:

1. Implementation details consistent with all applicable regulatory requirements including the latest version of the Caltrans California Manual on Uniform Traffic Control Devices (MUTCD,Caltrans 2018b), Caltrans Traffic Management Plan (TMP) Guidelines, Oregon Department of Transportation (ODOT) Oregon Supplement to the MUTCD, Federal Highway Administration MUTCD, ODOT Traffic Control Plans Design Manual, and ODOT TMP Project Level Guidance

Manual. KRRC will coordinate ~~and coordination~~ with the noted agencies (Caltrans, ODOT, Siskiyou and Klamath County Public Works and Sheriff's Departments, California Highway Patrol and Oregon State Police, CAL FIRE, Oregon Department of Forestry [ODF] Fire Division, and other emergency response agencies) as part of the detailed design phase and prior to start of construction. Potential conflicts with bicycle and pedestrian use, as well as transit and school bus service, need to be addressed in the Traffic Management Plan. KRRC has proposed Memoranda of Understanding to Siskiyou County and to Klamath County (i.e., good neighbor agreements) to jointly develop and recommend to FERC additional terms and conditions of the Traffic Management Plan that address local interests. The final version of the Traffic Management Plan, after coordination with the above referenced agencies, shall be received by the State Water Board prior to the start of construction.

2. Each road, bridge, and culvert improvement project included in the Proposed Project, or any other road, bridge, or culvert improvement project that is identified as necessary for the Proposed Project, shall be constructed consistent with the latest version of the Caltrans Highway Design Manual (Caltrans 2018c), Caltrans Standard Plans, and Caltrans Standard Specifications, or ODOT Highway Design Manual, ODOT Standard Drawings and Standard Details, and ODOT Standard Specifications, or equivalent, and shall not conflict with any applicable plan, ordinance, or policy regarding performance of the transportation system, traffic safety and/or congestion management within the Area of Analysis. Construction shall not begin until all final designs for road, bridge, and culvert improvement projects included in the Proposed Project have been received and approved, as necessary, by the county and other responsible agencies.

3. The KRRC shall be responsible for repairing and/or rehabilitating ~~any Siskiyou County roadways~~ Copco Road, Ager Beswick Road, Daggett Road, and Lakeview Road within the traffic and transportation Area of Analysis that are damaged or otherwise adversely impacted by Proposed Project activities, such that they are in a condition equal to or better than they were before dam removal activities.

B. The KRRC and/or its construction contractor(s) shall develop an Emergency Response Plan with details and procedures to be put in place to help prevent incidents, to ensure preparedness in the event incidents occur, and to provide a systematic and orderly response to emergencies through coordination with emergency response agencies, as described in Appendix B: Definite Plan − Appendix O4."

Response to Comment ORG47-62

Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Recommended Measure TR-1 has been changed to Mitigation Measure TR-1 and the terms have been clarified as requested, with the exception of item no. 3, which remains the same. Limiting road repairs to a few roads does not fully address the extent of the potential impact. Any road that is impacted by the Proposed Project should be restored to equal or better than pre-project conditions. Please refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* for this revision.

Comment ORG47-63

3-1077. Potential Impact 3.22-3. Appendix K of the Definite Plan indicates that improvements and upgrades are not anticipated (in some sections where poor pavement condition has been observed) but pavement rehabilitation may be required during or post-construction. The pavement rehabilitation may be used to help mitigate for increase in potential hazards or incompatible uses.

Suggested revision (sentences 8 and 9):

"These sections of roads may not be up to a standard for the transportation of construction equipment, adequate for emergency response, or in a condition adequate for future use after dam removal activities have been completed; however, as described in Appendix K of the Definite Plan, there will be pavement rehabilitation as part of the Proposed Project, which will address the deficiencies in the existing road conditions to the extent necessary."

Response to Comment ORG47-63

Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* for this revision.

Comment ORG47-64

3-1077. Clarify Potential Impact 3.22-5 with respect to safety.

Suggested revision (third sentence, first paragraph):

"If an unacceptable level of risk to non-motorized users is deemed to persist, KRRC's contractor will arrange appropriate detours to allow safe and adequate continued movement for such users ~~to allow continued movement for such users~~ (Appendix B: Definite Plan – Appendix O2)."

Response to Comment ORG47-64

Section 3.22.5 Transportation and Traffic – Potential Impacts and Mitigation has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.22.5 Transportation and Traffic – Potential Impacts and Mitigation for this revision.

Comment ORG47-65

3-1198. In Section 3.24.13, update section references for clarity.

Suggested revision (last paragraph, first sentence):

"Existing conditions for paleontologic resources are as described in Section 3.13.2 3.14.2 [Paleontologic Resources] Environmental Setting. The majority of bedrock deposits within the Area of Analysis for paleontologic resources are not fossil-bearing units. Two mapped geologic units that contain paleontologic resources are present within the Area of Analysis: (1) the unnamed diatomite deposit at Copco No. 1 Reservoir; and (2) the Hornbrook Formation. The diatomite deposit is determined to be of Low Paleontologic Potential. The fossils in the Hornbrook Formation are documented to include megafossils and microfossils, but it is not known if the fossil abundance varies spatially within this geologic unit. The Klamath River cuts across the Hornbrook Formation in the region of Hornbrook, California, along approximately three river miles (Figure 3.13-2). Sub-units within the Hornbrook formation are described in Section 3.13.2 ~~3.14.2~~ [Paleontologic Resources] Environmental Setting. Section 3.13.2 ~~3.14.2~~ also includes consideration of major past or ongoing projects that have impacted, or currently impact, paleontologic resources."

Response to Comment ORG47-65
Section 3.24.13 *Cumulative Effects – Paleontologic Resources* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.24.13 *Cumulative Effects – Paleontologic Resources* for this revision.

Comment ORG47-66
3-1202. Potential Impact 3.24-53, Recommend re-wording title for clarification.

Suggested revision (last paragraph):

"Potential Cumulative Impact 3.24-53 Short-term and long-term effects to forestry resources from the combination of the Proposed Project and wildfire."

Response to Comment ORG47-66
Section 3.24.15 *Cumulative Effects – Agriculture and Forestry* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.24.15 *Cumulative Effects – Agriculture and Forestry* for this revision.

Comment ORG47-67
4-93. In Section 4.3.17, clarify to reflect the commitments that KRRC will implement, as conditions of license surrender, to reduce the risk of increased public services response times for emergency fire, police, and medical services due to the Proposed Project's construction and demolition activities. Commitments apply to all alternatives except the No Project Alternative.

Suggested revision (third sentence):

"Implementation of Mitigation Measure HZ-1 (Section 3.21 Hazards and Hazardous Materials) would reduce impacts for reasons described under the Proposed Project. ~~However,~~ In addition, KRRC has developed a draft Traffic Management Plan that includes mitigation and other protective measures that would be implemented to reduce impacts to public services (Appendix B: Definite Plan – Appendix 02). The final Traffic Management Plan would be informed by KRRC's contractor's specific means and methods for construction and input received from relevant local jurisdictions, which could refine the approach to access and traffic management. KRRC has proposed Memoranda of Understanding to Siskiyou County and to Klamath County (i.e., good neighbor agreements) to jointly develop and recommend to FERC additional terms and conditions of the Traffic Management Plan that address local interests. KRRC is committed to ensuring that the final Traffic Management Plan meets applicable regulatory permit requirements, as well as applicable state and local ordinances. In addition, KRRC has committed to coordinate the implementation of the Traffic Management Plan and Emergency Response Plan to reduce impacts. Overseeing development and implementation of the final Traffic Management Plan and final Emergency Response Plan does not fall within the scope of the State Water Board's water quality certification authority. While the State Water Board expects that the Traffic Management Plan and Emergency Response Plan will be finalized and implemented, the State Water Board cannot require their implementation. Accordingly, while the State Water Board anticipates that implementation of Mitigation Measure HZ-1 and Recommended Measure TR-1 would reduce impacts to public services, because it cannot require implementation of Recommended Measure TR-1, it is analyzing the impacts under this alternative as significant and unavoidable."

Response to Comment ORG47-67

Please refer to Master Response CEQ-2 for a discussion of why the text of the Final EIR has been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1. Please also refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 through 3.22-5 for the revisions.

Please also refer to Master Response HAZ-1.

Comment ORG47-68

4-166. As a preliminary matter, Mitigation Measure TER-5 should apply to all action alternatives to ensure no net loss of wetlands. Currently, Mitigation Measure TER-1, standing alone, does not provide for unavoidable wetlands impacts. Therefore, it should be understood that TER-1 works together with TER-5 to ensure that the Project achieves the net zero loss of wetland function and value standard.

Suggested revision:

"Mitigation Measure TER-1 Establish a 20-foot buffer around delineated wetlands. The KRRC shall establish a minimum of a 20-foot buffer around all delineated wetlands potentially affected by construction impacts to ensure there will not be any significant environmental impacts to wetlands by deterring heavy machinery from traversing the wetland and preventing runoff pollution from directly entering the wetland where doing so would not result in a significant environmental impact. The buffer may be adjusted (e.g., made larger or smaller) based on site-specific conditions, as determined by a qualified biologist acceptable to USACE, as necessary to ensure adequate protection of the delineated wetlands. To the extent that impacts to wetlands cannot be avoided, KRRC shall comply with mitigation measure TER-5 to ensure no net loss of functions and values. The State Water Board has the authority to include this mitigation measure in its water quality certification for the project, and the measure is therefore feasible and used in this analysis to make a significance determination.

Mitigation Measure TER-5 − Identification, protection, and restoration of wetland and riparian habitats. The KRRC shall conduct a wetland delineation within the limits of construction in accordance with the 1987 U.S. Army Corps of Engineers (USACE) Wetland Delineation Manual (USACE 1987) and applicable Regional Supplements (i.e., Western Mountains, Valleys, and Coast Region [USACE 2010] and Arid West [USACE 2008]). The results of the wetland delineation shall be incorporated into all alternatives, except for the No Project Alternative, ~~the Continued Operations with a Continued Operations with Fish Passage Alternative design~~ to avoid and minimize direct impacts on wetlands to the maximum extent feasible, and wetland areas adjacent to the construction Limits of Work shall be fenced to prevent inadvertent entry. Where avoidance is not feasible the KRRC shall develop a restoration plan to re-vegetate all areas disturbed during construction with a ~~goal~~ requirement of no net loss of wetland or riparian habitat acreage and functions. The restoration plan shall include details on revegetation native seed mixes based on existing species that will be impacted and installation techniques for container plants and seeds. Wetlands established in restored areas would be monitored for five years or until the performance criteria, as defined in the restoration plan that shall be developed, have been met."

Response to Comment ORG47-68
Please see response to ORG47-41.

Comment ORG47-69
4-238. In Section 4.5.17, clarify to reflect the commitments that KRRC intends to implement to reduce the risk of increased public services response times for emergency fire, police, and medical services due to the Proposed Project's construction and demolition activities. Commitments apply to all alternatives except the No Project Alternative.

Suggested revision (second paragraph):

"Mitigation Measure HZ-1 would reduce impacts. In addition, the KRRC is developing a Traffic Management Plan to identify mitigation and other protective measures that would be implemented to reduce impacts to public services. It would also be appropriate for the final Traffic Management Plan to include Recommended Measure TR-1. <u>The final Traffic Management Plan would be informed by KRRC's contractor's specific means and methods for construction and input received from relevant local jurisdictions, which could refine the approach to access and traffic management. KRRC has proposed Memoranda of Understanding to Siskiyou County and to Klamath County (i.e., good neighbor agreements) to jointly develop and recommend to FERC additional terms and conditions of the Traffic Management Plan that address local interests. KRRC is committed to ensuring that the final Traffic Management Plan meets applicable regulatory permit requirements, as well as applicable state and local ordinances. In addition, KRRC has committed to coordinate the implementation of the Traffic Management Plan and emergency response plan to reduce impacts.</u> Overseeing development and implementation of the Traffic Management Plan does not fall within the scope of the State Water Board's water quality certification authority. While the State Water Board expects that this plan will be finalized and implemented, at this time the plan is not finalized, and the State Water Board cannot require its implementation. Accordingly, while the State Water Board anticipates that implementation of Mitigation Measure HZ-1 would reduce impacts to public services, because it cannot require implementation of Recommended Measure TR-1, it is analyzing the impacts under this alternative as significant and unavoidable."

Response to Comment ORG47-69
Please refer to response to comment ORG47-67.

<u>Comment ORG47-70</u>
4-296. In last sentence of Section 4.6.17, change impact numbers to 3.17-1 through 3.17-3.

Suggested revision:

"Thus, for reasons described in Section 3.17.5 [Public Services] Potential Impacts and Mitigation, impacts and associated mitigation measures from increased public service response times for emergency fire, police, and medical services due to construction and demolition activities, elimination of a long-term water source for wildfire services substantially increasing the response time for suppressing wildfires, and potential effects on schools services and facilities would be the same under the Three Dam Removal Alternative as those described for the Proposed Project ~~(Potential Impacts 3.5-1 through 3.5-3)~~ <u>(Potential Impacts 3.17-1 through 3.17-3)."</u>

Response to Comment ORG47-70
Section 4.6.17 *Alternatives – Three Dam Removal Alternative – Public Services* has been clarified as requested. Please refer to Volume III Attachment 1 Section 4.6.17 *Alternatives – Three Dam Removal Alternative – Public Services* for the revisions.

Comment ORG47-71
4-320. In last sentence of Section 4.7.17, change impact numbers to 3.17-1 through 3.17-3.

Suggested revision:

"Thus, for reasons described in Section 3.17.5 [Public Services] Potential Impacts and Mitigation, impacts and associated mitigation measures from increased public service response times for emergency fire, police, and medical services due to construction and demolition activities, elimination of a long-term water source for wildfire services substantially increasing the response time for suppressing wildfires, and potential effects on schools services and facilities would be the same under the Three Dam Removal Alternative as those described for the Proposed Project ~~(Potential Impacts 3.5-1 through 3.5-3)~~ (Potential Impacts 3.17-1 through 3.17-3)."

Response to Comment ORG47-71
Section 4.7.17 *Alternatives – No Hatchery Alternative – Public Services* has been clarified as requested. Please refer to Volume III Attachment 1 Section 4.7.17 *Alternatives – No Hatchery Alternative – Public Services* for this revision.

League of Women Voters, Andrew Muse-Fisher, Helen Hutchinson, Rollin Richmond

Comment ORG25-1
The League of Women Voters of California (LWVC) and the League of Women Voters of Humboldt County, California (LWVHC) strongly support the removal of four dams on the Klamath River. The removal of the four dams will effectively improve water quality for humans, fish, and other wildlife and comply with the Clean Water Act water quality objectives. The improved water quality will also provide for the cultural and economic interests of Native Americans, recreational anglers, and the commercial fishing fleet of northern California.

Response to Comment ORG25-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Comment ORG25-2
This support of the proposed project of the Draft EIR is founded on the LWVC's and LWVHC's positions on natural resources, specifically water. The LWVC's position:

- *protect the natural environment in areas of both water origin and water use*
- *reserve stream flows for protection of fish and wildlife habitat and other in-stream uses*
- *encourage off-stream storage; discourage additional on-stream dams*
- *provide for assessment of economic, social, and environmental costs and benefits of water projects*

The LVCHC's position: coordinated interagency planning and action are critical to successful management and to the accomplishment of the following objectives:

- *rivers and streams should be left in their natural states whenever possible, with each case considered on its own merits.*
- *total watershed management, including preservation and restoration should be coordinated by qualified professionals so the economic interests, aesthetic issues, and health concerns can exist in harmony in our county and our future water supply can be provided adequately.*

Response to Comment ORG25-2
Please refer to Master Response GEN-1.

Comment ORG25-3
The State Water Resources Control Board has identified the following Proposed Project objectives, as required under CEQA Guidelines, section 15124, subdivision (b):

In a timely manner:

1. Improve the long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River, including water quality impairments due to Microcystis aeruginosa and associated toxins, water temperature, and levels of biostimulatory nutrients.

2. Advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation.

3. Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams.

4. Ameliorate conditions underlying high disease rates among Klamath River salmonids. The objectives further the underlying purpose of the Proposed Project (removal of four dams), which is the timely improvement of water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and the restoration of anadromous access upstream of Iron Gate Dam (the current barrier to anadromy).

These objectives align with the League's positions, and we are pleased to support the Water Board's Draft EIR.

Response to Comment ORG25-3
Please also refer to Master Response GEN-1 and GEN-2.

Mount Shasta Bioregional Ecology Center, Arielle Halpern

Comment ORG26-1 and ORG40-1
On behalf of the Mount Shasta Bioregional Ecology Center, I am writing to voice our support for the removal J.C. Boyle, Copco No. 1, Copco No. 2 and Iron Gate Dams on the Klamath River. The removal of these dams is a critical step in enhancing healthy human-environmental systems in the Klamath Bioregion. The Klamath Bioregion a biodiversity hotspot and one of the four most diverse conifer forests in the world. Benefits including reducing the mortality of juvenile salmonid populations, reducing salmonid diseases, including P. minibicornis and C Shasta. The above challenges are a result of high temperatures, low water flows, and high densities of fish attempting to access upstream habitat currently blocked by the dams. High temperatures and low flows also contribute to toxic blue green algae blooms during summer months which affect wildlife, recreation, and aesthetics.

Response to Comment ORG26-1 and ORG40-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Comment ORG26-2 and ORG40-2
Opponents of dam removal state effects on groundwater/irrigation and energy as potential detrimental results of dam removal. As the DEIR states, the proposed project would have no significant impact on groundwater and irrigation as most agriculture in the area uses diversions from Klamath tributaries.

Response to Comment ORG26-2 and ORG40-2
Comment noted. Please also refer to Master Responses WSWR-1 and GRW-1. This comment also pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG26-3 and ORG40-3
Dams are not used for water supply or for flood control.

Response to Comment ORG26-3 and ORG40-3
Please refer to Master Response WSWR-1 and FLD-1.

Comment ORG26-4 and ORG40-4
According to the Hydropower Technical Benefits Report, the total installed capacity of the four Klamath River hydropower plants is 169 MW, average summer capacity is 55.9 MW and winter dependable capacity is 66.6 MW: These

dams run dependably at approximately 30% of their total capacity. The $400 million dollars it would have taken to upgrade the fish passage and water quality systems and obtain a new operational license from FERC was not cost effective relative to the amount of hydropower these dams generate. Renewables and efficiency measures can replace the energy input without contributing to climate change. A study by the California Energy Commission and the Department of the Interior found that removing the dams and compensating for the loss of power production with efficiency measures and other sources would save PacifiCorp customers up to $285 million over 30 years.

Response to Comment ORG26-4 and ORG40-4
Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG26-5 and ORG40-5
Once again, we would like to voice our support for the removal of the Klamath dams.

Response to Comment ORG26-5 and ORG40-5
Comment noted.

Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, Conrad Gowell, Jake Crawford, Mark Sherwood, Kurt Beardslee, Jamie Glasglow, Hans Cole, Charles Gehr, Jack Stanford, and Matt Stoecker

Comment ORG33-1
Thank you for the opportunity to engage in the environmental review of the Lower Klamath dam removal. Please see the attached request to extend the public comment processes for the Lower Klamath Project draft environmental impact report (EIR). Our partners all agree that the existing comment period is insufficient to review and comment on the documents associated with the project. We respectfully request that you extend the public comment period for an additional 30 days in order for us, and other members of the public, to fully participate in the review of the presented alternatives.

Please let us know that you have received this request and whether or not an extension can be granted.

Response to Comment ORG33-1
Thank you for your comment and for your participation in the environmental review process. CEQA Guidelines section 21091 subdivision (a) requires a minimum 45-day public review period for an EIR. The Lower Klamath Project Draft EIR was released on December 27, 2018 and the public comment period ended February 26, 2019.

Comment ORG33-2

The Native Fish Society, Wild Fish Conservancy, Patagonia, Inc., Fly Water Travel, Jack Stanford, and Matt Stoecker respectfully requests a 30-day extension of the public comment period for the Lower Klamath Project License Surrender submitted to the California State Water Resources Control Board. The originally allotted comment period is insufficient for the scope and importance of this process. I sincerely hope you will consider granting us, and members of the public additional time so we can adequately participate in review of the alternatives presented.

Response to Comment ORG33-2

Please refer to response to comment ORG33-1.

Comment ORG33-3

The Native Fish Society (NFS) is a 501(c)3 conservation non-profit, dedicated to utilizing the best available science to advocate for the protection and recovery of wild, native fish and promote the stewardship of the habitats that sustain them. NFS has 3,300 members and supporters and 89 River Stewards, and 11 Fellows that help safeguard wild fish in their homewaters across the Pacific Northwest. NFS has five River Stewards that live, work, and recreate in the Klamath watershed in both California and Oregon. Furthermore, NPS River Stewards, Staff, and Supporters live, work, and recreate in the Klamath basin who are interested in the recovery of threatened and sensitive populations of wild, native fish.

Wild Fish Conservancy is a 501 (c)3 non-profit that is dedicated to the recovery and conservation of the region's wild fish ecosystems. Through science, education, and advocacy, WFC promotes technically and socially responsible habitat, hatchery, and harvest management to better sustain the region's wild-fish heritage.

Patagonia, Inc. is an outdoor clothing and gear company dedicated to using business to inspire and implement solutions to the environmental crisis. This includes a 40-year hist01y supporting grassroots campaigns and local groups working to remove dams, restore habitat and protect wild rivers and wild fish.

Fly Water Travel is a team of fishing and travel experts exclusively dedicated to arranging trips to the world's fi nest fi shing destinations. Fly Water supports fishing businesses in the Klamath basin and clients who travel to the Klamath waters bed to experience healthy runs of wild, native fish and the clean water necessary for their survival.

Jack Stanford is a Professor Emeritus at the Flathead Lake Biological Station with the University of Montana, where for over 45 years his research focused on the ecology of Pacific Rim salmon rivers.

Stoecker Ecological is a biological consulting firm that specializes in salmon and steelhead restoration across the West Coast.

Response to Comment ORG33-3
Please refer to Master Response GEN-2.

Comment ORG33-4
An extension request from February 26th, 2019 to March 26th, 2019 is being requested in order to provide adequate time for the our organizations, businesses, members and the public to effectively engage in the commenting process and to provide ample time to review the lengthy documents with a thorough review.

Response to Comment ORG33-4
Please refer to response to comment ORG33-1.

Native Fish Society, Wild Fish Conservancy, Patagonia Inc., Fly Water Travel, University of Montana, Stoecker Ecological, World Salmon Forum, Jake Crawford, Conrad Gowell, Mark Sherwood, Kurt Beardslee, Jamie Glasgow, Yvon Chouinard, Hans Cole, Charles Gehr, Jack Stanford, Matt Stoecker, and Bruce McNae

Comment ORG34-1
Please see the following three attachments with comments concerning the Lower Klamath Project License Surrender No. 2016122047. Thank you for the opportunity to submit the following comments.

1. Native Fish Society Group Comments on Draft Environmental Impact Report for the Lower Klamath Project License Surrender No. 2016122047.
These comments are submitted in support of the below document.

2. Shute, Mihaly, & Weinberger, LLP comments representing Native Fish Society on the Draft Environmental Impact Report for the Lower Klamath Project License Surrender (State Clearinghouse No. 201622047).

3. Group Comments previously submitted during the project scoping dated July 23, 2018.

Finally, supporting literature for the referenced documents are included in this dropbox folder, and we will mail a thumb-drive of the supporting materials to the State Water Resources Control Board office.

Please confirm receipt of this email, and contact me directly with any questions or further discussion.

Response to Comment ORG34-1
The State Water Board received the three attachments associated with the cover email, as well as the items provided via “dropbox".

Comment ORG34-2
Thank you for the opportunity to provide comments on the Draft Environmental Impact Report for the Lower Klamath License Surrender Project (“Project”).

We are submitting the following comments that fully support the proposed decommissioning of all four Lower Klamath Project dams and the license surrender, which will improve the biological conditions in the Klamath watershed to benefit sensitive and threatened wild, native fish species, as well as the human and environmental communities who depend on the health of these iconic fish species. Our coalition of scientists, businesses, and conservation groups stress support for decommissioning the four Lower Klamath Dams (Iron Gate, Copco 1 & 2, and J.C. Boyle). Decommissioning all four dams is critical to the recovery and long-term protection of these iconic fish species that provide important subsistence for tribal fisheries, economies for commercial and sport fishing communities along the California and Oregon coast, and sustains the many plants and animals dependent on the return of marine nutrients that contribute to overall watershed health.

Our concerns are centered on the significant environmental impacts that would result from the Project’s proposed hatchery operations, and the lack of description for how the proposed hatchery operations would contribute to the recovery of the watershed’s imperiled fish species. As noted in the DEIR No Hatchery Alternative, the proposed hatchery operations post-dam decommissioning would be detrimental to imperiled Chinook and recovering coho populations and could jeopardize their ability to respond to the benefits of dam decommissioning. As stated in the DEIR, “In the long term, removal of the Lower Klamath Project dams under the No Hatchery Alternative would increase habitat availability, restore a more natural flow regime and seasonal variation in water temperature, improve water quality, and reduce the likelihood of fish disease and algal toxins” which will be beneficial to fall-run Chinook, spring-run Chinook, and coho salmon in the Klamath basin (see DEIR 4-301-324).

Under the No Hatchery Alternative, ceasing hatchery operations along with decommissioning all four Lower Klamath Dams is the superior environmental alternative that will contribute to the long-term restoration of wild salmon and steelhead that are able to benefit from the newly accessible habitat and improved river conditions without the competition from hatchery releases. Importantly, the No Hatchery Alternative is feasible and environmentally superior to the proposed Project, and meets all the Project objectives.

In light of these and the following concerns, we offer our support of the attached comments submitted by SHUTE, MIHALY & WEINBERGER LLP represented by *the Native Fish Society, and urge the State Board to consider and adopt the No Hatchery Alternative. Together, we have a keen interest in the certification and decommissioning of the Project, and our collective organizations, members, partners, and clients have been deeply involved in past and ongoing wild salmon and watershed restoration projects in California, Oregon, and Washington.*

Native Fish Society is a 501(c)3 conservation non-profit, dedicated to utilizing the best available science to advocate for the protection and recovery of wild, native fish and promote the stewardship of the habitats that sustain them. NFS has 3,300 members and supporters and 89 River Stewards that help safeguard wild fish in their homewaters across the Pacific Northwest. NFS has five River Stewards that live, work, and recreate in the Klamath watershed in both California and Oregon. Furthermore, NFS River Stewards, Staff, and Supporters live, work, and recreate in the Klamath basin who are interested in the recovery of threatened and sensitive populations of wild, native fish.

Wild Fish Conservancy is a 501(c)3 non-profit that is dedicated to the recovery and conservation of the region's wild fish ecosystems. Through science, education, and advocacy, WFC promotes technically and socially responsible habitat, hatchery, and harvest management to better sustain the region's wild-fish heritage.

Patagonia is an outdoor clothing and gear company dedicated to using business to inspire and implement solutions to the environmental crisis. This includes a 40-year history supporting grassroots campaigns and local groups working to remove dams, restore habitat and protect wild rivers and wild fish.

Fly Water Travel is a team of fishing and travel experts exclusively dedicated to arranging trips to the world's finest fishing destinations. Fly Water supports fishing businesses in the Klamath basin and clients who travel to the Klamath watershed to experience healthy runs of wild, native fish and the clean water necessary for their survival.

Jack Stanford is a Professor Emeritus at the Flathead Lake Biological Station with the University of Montana, where for over 45 years his research focused on the ecology of Pacific Rim salmon rivers.

Stoecker Ecological is a biological consulting firm that specializes in salmon and steelhead restoration across the West Coast.

World Salmon Forum is bringing together a coalition of scientists, advocates, and foundations dedicated to sustaining wild salmon in response to the dramatic declines in Atlantic and Pacific wild salmon populations facing the imminent risk of extinction.

In conclusion, we submit our comments in support for the Lower Klamath Project decommissioning and license surrender, but remain concerned about the environmental impacts of the proposed Project's hatchery operations at Iron Gate and Fall Creek. We offer our support for the comments submitted by SHUTE, MIHALY, & WEINBERG, LLC represented by Native Fish Society, and urge the State Water Board to consider and adopt the No Hatchery Alternative.

For any follow up, please contact Jake Crawford, Native Fish Society by phone at 503-344-4218 or email: jake@nativefishsociety.org

Response to Comment ORG34-2

As the commenters note, this cover letter is introductory to more specific comments attached. To the extent this cover letter includes topics that warrant further response, these are addressed in responses to the more detailed following comments, ORG34-4 through ORG34-16.

Comment ORG34-3

This firm represents the Native Fish Society on matters relating to the proposed Lower Klamath License Surrender Project ("Project"). On behalf of our client, we have reviewed the Draft Environmental Impact Report ("DEIR") and respectfully submit these comments to help ensure that agency decision-makers fully comply with the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, Title 14, § 15000 et seq. ("Guidelines"). This letter follows a comment letter dated July 23, 2018 submitted by the Native Fish Society together with a coalition of scientists, conservation groups, and interested business entities on the Project scoping document. This letter incorporates those July 23, 2018 comments as if fully set forth herein, as well as the references cited therein.

As discussed in those prior comments, the Native Fish Society supports the proposed decommissioning and license surrender, which will improve the biological conditions in the Klamath watershed to benefit sensitive and threatened wild, native fish species. However, it remains concerned about the significant environmental impacts that would result from the Project's proposed hatchery operations and seeks to ensure that those impacts are eliminated or mitigated to the extent feasible, as required by CEQA.

We are pleased to see that the State Water Resources Control Board ("State Board") has taken our client's prior comments into consideration such that the DEIR reveals many of the environmental impacts of the proposed hatchery operations and also considers a "No Hatchery Alternative." However, the DEIR should be corrected and/or augmented to reflect important information regarding hatchery operations, as set forth below. But even based on the information the DEIR currently reveals, it is clear that the proposed Project's hatchery operations would result in significant impacts that can and should be avoided by eliminating those hatchery operations. The No Hatchery Alternative is clearly feasible and *environmentally superior to the proposed Project, and meets all the Project objectives. Therefore, the Native Fish Society urges the State Board to consider and adopt the No Hatchery Alternative.*

Response to Comment ORG34-3

This comment is introductory to more specific comments. To the extent this paragraph includes topics that warrant further response, these are addressed in responses to the more detailed following comments, ORG34-4 through ORG34-16.

Comment ORG34-4

CEQA's most fundamental requirement is that an EIR contain an accurate, complete, and consistent project description. See County of Inyo v. City of Los Angeles (1977) 71 Cal.App.3d 185; see also CEQA Guidelines § 15124. Moreover, CEQA defines a "project" as "the whole of an action." CEQA Guidelines § 15378. As explained in McQueen v. Board of Directors of the Midpeninsula Regional Open Space District (1988) 202 Cal.App.3d 1136, "'[p]roject' is given a broad interpretation in order to maximize protection of the environment." Id. at 1143. As the Supreme Court has explained, this rule ensures "that environmental considerations do not become submerged by chopping a large project into many little ones—each with a potential impact on the environment—which cumulatively may have disastrous consequences." Bozung v. Local Agency Formation Comm. (1975) 13 Cal.3d 263, 283-84. Without a complete and consistent project description, an agency and the public cannot be assured that all of a project's environmental impacts have been revealed and mitigated.

Response to Comment ORG34-4

Volume I Section 2 *Proposed Project* (pages 2-1 to 2-114) is consistent with CEQA Guidelines section 15124 regarding the requirements for a project description.

Consistent with CEQA Guidelines section 15378, the whole of the Klamath River Renewal Corporation's proposed action is analyzed in the EIR, which includes operation of the hatchery for eight years following the decommissioning of Iron Gate Dam, as discussed in Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (pages 2-77 to 2-84).

Comment ORG34-5

While the DEIR provides some information regarding proposed hatchery operations, the information is incomplete and at times confusing. To begin, it is unclear the role the hatchery operations are playing with respect to the decommissioning Project. The DEIR reveals that the hatchery operations were initially incorporated as mitigation for dam's blockage of fish passage and habitat. DEIR at 3-247. While hatchery operations may have been adopted for such a mitigation purpose while the dams were in place, those purposes no longer exist *when the dams are removed and, as the DEIR recognizes, the hatchery operations can work at cross-purposes to re-establishing a long-term viable native fish population. See, e.g., DEIR at 4-304, 4-305 ("Negative hatchery effects due to competition, leading to displacement and lower growth, are well documented."), 4-307 ("[H]atchery returning adults can have substantial detrimental effects on native populations. As such, a reduction in hatchery returns … would be a benefit for fall-run Chinook salmon over the long term."). Thus, the hatchery operations do not appear to meet any of the current Project objectives, and in fact would likely hinder most of those objectives, which are to:*

1. Improve the long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River, including water quality impairments due to Microcystis aeruginosa and associated toxins, water temperature, and levels of biostimulatory nutrients.

2. Advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation.

3. Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams.

4. Ameliorate conditions underlying high disease rates among Klamath River salmonids.

Response to Comment ORG34-5

Consistent with CEQA Guidelines section 15378, the EIR analyzes the whole of the proposed action, and the proposal's ability to meet the project objectives. Considering whether the hatchery operations in isolation from other components of the Proposed Project meet the project objectives is using the incorrect scale for the evaluation. However, it is worth noting that the EIR Executive Summary evaluates the ability of both the Proposed Project and the No Hatchery Alternative to meet the proposed project objectives.

The EIR appropriately summarizes the information provided regarding the hatchery operations component of the Proposed Project.

Comment ORG34-6

The DEIR alludes to the hatchery operations as on-going mitigation, but largely addresses them as part of the proposed Project. The DEIR should clarify whether hatchery operations are intended as on-going mitigation and, if so, which Project impacts the hatchery operations are intended to mitigate. Because, as discussed further below, hatchery operations result in potentially significant impacts in many areas including water quality, aquatic resources, and tribal cultural resources, they are not appropriate mitigation. Alternatively, if the hatchery operations are considered part of the proposed Project, the DEIR *should clarify which Project purpose or objective they fulfill, as the record shows hatcheries do not further any of the listed Project objectives.*

Furthermore, the DEIR lacks necessary detail regarding the hatchery operations themselves. For example, the DEIR states, "[i]t is currently unclear whether the Iron Gate Hatchery facility would be decommissioned in place, demolished, or partly or fully repurposed after the eight-year operational period." DEIR at 2-78. The same uncertainty is identified for the facilities at the Fall Creek Hatchery. DEIR at 2-82. Each of these potential outcomes would result in differing and potentially significant environmental impacts. Therefore, the DEIR should be clear as to what will happen to the hatchery facilities at the end of the eight year period, and what the decommissioning, demolition, or repurposing would entail. Given that the hatchery operations are proposed to continue only for eight years after decommissioning (DEIR at 2-77 to 2-78), there is no reason that the ultimate outcome could not be identified now. Moreover, given the identified significant impacts of hatchery operations, should hatchery operations for any reason not cease after eight years, as analyzed in the DEIR, the State Board and/or other responsible agencies would need to conduct further environmental review and could no longer rely on the EIR's analysis. See Public Resources Code § 21166.

Likewise, the DEIR lacks detail about the location, construction, and operation of hatchery operation facilities, including the diversion, pumps, filtration system, and spawning building for Iron Gate Hatchery, and all the Fall Creek powerhouse and hatchery infrastructure. See DEIR at 2-78 to 2-83. Instead, the DEIR gives only approximations and/or guesses as to these components, and also as to the procedures to be followed if there is not enough surface water to divert for hatchery operations. Additional detail is necessary for an accurate analysis of the facilities' environmental impacts, including to water supply, aquatic resources, and tribal cultural properties that exist in and around the Project area. The EIR should be revised to provide these necessary details so that the public and decision-makers can adequately assess the Project's impacts.

Response to Comment ORG34-6

The EIR does not allude to hatchery operations as ongoing CEQA mitigation for the Proposed Project or the alternatives. As part of the existing conditions description, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* states that Fall Creek Hatchery (FCH) was built in 1919 by the California Oregon Power Company in Fall Creek as compensation for the loss of spawning grounds that occurred with the construction of Copco No. 1 Dam and Iron Gate Hatchery was originally constructed in 1962 as mitigation for blockage of fish passage caused by the construction of Iron Gate Dam. The Proposed Project is a restoration project that removes the dams and includes eight years of reduced-level hatchery operations. Please refer to Volume III Attachment 1 for the final

Section 3.3 *Aquatic Resources*. Please also refer to response to comment ORG34-5.

With respect to the potential for future hatchery operations beyond eight years following dam decommissioning, the demolishing of hatchery structures, or the decommissioning of the hatchery in place, the EIR is not required to speculate (CEQA Guidelines section 15145). There is currently no proposal to operate the hatcheries beyond eight years, and there are technical and financial impediments to doing so. However, the Klamath Hydroelectric Settlement Agreement (KHSA) anticipates making a determination regarding hatchery operations after dam removal; the Fall Creek facilities are intended to operate primarily as a conservation hatchery for threatened coho salmon; and stakeholders have expressed concern with hatchery closure. The rate of fisheries recolonization would likely also play a role in any decision whether to extend hatchery operations, remove facilities permanently, or to decommission facilities in place. Therefore, it would be speculative for the EIR to assume that any of these outcomes would occur. To the extent that the long-term disposition of the hatcheries involves activities not analyzed in this EIR, such actions would be subject to separate environmental review.

The detail provided in the EIR regarding the hatchery components of the Proposed Project are provided in sufficient detail to analyze the potential environmental impacts of the proposed changes to hatchery operations, as required under CEQA. Please find assessments of the noted potential hatchery impacts in the following sections:

- Volume III Attachment Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17;
- Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries;*
- Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 through Potential Impact 3.3-10, Potential Impact 3.3-23, and Potential Impact 3.3-24;
- Volume I Section 3.5.5 *Terrestrial Resources – Potential Impacts and Mitigation* Potential Impact 3.5-25 through Potential Impact 3.5-27 (pages 4-314 to 3-574);
- Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-1 (pages 3-676 to 3.679), with revisions in Volume III Attachment 1 Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation*; and
- Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* Potential Impact 3.12-9.

Comment ORG34-7

An EIR's central purposes are to identify a project's significant environmental effects and to evaluate ways of avoiding or minimizing them. Public Resources Code §§ 21002.1(a), 21061. Thus, the alternatives analysis lies at "[t]he core of an EIR." Citizens of Goleta Valley v. County of Santa Barbara (1990) 52 Cal.3d 553, 564; CEQA Guidelines § 15126.6. As the Supreme Court has explained, "Without meaningful analysis of alternatives in the EIR, neither the courts nor the public can fulfill their proper roles in the CEQA process." Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal.3d 376, 404 (Laurel Heights I). Furthermore and critically, CEQA prohibits public agencies from approving projects as proposed if a feasible alternative would substantially lessen their significant environmental effects. Berkeley Keep Jets Over the Bay Committee v. Board of Port Com'rs (2001) 91 Cal.App.4th 1344, 1354 (quoting Public Resources Code § 21002).

Response to Comment ORG34-7

Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment ORG34-8

Here, the DEIR's alternatives analysis properly includes a "No Hatchery Alternative," which is the proposed Project without the eight years of hatchery operations at Iron Gate Hatchery and Fall Creek Hatchery, and would include the removal of the Iron Gate Hatchery. Further, the DEIR properly concludes that the No Hatchery Alternative is feasible and meets Project purposes and objectives. See DEIR at 4-2.

However, the DEIR includes some equivocal language, which should be corrected. In the Executive Summary, the DEIR states:

> *The No Hatchery Alternative would further the underlying purpose and objectives, although the alternative would not meet Objective 2 (to advance the long-term restoration of the natural fish population in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation) as quickly as under the Proposed Project.*

DEIR at ES-20 (emphasis added); see also DEIR at 4-6 ("The [No Hatchery] alternative would further the underlying purpose and most of the project *objectives, although it is not clear at a screening level the extent to which the alternative would meet Objective 2."). However, elsewhere the DEIR clearly states that the No Hatchery Alternative would be more beneficial and quicker than the proposed Project in achieving long-term survival and recovery of native fish species. See, e.g., DEIR at 4-304 to 4-311, 4-319; see also Native Fish Society et al., July 23, 2018 Comments on Project Scoping Document. For example, the DEIR states that the No Hatchery Alternative "would likely increase the rate at which Chinook salmon develop traits adapted to their new habitats upstream of Iron Gate Dam (Goodman et al. 2011). This could increase survival of natural-origin Chinook salmon at a faster rate than with continued hatchery operations under the Proposed Project." DEIR at 4-307 (emphasis added). Likewise, the DEIR states "ending hatchery operations as part of dam removal may result in a more rapid increase in the adult coho salmon population as compared with the Proposed Project." DEIR at 4-311 (emphasis added). Indeed, a scientific paper reviewing the most recent science from NOAA/ National Marine Fisheries Service regarding hatcheries found that there are "no clear-cut examples in which a reintroduction employing hatchery releases yielded a self-sustaining naturalized population." Anderson et al. (2014), "Planning Pacific Salmon and Steelhead Reintroductions Aimed at Long-Term Viability and Recovery," North American Journal of Fisheries Management 34:72–93, at p. 85. Thus, the No Hatchery Alternative clearly meets Objective 2, and would be superior to the proposed Project with respect to this Objective. The DEIR should be amended to reflect this fact.*[1]

Response to Comment ORG34-8

The statement cited in the comment from Volume I *Executive Summary* page ES-20 appears to be the commenters' core concern. This statement is a summary-level comparison of the difference between the Proposed Project and the No Hatchery Alternative in the anticipated long-term timeframe for achieving Objective 2 of the Proposed Project - successful restoration of natural fish populations, with a particular emphasis on restoring the salmonid fisheries. Please also refer to Master Response AQF-2 and the response to comment ORG42-16.

Please note that the sentence on page 4-6 that is referenced in the comment is from Volume I Section 4.1.1.1 *[Alternatives Selection/Overview] Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis*, which provides the rationale for the alternatives that were selected for further analysis in the EIR. It is a preliminary, not a post-analysis, conclusion regarding feasibility and the ability of the alternatives to meet the Proposed Project's purpose and objectives; the EIR then goes on to analyze the alternative in detail in Volume I Section 4.7 *No Hatchery Alternative* (pages 4-301 to 4-323).

Volume I Section 4.7 *No Hatchery Alternative* (pages 4-301 to 4-323) includes a detailed analysis of the No Hatchery Alternative, and finds no significant impacts on aquatic resources.

Fisheries experts note both positive and negative impacts of hatcheries on fisheries, including with in the Klamath River Basin. For example, the Chinook Salmon Expert Panel convened to attempt to answer specific questions related to the Proposed Project compared with existing conditions (Goodman et al. 2011), noted that hatchery production under the Proposed Project has impacts related to disease and competition and natural spawning fish, as well as the beneficial effect of increased abundance for commercial and tribal harvest. Similarly, PacifiCorp and CDFW (2014) evaluates positive and negative hatchery impacts for coho salmon in the Klamath River. Consistent with these analysis, the analysis in the EIR discloses both positive and negative influences of hatchery operations on various salmonid populations and their anticipated recolonization rates. The elimination of hatchery produced fall-run Chinook salmon and coho salmon under this alternative would likely result in a reduction in adult returns post-dam removal for an indeterminate period of perhaps one to five years (i.e., short-term), before the benefits of dam removal are realized. In contrast, under the Proposed Project, both hatchery returns and returns from newly accessible habitat would occur in the short-term, increasing the abundance of total adult returns (natural and hatchery origin) available for harvest and recolonization. Ultimately, the combined salmon population under the Proposed Project is anticipated to increase the rate of recolonization of fall-run Chinook salmon and coho salmon into newly accessible habitat, providing increased resiliency to unforeseen environmental disturbance or other threats to the populations, and more rapid realization of the other benefits of increased habitat access to these populations (e.g., hatchery operations under the Proposed Project would increase population abundance relative to the No Hatchery Alternative).

For spring-run Chinook salmon, the EIR analysis of the No Hatchery Alternative notes that since spring-run are not currently produced at a hatchery, the hatchery only has impacts on the population, without benefits. The Proposed Project does not include an active reintroduction plan for spring-run Chinook salmon. Please note that Oregon Department of Fish and Wildlife (ODFW) has drafted an *Implementation Plan for the Reintroduction of Anadromous Fishes into the Oregon Portions of the Upper Klamath Basin* (T. Wise, ODFW, pers. comm., 2018). ODFW's draft plan includes active reintroduction of spring-run Chinook salmon into tributaries of the Upper Klamath Lake (T. Wise, ODFW, pers. comm., 2019). The EIR does not rely on implementation of this plan, because its timing, funding and implementation are too preliminary and uncertain. However, should it be implemented, it is anticipated that it would accelerate spring-run Chinook salmon recolonization.

The commenter cites Anderson et al. (2014) to state that "there are no clear-cut examples in which a reintroduction employing hatchery releases yielded a self-sustaining naturalized population." However, the examples cited in Anderson et al. (2014) are mostly reintroduction programs for Atlantic salmon, and they are all programs in which hatchery releases within formally inaccessible habitat were the sole mechanism of reintroduction. In contrast, under the Proposed Project hatchery production would be continued for only eight years, dam removal would remove passage barriers, and the primary mechanism of reintroduction would be "natural colonization" (highlighted by Anderson et al. 2014) from salmon (including naturalized and hatchery strays) volitionally accessing former habitat. Examples of hatchery production contributing to successful reintroduction in conjunction with volitional passage include the White Salmon River, Washington, following removal of Condit Dam (Allen et al. 2016), and the Elwha River, Washington, following removal of Elwha Dam and Glines Canyon Dam (Weinheimer et al. 2018).

In addition, as described in Volume I Section 4.7.12 *Alternatives – No Hatchery Alternative – Historical Resources and Tribal Cultural Resources* (pages 4-318 to 4-319), in the short-term the No Hatchery Alternative would reduce the amount of fall-run Chinook and coho salmon present for California Native American tribes that currently use salmon in their diet and consider salmon to be an important part of their culture. This potential short-term impact to the fishery would be greater under the No Hatchery Alternative than under the Proposed Project, because under the Proposed Project the hatcheries would continue to supplement natural adult returns (albeit at a reduced rate of production) until after seven generations or cohorts of fish have been hatched with the benefit from expanded habitat and improved water quality conditions. The short-term reduction in the fishery due to elimination of hatchery-produced fall-run Chinook and coho salmon under the No Hatchery Alternative would represent a material impairment of the Klamath Riverscape as a resource and a substantial restriction of tribal access to the fishery relative to existing conditions. As stated in Volume I *Executive Summary* (page ES-20) the No Hatchery Alternative would not meet Proposed Project Objective 2 (In a timely manner, to advance the long-term restoration of the natural fish population in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation) as quickly as under the Proposed Project.

The Executive Summary has been revised to clarify how the EIR analysis considers the short-term reduction in the fishery due to elimination of hatchery-produced fall-run Chinook and coho salmon under the No Hatchery Alternative relative to existing conditions. Please refer to Volume III Attachment 1 Executive Summary for the revisions.

As stated in Volume I *Executive Summary* (page ES-24), in identifying the environmentally superior alternative for the Lower Klamath Project EIR, it makes sense to evaluate the degree of restoration benefit that the alternatives provide above the current degraded basin condition, as well as the duration and severity of negative impacts, in the context of a project that is intended to provide timely improvement of water quality and the restoration of anadromous fish access upstream of Iron Gate Dam. In looking at the range of benefits and impacts the

State Water Board has identified the Proposed Project as the environmentally superior alternative.

Comment ORG34-9

As set forth more fully below, the DEIR properly reveals that the No Hatchery Alternative would reduce the Project's significant impacts. As discussed below, the No Hatchery Alternative would likely reduce the Project's impacts even further than analyzed in the DEIR. However, even based on the DEIR's analysis alone, it is clear that, because the No Hatchery Alternative is a feasible alternative that would substantially lessen the Project's significant impacts, the State Board cannot approve the Project as proposed and should instead consider and approve the No Hatchery Alternative.

The table below summarizes the DEIR's comparison of environmental impacts between the No Hatchery Alternative and the proposed Project with continued hatchery operations at Iron Gate and the start up of hatchery operations at Fall Creek. As shown, the No Hatchery Alternative reduces or eliminates the Project's significant impacts in numerous impact categories, including water quality, aquatic resources, phytoplankton and periphyton, terrestrial resources, air quality, greenhouse gas (GHG) emissions, tribal cultural resources, aesthetics, recreation, traffic, and noise. Except for one short-term impact discussed below, the No Hatchery Alternative produces the same impacts as the proposed Project in all other impact categories, thereby rendering the No Hatchery Alternative an environmentally superior alternative overall.

<u>Summary of the DEIR's Reported Environmental Impacts of the Project (with Hatchery Operations) as Compared with the No Hatchery Alternative ("NHA")</u>

Environmental Impact	***Impact Comparison***
Water Quality	*The NHA would reduce impacts relative to the Proposed Project, as it would eliminate effluent discharges from Iron Gate Hatchery.* The NHA would eliminate a significant and unavoidable impact of the proposed Project for water temperature and dissolved oxygen in Fall Creek downstream of the proposed Fall Creek Hatchery (Impact 3.2-17). DEIR at 3-171, 4-304.*
Aquatic Resources	*The NHA would reduce impacts to aquatic resources by eliminating a source of the spread of fish disease, removing well-documented competitive pressure between hatchery-derived and natural origin fish, reducing straying, and increasing the sustainability of natural spawning fish populations. The NHA would also eliminate any potential impacts to aquatic resources from diversions from Bogus Creek and Fall*

Environmental Impact	***Impact Comparison***
	Creek necessary for hatchery operations. DEIR at 4-304 to 4-313.
Phytoplankton and Periphyton	*The NHA would reduce impacts to phytoplankton and periphyton conditions relative to the Proposed Project, as it would cease nutrient discharges from Iron Gate Hatchery and would not start discharges from Fall Creek hatchery.* DEIR at 4-313.*
Terrestrial Resources	*Same. Any short term loss of hatchery fish under the NHA could be offset by alternative food sources and would not significantly impact wildlife; long-term benefits of the NHA "would result in an increased prey base and would be beneficial" to terrestrial resources. DEIR at 4-315 to 4-316.*
Flood Hydrology	*Same*
Groundwater	*Same**
Water Supply/Water Rights	*Same*
Air Quality	*"[U]nder the No Hatchery Alternative, operational emissions from the hatcheries would be lower (zero) than those under existing conditions," and would eliminate proposed operational emissions.* DEIR at 4-317 (emphasis added).*
Greenhouse Gas Emissions	*Same regarding construction impacts; for operational impacts the NHA emissions would be lower (zero) than the proposed Project/ existing conditions.* DEIR at 4-318.*
Geology, Soils, and Mineral Resources	*Same*
Historical Resources and Tribal Cultural Resources	*The NHA would (1) be beneficial relative to the proposed Project by returning the Iron Gate Hatchery to more natural conditions in the short term (2) eliminate potential significant impacts to tribal cultural resources from construction of Fall Creek Hatchery (Impact 3.12-1), (3) result in a short term reduction in the fishery and substantial short-term restriction of tribal access to the fishery relative to existing conditions,* and (4) would result in an increase in an availability of salmon species for tribes and thus beneficial in the long-term. DEIR at 4-318 to 4-319.*
Paleontological Resources	*Same*
Land Use and Planning	*Same*

Environmental Impact	***Impact Comparison***
Agriculture and Forestry Resources	*Same*
Population and Housing	*Same**
Public Services	*Same*
Utilities and Service Systems	*Same*
Aesthetics	*The NHA is beneficial relative to the Proposed Project, as it would return/keep areas to/in natural conditions. DEIR at 4-321.*
Recreation	*Same. Any short term loss of hatchery fish under the NHA would not significantly impact recreational opportunities; the NHA would result in "long-term beneficial effects on the scenic quality, recreation, fisheries and wildlife of the California Klamath River wild and scenic river segment." DEIR at 4-322.*
Hazards and Hazardous Materials	*Same**
Transportation and Traffic	*The NHA would result in reduced traffic compared with the proposed Project because there would be no traffic from construction at Fall Creek or hatchery operations. DEIR at 4-323.*
Noise	*The NHA would result in reduced noise compared with the proposed Project because there would be no noise from construction at Fall Creek or hatchery operations. DEIR at 4-323.*

DEIR 4-301 to 4-323.

**As explained below, the DEIR likely understates the benefits of the NHA as compared to the proposed Project and/or overstates any short-term impacts of the NHA.*

Response to Comment ORG34-9

Contrary to the assertion in the comment, the EIR does not determine that the No Hatchery Alternative would substantially lessen the potential impacts of the Proposed Project. The significant impacts of a project and feasible alternatives under CEQA are determined by comparison to the existing condition. The comment's comparison of the No Hatchery Alternative to the Proposed Project, on the other hand, primarily includes assertions that the No Hatchery Alternative would result in greater improvements from the existing condition than the Proposed Project, not that it would reduce negative impacts of the Proposed Project. As discussed in Volume I Section 4.7.2 *Alternatives –No Hatchery Alternative – Water Quality* (pages 4-304 to 4-305) the No Hatchery Alternative would eliminate potential less-than-significant variations in water quality (i.e., water temperature, suspended material, nutrients, biochemical oxygen demand, and inorganic and organic contaminants [water treatment chemicals]), from Iron Gate Hatchery during the eight years following dam removal, where these variations are part of the existing condition (CEQA baseline). The continuation of these less than significant water quality variations for eight years under the Proposed Project is not a reduction in an environmental impact relative to the Proposed Project, as asserted by the comment, because the Proposed Project does not cause an impact compared to existing conditions. The EIR discloses that the potential significant and unavoidable impacts to water quality (water temperature and dissolved oxygen) in Fall Creek and the Klamath River that would occur for eight years following dam removal under the Proposed Project would not occur under the No Hatchery Alternative (Volume I Section 4.7.2 *Alternatives – No Hatchery Alternative – Water Quality* [pages 4-304 to 4-305]).

With respect to the comment's assertions regarding fish disease, competitive pressure, and potential straying, please refer to response to comment ORG34-8. Regarding the comment's assertion that the No Hatchery Alternative would eliminate any potential impacts to aquatic resources from diversions from Bogus Creek and Fall Creek necessary for hatchery operations, as described in Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* [pages 4-305 to 4-313]), please note that the No Hatchery alternative would result in no change relative to existing conditions. Further, please note that under the Proposed Project there would be no significant impact with mitigation on anadromous salmonid populations due to short-term and long-term Bogus Creek flow diversions for the Iron Gate Hatchery (Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-23), and there would be no significant impact on anadromous salmonid populations due to short-term and long-term Fall Creek flow diversions for the Fall Creek Hatchery (FCH) (Potential Impact 3.3-24). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Regarding phytoplankton and periphyton conditions, as discussed in Volume I Section 4.7.4 *Alternatives – No Hatchery Alternative – Phytoplankton and Periphyton* (pages 4-313 to 4-314) the No Hatchery Alternative would eliminate potential less-than-significant discharges of nutrients from Iron Gate Hatchery during the eight years following dam removal, where these discharges are part of the existing condition (CEQA baseline). The continuation of these less than significant discharges for eight years under the Proposed Project is not a reduction in an environmental impact relative to the Proposed Project, as asserted by the comment, because there is no impact under existing conditions. As stated in the EIR, decreases in hatchery nutrient releases would not necessarily result in a beneficial effect on phytoplankton or periphyton conditions downstream of the hatchery discharge. The EIR discloses that the potential significant and unavoidable impacts to water quality (water temperature and dissolved oxygen) in Fall Creek and the Klamath River that would occur for eight years following dam removal under the Proposed Project would not occur under the No Hatchery Alternative (Volume I Section 4.7.2 *Alternatives – No Hatchery Alternative – Water Quality* [pages 4-304 to 4-305]).

With respect to reduced operational air quality, greenhouse gas emissions, and energy under the No Hatchery Alternative, because existing conditions are the baseline against which impacts are measured, the current operational emissions are not significant CEQA impacts (please also refer to *Recirculated Portions of the Draft EIR* Section 4.7.9 *Air Quality* [page RE-4-22]).

Because the Lower Klamath Project dams and associated facilities would be removed in the same manner under the No Hatchery Alternative as the Proposed Project, potential construction-related impacts and associated mitigation measures under the No Hatchery Alternative are generally the same as those described for the Proposed Project, except for the differences discussed in Volume I Section 4.7 *Alternatives – No Hatchery Alternative* (pages 4-301 to 4-323). Where the comment notes that the No Hatchery Alternative would reduce short-term construction-related impacts associated with the Proposed Project (i.e., air quality, greenhouse gas emissions, energy, historical resources and tribal cultural resources, transportation and traffic, noise), please note that the significant impacts of a project and feasible alternatives under CEQA are determined by comparison to the existing condition.

The comment notes that the No Hatchery Alternative would have the same impacts as the Proposed Project (i.e., terrestrial resources, flood hydrology, groundwater, water supply/water rights, geology/soils, and mineral resources, paleontological resources, land use and planning, agriculture and forestry resources, population and housing, public services, utilities and service systems, recreation, and hazards and hazardous materials). Comment noted.

Where the comment notes that the No Hatchery Alternative is beneficial relative to the Proposed Project because it would result in more natural aesthetic conditions, please note that Section 3.19.3 *Aesthetics – Significance Criteria*, Section 3.19.4 *Aesthetics – Impact Analysis Approach*, and Section 4.7.19 *Alternatives – No Hatchery Alternative – Aesthetics* have been revised to clarify the baseline used for the EIR aesthetic resources analysis. In Section 3.19.3 *Aesthetics – Significance Criteria* the first significance criterion has been modified to remove the objectives associated with the Class III Visual Resource Management (VRM) designation and to more clearly identify how a shift in VRM classification relative to the baseline (i.e., existing conditions) is treated in the analysis. The modified criterion also explicitly acknowledges how the analysis was applied in areas where the VRM analysis was not conducted. Additionally, Section 3.19.4 *Aesthetics – Impact Analysis Approach* and Section 4.7.2 *Alternatives – No Hatchery Alternative – Aesthetics* have been revised to align with the clarified significance criteria and to remove any reference to natural conditions, since this is not the CEQA baseline. Please refer to Volume III Attachment 1 Section 3.19.3 *Aesthetics – Significance Criteria*, Section 3.19.4 *Aesthetics – Impact Analysis Approach*, and Section 4.7.2 *Alternatives – No Hatchery Alternative – Aesthetics* for the revisions. For additional discussion of the aesthetics baseline, please refer to responses to comments ORG46-321, ORG46-323, ORG46-324, ORG46-325, ORG46-330, and ORG46-331.

The potential significant and unavoidable impacts to water quality (water temperature and dissolved oxygen) in Fall Creek and potentially the Klamath River would not occur under the No Hatchery Alternative, whereas these impacts would occur for eight years following dam removal under the Proposed Project. However, note that the elimination of hatchery produced fall-run Chinook salmon under the No Hatchery Alternative would delay the attainment of one of the Project Objectives, namely the timely restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation. As discussed in Volume I Section 4.7.12 *Alternatives – No Hatchery Alternative – Historical Resources and Tribal Cultural Resources*, elimination of hatchery produced fall-run Chinook salmon under the No Hatchery Alternative would likely result in a reduction (averaging 35 percent, potentially ranging from 19 to 50 percent based on existing conditions) in adult returns in the fall beginning in post-dam removal year 3 and continuing for an indeterminate period of perhaps one to five years (i.e., short-term), before the benefits of dam removal are realized (please also refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources*, Potential Impact 3.3-7). The elimination of hatchery produced coho salmon would likely result in a reduction in adult returns for a period of one to five years before the benefits of dam removal are realized (please also refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* Potential Impact 3.3-9). This potential impact to the fishery would be greater under the No Hatchery Alternative than under the Proposed Project, because under the Proposed Project the hatcheries would continue to supplement natural adult returns (albeit at a reduced rate of production) until after seven generations or cohorts of fish have been hatched with the benefit from expanded habitat and improved water quality conditions. The short term reduction in the fishery due to elimination of hatchery-produced fall-run Chinook and coho salmon under the No Hatchery Alternative would represent a material impairment of the Klamath Riverscape as a resource and a substantial restriction of tribal access to the fishery relative to existing conditions. A lack of access to native food sources, including an inability to get salmon due to poor river condition, is primary among the reasons that Klamath Basin Native community food assistance users report a reliance on food assistance, with 70 percent of all surveyed households reporting that they rarely or never have access to their desired foods including salmon (Sowerwine et al. 2019). The potential for the reduction in fish available for tribal harvest results in a potentially significant short-term impact on the Klamath Riverscape as a tribal cultural resource (Potential Impact 3.12-9).

As described in Potential Impact 3.2-17, the temporary exceedances of the water quality standards for temperature at Fall Creek Hatchery are expected to be small (-0.5 – 2.2° F) and to occur intermittently, rather than constantly. Any temporary exceedances of the dissolved oxygen standards resulting from Fall Creek Hatchery are expected to be infrequent under the Proposed Project.

In this instance, in light of the objectives of the Proposed Project, and the degree of harm from the different significant impacts, the significant impact to the tribal fishery as a contributing factor to the Klamath Riverscape is of greater relative weight than the significant impact to water quality. Thus, while both alternatives would confer significant environmental benefits, the Proposed Project is the environmentally superior alternative.

Comment ORG34-10

The benefits of the No Hatchery Alternative are likely even greater than revealed in the DEIR (and as summarized above). This is because the DEIR does not quantify many of the impacts of the existing hatchery operations, which would be eliminated under the No Hatchery Alternative. For example, the DEIR concludes that Iron Gate's hatchery discharges under existing conditions have a less than significant impact on water quality and phytoplankton and periphyton conditions, but does not quantify the relevant factors. DEIR at 4-304, 4-313. Elsewhere, the DEIR admits that "Iron Gate Hatchery currently exceeds its TMDL allocation of zero net discharge of nitrogen, phosphorous and biological oxygen demand" (DEIR at 3-164), but does not specify by how much. According to the State Board's Investigative Order R1-2017-0051, "Review of current hatchery sampling data shows that the Facility discharges approximately 2,500 lbs of nitrogen per year, 500 lbs of phosphorus per year and 14,000 lbs of organic matter per year measured as Biochemical Oxygen Demand (BOD). This represents 0.03% of the overall loading of nitrogen and phosphorus and 0.02% of the overall loading of organic matter to the Klamath River every year." Available at https://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2017/17 _0051_IronGate_13267.pdf.

Likewise, the DEIR fails to recognize that hatcheries use a substantial amount of formalin and other chemicals in hatchery operations. Thus, by eliminating hatchery operations, the No Hatchery Alternative would result in reduced impacts from hazards and hazardous materials. "The chemicals and aquaculture drugs the Facility uses, or can use, for the treatment and control of disease include oxytetracycline, florfenicol, formalin, providine-iodine complex, hydrogen peroxide, potassium permanganate, and sodium chloride. Chemicals and aquaculture drugs used for anesthesia include MS-222/Finquel, and carbon dioxide." Id.

The DEIR also fails to quantify operational GHG or other air pollutant emissions from Iron Gate Hatchery. DEIR at 4-317 to 4-318. Further, the DEIR fails to *analyze the relationship of water diversions for hatchery operations to groundwater levels (DEIR at 4-316) and fails to recognize population and housing impacts that may stem from operating the two hatcheries for eight additional years (DEIR at 4-320).*

The DEIR should be augmented to include this additional information. Were the DEIR to fully detail the impacts of current and proposed hatchery operations, the benefits of the No Hatchery Alternative would undoubtedly be even more apparent. However, even the analysis the DEIR now contains demonstrates the environmental superiority of the No Hatchery Alternative.

Response to Comment ORG34-10

The comment cites Volume I Section 4.7.2 *Alternatives – No Hatchery Alternative – Water Quality* (page 4-304) and Section 4.7.4 *Alternatives – No Hatchery Alternative – Phytoplankton and Periphyton* (page 4-313), which present the analysis of potential water quality and periphyton/phytoplankton impacts under the No Hatchery Alternative. The existing condition (CEQA baseline) for these environmental parameters for the current hatchery discharges is described in Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17. Because existing conditions are the baseline against which impacts are measured, the current operation is not a significant CEQA impact.

Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17 has been revised to provide additional information about Iron Gate Hatchery's current operations, including specification of the total nitrogen, total phosphorus, and organic matter discharges from Iron Gate Hatchery; the specific chemicals and aquaculture drugs used at Iron Gate Hatchery; and the existing requirements for the hatchery to ensure that chemicals are properly stored and disposed of and that any accidentally spilled materials are contained, cleaned, and disposed of properly. Please refer to Volume III Attachment 1 Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17 for the revisions. Additionally, *Section 3.21 Hazards and Hazardous Materials* has been revised to add a reference to Potential Impact 3.2-17. Please refer to Volume III Attachment 1 *Section 3.21 Hazards and Hazardous Materials* for this revision.

Section 4.7.4 *Alternatives – No Hatchery Alternative – Phytoplankton and Periphyton* has been revised to add a reference to Potential Impact 3.2-17. Please refer to Volume III Attachment 1 Section 4.7.4 *Alternatives – No Hatchery Alternative – Phytoplankton and Periphyton* for this revision.

With respect to the comment's concern about GHGs, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Section 4.7.7 *Alternatives – No Hatchery Alternative – Groundwater* has been revised to clarify that the proposed surface water diversions for the hatcheries under the Proposed Project are non-consumptive and the points of diversion and points of return are not located near any groundwater wells (i.e., the point of diversion and point of return for Fall Creek Hatchery (FCH) would be located along Fall Creek between Iron Gate Reservoir and Fall Creek Dam, as shown in Volume I Section 3.7 *Groundwater – Environmental Setting – Local Groundwater Conditions*, Figure 3.7-9 [page 3-655], and the point of diversion and point of return for Iron Gate Hatchery would be located along Bogus Creek near the confluence with the Klamath River as shown in Volume I Section 3.7 *Groundwater – Environmental Setting – Local Groundwater Conditions*, Figure 3.7-10 [page 3-655]). Please refer to Volume III Attachment 1 Section 4.7.7 *Alternatives – No Hatchery Alternative – Groundwater* for the revisions.

Section 4.7.16 *Alternatives – No Hatchery Alternative – Population and Housing* has been revised to clarify that eliminating the need for hatchery operational staff under this alternative would be inconsequential with respect to population and housing. Please refer to Volume III Attachment 1 Section 4.7.16 *Alternatives – No Hatchery Alternative – Population and Housing* for the revisions.

Comment ORG34-11

It also appears evident that the No Hatchery Alternative is feasible, which is defined by CEQA as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." Guidelines § 15364. Because the Project calls for only eight years of hatchery operations, ceasing those operations upon decommissioning instead would not seem to pose any additional economic, legal, social, or technological impediments, and the DEIR does not reveal any. Indeed, hatchery operations can be costly and thus ceasing such operations sooner would have economic benefits.

Response to Comment ORG34-11

This comment asserts that the No Hatchery Alternative appears to be feasible under CEQA, and to have potential economic advantages in reduced hatchery construction costs. Comment noted. Please see Volume I Section 4.1 *Alternatives Selection/Overview* (page 4-1), Section 4.1.1 *Alternatives – Alternatives Selection* (pages 4-1 to 4-2), and Section 4.1.1.1 *Alternatives – Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis – No Hatchery Alternative* (page 4-6) for the Draft EIR's preliminary assessment of the No Hatchery Alternative as a feasible alternative.

Comment ORG34-12

Further, as discussed, the No Hatchery Alternative is environmentally beneficial. The only potential negative impact the DEIR notes for the No Hatchery Alternative that would not be present with the proposed Project is a short-term loss of catch that could impair tribal access to the fishery relative to existing *conditions. DEIR at 4-319. However, this potential short-term impact should not render the alternative infeasible for at least two reasons. First, CEQA considers a project to have a significant environmental impact if it "achieve[s] short-term, to the disadvantage of long-term, environmental goals." Public Resources Code § 20183(b)(1). As discussed, the DEIR here makes clear that removing hatchery operations is superior to the proposed Project in achieving the long-term stability of the fishery. DEIR at 4-319; supra pp. 5-6. Thus, the State Board should not jettison an alternative that is clearly environmentally superior over the long-term due to one potential short-term impact. Second, it is not clear that the impact should be considered significant even in the short-term. The DEIR elsewhere finds that any short-term impacts from the loss of hatchery fish would be offset by improved conditions for native fish from hatchery removal, including less mortality from disease, less competition, less straying, and better adaptation. See, e.g., 4-304 to 4-313. The DEIR fails to explain why any short-term impacts would not similarly be offset for tribes accessing the fishery.*

Response to Comment ORG34-12

Please refer to Master Response AQF-2 and response to comment ORG42-16.

Comment ORG34-13

In sum, the No Hatchery Alternative is clearly environmentally superior to the proposed Project, meets every Project objective, and is feasible. The State Board should therefore consider this Alternative for adoption. If for any reason the Board should determine that the No Hatchery Alternative is infeasible, the agency must explain the reasons for this determination in detailed findings, which must be both legally accurate and supported by substantial evidence. Public Resources Code §§ 21081(a)(3), 21081.5; CEQA Guidelines §§ 15091(a)(3), (b).

Response to Comment ORG34-13

This comment summarizes conclusion of preceding comments and interprets CEQA. Comment noted. Please also refer to response to Master Response AQF-2 and responses to comment ORG34-11 and ORG42-16.

Comment ORG34-14

If the agency determines and makes adequate legal findings that the No Hatchery Alternative is infeasible, it must also then consider any and all feasible mitigation measures to lessen or avoid the significant impacts stemming from the Project's proposed hatchery operations. For every mitigation measure evaluated, the agency must demonstrate either that the mitigation measure: (1) will be effective in reducing a significant environmental impact; or (2) is ineffective or infeasible due to specific legal or "economic, environmental, social and technological factors." Friends of Oroville v. City of Oroville (2013) 219 Cal.App.4th 832, 842-44; Public Resources Code §§ 21002, 21061.1; CEQA Guidelines §§ 15021(b), 15364.

Response to Comment ORG34-14
Comment noted. This comment interprets CEQA.

Comment ORG34-15
If an agency ultimately determines that mitigation proposed in the EIR is infeasible, it may decline to adopt the measure. However, in that event, as with alternatives to the Project, CEQA requires that the agency explain the reasons for this determination in detailed findings, which must be both legally accurate and supported by substantial evidence. Public Resources Code §§ 21081(a)(3), 21081.5; CEQA Guidelines §§ 15091(a)(3), (b); Village Laguna of Laguna Beach, Inc. v. Bd. of Supervisors (1982) 134 Cal.App.3d 1022, 1032-35. And if the project's impacts will remain significant even after mitigation, the agency must issue an additional statement of overriding considerations, also supported by substantial evidence, demonstrating that the project's benefits outweigh its effects. Public Resources Code § 21081(b); see CEQA Guidelines §§ 15091(f), 15093.

In additional to these procedural requirements, CEQA also has substantive "teeth." The lead agency must actually adopt any feasible mitigation that can substantially lessen the Project's significant environmental impacts. Public Resources Code § 21002; CEQA Guidelines § 15002(a)(3); City of Marina v. Board of Trustees of California State University (2006) 39 Cal.4th 341, 368-69. In addition, the agency must "ensure that feasible mitigation measures will actually be implemented as a condition of development, and not merely adopted and then neglected or disregarded." Federation of Hillside and Canyon Assns. v. City of Los Angeles (2000) 83 Cal.App.4th 1252, 1261 (italics omitted); CEQA Guidelines § 15126.4(a)(2).

An EIR generally may not defer evaluation of mitigation until a later date. Guidelines § 15126.4(a)(1)(B). Rather, an EIR must evaluate each mitigation proposal that is not "facially infeasible," even if such measures would not completely eliminate an impact or render it less than significant. Los Angeles Unified School Dist. v. City of Los Angeles (1997) 58 Cal.App.4th 1019, 1029-31 ("LA Unified").

Response to Comment ORG34-15
Comment noted. This comment interprets CEQA.

Comment ORG34-16
Here, the DEIR identifies several significant and unavoidable impacts from hatchery operations, including on water temperature and dissolved oxygen in Fall Creek downstream of Fall Creek Hatchery. See, e.g., DEIR at 3-171 (Impact 3.2-17). The DEIR claims that no feasible mitigation could be employed to reduce these impacts. Id. However, as demonstrated by the analysis of the No Hatchery Alternative, these impacts could be reduced or eliminated by either reducing or eliminating the hatchery operations. All feasible mitigation options in

this regard must be explored, including but not limited to (1) reducing operations at Iron Gate hatchery and declining to reopen Fall Creek Hatchery; and (2) operating hatcheries with solely a conservation focus. The Native Fish Society does not by this letter endorse any particular mitigation approach, but only reminds the State Board of its obligation under CEQA to consider and adopt all feasible mitigation to reduce or avoid the Project's significant impacts from hatchery operations.

Response to Comment ORG34-16

Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* – Potential Impact 3.2-17 identifies one impact from hatchery operations at Fall Creek that would be avoided under the No Hatchery Alternative. This impact was found to be significant and unavoidable in the short term for water temperature and dissolved oxygen in Fall Creek downstream of Fall Creek Hatchery (FCH). Please refer to Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* – Potential Impact 3.2-17 for discussion of mitigation that was considered to reduce the impacts of Fall Creek Hatchery on water temperature in Fall Creek and the reasons that these options were determined to be infeasible. With respect to dissolved oxygen, the EIR analysis indicates that Fall Creek Hatchery discharges would have a low potential for causing dissolved oxygen percent saturation to become less than Basin Plan dissolved oxygen water quality objectives; however, as a conservative determination, the EIR notes that dissolved oxygen percent saturation in Fall Creek may infrequently decrease below Basin Plan dissolved oxygen water quality objectives and thus there would be significant impact without mitigation in the short term. Other unmitigable adverse impacts identified under the Proposed Project are also identified under the No Hatchery Alternative, and these would occur in the short term, during reservoir drawdown and construction activities associated with hydroelectric facilities removal. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The comment asserts that a mitigation measure of reducing operations at Iron Gate Hatchery and declining to reopen Fall Creek Hatchery would reduce significant and unavoidable impacts of the Proposed Project. Operations at Iron Gate Hatchery are already being reduced relative to existing conditions under the Proposed Project (see Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* – Potential Impact 3.2-17), and further reducing its operations would not, therefore, reduce an identified potentially significant impact of the Proposed Project relative to the existing condition. In addition to reduced production at Iron Gate Hatchery not addressing an identified significant impact, declining to open Fall Creek Hatchery is not required to be included in the EIR as a mitigation measure, since it is included and assessed in the EIR as part of the analysis of the No Hatchery Alternative in Section 4.7.2 *Alternatives – No Hatchery Alternative – Water Quality* (page 4-304). In that section the EIR notes that not opening Fall Creek Hatchery would reduce short-term construction-related impacts and operational impacts on water quality in Fall

Creek for the eight years following dam removal. Continued hatchery production is stipulated in the Klamath Hydropower Settlement Agreement (KHSA), and it does not appear possible to achieve the hatchery production levels under the Proposed Project at Iron Gate Hatchery (see Master Response AQF-2). Suitable water temperatures for year-round rearing of coho is not available at Iron Gate Hatchery with infrastructure anticipated to be available following dam removal.

As discussed in Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries*, all hatchery production of coho salmon is already operated for species conservation. Under existing conditions and the Proposed Project, all production of coho salmon is constrained by a Hatchery Genetic Management Plan (HGMP) for the Iron Gate Hatchery (CDFW and PacifiCorp 2014), which redefined the operation of this hatchery from a mitigation hatchery to one now operated to protect and conserve the genetic resources of the Upper Klamath population unit of the Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU). Included in the HGMP are defined monitoring and evaluation activities to evaluate effects of the hatchery activities on the abundance, productivity, spatial structure, and diversity of the SONCC coho salmon and the magnitude or relative impact of the hatchery program on other actions that influence SONCC coho salmon.

Chinook salmon production currently occurs at Iron Gate Hatchery without a conservation focus per se. Continuation of this baseline condition will not reduce a significant impact of the Proposed Project.

Comment ORG34-17

In sum, the Native Fish Society supports decommissioning and license surrender, but remains concerned about the environmental impacts of the proposed Project's hatchery operations at Iron Gate and Fall Creek. While the DEIR recognizes many of the detrimental effects of hatchery operations, it should be revised to incorporate the additional information identified in this letter. Further, CEQA requires that the State Board reduce or avoid the significant impacts of hatchery operations and construction to the extent feasible. Therefore, the Native Fish Society urges the State Board to adopt the No Hatchery Alternative or, at a minimum, to consider and adopt all feasible mitigation to reduce or avoid the significant impacts from hatchery operations and construction.

Response to Comment ORG34-17

Comment summary noted. Please refer to responses ORG34-4 to ORG34-16 for responses on substantive issues summarized by this comment.

Oregon Wild, Doug Heiken

Comment ORG32-1

Oregon Wild strongly supports the Proposed Project, involving removal of Iron Gate, Copco No. 1, Copco No. 2, and J.C. Boyle dams and associated facilities.

The Proposed Project will best meet project objectives and provide the greatest ecological gains in this important ecosystem. We do not want concerns about short-term impacts to get in the way of this great dam removal project that will be highly-beneficial in the short- and long-term. In the attached letter we offer a few suggestions to improve the Proposed Project.

Response to Comment ORG32-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG32-2
Please accept the following comments from Oregon Wild concerning the Draft Environmental Impact Report for 401 Certification of the Lower Klamath Project License Surrender, FERC Project No. 14803, https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/low er_klamath_ferc14803_deir/noa.pdf. Oregon Wild represents 20,000 members and supporters who share our mission to protect and restore Oregon's wildlands, wildlife, and water as an enduring legacy. Our goal is to protect areas that remain intact while striving to restore areas that have been degraded. Oregon Wild has worked for more than three decades to protect and restore the ecological integrity of the Klamath River, the entire Klamath Watershed, and the fish and wildlife that call it home. Our members and supporters have a great affection and connection to this area.

Response to Comment ORG32-2
Comment noted.

Comment ORG32-3
Oregon Wild strongly supports the Proposed Project, involving removal of Iron Gate, Copco No. 1, Copco No. 2, and J.C. Boyle dams and associated facilities, with a Definite Plan described in EIR Appendix B. The Proposed Project will best meet project objectives and provide the greatest ecological gains in this important ecosystem. We do not want concerns about short-term impacts to get in the way of this great dam removal project that will be highly-beneficial in the short- and long-term. We offer a few suggestions to improve the Proposed Project below.

Response to Comment ORG32-3
Please refer to Master Response GEN-1.

Comment ORG32-4
Oregon Wild supports the Water Board's proposed 401 certification of the Klamath Project Dam Removal and License Surrender because it will lead to significant long-term improvements in the water quality of the Klamath River, especially temperature, dissolved oxygen, pH, and algal toxins. Of course, there are some short-term adverse water quality impacts associated with dam removal, such as the temporary pulse of stored sediments as they mobilize and move

through the system. The dam removal effort must be accomplished with great care to minimize and mitigate these water quality impacts, but because the existing situation is causing a variety of significant adverse water quality problems, the long-term net effect of dam removal on water quality is strongly positive.

Response to Comment ORG32-4
Comment noted.

Comment ORG32-5
The EIR (pp ES-9 to ES-11) provide a nice summary of the beneficial effects of dam removal, which clearly outweigh any adverse effects. This list could be expanded to include: vegetation succession within the reservoir footprint, and all the ecological complexity and self-organization that goes along with succession, such as primary production/consumption, biomass accumulation, large tree habitat, wildlife cover/nesting/feeding, stream shade, dead wood habitat recruitment, carbon storage, and various disturbances that interact with the features listed, etc.

Response to Comment ORG32-5
Comment noted. The list provided in the comment includes various ecological processes, ecosystem forms, and biotic responses that are generally aligned with the expected ecological changes that would occur in the newly exposed reservoir footprints following dam removal and would be promoted by restoration activities included in the Proposed Project to increase habitat complexity and function. For discussion of proposed activities that would improve habitat complexity under the Proposed Project, please refer to Volume I Section 2.7.4.2 *Proposed Project – Restoration Within the Project Footprint – Reservoir Restoration Features* (pages 2-71 to 2-76). For a discussion of carbon storage within the habitat types that would replace the reservoirs, please refer to Section 3.10 *Greenhouse Gas Emissions and Energy*, which was recirculated on December 21, 2019. Please note that benefits listed in the comment that are not discussed in the EIR do not change any of the EIR's impact determinations.

Comment ORG32-6
The listed "terrestrial" benefits of dam removal include "benthic macroinvertebrates." Is this a typo? Maybe the intention was to list benefit to terrestrial invertebrates, which include: mollusks, fungi, lichen, mosses, insects, arthropods, etc.

Response to Comment ORG32-6
Potential impacts on benthic macroinvertebrate populations were evaluated in Volume 1 Section 3.3 *Aquatic Resources* and in Section 3.5 *Terrestrial Resources* as these populations have the potential to be affected by changes in water elevation with the reservoir footprints and water flow, sedimentation, and total suspended sediments in the Klamath River downstream of the Lower

Klamath Project dams, and, in turn, to affect aquatic organisms that feed on them (e.g., fish) and terrestrial organisms that feed on them (e.g., western pond turtle). Many benthic macroinvertebrates also have an aerial life-stage. Please refer to Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-17 (pages 3-559 to 3-560) for an analysis of the potential impacts on benthic macroinvertebrates present in the reservoir footprint as a result of drawdown and drying of the habitat, and in the Klamath River downstream of Iron Gate Dam as a result of sediment transport and deposition. The analysis indicates that there would be no significant impact in the short term and there would be beneficial long-term effects.

Comment ORG32-7

The existing dams alter river flow and contribute to water quality problems, including toxic algal blooms, low dissolved oxygen, and higher water temperatures. The dams also contribute to fish disease in the lower reaches of the Klamath River. The license surrender and dam removal will revert the Klamath River to more natural seasonal flow conditions resulting in improved water quality, temperature regime, nutrient cycling, chemistry, and sediment storage/mobility. Free-flowing riverine conditions and improved water quality will benefit aquatic habitat and anadromous fish populations by increasing access to historical habitat, restoring mainstem and tributary habitat, and improving biological and physical factors that heavily influence fish populations (e.g., flow conditions, sediment and bedload transport, water quality, fish disease, toxic algal blooms, and water temperature).

We urge the Water Boards to adopt conditions that will minimize water quality impacts, reduce the spread of weeds, and conserve unique species like pond turtles, suckers, salmonids, amphibians, and lamprey, while allowing this important dam removal effort to proceed in an efficient and timely manner.

Response to Comment ORG32-7

Consistent with CEQA Guidelines section 15126.4, the EIR identifies several significant impacts for which mitigation is feasible to reduce environmental impacts. For a summary of the potential impacts and mitigation measures, please refer to Volume III Attachment 1 for the final *Executive Summary* Table ES-1.

Additionally, The State Water Board's draft water quality certification (available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/lkp_dwqc.pdf [Accessed December 11, 2018]) incorporates conditions to minimize impacts on aquatic species. For example, the State Water Board includes conditions to monitor water quality and measures to control erosion and stream sedimentation, monitor anadromous fish (Pacific lamprey, fall-run Chinook salmon, coho salmon, and steelhead), rescue and relocate juvenile salmonids and Pacific lamprey from tributary confluence areas, develop and implement aquatic vegetation management, and develop and implement amphibian and reptile management, which includes surveys and rescue and relocation. Klamath River Renewal Corporation (KRRC) has also included an aquatic resource measure as part of the Proposed Project for sucker species in Copco No. 1 and Iron Gate reservoirs (Aquatic Resource Measure 6 *Suckers*) and removal of invasive species and invasive weed control (Appendix B: Appendix H – *Reservoir Area Management Plan*).

Comment ORG32-8

It is reasonable to expect significant short-term erosion and movement of sediment stored behind the dams to be removed. This will likely cause some short-term impacts on Klamath River ecology. Most of these effects will occur during the first year after dam removal, followed by another pulse during the next 5-10 year high-flow event, which should substantially resolve sediment concerns by moving most of the fine sediments out of the system and naturally sorting and distributing the larger material.

Freshwater mussels are long-lived and an important part of the river ecosystem. We are concerned about sediments smothering downstream mussel beds after dam removal. Can this be mitigated by collecting some mussels from representative downstream areas that are expected to be buried in significant sediments, then replanting them in the same locations are things have sorted out? This might be a worthwhile project for tribal partners.

Response to Comment ORG32-8

As described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-19, the Proposed Project includes Aquatic Resource Measure AR-7 to salvage and relocate freshwater mussels prior to Lower Klamath Project dam removal. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG32-9

The project controls significant acreage of uplands surrounding the project, as well as the footprint of the reservoirs themselves. We urge the agencies to require sound ecological stewardship of those lands so they are not subjected to grazing, logging, mining, or motorized recreation, to the detriment of Klamath River water quality. The EIR says that these lands would be transferred to the States of Oregon and California and/or third-parties, for "public interest purposes." This is too broad. There should be an explicit ecological conservation mandate permanently attached to these lands.

Response to Comment ORG32-9

Comment Noted. At this time, the outcome of the future Parcel B land transfer is speculative with regard to land use. While the lands would be managed for the public interest, this could include open space, active wetland and riverine restoration, river-based recreation, grazing, and potentially other uses. The disposition and transfer of Parcel B lands is discussed in Volume I Section 2.7.10 *Proposed Project – Proposed Project – Land Disposition and Transfer* (page 2-108) and analyzed under several sections (e.g., Volume 1 Section 3.5.5 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-28 [page 3-574 to 3-575]). As noted, the disposition of Parcel B lands will be subject to a process described under the Klamath Hydroelectric Settlement Agreement to determine the disposition of lands. This process will include the ability to identify lands appropriate for conservation, and will include future environmental review under CEQA.

Comment ORG32-10

Weed-free native-only seed mixes should be used for seeding after the reservoir is drawn down. Using sterile wheat may not be a good idea because it may cause a boom in the local small animal population that consumes the wheat AND decimates the native seedbed.

Response to Comment ORG32-10

As defined in Klamath River Renewal Corporation's (KRRC) Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan – Appendix H*), the Proposed Project native grasses, sedges, rushes, forbs and shrubs would be used for seeding in all revegetation zones. A very small amount of sterile wheat may be applied; this small amount should not have significant impacts on the native seedbed and would serve an important role stabilizing soils and providing erosion control.

Comment ORG32-11

We urge the agencies to require planting of native willows and other appropriate trees and shrubs in the reservoir footprint along the newly established river channels and tributaries. This will provide several benefits: (i) provide shade to mitigate temperature problems, (ii) suppress weeds, and (iii) stabilize the loose sediments along the river banks.

Response to Comment ORG32-11

As defined in Klamath River Renewal Corporation's (KRRC) Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan – Appendix H*), the Proposed Project includes several actions to encourage rapid revegetation with native riparian species, including willows, in the reservoir footprints; these actions would ensure a no net loss of wetland or riparian habitat acreage and functions.

Comment ORG32-12

The plan is to salvage ESA-listed Lost River suckers and Short-Nose suckers that use the reservoirs, but this effort is expected to salvage only 10% of the population. We urge the agencies to require genetic testing, and if the fish are not unduly hybridized, then a more aggressive fish salvage effort should be *undertaken. The locations for releasing these salvaged fish must be carefully thought out in advance.*

Response to Comment ORG32-12

As described in Volume I Section 2.7.8.1 *Proposed Project – Proposed Project – Other Project Components – Aquatic Resource Measures – Suckers (AR-6)* (page 2-88), the Aquatic Resource Measure AR-6 includes genetic testing of suckers in the Klamath River and in Hydroelectric Reach reservoirs, and capture as many suckers as feasible (not to exceed 3,000 fish) from within the Klamath River and in Hydroelectric Reach reservoirs and place them into the isolated waterbody of Tule Lake (to ensure hybridized suckers do not mix with sucker populations designated as recovery populations in Upper Klamath Lake). Additional detail is provided in Volume II Appendix B: *Definite Plan – Appendix I*.

Additional comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation.

Comment ORG32-13

The EIR says that livestock grazing may be used as a veg control in the uplands. This is not a good idea, because livestock cause several undesired effects, including: spending disproportionate time in sensitive areas such as riparian areas, grazing non-randomly with greater adverse effects on some desired native species and little to no effect on many undesired species (e.g., thistle).

Response to Comment ORG32-13

As discussed in Klamath River Renewal Corporation's (KRRC's) Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan – Appendix H*), the KRRC would evaluate all methods of invasive species control for both their benefits and their risks to the surrounding ecosystems. KRRC is not proposing to graze livestock in sensitive habitats such as riparian areas. Grazing is proposed in upland habitats that are not considered sensitive riparian areas. Furthermore, to protect planted native species and revegetation efforts and to replace the function of the reservoirs as natural barriers, cattle exclusion fencing would be placed around the reservoir areas after drawdown to prevent cattle from accessing areas of sensitive habitats and restoration areas.

Comment ORG32-14

Dead and down wood plays a critical role in maintaining aquatic and terrestrial ecological structure, function, and process. See Rose, C.L., Marcot, B.G., Mellen, T.K., Ohmann, J.L., Waddell, K.L., Lindely, D.L., and B. Schrieber. 2001. Decaying Wood in Pacific Northwest Forests: Concepts and Tools for Habitat Management, Chapter 24 in Wildlife-Habitat Relationships in Oregon and Washington (Johnson, D. H. and T. A. O'Neil. OSU Press. 2001) http://web.archive.org/web/20060708035905/http://www.nwhi.org/inc/data/GISdata/docs/chapte r24.pdf. It is reasonable to expect a significant shortage of dead wood within the former reservoir footprint. This wood deficit should be mitigated *by importing large wood to kick-start the process of natural wood functions and wood recruitment. Placing lots of large wood in the reservoir footprint will help meet water quality goals by capturing and storing sediment and nutrients. Wood should be placed both in and near the river and tributaries, as well as in uplands. Extra wood near tributary junctions is recommended. Wood for restoration should be obtained from appropriate sites, such as thinning of (young) plantations, (young) juniper removal projects, roadside hazard trees, or nearby reservoir salvage efforts.*

Response to Comment ORG32-14
As described in the Volume 1 Section 2.7.4.2 *Proposed Project – Restoration Within the Reservoir Footprint – Reservoir Restoration Features* (pages 2-71 to 2-76), restoration activities for the reservoir footprints are supporting reservoir-deposited sediment evacuation; enhancing tributary connectivity to the Klamath River; incorporating floodplain features such as wetlands, swales, and side channels; enhancing floodplain roughness to stabilize vegetation; and stabilizing banks and enhancing channel complexity, including with the use of large woody debris.

Additional comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation.

Comment ORG32-15
We also urge the agencies to adopt monitoring and adaptive management requirements specifically designed for learning and application to other similar projects. Dam removal is still a fairly new endeavor with uncertainty about environmental impacts and the spatial and temporal fate of stored sediment. Let's learn from this dam removal effort, so that future dam removal efforts can be even better.

Response to Comment ORG32-15
The Klamath River Renewal Corporation's (KRRC) Proposed Project includes several adaptive management elements for water quality, aquatic resources (i.e., fisheries, including actions to remove migration barriers to Klamath River tributaries and upper reaches of the river, should they occur), and terrestrial resources (i.e., revegetation of the reservoir footprints). Additionally, the State Water Board has issued a draft water quality certification which sets forth monitoring and adaptive management requirements for water quality monitoring. The State Water Board's draft water quality certification is available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/lkp_dwqc.pdf (Accessed December 11, 2018).

Comment ORG32-16
Each substantive issue discussed in these comments should be (i) incorporated into the purpose and need for the project, (ii) incorporated into an EIR alternative,

(iii) carefully analyzed as part of the effects analysis, and (iv) considered for mitigation.

Response to Comment ORG32-16
Comment noted.

Pacific Coast Federation of Fishermans Association, Glen Spain

Comment ORG29-1
In general, both PCFFA and IFR endorse and incorporate herein by reference the written comments to be submitted by Feb. 26, 2019, by the Klamath River Renewal Corporation (KRRC), which we have reviewed and approve. The KRRC editing comments help clarify some areas in the Draft Environmental Impacts Report (DEIR) that are unclear, or which may be duplicative.

Please consider these as our Supplemental written comments on behalf of the Pacific Coast Federation of Fishermen's Associations (PCFFA) and its sister organization, Institute for Fisheries Resources (IFR) regarding the Draft Environmental Impacts Report (DEIR) released Dec. 2018, regarding the proposed State of California 401 Certification for removal of the Lower Klamath Dams within the State of California (i.e., CopCo 1 & 2 and Iron Gate Dam). Please make them part of the permanent public record for this decision-making process. Although our two organizations generally support the separate KRRC comments, PCFFA and IFR are separate legal entities presenting these Supplemental written comments solely on their own behalves, and do not in any capacity speak for the KRRC.

Response to Comment ORG29-1
Thank you for your comment.

Comment ORG29-2
PCFFA and IFR both strongly support the KRRC's ongoing efforts to remove the four Lower Klamath Hydropower Project FERC-licensed dams, including the three of the four dams (CopCo 1 & 2 and Iron Gate Dams) located in California, and which are the subject of the current dam removal project. Removal of these four Klamath Basin dams was agreed to in the Klamath Hydropower Settlement Agreement ("KHSA"), also signed by the dams' owner (PacifiCorp). Indeed, PCFFA and IFR are both signatory Parties to the original and amended KHSA documents as well. Both our organizations support the Proposed Project as the best choice among all the alternatives.

Response to Comment ORG29-2
Please refer to Master Response GEN-1.

Comment ORG29-3
On an initial note, looking at the prior Scoping Comments and other written comments from those (particularly Siskiyou County and the Siskiyou County

Water Users Association (SCWUA)) who have vehemently opposed dam removals in the Klamath, many of their past written comments raised concerns related to water quality and other issues that have already been systematically analyzed and long-since debunked or rebutted by hard science. Nevertheless, to make sure the Record in this action is clear, in our initial comments below we will again puncture the many myths about likely sediment releases from dam removal and other impacts of dam removals that opponents of the Proposed Project are repeating in the media and in their written comments on this DEIR.

In particular, we once again we are still reading or hearing public comments in this process with alarmist language about the "massive amounts of mud" behind the dams, and of "toxic mud" supposedly sitting as "sediment time bombs" behind the dams. But in fact, as the prior NEPA/CEQA (2013) rigorous and multiply peer-reviewed analysis of potential Klamath dam removal impacts indicated, multiple studies of the sediment trapped behind the dams have concluded that not only would most of these sediments released be naturally washed through the system to the sea within about 24 months, but that there are NO significant toxics in those sediments above and beyond natural background levels to be concerned about.

Also, a number of sediment containment and stabilization mitigation measures are contained in the recently released June 2018 KRRC "Definite Plan" that will assure that sediment and other short-term water quality impacts will be minimized or eliminated to the extent that is feasible, given that some short-term impacts are inevitable in order to achieve the many long-term water quality gains that would come from restoring the Klamath River's natural and free-flowing conditions. Additional sediment mitigation measures may also be adopted as part of the proposed 401 Certification process.

The debunked sediment and other specious concerns that continue to be raised by other parties in this process who oppose dam removals can be summarized as follows:

Response to Comment ORG29-3

With respect to sediment erosion, transport, and deposition associated with the Proposed Project, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775). Please also refer to Master Response GEO-1. With respect to nitrogen and other nutrients, please refer to Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-7 and Potential Impact 3.2-8. Both potential impact analyses conclude no significant impact, or beneficial effects, for nutrient conditions associated with the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC).

Comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board's Water Quality Certification Program following the instructions provided at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html

The Oregon Water Quality Certification for the Lower Klamath Project is available at: https://www.oregon.gov/deq/FilterDocs/ferc14803final.pdf

Comment ORG29-4

MYTH: "Massive amounts of toxic chemicals are in the sediments behind the dams." – Multiple studies and on-site surveys analyzing the chemical make-up of reservoir sediments have concluded that these sediments pose no significant risk to human health.

Opponents to river restoration often cite the Camp, Dresser, and McKee Study, which first assumes a worst-case sediment scenario, and then speculates that the high cost of such toxic sediment removal would push dam removal into the billions of dollars. However, this report was prepared before, and thus fails to acknowledge the results of, the many later studies referenced in footnotes herein (and in the DEIR itself) which disprove that report's initial (and unwarranted) assumption that significant toxic contamination even exists.

This "fake fact" assertion that there are significant toxic chemical contaminant concerns in sediments behind the dams has also been officially debunked. For instance, the US EPA issued a letter dated 4 November, 2015, on just this issue, noting that multiple studies have shown that there were no significant concerns about any toxic sediment problems in any of the reservoirs raised by any of several comprehensive studies. See ATTACHMENT A for a copy of that EPA letter for the record. In general, detections of potential toxic chemicals in sediment core samples were within the range of natural background levels, and well below the range of significant concern for human health.

And while the Draft DEIR noted that levels of arsenic are naturally elevated in the region (due to its volcanic history), human exposure pathways for arsenic were very limited in this highly rural region:

"Thus, overall the Proposed Project would be unlikely to result in short-term or long-term substantive adverse impacts on human health under possible 'Exposure Pathway 2' [long-term exposure to reservoir terrace and/or river bed deposits] due to arsenic." [DEIR 3-143]

As to other contaminants, the DEIR correctly concluded:

"After consideration of dilution, chromium, lead, and total PCB concentrations would be less than the most stringent human health drinking water standards in the Hydroelectric Reach from J.C. Boyle Dam to the upstream end of Copco No. 1 Reservoir...." [DEIR 3-144-145]

"Thus, there would be little to no potential long-term potential for adverse impacts to human health from exposure to river water due [to] the release of reservoir sediments and associated inorganic or organic contaminants trapped behind the Lower Klamath Project dams, and there would be no significant impact in the long term for human exposure to inorganic and organic contaminants in the Hydroelectric Reach." [DEIR 3-149-150]

The Draft DEIR analysis also correctly noted that:

"Implementation of mitigation measures WQ-2 and WQ-3 would reduce the short-term significant impact of human exposure to inorganic and organic contaminants in the Middle and Lower Klamath River and the Klamath River Estuary to less than significant." [DEIR 3-150]

We believe that the KRRC has already committed to these mitigation measures.

And as to the impact of released sediments on aquatic, non-human species, the DEIR analysis is that these impacts would also be less than significant.

"Overall, one or more chemicals are currently present in the Lower Klamath Project reservoir sediments at levels with potential to cause minor or limited adverse impacts on freshwater aquatic species in the short term, based results from the Shannon & Wilson, Inc. (2006) study and the 2009–2010 Klamath Dam Removal Secretarial Determination study (CDM 2011), but chemicals present in the Lower Klamath Project reservoir sediments are expected to be mixed and diluted below water quality standards, reducing the likelihood of any substantial adverse impacts on freshwater aquatic species in the short term. In the long term, one or more chemicals are present, but at levels unlikely to cause substantial adverse impacts based on available evidence. Therefore, under the Proposed Project, the short-term and long-term impacts on freshwater aquatic species from exposure to sediment-associated inorganic and organic contaminants during sediment release and transit, and from potential downstream river-channel deposition, in the Middle and Lower Klamath River, would be a less-than-significant impact. [DEIR 3-158]

Response to Comment ORG29-4

Please refer to Master Response WQ-6 for further information about the inorganic and organic contaminants in the reservoir sediments.

Comment ORG29-5

MYTH: "20-30 million cubic yards of sediment behind the dams would wash out and devastate the lower river." – These numbers and their impacts are both greatly exaggerated by Siskiyou County and SCWUA. Only about an estimated 13.1 million cubic yards of sediments in total were actually trapped behind the dams by 2012, an amount that is expected to rise to about 15 million cubic yards by 2020. But of these sediments, only about one-third to two-thirds of the total volume (5 to 10 million cubic yards in 2020) would be expected to wash out to sea over 1 to 2 years, as the river becomes re-channelized, with the rest of these sediments to be replanted and stabilized as new river bank.

The majority of those sediments that would naturally erode and are likely to wash out to sea, however, are fine-grained and so would be easily mobilized by normal river flows and thus are not likely to be deposited in the river channel nor estuary for very long, if at all. In short, most of the mobilized sediment, as noted in the prior NEPA/CEQA (2013) analysis, would naturally wash out to sea within a couple of rainy seasons. The DEIR confirms this modeling prediction.

The less mobilized, larger gravel is also beneficial as it will likely help create gravel and cobble beds below the dams that are highly suitable for salmon spawning and rearing – indeed, the existing dams have systematically starved the lower river of natural recruitment of spawning and rearing gravel as much as 50 stream-miles downriver from Iron Gate Dam. (NEPA/CEQA (2013))

Alarmists warning of massive sediment erosion forget that rivers like the Klamath already, naturally, carry vast amounts of sediment out to sea as part of their natural baseline functioning, through natural erosion.

For instance, the Klamath River already normally carries an average water-year sediment load of about 5.834 million tons/year (which translates to 3.889 million cubic yards of sediment/year at a standard conversion rate of 1.5 tons/cubic yard density), which may be greater or lower depending on total rainfall. Sediment transport models (as noted in the DEIR) in fact indicate that, left completely to natural processes, high concentrations of suspended sediments would occur immediately downstream of Iron Gate Dam for only two-to-three months immediately following reservoir drawdown and removal.

But in fact, multiple reservoir silt stabilization and reseeding/revegetation measures are proposed by KRRC to help keep the downstream sediment flows, and later erosion flows, to a minimum. Data cited in the Definite Plan (June, 2018) estimate that with these mitigation measures in place:

"The Project could release up to 1.2 - 2.9 million metric tons of fine sediment (sand, silt, and finer) downstream from Iron Gate Dam (RM 193.1) over a two-year period (USBR 2011)."

In other words (except for a short-lived initial burst, which would be timed so as to avoid most impacts on migrating fish) additional sediment loads triggered by dam removals would remain within the range of what already naturally occurs in high-flow or wet water years.

The Draft Environmental Impact Report (DEIR) confirms that sediment loads would be manageable as well as short-term impacts. Specifically the DEIR notes:

- *“There would be an estimated 15.1 million cubic yards (14.6 million tons) of sediment stored in the J.C. Boyle, Copco No. 1, and Iron Gate reservoirs by 2020 (USBR 2012).” (DEIR ES-5)*
- *“Anticipated erosion volume due to dam removal into the context of annual basin-wide sediment discharge are estimated to average an annual total sediment supply from the Klamath River to the Pacific Ocean of approximately 5.8 million tons (4 million tons/yr. of fine sediment and 1.8 million tons/yr. of sand and larger sediment (Stillwater Sciences (2010). Farnsworth and Warrick (2007) estimate that the average annual silt and clay discharge is 1.2 million tons/yr.… In dry years the supply of sediment to the ocean could be less than 1 million tons/yr. (Figure 3.11-12). Given these estimates, it is expected that the amount of sediment released during the year of drawdown and dam removal would be similar to that transported by the Klamath River to the Pacific Ocean in a year with average flow, much less than that transported by the Klamath River in a wet year, and greater than that transported by the Klamath River in a dry year. See Section 3.11.5 [Soil, Geology, and Mineral Resources] Potential Impacts and Mitigation and Figure 3.11-12 for further details.” (p. 3-769)” [DEIR 3-103]*
- *“A recent USGS overview report on the sources, dispersal, and fate of fine sediment delivered to California’s coastal waters (Farnsworth and Warrick 2007) found the following:*
    - *Rivers dominate the supply of fine sediment to the California coastal waters, with an average annual flux of 34 million metric tons.*
    - *All California coastal rivers discharge episodically, with large proportions of their annual sediment loads delivered over the course of only a few winter days.*
    - *Farnsworth and Warrick (2007) conclude that fine sediment is a natural and dynamic element of the California coastal system because of large, natural sediment sources and dynamic transport processes.” [DEIR 3-104]*
- *“The short-term (less than two years following dam removal) and long-term (2–50 years following dam removal) effects of the Proposed Project on sediment delivery to the Pacific Ocean would be less-than-significant, given the relatively small amount of total sediment input from reservoir sediment release in comparison to the total annual naturally occurring sediment inputs to the nearshore environment. Bedload sediment effects related to*

> *coarse sediment released by the Proposed Project or sediment re-supply likely would not extend downstream of the Cottonwood Creek confluence (RM 185.1). Therefore, there would be no bedload-related effects in the Klamath River Estuary or Pacific Ocean nearshore environment under the Proposed Project." [DEIR 3-755]*

Response to Comment ORG29-5

Please refer to Master Response GEO-1 for further information regarding fine sediment erosion, transport, and deposition.

Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation.

Comment ORG29-6

MYTH: "Massive sediment plumes from dam removal will kill all the fish in the lower river for many years to come."—There will clearly be some adverse sediment impacts on fish within the mainstem of the river for a short period of time, but as noted above, these sediments are expected to reach lethal levels for fish only for a short period of time during one single, first-year winter flushing event. The Executive Summary of the DOI Final NEPA/CEQA (2013) EIS/EIR notes:

"While sediment release and other construction related activities during dam removal could cause short-term (1 to 2 years) adverse impacts on fisheries downstream from the Hydroelectric Reach, salmon and other aquatic resources would be expected to return to population levels observed prior to dam removal (in 2010 when the Notice of Preparation was issued) within 5 years……

And of course, these estimates are for the Klamath River and all its dams as a whole, including a contribution by J.C. Boyle. But since the sediments trapped behind J. C. Boyle Dam are relatively minor, that contribution would not be substantial.

The plan for reservoir drawdown to be completed in the high-flow winter season within a single year (2021) is also designed to minimize negative effects of sediment surges on sensitive fish species, particularly federally listed coho salmon. Drawdown will be timed to avoid the major runs of fish, many of which (such as coho) only use the mainstem river briefly each year as a migration corridor, and would thus be safe within their usual tributary habitat during the lethal peak of the mainstem sediment surge.

Response to Comment ORG29-6

The EIR analyzes the potential impacts of elevated suspended sediments on aquatic resources in Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* and Section 3.3.5.9 *Aquatic Resources – Potential Impacts and*

Mitigation – Aquatic Resource Impacts Potential Impact 3.3-1; Potential Impacts 3.3-3 through 3.3-16; and Potential Impacts 3.3-19 and 3.3-20.

Comment ORG29-7

MYTH: "Removing the Klamath dams would eliminate their flood control benefits."—First off, the dams in question were never designed for flood control and thus provide little emergency water storage in the event of flood-level flows. At very best, the reservoirs could physically provide less than 7% attenuation of any 100-year flood event, and then only for a few hours' time, i.e., until their reservoirs were full. At most, this might provide just a 10-hour delay in the peaking of any lower river flooding.

Response to Comment ORG29-7

Comment noted. For additional information regarding the flood hydrology analysis presented in the EIR, please refer to Master Response FLD-1.

Comment ORG29-8

As to any additional flood risk caused by the actual drawdown of the dams themselves during deconstruction, the DEIR correctly has this to say:

"While the release rates that would occur during reservoir drawdown would be greater than the flows at the same time under the existing conditions, and in some months above the historical monthly maximum flow (e.g., September), they would be lower than the overall peak flows for extremely wet years recorded during the period of record in each reach. Because the flows would stay below historical peak flows, they would not change the floodplain or flood risks in comparison to the existing conditions. Thus, the short-term increases in downstream flows and changes to flood risks resulting from reservoir drawdown would be less than significant." [DEIR 3-630, 631]

Reservoir drawdown plans were made with consideration for minimizing flood risks downstream. Controlled releases during reservoir drawdown would not be likely to increase flood risks because they would be kept well within the range of historic flows.

From the California-Oregon border, since these dams were not designed to provide any flood control, the total removal of the dams would pose no additional flood risks:

"Because J.C. Boyle Reservoir provides no storage and the dam typically operates in spill mode at flows above plant capacity (i.e., approximately 6,000 cfs; Table 2-1 in USBR 2012), existing conditions peak flows in the Hydroelectric Reach are not attenuated as a result of J.C. Boyle Dam..... Therefore, under the Proposed Project the 100-yr flood inundation extent on the Klamath River from the Oregon-California state line downstream to Copco No. 1 Reservoir would not change from existing conditions (see also Appendix K). [DEIR 3-634, 635]

Below Iron Gate Dam, however, the situation changes, albeit only slightly:

"Hydrologic and hydraulic modeling of floodplain inundation shows that removal of the Lower Klamath Project dams could alter the 100-year floodplain inundation area downstream of Iron Gate Dam between RM 193 and 174 (i.e., from Iron Gate Dam to Humbug Creek) (USBR 2012). The modeling indicates that the differences between existing conditions and the Proposed Project are minor..... This increased discharge would result in flood elevations that are 1.65 feet higher on average from Iron Gate Dam (RM 193) to Bogus Creek (RM 192.6) and 1.51 feet higher on average from Bogus Creek to Willow Creek (RM 188) (Appendix B: Definite Plan). The impact of dam removal on flood peak elevations would decrease with distance downstream of Iron Gate Dam, and USBR (2012) and the KRRC (Appendix B: Definite Plan) estimated that there would be no significant effect on flood elevations downstream of Humbug Creek (RM 174)....." [DEIR 3-630]

These impacts are significant, albeit they would impact only a small number of structures and then only to a minor degree, but there are a number of mitigation measures the KRRC is already assuming as part of its mitigation obligations under the KHSA, as noted below:

"The KRRC proposes to work with willing landowners to implement a plan to address the significant flood risk for the 36 habitable structures (including permanent and temporary residences) located in the altered 100-year floodplain between Iron Gate Dam and Humbug Creek following dam removal. The KRRC would work with the owners to move or elevate the habitable structures in place before dam removal, where feasible, to reduce the risks of exposing people and/or structures to damage, loss, injury, or death due to flooding. However, flood damage and/or loss of structures that are not feasible to move or elevate would be a significant impact. Final determination of the future 100-year floodplain after dam removal would be made by FEMA. The KRRC is coordinating with FEMA to initiate the map revision process (Appendix B: Definite Plan). The Project Component would also evaluate the river crossings that could be affected by a substantial risk of damage due to flooding. [DEIR 3-632]

The KRRC is actively working with Hornbrook area landowners to fully mitigate these risks wherever possible. Among the various previously proposed additional mitigation measures to minimize flood damage risk that should be adopted in the revised Definite Plan (if they have not already been) are: Mitigation Measure H-1 (install new river flow gages and improve predictive flooding models, thus increasing warning time to residents of any impending flood): new National Weather Service (NWS) warning systems can also be installed to give residents more accurate flood predictions as much as two days in advance.

Response to Comment ORG29-8
For additional information regarding the flood hydrology analysis presented in the EIR, please refer to Master Response FLD-1.

Comments on the Definite Plan or Emergency Response Plan should be submitted to the Klamath River Renewal Corporation (KRRC).

Comment ORG29-9
MYTH: "Keeping the dams would cost far less than tearing them down."— Actually, the financial facts show just the opposite: It would actually cost PacifiCorp ratepayers far more to retrofit and relicense these aging and now economically obsolete dams than to replace their small amount of power from other, newer and much more cost-efficient resources.

The 1956 Federal Energy Regulatory Agency (FERC) 50-year license to operate the Klamath Hydropower Project expired in 2006. PacifiCorp, the company that owns the Klamath dams (J.C. Boyles Dam in Oregon, and CopCo Dams 1 & 2 and Iron Gate Dam in California, in river-descending order), can limp along on temporary one-year FERC license extensions only while an active application for FERC relicensing is pending. That time is coming to a close and a decision on the fate of these dams must soon be made. No privately-owned dam can legally operate without a valid FERC license.

Whatever choice PacifiCorp (also called "Pacific Power" in California) could make, the company's costs of that decision will ultimately be charged to its customer/ratepayers. This is how electrical utilities work. Their only source of revenues is generally the creation of electrical power they then sell to their customers, collecting enough revenues from their customers to fund their operations. This is all tightly regulated by state Public Utilities Commissions (PUCs) in each state where they operate, as the watchdog agencies that assure that their state's customers get charged fair, reasonable – and generally the lowest-cost – power rates for the services they receive.

There are only two legal options for these Klamath Hydropower Project dams, both of which will cost PacifiCorp ratepayers money: (1) either fix them up and relicense them to modern standards, which turns out will cost at least $460 million, and quite likely more than $500 million once all (currently unknown) water quality mitigation costs are added in, with no upper cost cap, according to PacifiCorp testimony to the PUCs, or; (2) decommission and remove these aging dams entirely – which it can now do under the Klamath Hydropower Settlement Agreement (KHSA) for a "capped" cost to its customers of only $200 million, with the rest paid by the State of California.

And according to estimates by FERC, even after all the expensive retrofitting to meet modern standards for relicensing, these dams would then only generate about 61 MW of power on average—about 26% less than they do today.

Relicensing thus means spending a great deal of money for what is actually very little power. In fact, FERC estimated in its 2007 Final Environmental Impact Report (FEIS) on relicensing that even if fully relicensed, the required retrofitting would be so expensive that these dams would then operate at more than a $20 million/year net loss. In short, the Klamath dams are now economically obsolete. This above all reasons is why PacifiCorp is asking for permission to transfer them to the KRRC for removal.

The best current estimate for the total costs of decommissioning and full removal of the four dams, so that the Klamath River and its salmon can once again move freely through them, is about $397.7 million (in 2020 dollars), including various environmental mitigation measures. By implementing dam removal through the KHSA, PacifiCorp thus saves its customers at least another $197.7 million (and perhaps much more) as well as reduces its own company and ratepayer risk and uncertainty. This is another reason the KHSA is a good deal for PacifiCorp customers.

On May 5th, 2011, the California Public Utilities Commission (CPUC) formally confirmed that the KHSA is indeed the most cost effective, least risk and therefore best alternative for PacifiCorp's customers as compared to relicensing. A prior September 16, 2010, ruling by the Oregon PUC came to the same conclusion. A small Klamath dam removal surcharge has been assessed PacifiCorp's Northern California and Oregon customers since those PUC decision to make up the company's $200 million contribution, which will all be in the PUC Trust Funds to use by the KRRC for dam removal by 2020 – at which point PacifiCorp's customers will not have to pay a dam removal surcharge any more.

In short, keeping the Klamath dams would mean extremely expensive fixes for a lot less power, and a Project that would likely lose money for the rest of any new license – losses that customers would ultimately also have to make up for in even higher power rates. The "bottom line" is that it's just a lot cheaper for customers to remove these dams than to keep them. And this is completely ignoring likely economic and jobs benefits of a restored world-class salmon run, a more stable irrigation system and the many other benefits also highlighted in the DEIR.

Response to Comment ORG29-9

Please refer to Master Response ENR-1.

<u>Comment ORG29-10</u>

MYTH: "The region needs the power that the Klamath Dams provide. Without that power there will be brown-outs and other shortages of electrical supplies."— This is nonsense. When the first Klamath hydropower dams were built starting in 1918, and for a short while afterwards, they were the only source of electrical power for Klamath Falls.

But in today's much more modernized and interconnected world, the electrical power used in southern Oregon and northern California through PacifiCorp can come from anywhere within its massive, six-state power grid, and if purchased through the Bonneville Power Administration (BPA) as a power broker, from even further away.

The reality is that all four Klamath dams combined do not generate very much power. Although the whole Klamath Hydroelectric Project is technically rated for maximum power generation of about 171 megawatts (MW), these dams cannot run at maximum capacity 24/7, especially during summers when turbine flows are lowest.

The entire Klamath Hydropower Project combined actually generated only about 82 MW of power on average over the past 50 years of its license, according to FERC records. This amounts to less than 2% of PacifiCorp's overall power production capacity. By comparison, a single modern electrical power plant can continuously generate 1,000 MW or more, and a single off-the-shelf windpower turbine is rated for power production up to 6 MW.

Response to Comment ORG29-10
Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG29-11
MYTH: "Replacing the power the dams create will increase carbon emissions from the resultant use of carbon generating electric production facilities."

PacifiCorp has no reason and no intention to replace the renewable power from the dams with anything other than more renewables. There is no reason whatsoever that any replacement power would have to be from coal or other CO2-generating sources. There are also strong public policies and economic incentives driving PacifiCorp to divest itself of coal-fired plants generally, which it is in the process of doing, and replacing that energy with carbon-free renewables.

As to replacement power, when Pacific Power was bought by Berkshire-Hathaway in 2005, the Company legally committed to bringing more than 1,400 MW of brand new, cost-effective non-carbon renewable power online by 2015. This is already 17 times more electrical power than the four Klamath dams generate all together. In fact, it has considerably exceeded that goal.

For a company of PacifiCorp's size and expertise, adding a mere additional 82 MW of cost-effective and clean replacement power to its grid after 2021, as it *intends to do under the KHSA, would be an almost trivial task by comparison. It is fair to say that the company has already done so many times over.*

There are many options for the replacement of this power from comparable carbon-free or renewable sources by 2020. The DEIR correctly makes this very clear, as well as factors in the net reduction of the greenhouse gas methane (CH4) from elimination of the reservoirs that emit this other greenhouse gas, which is 28 times more effective as a greenhouse gas than CO2, although shorter-lived in the atmosphere:

"In 2017, PacifiCorp issued an Integrated Resource Plan (IRP) identifying the preferred power generation portfolio over the next 20 years. The IRP indicates that PacifiCorp plans to meet new energy resource needs primarily through new renewable resources and demand management (e.g., energy efficiency measures) over the 20-year (2017–2036) planning horizon. The IRP includes the anticipated loss of Lower Klamath Project hydroelectric generation beginning in 2020. The preferred portfolio also identified a reduction in coal capacity of 3,650 MW through the end of 2036. PacifiCorp projects that between 2017 and 2036 its average annual CO2 emissions would be reduced by 24.5 percent falling from 43.8 million tons in 2017 to 33.1 million tons in 2036 representing an annual average reduction in CO2 emissions of 10.7 million tons (PacifiCorp 2017b).

"Removal of the reservoirs associated with the Lower Klamath Project dam complexes would also result in a reduction in methane (CH4) production. As previously described, CH4 emissions from the reservoirs range from 4,000 to 14,000 MTCO2e per year. Under the Proposed Project, these CH4 emissions would cease to be a factor and would further reduce GHG emissions beyond the projections in the PacifiCorp 2017 IRP.

"Since it is planned in the 2017 IRP for PacifiCorp to add new sources of renewable power or purchase RECs to comply with the California RPS, and removal of the reservoirs would result in a reduction in methane production, it is not anticipated that the replacement of the hydroelectric energy from the Lower Klamath Project dam complexes would result in an increase in GHG emissions from non-renewable power sources. As such, GHG impacts from replacement of the hydroelectric energy from the Lower Klamath Project dam complexes is determined to be less than significant." [DEIR 3-728, 729]

Response to Comment ORG29-11

Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG29-12

MYTH: "Water will be taken away from farmers because taking down the dams will destroy irrigation systems."—The reality is that removing the dams will have *no effect whatsoever on the irrigation system of the federal Klamath Irrigation Project in Klamath and parts of Modoc and Siskiyou Counties. That extensive irrigation system is fed directly from Upper Klamath Lake by diversions at Link River Dam or (in small portion) by numerous small systems allowing direct pumping from the reservoir above Keno Dam, or from Gerber Reservoir, which has no hydrological connection to the Klamath River. That entire federal irrigation systems is hydrologically well above the four PacifiCorp Klamath hydropower dams, and so removal of those dams will not affect the federal Klamath Project water delivery system hydrologically above it in any way.*

There are only a handful of riparian water users along the river below the dams, some of whose existing pumps might be affected by sediments coming down from dam removal on a very short-term basis, but this is only a very few people and those impacts can be readily mitigated through appropriate filtering systems, if they occur at all.

As to the impacts of removing the dams on lower river irrigation flows, the DEIR correctly points out that these impacts would be minimal to zero, as explained as follows:

"Using historical flow data to create a set of flows under future operational prescriptions, USBR (2012) compared modeled surface water flow rates at Iron Gate Dam under the Proposed Project to a dams-in scenario. Modeling results indicate that under the Proposed Project, average monthly flows in the Klamath River just downstream of Iron Gate Dam would only slightly increase or decrease (typically less than approximately 15 percent) depending on month and water year type, compared to existing conditions. The anticipated small relative changes in Klamath Rivers flows are due to the fact that the Lower Klamath Project reservoirs were not designed, nor are they operated, as seasonal storage reservoirs for maintaining downstream flows for irrigation or drinking water diversions. As a whole, the Lower Klamath Project is primarily operated as a run-of-the-river operation, with inflows essentially matching outflows below Iron Gate Dam. Thus, the Lower Klamath Project has only a small effect on daily, monthly, seasonal, or annual flow conditions downstream of Iron Gate Dam. USBR (2012) modeling results indicate that at Seiad Valley, approximately 62 river miles downstream of Iron Gate Dam, surface water flow rates under the Proposed Project would be nearly identical to those under existing conditions." [DEIR 3-677]

Response to Comment ORG29-12

For additional information regarding water supply for agricultural irrigation as analyzed in the EIR, please refer to Master Responses WSWR-1, as well as Volume I Potential Impact 3.8-1 for a discussion of the effect of dam removal on availability of water for diversion and Volume II Appendix M for a discussion of water rights.

Comment ORG29-13

MYTH: "There has been no analysis of the economic damages to Siskiyou County, Modoc County, or other adjacent and directly impacted counties."—This is another obvious factual error. Not only does this DEIR analyze in depth the public service, population and housing, social services and other socioeconomic impacts of the Proposed Project on these counties and their regions, but there are numerous studies of these impacts that were part of the original NEPA/CEQA (2013) analysis done to inform the Secretarial Decision.

Potential impacts on the property values of landowners around Copco Lake and Iron Gate Reservior, potential county property tax revenue changes and other similar economic impacts have all been thoroughly studied and those impacts are well-known. This includes studies of real estate values around the lakes, as well as potential property tax impacts and estimates.

Dozens of these studies are available on the official Klamath Dams web site at: www.klamathrestoration.gov, and specifically from the following link: https://klamathrestoration.gov/keep-me-informed/secretarial-determination/role-of-science/secretarial-determination-studies.

Many of these socioeconomic impacts, however, as noted in DEIR Sec. 5-4, are simply outside the jurisdiction of the State Water Board in that they have nothing to do with water quality impacts per se, as well as are outside what are considered "impacts to the environment" to be considered under CEQA. Those that were deemed within the scope of CEQA were considered in detail in DEIR Sec. 5-4 and elsewhere throughout the document.

Response to Comment ORG29-13

Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential economic costs and benefits, including for commercial fishing and local real estate, of dam removal.

Comment ORG29-14

MYTH: "The data from the former EIS/EIR process for the Secretarial Determination is either too old, or too unreliable, to use in the current DEIR analysis."—Dozens of detailed studies were done in preparation for the NEPA/CEQA (2013) analysis and the then-planned Secretarial Determination. Those studies are all still highly relevant to this 2018 DEIR, and were also subjected to reconsideration by the authors of the 2018 DEIR as to whether any significant changes had occurred, including new information if any. Most of those studies are still quite accurate, and still represent the best available science.

Then too, the original studies for the NEPA/CEQ (2013) process were not only peer-reviewed once, but peer-reviewed a second time by Independent Panels of experts, and then the Secretarial Determination those studies were summarized into was itself later independently peer-reviewed once again. The end result was a robust three distinct levels of independent peer-review to check, double-check and cross-check the conclusions of those studies.

SCWUA frequently cites the concerns about information bias in the Secretarial Determination process raised in allegations in February, 2012, by Dr. Paul Hauser, which became a cause célèbre among dam removal opponents, but SCWUA deliberately neglects to note that those same claims were thoroughly investigated by the Inspector General of the Department of Interior, which commissioned a highly credible, independent scientific review committee that reviewed Dr. Hauser's allegations and unanimously found in its findings report of August, 2012, that there was no substantial merit to Dr. Hauser's accusations of scientific bias in the Secretarial Determination NEPA/CEQA (2013) review or press release process.

Response to Comment ORG29-14

Regarding the use of data compiled for the 2012 Klamath Hydropower Settlement Agreement (KHSA) Environmental Impact Statement (EIS)/ Environmental Impact Report (EIR) analyses in the Lower Klamath Project EIR analyses, please refer to Master Responses WQ-4 and AQF-12. Please note that during the Lower Klamath Project Notice of Preparation public comment period, the State Water Board heard concerns regarding the whistleblowing accusations of Dr. Paul Houser as related to the 2012 KHSA EIS/EIR. After hearing these concerns, the State Water Board staff reviewed the independent investigative panel report regarding Dr. Houser's whistleblower complaint, which indicates that the concerns were related to disagreements on how to present uncertainty in scientific data, rather than about the data or scientific analysis itself. (RESOLVE, 2012 - *Independent Investigation of the Scientific Record Pertaining to the Allegations of Dr. Paul Houser.*) Ultimately, the panel determined that Mr. Houser's complaint did not have merit.

Comment ORG29-15

The DEIS Executive Summary at E-7 discusses the current plan for dealing with Iron Gate Hatchery production under the Proposed Project as follows:

"Fish Hatcheries—During demolition, some Iron Gate Hatchery facilities located at the base of Iron Gate Dam would be removed, along with the cold-water supply and aerator for the hatchery. However, operational components of Iron Gate Hatchery would be retained and modified to continue operations at a reduced rate for just Chinook salmon and to eliminate coho salmon production. The nearby Fall Creek Hatchery, located at Fall Creek just upstream of Iron Gate Reservoir, would be reopened to maintain the current Iron Gate coho salmon production and some Chinook salmon production. The Iron Gate and Fall Creek

hatcheries would remain in operation for eight years following removal of the dams, at which point the hatcheries would cease operations."

It is also the case that Iron Gate/Fall Creek hatchery production need not necessarily cease at the end of 8 years after dam removal has been fully accomplished, only that the promised PacifiCorp funding for that production would cease. At the end of that 8-year PacifiCorp funding term, the reconstructed Iron Gate and Fall Creek Hatcheries should be left in a condition to continue production if that is decided upon by CDFW, based on conditions in the river and the rates of recolonization and associated natural production recovery progress.

We do NOT SUPPORT the "No Hatchery Alternative" in any form. The DEIS notes that under the "No Hatchery Alternative":

"While natural-origin returns typically outnumber hatchery returns, the proportion of the Chinook salmon escapement comprised of Iron Gate Hatchery returns has historically been substantial (~35 percent of age 3 adults; KRTT 2011, 2012, 2015). Eliminating the hatchery goal of releasing around 6 million Chinook salmon smolts and yearlings annually would likely result in a reduction in adult hatchery returns to the Klamath River.....

"Based on historical data (CDFW 2016b), the reduction in returns could average around 16,000 fish beginning in post-dam removal year 3, as the population responds to the benefits of dam removal. Based on the current proportion of hatchery adults in the run, this could represent a short-term reduction in abundance of around 35 percent of age 3 adults on average until production from newly accessible habitat increases adult escapement (anticipated to begin in dam removal year 3, Table 4.6-1). However, depending on the year, the reduction could be as high as 50 percent (the proportion of hatchery return adult spawners in 1993 for example), or as low as 19 percent (the proportion in 1995) (KRTT 2015). [DEIR 4-306, 307]

This alternative would amount to a huge spawner deficit for several years running until natural production could infill into restored habitat, which could take several fish generational cycles to accomplish, especially in the absence of human intervention such as egg out-planting efforts.

There is already a serious, long-term fall-run Chinook spawner deficit affecting the river (see ATTACHMENT B – Klamath Fall-Chinook Escapements (1998-2012)) and an unacceptably high risk of future fall-run Chinook stock extinctions as a result, particularly of the weakest sub-stocks.

It should be noted that historically (i.e., before European colonization and development) the Klamath River is estimated to have produced an average annual 500,000 fall-run Chinook. Today (as seen from ATTACHMENT B) *fisheries managers are hard pressed to assure that the Pacific Fishery Management Council's (PFMC) fall-run Chinook escapement "minimum spawner floor" of 40,700 natural spawners can be met. Suddenly subtracting all hatchery production from the system would simply increase the pressure on the already extremely weakened natural stocks, at least in the short term, from natural predation and other natural mortality factors as well as fishing pressures.*

It is argued in the DEIR that:

"The impact of a reduction in the number of hatchery returning fish is not equivalent to a reduction in the natural-origin population, from a population perspective..... As discussed in detail in Section 3.3.2.3 Habitat Attributed Expected to be Affected by the Proposed Project [Fish Hatcheries], hatchery returning adults can have substantial detrimental effects on native populations. As such, a reduction in hatchery returns under this alternative would be a benefit for fall-run Chinook salmon over the long term. [DEIR 4-307]

However, since our industry is highly dependent on the health of Klamath River fish production generally (both naturally and hatchery generated), and is also highly dependent on hatchery stocks generally, it is our strong preference that the Iron Gate/Fall Creek hatchery complex phase down its production only as natural spawner production increases in areas now blocked by dams. In other words, some proportionality should be maintained between recolonization success with recovery of natural production and reduced hatchery production. This recolonization process may take more than 8 years to complete, and it should be acknowledged that the original 8-year estimate was at most merely an educated guess.

In short, river conditions and real-time salmon recolonization success rates should dictate the hatchery production phase-out time frame, not arbitrary deadlines. And since these factors are by their nature unknown in advance (only estimated), the Hatchery Management Plan (HMP) and CDFW should maintain some flexibility as to the termination dates and phase-out plans for the Iron Gate/Fall Creek hatchery program. Otherwise both our industry and the entire Klamath River salmon-based ecosystem could face abrupt fall-offs in Klamath spawner numbers that would require major adjustments in fisheries management by the Pacific Fisheries Management Council (PFMC) and could cause severe and unexpected disruptions in harvestable salmon availability, including potential coast-wide, at-sea salmon fishery closures that could devastate coastal fishing-dependent communities. The sudden and major loss of between 35% and 50% of all fall-run Chinook spawners from the river would also doubtless have cascading negative impacts on the river's natural salmon-based ecosystems as well.

One simple principle for decreasing the problem of negative hatchery-natural stock interactions, particularly with respect to the problems of hatchery fish *interbreeding with and thus truncating or diluting the natural genetic diversity that fish evolved for survival, is noted in the DEIS as follows:*

"Although eight years of additional hatchery production under the Proposed Project is anticipated to achieve the production levels predicted by the EDRRA model sooner than without continued hatchery production, immediate closure of Iron Gate Hatchery and no production at Fall Creek Hatchery would eliminate most interbreeding of hatchery and natural-origin salmon by post-dam removal year 3, and would likely increase the rate at which Chinook salmon develop traits adapted to their new habitats upstream of Iron Gate Dam (Goodman et al. 2011). This could increase survival of natural-origin Chinook salmon at a faster rate than with continued hatchery operations under the Proposed Project. <u>Goodman et al. (2011) note that this effect would depend, in part, on the degree to which local Chinook salmon stocks have been integrated into the hatchery brood stock and the degree to which the current mixed hatchery and natural-origin spawning population has maintained genetic potential for life history diversity to adapt to conditions upstream of Iron Gate Dam</u>." [DEIR 4-307 – underline added for emphasis]

In short, the Hatchery Management Plan (HMP) for the Klamath mainstem post-dam hatchery system should continue the CDFW's mandate for utilizing only the native wild (natural) fish gene pool as the broodstock for its hatchery program, thus maximizing the gene pool and life history diversity of these salmonids (both natural and hatchery in origin) from all sources that evolved to face Klamath river conditions. Any incidental interbreeding would then simply spread the same genes more widely into the population, increasing – rather than decreasing – overall population resiliency and survival rates.

On no account should non-native stocks be used for hatchery broodstocks. Assuming this policy remains in place, there is no particular advantage to a "no hatchery alternative" so far as avoiding natural-hatchery interbreeding is concerned, and the Proposed Action is clearly better insofar as it will hasten the achievement of full recolonization of those released habitat areas above the dams in line with the EDRRA model. Additional salmon habitat restoration efforts also linked to dam removal mitigation mandates would also be expected to increase river carrying capacity for salmonids generally, thus to reduce inter-fish competition as well as to encourage faster recolonization of currently blocked areas.

As to the potential for the reduction of fish diseases (particularly C. shasta) within the river system, the Proposed Alternative and the No Hatchery Alternative are likely to be equally effective, as both will be accompanied by dam removals which will then not only restore spawning gravel to gravel-deprived areas, but would restore natural annual "flushing flows" considered necessary to mobilize and scour out and thus greatly reduce in-river habitat for the C. shasta polychete worm that is its primary disease vector.

Response to Comment ORG29-15
Section 15126.6 of the CEQA Guidelines requires that an EIR describe and evaluate a reasonable range of alternatives to the project, or to the location of the project, which could feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant environmental effects of the project. As stated in Volume I Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis* (specifically page 4-6), the No Hatchery Alternative emerged from scoping concerns regarding the water source for the Iron Gate Hatchery, and in light of uncertainty regarding whether the Fall Creek Hatchery (FCH) could be timely reopened. The effects of the No Hatchery Alternative on adult returns of fall-run Chinook salmon (the target of commercial fishing efforts) are described in Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* Potential Impact 3.3-7 (pages 4-306 to 308). Please also note that Potential Impact 3.12-9 and Section 4.7.12 *Historical Resources and Tribal Cultural Resources* discuss the potential effects on fish availability for tribal harvest under the Proposed Project and under the No Hatchery Alternative, respectively. Please also refer to Master Response AQF-2 regarding the fate of hatchery operations under the Proposed Project and alternatives.

<u>Comment ORG29-16</u>
We concur with the DEIR finding (Sec. 5.4.1.1) of both severe economic impacts on the coastal ocean salmon fisheries and the communities those fisheries support as a result of the Klamath dams' impacts on river salmon productivity, and the conclusion of the DEIR that the Proposed Project (i.e., 4-dam removal) will greatly benefit these salmon fishing-dependent communities, as for instance these summaries:

- *Coastal ocean fishing-dependent communities have suffered severe economic impacts due to decreases in fish numbers and related harvest limitations. USBR (2012) identified that the removal of four dams and facilities would result in notable positive regional economic benefits to commercial troll fishing of SONCC coho and Klamath River fall- and spring-run Chinook salmon." [DEIR 5-5,6]*
- *"… dam removal would advance the long-term restoration of natural fish populations in the Klamath Basin, including having a significant beneficial effect on commercial fisheries and an associated significant beneficial economic impact on the coastal commercial fishing industry." [DEIR 5-7]*

As an indication about just how dire decades of Klamath-driven declines and closures have become for the economies of once-prosperous Klamath Management Zone (KMZ) fishing ports, refer to ATTACHMENT C—Declines in KMZ Port Salmon Landings Between 1976-2017. As compared to historic landings for the average of the years 1976-1980 vs. The average of the years 2010-2017, the Port of Eureka has suffered a 96% long-term decline and the Port *of Crescent City has suffered a staggering 98% long-term decline in salmon landings.*

The primary driver of these declines has been the persistent trend of decreasing salmon productivity in the Klamath Basin (see ATTACHMENT B), which in turn has been strongly driven by the enormously negative impacts of the Klamath Dams on salmonid production generally.

Response to Comment ORG29-16
Comment noted.

Comment ORG29-17
We believe that there is overwhelming evidence in the record that the Proposed Project four-dam removal and the restoration of salmonids in the Klamath River back into their historic habitat will result in far more benefits and improvements in overall water quality of the river, as well as restoring the beneficial uses of restored fisheries and wildlife, than any other option. Furthermore, the short-term (mostly 2-years) of disturbance in the system will be well worth the much greater and long-term benefits, particularly since the adverse effects of those short-term impacts can and will be considerably mitigated. We are in agreement with the DEIR support the issuance of the 401 Certification with the current reasonable conditions proposed, and as proposed to be amended by the KRRC comments and our comments herein.

This concludes our supplemental written comments at this time. Thanks for the opportunity for public input, and please make this letter part of the record.

Response to Comment ORG29-17
Please refer to Master Response GEN-1.

PacifiCorp Energy, Tim Hemstreet, Mark Sturtevant

Comment ORG46-1
PacifiCorp fully supports the KHSA as a balanced outcome for its customers, so long as all of the customer protections embodied in the agreement are achieved. Successful settlement implementation will facilitate the policy preferences of the federal government, the states of California and Oregon, Klamath Basin Tribes, and other stakeholders. From the outset, PacifiCorp has consistently held that its customers must be protected against the unknown costs and risks of implementing these policy preferences, and the liability and indemnification provisions of the KHSA were expressly negotiated to accomplish these protections. PacifiCorp remains committed to securing these protections for its customers and continues to work with the KRRC to ensure that adequate protections are in place to satisfy this foundational requirement.

Because the Draft EIR is a critical waypoint for public input and engagement about the full range of potential environmental effects that may result from *removal of four of the dams on the Klamath River, it is important to provide a deeper perspective and context for these comments to the Board. As noted by the Klamath River Expert Panel in its 2011 report on the effects of dam removal on Chinook salmon, Klamath dam removal " is an experiment in that many of the outcomes are difficult to predict, particularly those of greatest interest to stakeholders (e.g., increasing abundance of Chinook salmon)."2 This experiment has been long-advanced by certain stakeholders who believe that dam removal is the only option for improving salmonid fisheries and water quality in the Klamath River. Unprecedented in size, scope, and potential impact, the project involves drawing down three expansive reservoirs, discharging millions of cubic yards of sediment, impacting 225 miles of river within and downstream of the project, and ending hatchery programs that currently conserve listed Coho salmon and support harvest opportunities for Chinook salmon. The project will have significant near-term impacts to these important species, and the hope of the KHSA is that any significant impacts will be outweighed by long-term benefits.*

Dam removal is inherently risky, but the depth of uncertainty around the potential outcome of Klamath dam removal makes this action extraordinary. Some stakeholders have embraced the idea that dam removal will result in overall benefits to the river, while other stakeholders have expressed deep concern about the costs and risks of such an endeavor. Without doubt, this proceeding will highlight this divide and bring the underlying perspectives and analysis of each stakeholder group to the forefront. For PacifiCorp, comprehensive liability protection and indemnification is essential to support prudent utility decision-making. The KHSA's cost cap and liability protections are also central to our utility regulator's authorization for PacifiCorp to participate in the settlement process and collect $200 million in customer funds for dam removal. Without the negotiated protections of the KHSA, ultimate liability and risks from dam removal could likely fall upon PacifiCorp's customers.

Background on KHSA and PacifiCorp Customer Protections

Dam removal on the Klamath River is natural-resource-management decision that PacifiCorp, as a regulated utility, is unwilling to undertake because of the substantial risks and uncertain benefits. PacifiCorp' s perspectives are informed by our past experience addressing fish passage requirements and water quality improvements through new project licenses. This does not mean that PacifiCorp disputes that dam removal may have positive effects on the river. It simply means that the outcome is unknown, the risks are high, and that it would be imprudent to expose PacifiCorp's customers to such far-reaching risks for an uncertain outcome.

Minimizing customer risk was PacifiCorp' s primary goal in joining the original KHSA in 2009 and the amended KHSA in 2016. Faced with the unknown costs and risks associated with obtaining a new Federal Energy Regulatory

Commission (FERC) license for the project, PacifiCorp agreed to support the dam removal project embraced by California, Oregon the federal government, Klamath Basin Tribes, and other stakeholders, as long as four key principles were met: (1) PacifiCorp would transfer the dams to another entity responsible for their removal; (2) our customers' financial contribution to dam removal would be capped; (3) our customers would be protected from the potentially significant liabilities associated with dam removal and its potential known and unknown consequences; and (4) PacifiCorp would continue to operate the dams for the benefit of its customers until the facilities were decommissioned. These principles are bedrock anchors for PacifiCorp' s support of this endeavor and well-known to all KHSA signatories.

Over the past three years, PacifiCorp has worked closely with the KRRC and our other settlement partners to advance the KHSA. The KRRC' s efforts have produced noteworthy progress, but significant uncertainties remain—particularly for PacifiCorp's customers. FERC has yet to approve PacifiCorp and the KRRC's joint license application to transfer the license for the four facilities that are planned to be removed to the KRRC. That approval is a critical component of the KHSA and constitutes a key customer protection for PacifiCorp. FERC must determine that the KRRC has the financial, technical, and legal capacity to become the licensee, and FERC has stated that it will apply a heightened public-interest standard to that determination due to the unique nature of this endeavor. The KRRC is scheduled, on April 29, 2019, to provide FERC with revised cost estimates, a detailed insurance and risk-mitigation package, and the plan to address costs and liabilities that exceed the $450 million in funding available under the KHSA. After receiving this information, FERC may be in a position to rule on the request to transfer the license.

The KRRC also has yet to satisfy certain contractual preconditions to license transfer that protect PacifiCorp and the states of California and Oregon. Most importantly, KRRC must demonstrate that it has adequate funding to complete the project and that it has the capacity to fulfill its obligation to indemnify PacifiCorp and its customers. Central to both the cost and indemnification determinations is KRRC's ability to contract with a liability transfer company (LTC) consistent with KHSA Appendix L. The LTC is a cornerstone of obtaining FERC approval of the application to transfer the license for the Klamath dams to KRRC, so that KRRC can proceed to surrender the license and remove the dams. The LTC will provide a critical financial buffer if dam-removal costs or liability claims exceed the fixed funding available under the KHSA by providing assurances to all stakeholders in this process that a capitalized entity will support the KRRC to respond to potential unforeseen consequences or costs. PacifiCorp expects that our determinations under KHSA Section 7.1.4 will be reviewed by our state utility regulators in Oregon and California to determine whether PacifiCorp's decisions are prudent and in our customers ' best interest.

Compliance with California Environmental Quality Act

The Draft EIR is critical in furthering the work the settlement partners are performing. The Draft EIR is intended to provide the Board and the public, including the KHSA signatories, FERC, and other regulators with a transparent and accurate accounting of potential project impacts. From that accounting, the Board can determine whether to issue or deny a Clean Water Act section 401 Water Quality Certification for the dam-removal project, and what conditions should be imposed on the project to avoid or mitigate significant environmental impacts associated with that decision. The DEIR will also inform the settlement parties about how best to manage risk, and it will help our utility regulators evaluate whether the continued collection of funds from our customers is prudent in light of how customer risks are proposed to be mitigated. And the DEIR will aid FERC to evaluate whether license transfer and dam removal are in the public interest. Ultimately, flaws in the Draft EIR's analysis that confuse, minimize or inaccurately portray existing conditions and potential significant impacts will compromise successful KHSA implementation and dam removal.

While PacifiCorp cannot justify bearing the risk of dam removal, resource agencies—like the Board—can certainly elect to approve a project despite uncertain outcomes or significant risks. But before determining that the risks and significant environmental impacts of dam removal are worth the potential benefits, a factually and legally accurate environmental impact report must be developed, and the Board may be required to adopt a statement documenting why the project should be approved despite significant unmitigated environmental impacts. And the environmental impact report should be based on the most current and best available scientific information. Indeed, the fundamental purpose of CEQA is not to guarantee that significant impacts will not occur from a project, but rather to require an accurate and thorough assessment of potential impacts and uncertainties associated with a project so that agency decision-makers and the public can be properly informed.

In that context, PacifiCorp has taken a hard look at the Draft EIR in an effort to ensure that it is factually accurate and legally sufficient because, as noted above, any technical or legal shortcomings put KHSA implementation and ultimate dam removal at risk. PacifiCorp' s concerns are informed by its long- standing involvement in the Klamath basin as the operator of the Klamath Hydroelectric Project, and reflect our long-standing understanding of the risks and uncertainties associated with dam removal. While our comments are informed by new information, they are consistent with our previous comments on the 2011 U.S. Department of the Interior and California Department of Fish and Game Klamath Facilities Removal Public Draft Environmental Statement/Environmental Impact Report. Once again, our comments have consistently focused on ensuring that the impacts of our facilities are accurately assessed, and the benefits and risks of dam removal and alternatives are accurately portrayed so that agencies can make informed decisions the public is aware of the risks and benefits associated *with a major natural resource action, and PacifiCorp can ensure that its customers are protected from risks that are transparently acknowledged.*

The issues we identify in our attached comments must be addressed to ensure the final EIR and water quality certification are legally justified and defensible. As detailed in our technical and legal comments, the Draft EIR does not meet the requirements of CEQA. Critically, it relies on outdated data, inaccurately evaluates the impacts of sediment discharges and minimizes impacts to listed species while also overstating adverse impacts related to continued operation of the Klamath Hydroelectric Project. Our comments are intended to inform and improve the environmental ana lysis contained in a revise d and recirculated Draft EIR, and further the KHSA signatories' efforts to successfully fulfill all of the conditions of the KHSA.

Response to Comment ORG46-1

Thank you for your comment. As PacifiCorp states in this comment, this cover letter is introductory to more specific comments attached. To the extent this cover letter includes topics that warrant further response, these are addressed in responses to the more detailed following comments, ORG46-2 through ORG46-516.

Comment ORG46-2

Recent field monitoring data (MKWC2016, 2017, 2018; Chesney and Knechtle 2017; Knechtle and Chesney 2017), indicates that the Coho population upstream of Portuguese Creek (including the Scott and the Shasta rivers) is extremely small; perhaps less than 1,000 adults in most years, which is well below the risk thresholds associated with abundance set by NMFS (2014) in the Recovery Plan. While adults mainly spawn in the tributaries, some do spawn in the mainstem Klamath River, and any deposited eggs in the mainstem will die as a result of sedimentation within the spawning areas (see Waters 1995; Quinn 2005) the year dams are removed (See Major Issue 2.4). Juvenile Coho use the mainstem throughout the year (Soto et al. 2016b; Man hard et al. 2018), both for rearing in cool-water and low velocity refuge habitat, and as a movement corridor from natal to non-natal habitat.

The few adult Coho that spawn in the tributaries in turn produce relatively few juveniles. In some streams and in some years, approximately 25 percent of the rearing juveniles will leave the tributary for the mainstem in the winter (Soto et al. 2016b; Manhard et al. 2018). Juvenile Coho moving into the mainstem Klamath River will be subject to increased direct mortality rates, decreased fitness and condition, and likely will be more susceptible to disease. These fish would suffer increased mortality (20–40 percent according to Appendix Table E-10 (DEIR pg. E-36) from high suspended sediment concentrations generated by reservoir drawdown. The DEIR assumes these fish will not leave the tributaries or, if they do, will find refuge in cleaner-water inflows along the mainstem; however, the DEIR does not acknowledge that these cleaner-water areas will be crowded with *fish from the entire river also seeking refuge, nor does the DEIR discuss the corresponding impacts to juvenile Coho from competition or direct predation. If Coho survive to rear in these conditions, these factors could reasonably be expected combine to create juvenile Coho in relatively poor body condition (Ebersole et al. 2006; Weybright and Giannico 2018), which will in turn reduce their survival rate in the ocean (Gorman 2016).*

Iron Gate Hatchery currently operates under a Hatchery and Genetics Management Plan (CDFW and PacifiCorp 2014) that supports an integrated conservation program for Coho Salmon listed as threatened under the Endangered Species Act. Dam removal and associated impacts to Iron Gate Hatchery will likely end this support of the Coho populations. While there is funding for 8 years of continued hatchery operations included in the Klamath Hydroelectric Settlement Agreement (KHSA) under Interim Measure 19, the relocation of the program from Iron Gate Hatchery to Fall Creek and lack of an identified funding source 9 years after dam removal creates uncertainty regarding the ability of hatchery releases to continue to support this population. Currently, an average of 50 percent of the Coho spawning naturally in Bogus Creek and the Shasta River are Iron Gate Hatchery fish (Chesney and Knechtle 2017; Knechtle and Giudice 2018a). When these population are no longer supported by hatchery releases they are likely to dramatically decrease in size. There is no analysis in the DEIR that evaluates the impact of the loss of this hatchery program on Coho populations.

The Proposed Project would add additional stress to outmigrating juveniles; however, the DEIR fails to indicate what this means in terms of the population. The population of Coho is small enough that even a modest increase in mortality rate (either through reduced fitness, predation, or increased susceptibility to disease) could reduce the number of returning adults. Naman and Perkins (2015) noted that on the Trinity River "...because of low population size of unmarked coho [sic] salmon, managers should take measures to limit the mortality of any new fisheries on the natural component of the run." Although this comment is focused on mortality from harvest, the rationale applies equally to the upper Klamath Coho population and mortality that will occur as a result of the Proposed Project. Because the overall Coho population in the Upper Klamath River is already very small, there is a significant and unanalyzed risk that Coho populations would not survive such a mortality event.

Response to Comment ORG46-2

PacifiCorp discusses additionally available analysis and field monitoring data on coho salmon in the Klamath River. Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* has been modified to include the new data. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* for the revisions.

PacifiCorp cites Soto et al. (2016b) and Manhard et al. (2018) to assert that the Draft EIR underestimated the potential impacts of the Proposed Project to juvenile coho salmon produced in tributaries that migrate from tributaries into the mainstem “during winter,” and thus would be susceptible to impacts from suspended sediment.

Impacts to coho salmon resulting from suspended sediment are detailed in Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* and are summarized in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts – Potential Impact 3.3-9*. The central notion of the PacifiCorp assertion is that juvenile coho salmon use the mainstem throughout the year both for rearing in cool-water and low velocity refuge habitat, and as a movement corridor from natal to non-natal habitat, based on the observations of Soto et al. (2016b). Manhard et al. (2018) does not include new observations or data, but rather draws on the results of Soto et al. (2016b) and others to describe productivity, survival, and migration patterns of coho salmon in the Klamath River Basin.

Soto et al. (2016b) describe migration of coho salmon into the “mainstem Klamath River corridor,” which refers not only to the mainstem Klamath River, but also to side channels, off-channel habitats (alcoves, ponds, and groundwater channels associated with the floodplain), and the lower reaches of small tributaries. These more protected areas of the river corridor all would provide refuge from the anticipated increases in suspended sediment under the Proposed Project. It is these refuge habitat locations that Soto et al. (2016b) documented coho salmon migrating to, whereas juvenile coho salmon rearing in the mainstem is a rare occurrence. Soto et al. (2016b) refer to the observed coho salmon in the mainstem as a “re-distribution migration,” and not mainstem rearing

The EIR assesses the impacts of suspended sediment on coho salmon juveniles that use the mainstem during winter (November 15th through February 14th), and thus this impact is accounted for in the analysis. In addition, Soto et al. (2016b) report that most of the observed re-distribution of juvenile coho salmon from natal streams to these habitats occurs during “spring, early summer, fall, and early winter,” and would avoid the predicted peak in suspended sediment in January of dam removal year 2. The most substantial numbers of migration into the mainstem are observed during spring and early summer (after the peak in suspended sediment), and an extensive re-distribution with the advent of the first fall rain events (prior to the peak in suspended sediment). It is unsurprising that coho salmon would have adapted to avoid periods of naturally high suspended sediment in the Klamath River. In addition to general migration timing, juvenile salmonids also actively avoid exposure to high Suspended Sediment Concentrations (SSCs).

Many of the migrations observed by Soto et al. (2016b) were to locations far downriver from the confluence with the Salmon River, and well within areas predicted to experience similar levels of suspended sediment to existing conditions.

PacifiCorp further asserts that juvenile coho salmon using higher water quality refugia in the mainstem Klamath River corridor would be vulnerable to the effects of increased rearing density, such as competition, predation and poor body condition. However, there is no reason to predict a substantial increase in density in refuge habitats; juvenile coho salmon and other fish are currently using these locations as refuge from seasonally poor water quality in the mainstem Klamath River, and increased migration from tributary natal streams is not anticipated. In addition, although no substantial impact on coho salmon populations is anticipated, the Klamath River Renewal Corporation (KRRC) is implementing Proposed Aquatic Resource Measure AR-2, which is designed to protect coho salmon juveniles using mainstem Klamath River corridor refuge habitat during dam removal years 1 and 2. As further described in the Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts – Potential Impact 3.3-9*, Proposed Aquatic Resource Measure AR-2 includes salvage of juvenile mainstem coho prior to reservoir drawdown, monitoring and salvage during and after dam removal, and ensuring tributary-mainstem connectivity. These actions would effectively reduce the number (and density) of coho salmon juveniles and smolts potentially exposed to periods of high SSCs in the mainstem habitat following dam removal, and therefore reduce the proportion of the population experiencing sub-lethal effects or mortality beyond what is estimated in Appendix E.3.2.3.

PacifiCorp asserts that when coho salmon are no longer supported by hatchery releases they are likely to dramatically decrease in abundance, and that there is no analysis in the Draft EIR that evaluates the impact of the loss of this hatchery program on the coho salmon population.

As described in Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (page 2-77), under the Proposed Project, the Fall Creek Hatchery (FCH) would be reopened, and both the Iron Gate Hatchery and Fall Creek Hatchery would continue to operate for a period of eight years following dam removal, with the same level of coho salmon production as under existing conditions. It is uncertain whether Fall Creek hatchery will close at that point, or whether it will continue operation in some capacity. For purposes of analysis, the EIR makes the conservative assumption that the hatchery operations will cease, as there is no concrete plan or identified funding source for continued operation.

Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* and Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* provide a detailed analysis of the effect of ending hatchery production for coho salmon after eight years under the Proposed Project. As described, available information indicates that the benefits from dam removal and cessation of hatchery operations would increase adult returns by more than the loss of hatchery progeny.

Please also refer to Master Response AQF-2 for a discussion of the assumption of hatchery closure after eight years.

PacifiCorp asserts that the Draft EIR does not analyze the population level effect of additional stress to outmigrating coho salmon smolts resulting from the Proposed Project, citing Naman and Perkins (2015) to suggest that modest increases in mortality can result in reduction in returning adults.

Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* (pages E-35 to E-38) provide a detailed analysis of the effects on the coho salmon population of short-term impacts to coho salmon rearing in the mainstem, and to outmigrating smolts. The population-level effects of the Proposed Project in the short-term are summarized in Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. The Naman and Perkins (2015) study on Trinity River fishing assessed mortality to *adult* coho salmon, and its findings are not transferrable to population level effects of stress to outmigrants.

Regarding the Portuguese Creek population and the comment's assertion regarding its risk threshold, please see response to comment ORG46-4. For additional discussion about significance thresholds, please refer to response to comment ORG46-199 and Master Response AQF-9.

Comment ORG46-3

2.1.2 Proposed Project Impacts to Coho Salmon Upstream of Portuguese Creek

The DEIR characterizes the short-term impacts from the Proposed Project on Coho as not significant with application of mitigation. There are several issues with this conclusion. The following discussion focuses solely on the DEIR impact analysis as it relates to sediment transport and does not discuss the DEIR's chosen threshold for significance (loss of 50 percent or more of the total Klamath River Coho population) or other technical issues. The purpose of the following discussion is to provide a more comprehensive overview than is provided in the DEIR regarding the existing upper Klamath River Coho populations, address impacts to these fish from suspended sediment, and clarify the uncertainty associated with the Proposed Project's impacts to Coho Salmon.

Adult Populations. The Coho population in the upper Klamath River and its tributaries is very small (Figure 1). The CDFW has maintained counting stations *on Bogus Creek, Scott River, and Shasta River consistently since 2007 (Knecht le 2019). The population trend over this period has been downward for Bogus Creek and the Shasta River. The Scott River population appears to be larger and more variable in total returns than any of the other tributaries in the upper Klamath River.*

Since 2015, the Mid-Klamath Watershed Council has conducted spawning Coho surveys of tributaries from Bogus Creek downstream to Portuguese Creek (not including the Shasta and Scott rivers). Of the 15 streams surveyed annually, Coho are reliably found only in Horse Creek and Seiad Creek with the occasional fish or two in other streams. Over the 4 years these surveys have been conducted, on average there appear to be about 191 natural-origin Coho per year using these tributaries (MKWC 2016, 2017, 2018, preliminary 2019 data).

Coho return data for Iron Gate Hatchery is available since the hatchery started operating in 1962 (Figure 2). While the long-term average Coho return is 985 fish, this data also illustrates the variable nature of Coho returns over the years. Since 1962, there are only 4 years with more than 2,500 Coho returning to the hatchery, but 13 years with fewer than 250 Coho (Figure 2). Although the last 4 years have seen a gradual increase in adults (Figure 2), it is too soon to tell if this will continue, especially because a similar trend is not apparent in the downstream tributaries.

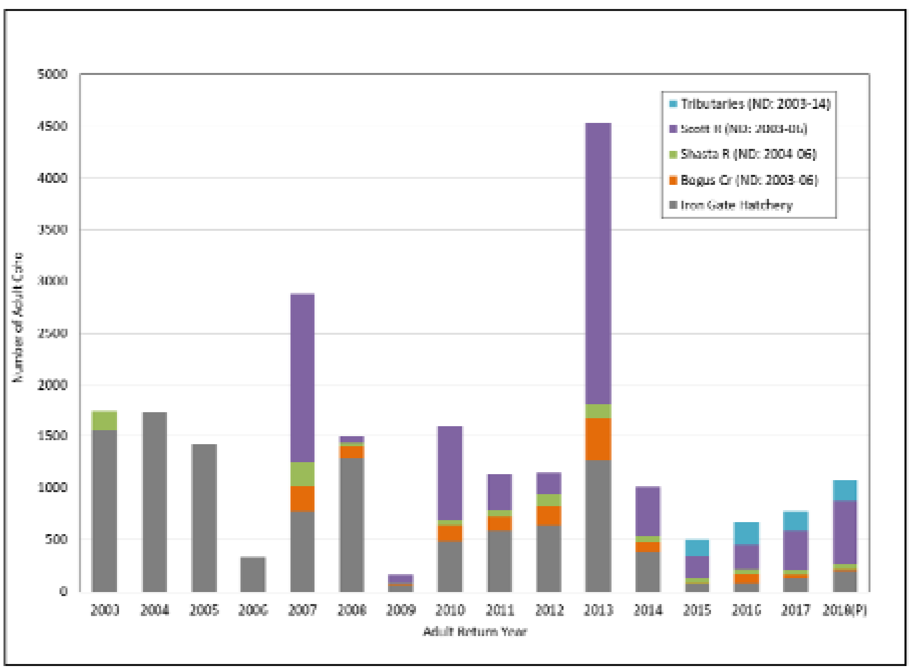


Figure 1. Adult Coho returns to the Klamath River and tributaries upstream of Portuguese Creek. (2018 data is preliminary, Data from COFW 2018b, Knechtle 2019).

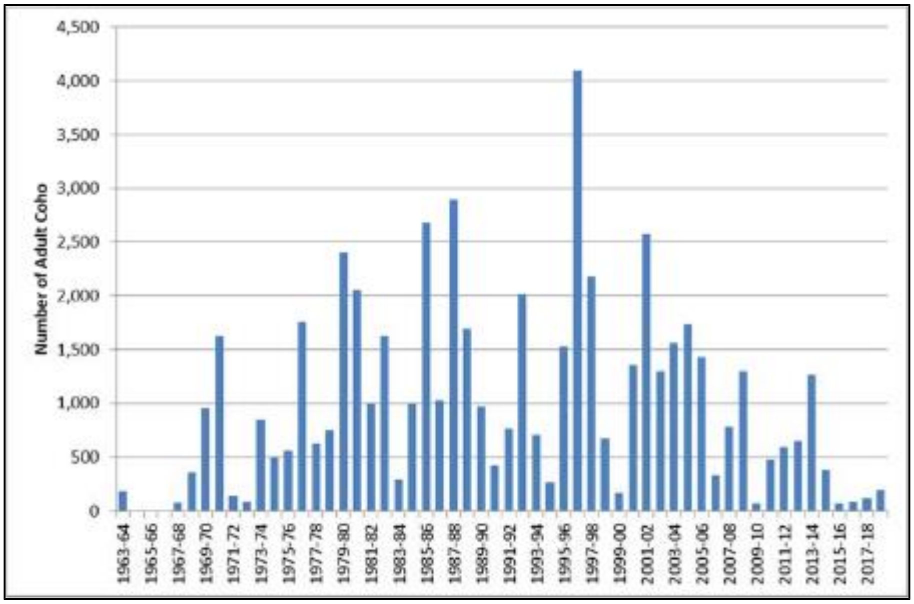


Figure 2. Adult Coho Returns to Iron Gate Hatchery on the Klamath River, 1962 through 2019 (CDFW 2018b).

Juvenile Populations. Juvenile Coho are found in the mainstem Klamath River and its tributaries throughout the year (Soto et al. 2016). Coho spend about a total of up to 18 months in freshwater (from emergence to outmigration) before they migrate to the ocean. During this period, they can exhibit any of several life history patterns. Some spend that entire time in one stream, others move from a creek into the mainstem Klamath River for a while sometimes moving back into the same creek or another stream as river conditions dictate. Still others move into the Klamath River, distribute downstream, and then move into non-natal rearing habitats (creeks, off-channel ponds, groundwater springs, etc.). Soto et al. (2016) indicate that the Klamath River provides important habitat for juvenile Coho throughout the year; during the summer periods this use is likely limited to refugia habitats in or adjacent to the mainstem river. Of particular note for the Proposed Project are the spring and earl y winter redistributions of juvenile Coho from natal streams to non-natal rearing habitat. Soto et al. (2016) hypothesized that juvenile Coho that leave rearing habitat in mid-winter are in search of higher-quality habitat, but are not prone to make long-distance movements.

Response to Comment ORG46-3

PacifiCorp provides a summary of data on coho salmon in the Klamath River upstream of Portuguese Creek. PacifiCorp discusses adult coho salmon return data for Iron Gate Hatchery (CDFW 2018d) that is not included in Section 3.3 *Aquatic Resources*; however, this data is very similar to what was included in Section 3.3 *Aquatic Resources* (CDFW 2016b). Additionally, the natural-origin coho salmon return data to tributaries from Bogus Creek downstream to Portuguese Creek does not change the EIR's analysis of potential impacts to coho salmon due to increased suspended sediments due to the fact that very few coho salmon are expected to spawn in the Klamath River (0-13 redds). This additional information is included in the record, but not added EIR analysis because it does not differ substantively from the data that are already included and discussed, and therefore would not change the analysis, or conclusions of the EIR.

Comment ORG46-4

2.1.3 Coho Mortality from Suspended Sediments

Mainstem Spawning Adults. Even though most Coho spawn in the tributaries, those fish that do spawn in the mainstem would suffer 60-80 percent mortality from sediments mobilized by the Proposed Project (DEIR pg. 3-318). This is up from 20–40 percent present under existing conditions–a 40 percent increase in the mortality rate that is solely attributable to the Proposed Project. Granted this is a small number of individual Coho, perhaps a couple of dozen fish, but the mainstem population could make up about 14 percent of the total population between Portuguese Creek and Iron Gate Dam assuming the average population is about 191 Coho as has been recently documented (not including Bogus Creek) (Table 1). While suspended sediment may kill an added 40 percent of the adults, it is reasonable to expect suspended sediment concentrations would kill 100 percent of the eggs and alevins (newly hatched fish) from mainstem spawning Coho. The DEIR discounts these adult Coho as hatchery fish that did not migrate all the way to the hatchery. That may be the case, but the Iron Gate Hatchery is managed as an integrated hatchery under a Hatchery Genetics Management Plan (HGMP; CDFW and PacifiCorp 2014) with the entire upper Klamath Coho population, making each of these fish of critical importance to the overall population. Currently, Coho returning to Iron Gate Hatchery make up about 65 percent of all returning spawners upstream of Portuguese Creek (including the Scott and Shasta rivers).

Tributary Spawning Adults. When populations are comprised of very few individuals, they can experience difficulties finding mates, which in turn reduces fertilization rates and limits production of young. This in turn results in increased per capita predation rates, and decreased overall survival (Williams et al. 2008). The threshold at which these effects are apparent is the depensation threshold for the population. As noted in Williams et al. (2008) failure to achieve depensation thresholds can exacerbate the rate of decline towards extirpation and extinction. This context is important for the discussion of impacts of the Proposed Project on Coho in the upper Klamath River because populations are generally smaller than these depensation thresholds and therefore, even a small change in abundance can have a substantial effect on the population.

Table 1. Annual counts of adult Coho at Iron Gate Hatchery, video weirs in Bogus Creek, Shasta River, and Scott River, and spawning survey estimates from other tributaries between Bogus Creek and Portuguese Creek from 2003–2018.

Adult Return Year	Iron Gate	Bogus Creek	Shasta River	Scott River	Other Tributaries
2003	1558	No Data	187	No Data	No Data
2004	1734	No Data	No Data	No Data	No Data
2005	1425	No Data	No Data	No Data	No Data
2006	332	No Data	No Data	No Data	No Data
2007	779	233	249	1622	No Data
2008	1296	111	30	62	No Data
2009	70	6	9	81	No Data
2010	485	154	44	911	No Data
2011	586	142	62	344	No Data
2012	644	182	115	201	No Data
2013	1268	405	134	2731	No Data
2014	384	94	46	485	No Data
2015	72	14	45	212	156
2016	86	85	52	226	222
2017	122	44	41	382	186
2018 (Preliminary)	198	24	40	614	200
Average	**690**	**125**	**81**	**656**	**191**

Sources: Knechtle 2019; MKWC 2016, 2017, 2018, and preliminary 2019 data)

The Upper Klamath River Coho population as defined in the NMFS (2014) recovery plan, does not include the Scott and Shasta rivers populations or the Iron Gate Hatchery fish. The depensation thresholds for the Upper Klamath Coho population is 425 adult Coho, for the Shasta River it is 531 adult Coho, and for the Scott River it is 441 adult Coho (Williams et al. 2008). The Upper Klamath adult returns have been below this threshold since at least 2013 (spawning estimates for Coho in tributaries between Bogus Creek and Portuguese Creek are not available until 2015; Figure 3). The population in the Shasta River has not been above the depensation threshold for the entire period for which data is available (Figure 4). The Scott River population seems to be slightly more robust than the other two populations with 2 out of the last 5 years above the depensation threshold (Figure 5).

Coho on the Klamath River show a distinct 3-year life cycle, and adult returns are driven by the relative strength of an individual brood year with almost no overlap between years. Review of return data indicates that 2007 is the strongest of the three brood years and led to more adult s returning in 2010, 2013, and so on (Table 1). This is important to consider because if an entire year-class is eliminated, that year class may not re-establish itself.

Most of the tributary spawning adults are likely to have reached their spawning grounds before suspended sediment concentrations in the mainstem become lethal. The DEIR analysis indicates that the median conditions under existing conditions could be expected to have some "moderate habitat degradation and impaired homing" (DEIR Table E-4). Under the Proposed Project, the effects of suspended sediment concentration s under the same median flow conditions are expected to result in

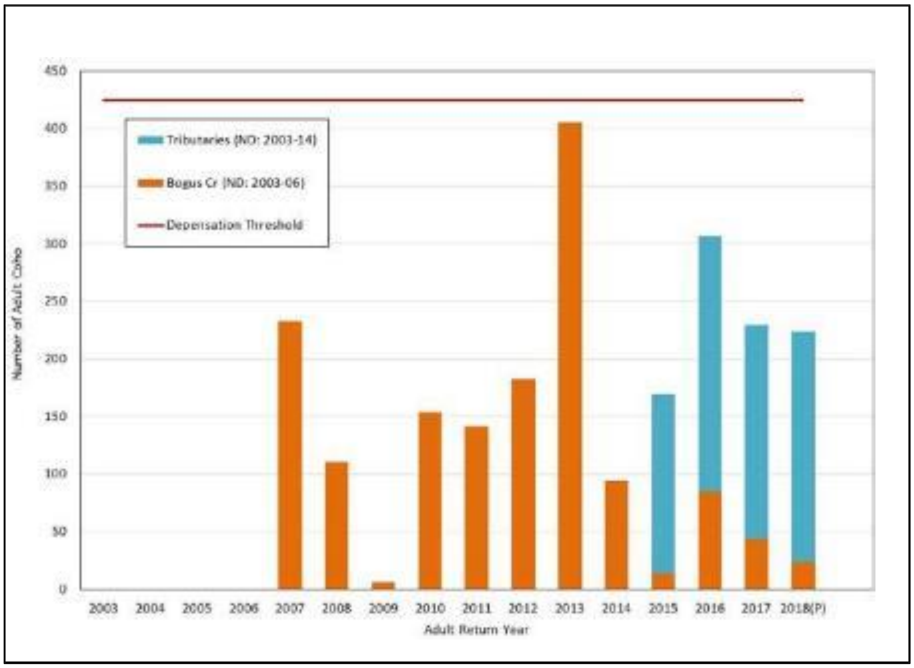


Figure 3. Adult Coho Returns to the Upper Klamath River Population - Portuguese Creek to Iron Gate Hatchery {2018 data is preliminary, Data from CDFW 2018b, Knechtle 2018, Depensation threshold from Williams et al. 2008).

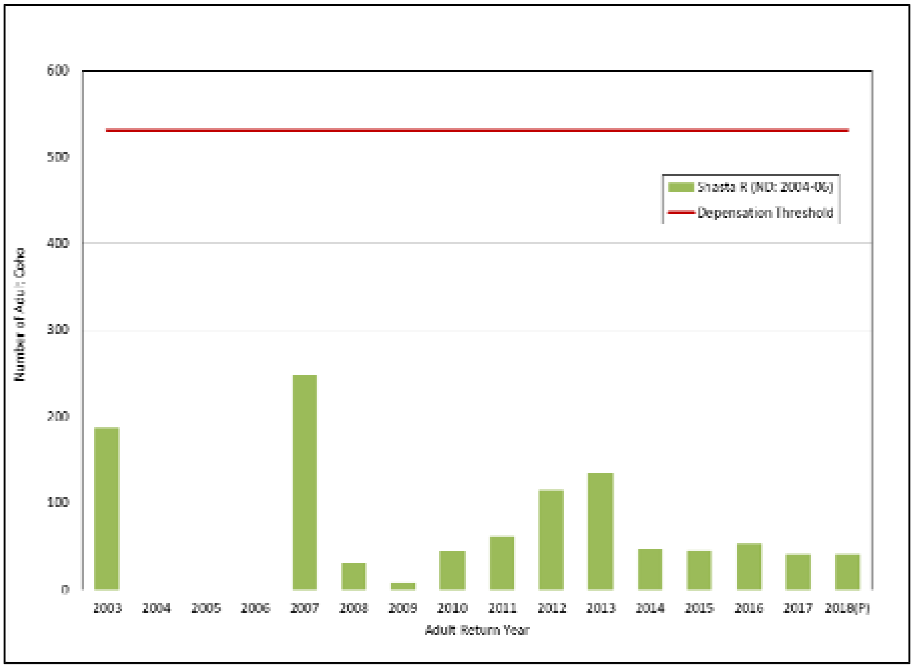


Figure 4. Adult Coho Returns to the Shasta River Population (2018 data is preliminary, Data from Knechtle 2018, Dispensation threshold from Williams et al. 2008).

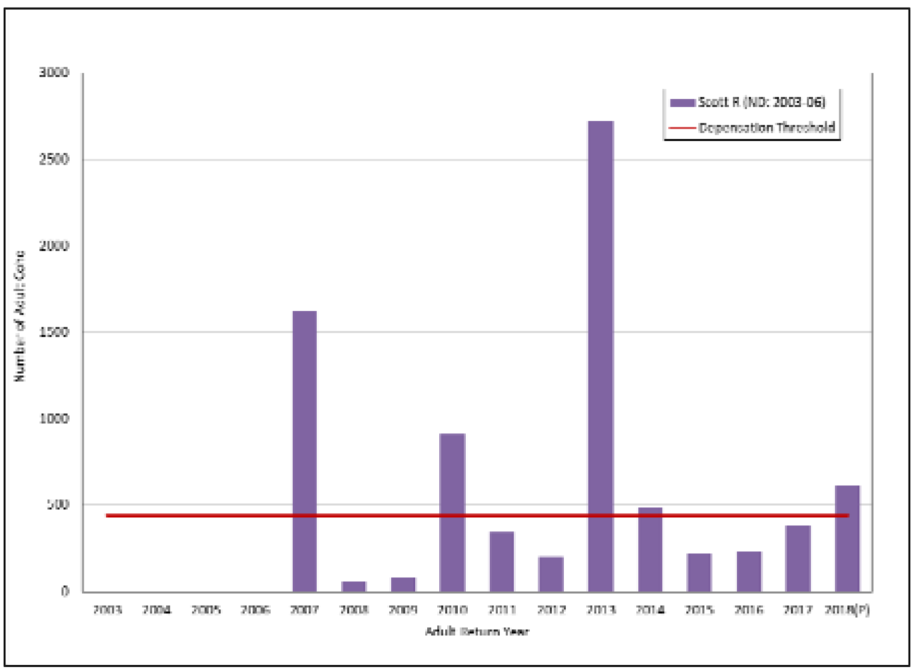


Figure 5. Adult Coho Returns to the Scott River Population {2018 data is preliminary, Data from Knechtle 2018, Depensation threshold from Williams et al. 2008).

"major physiological stress; long-term reduction in feeding; and poor condition " (DEIR Table E-10). This is an increase in adverse conditions associated with the Proposed Project for adult Coho, but still sub-lethal. The reduction in feeding rates are not important for the adults, but changes in condition as a result of physiological stress could reduce fecundity and affect the spawning success even if the adults survive their transit of the mainstem to reach tributaries.

Juvenile Coho in the Mainstem. Juvenile Coho use the mainstem Klamath River throughout the year (Soto et al. 2016), although summer-time use is probably limited to cool-water refugias. About 30 percent of the tagged juvenile Coho in Seiad Creek emigrated from the creek to the Klamath River between the beginning of November, 2010 and the end of February, 2011 (Soto et al. 2016). While Manhard et al. (2018) caution that juvenile Coho migrate in different patterns when coming from different streams, their modeling of migration patterns indicates that between 19 and 24 percent of the juvenile Coho present in a tributary population may leave that tributary during the winter months.

The DEIR assumes that those juvenile Coho that migrate early in the year (January through March) are few in number and would find refuge from elevated suspended sediment concentrations in the mainstem in off-channel habitats, tributary inflows, or tributaries themselves. While fish do actively avoid areas of high suspended sediment concentrations, naturally-generated events do not last for 6-8 weeks like under the Proposed Project. Because of the duration of the Proposed Project-generated suspended sediment concentrations, there would be little escape for Coho leaving tributaries during the winter. It is also reasonable to expect that all the fish (e.g., resident trout, Chinook, Steelhead, etc.) in the river may be trying to access those very same refuge habitats. There is some indication that there may already be density dependent interactions occurring in refuge habitats (Soto et al. 2016). Forcing more fish to use these areas would increase the risk to Coho from predation, competition for space and food, and disease exposure; this potential impact on Coho is not addressed in the DEIR. The DEIR' s assumption that Coho will simply avoid periods of high turbidity does not reflect complexities of actual fish behavior or the likelihood that the Proposed Project could result in high rates of mort alit y of juvenile fish that originated from the tributaries. Because the overall Coho population in the Upper Klamath River is already very small, it is not clear if the populations could survive such a mortality event.

During the January-t o-March drawdown period, suspended sediment concentrations are expected to result in 20-40 percent mortality for all age classes of juvenile Coho in the mainstem (DEIR Table E-10). This is higher than the sub-lethal "moderate to major stress" levels predicted for existing conditions (DEIR Table E-4). Deposition of sediment in mainstem refugia could eliminate these habitat s. Similarly, deposition of sediment at the confluences of tributaries with the Klamath River could eliminate mainstem refugia and limit juvenile access to areas of higher water quality in the tributaries.

The DEIR posits that existing Coho outmigrants face high mortality under existing conditions for a variety of reasons and that the Proposed Project could result in even higher mortality in the spring of 2021 (DEIR pg. 3-319). While the DEIR does not indicate what the incremental change in juvenile mortality may be, it would appear that the upper Klamath River Coho populations are small enough that even a minor change in mortality could have dramatic results on adult escapement and the viability of these populations. Because there are so few juvenile Coho in the river, juvenile Chinook are used as a surrogate for assessing disease levels. The rate of Ceratonova shasta (C. shasta) infection in fish has ranged from about 12 to 96 percent from 2005 through 2015 (Som et al. 2016). As fish become more stressed by environmental condit ions (lack of food, space, increased competition, etc.) they become more susceptible to disease. This would make them more likely to contract common fish diseases including lch (lchthyophthirius multifilis), Columnaris, or Parvicapsula minibicornis, all of which can be lethal.

Response to Comment ORG46-4

Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* (pages E-35 to E-36) are consistent with PacifiCorp's summary of the importance of tributary spawning for Klamath River coho salmon, and the predicted impacts to adult migrating coho salmon from suspended sediment under the Proposed Project. This analysis addresses the concerns raised by PacifiCorp regarding potential sublethal effects to adult migrating coho salmon adults returning to tributaries, including an assessment that few coho salmon adults are predicted to be in the mainstem in January when the highest levels of reservoir sediment would be released.

In Section 2.1.3 of their comment letter, PacifiCorp suggests that the population level impact of the loss of redds from mainstem spawning coho salmon could be 14 percent of the total population between Portuguese Creek and Iron Gate Dam (designated by National Marine Fisheries Service [NMFS] as the Upper Klamath River population following Williams et al. 2006). This estimate appears to be based on the observation of 13 redds in 2001 (equating to 26 adults presumably assuming two adults per redd), and a total adult population of coho salmon in that reach of 191 based on the average of four years of returns from 2015 through 2018 to tributaries in the reach, while excluding returns to the mainstem, Bogus Creek and Iron Gate Hatchery (summarized in Table 1). Presumably Iron Gate Hatchery returns are excluded as it is less likely that those fish would spawn naturally (although, as noted in the EIR, many of the mainstem spawning coho are likely straying hatchery fish). However, there is no logical or scientific basis for excluding Bogus Creek returns, or the mainstem spawning counts from the estimate.

The “14 percent of the total population between Portuguese Creek and Iron Gate Dam” described by PacifiCorp is misleading. The more logical and scientifically defensible estimate of the likely mainstem contribution is presented in Volume II Section E.3.1.3 of Appendix E. In sum, based on the range of escapement estimates of Ackerman et al. (2006), 13 redds (the highest number observed) would be much less than one percent of the natural and hatchery returns combined. Coho salmon are distributed throughout the Klamath River downstream from Iron Gate Dam, and spawn primarily in tributaries (Trihey and Associates 1996, NRC 2004). During their upstream migration, adult coho salmon from the Upper Klamath River Population Unit may travel upstream as far as Iron Gate Dam (river mile [RM] 193.1) and were formerly known to occupy mainstem Klamath River and tributary habitat at least as far upstream as Spencer Creek at RM 232.6 (NRC 2004, as cited in NMFS 2007a). Thus, the mainstem Klamath River functions primarily as a migration corridor for coho salmon. Coho salmon are typically tributary spawners (NMFS 2010a) and based on Magneson and Gough (2006) spawning surveys from 2001 to 2005, only from 0 to 13 redds are typically observed in the mainstem. In 2015, no redds were observed in the mainstem Klamath River between Portuguese Creek (RM 128) and Bogus Creek (RM 192.6) (Hentz and Wickman 2016), and seven were observed in 2017 in the same reach (Dennis et al. 2017).

In addition, PacifiCorp assesses impacts on coho salmon based on the nine historical populations within the Klamath River Basin, which segregates returns from coho salmon upstream of Portuguese Creek into the Upper Klamath River Population. PacifiCorp uses this segregation approach to raise concern regarding the depensation threshold for coho salmon described by Williams et al. (2008), noting that when populations are at lower abundances than depensation thresholds, small reductions in abundance can have a detrimental impact. Assessing the significance of impacts assigned to this historical population unit is misleading. The historical unit is not sufficiently analogous to the present-day population because of the significant curtailment of its historic range, which extended far upstream of Iron Gate Dam. Notably, Williams et al. (2008) describe the highest intrinsic potential for spawning coho salmon in the historical population unit that extended upstream of Iron Gate Dam to Spencer Creek. The comment does not extend the logic of its historic population focus to the benefits of the proposed project – the extension of habitat for this historic population back into its former range. Citing depensation thresholds as a concern without addressing the range is misleading, since the NMFS 2014 Southern Oregon/Northern California Coast (SONCC) Recovery Plan (NMFS 2014) specifically identifies restoring habitat access upstream of Iron Gate Dam as a high priority to recover the coho population and address the current low spawner densities. In addition, the Iron Gate Hatchery operates for the purpose of coho salmon conservation, and, as described in the EIR, would continue to produce coho salmon smolts during and following dam removal, which directly addresses the current low spawning densities of the population and concerns regarding the depensation threshold.

The “small population of Coho in the mainstem Klamath River…” referenced in this comment is not a separate population of coho salmon by the designation of any fisheries regulator and is not a meaningful unit of analysis for the EIR. In the coho recovery plan, NMFS (2014) groups populations with similar geologic and genetic features into seven diversity strata, following the work of Williams et al. (2006). In assessing risk and recovery of the Evolutionarily Significant Unit (ESU), NMFS considers the Interior Klamath River Diversity Stratum, which includes the Middle Klamath River, Upper Klamath River, Salmon River, Scott River, and Shasta River populations designated by Williams et al. (2006). The EIR considers the nine historical populations within the Klamath River Basin in analysis but conducts the analysis of significance consistent with the NMFS 2014 SONCC Recovery Plan, which assesses all of the coho salmon in the Klamath River Basin as part of the same ESU. The EIR acknowledges the low abundance of the coho salmon population consistent with the alarm and concern raised by PacifiCorp. As noted in Volume I Section 2.1 *Project Description – Project Objectives* (page 2-1) the Proposed Project is a restoration project intended to improve fishery conditions.

In Volume II Section E.3.2.3, the maximum of 13 redds observed in 2001 was selected to present the highest potential impact, since this is the highest count observed in over 15 years, while in many years no coho salmon redds were observed in the mainstem. Assuming one female and one male per redd, this could represent at most 26 returning adult coho salmon. Based on average adult returns presented by PacifiCorp in Table 1 of their comments on the EIR (and the maximum of 13 redds assumed to occur in the mainstem), this would be at most less than 1 percent of the coho salmon adult returns upstream of Portuguese Creek. Even if the Williams et al. (2006) Upper Klamath River Unit were adopted (contrary to the NMFS approach for assessing risk and recovery), this would be 8 percent of adult coho salmon returns if Iron Gate Hatchery, Shasta River, and Scott River returns are ignored. PacifiCorp comments do not support an assertation that this level of loss of redd production from infrequent mainstem production of coho salmon would present a substantial short-term decrease in coho salmon abundance of a year class.

PacifiCorp cites Soto et al. (2016b) and Manhard et al. (2018) to assert that the Draft EIR underestimated the potential impacts of the Proposed Project to juvenile coho salmon produced in tributaries that migrate from tributaries into the mainstem “during winter,” and thus would be susceptible to impacts from suspended sediment. Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* (pages E-35 to E-38) provide a detailed analysis of the effects on the coho salmon population of short-term impacts to coho salmon rearing in the mainstem, and outmigrating smolts. The comment suggests that sediment deposition under the Proposed Project may further reduce opportunities to avoid suspended sediment impacts by "filling in" refuge habitat. Such deposition is not predicted under the Proposed Project (see Master Response GEO-1). Additionally, the analysis of impacts to mainstem rearing coho salmon concludes high potential rates of mortality in large part because the assessment conservatively assumes that coho salmon do not locate refuge habitat. Please also refer to response to comment ORG46-2 regarding coho use of the mainstem Klamath River.

Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* (pages E-37 and E-38) includes a discussion of the cumulative impacts of exposure to suspended sediment, water quality, and disease on coho salmon fry, juveniles, and smolts.

Comment ORG46-5

2.1.4 Population Level Impact of the Proposed Project

The DEIR says that "...Coho salmon smolts outmigrating from the Upper Klamath River, Scott River, and Shasta River populations currently have high mortality rates (35 to 70 percent) presumably as a result of poor water quality and disease (Beeman et al. 2007, 2008)"[1] (Appendix E pg. E-38). The Proposed Project would add additional stress to outmigrating juveniles; however, the DEIR fails to indicate what this means in terms of the population. The population of Coho is small enough that even a modest increase in mortality rate (either through direct mortality, or indirect through reduced fitness, predation, or increased susceptibility to disease) could reduce the number of returning adults. With most of the Coho populations below depensation thresholds, it is unclear how these populations would respond to this event.

Uncertainty. The DEIR acknowledges that there is uncertainty associated with the effects of the Proposed Project on Coho. While the DEIR extensively references the Expert Panel report on Coho and Steelhead (Dunne et al. 2011), there is not an adequate discussion of the implications of this uncertainty. Dunne et al. (2011) repeatedly reinforce that what could ultimately happen to the Coho population from the Proposed Project is not clear and note that while there may be a small increase in production from newly accessible habitat, disease and low ocean survival could easily offset this gain. It is also important to recall that the determinations by the Expert Panel included the implementation of the Klamath Basin Restoration Agreement (KBRA), an element that is no longer available to, in part, provide funding and structure for restoration in the basin. If the Expert Panel thought that the outcome was uncertain in 2011, that level of uncertainty has increased in 2019 without the elements of the KBRA that were intended to improve habitat function and result in water quality improvements in the Upper Klamath Basin that might address acknowledged fish passage impediments.

The suspended sediment modeling and the effects analysis relating to Coho attempts to address some of the uncertainty associated with the effects of the

Proposed Project by using the 10^{th}, 50^{th}, and 90^{th}, exceedance probabilities. While helpful if properly done, the analysis in the DEIR uses the sediment transport modeling incorrectly (see Major Issue 2.4 and Brookes 2019), is incomplete, and does not help the reader understand the potential effects of the Proposed Project. The analysis fails to make the connection between the effects of increased suspended sediment concentrations on Coho and the population of Coho present that will be impacted by these changes.

Recolonization at low abundance levels. There are few Coho left in the upper Klamath Rive r populations (Figure 1). Few Coho return to Bogus Creek and even fewer to the Shasta River, and it appears that less than 200 Coho annually spawn in the tributaries of the Upper Klamath from Iron Gate Dam to Portuguese Creek. These populations are below the abundance risk thresholds and mostly below depensation thresholds established in the recovery plan (NMFS 2014, Williams et al. 2008). Although adult straying is a natural event in salmon, it is a relatively infrequent occurrence. The main population from which recolonization could occur is adult Coho returning to Iron Gate or Fall Creek hatcheries. Although straying rates vary greatly amongst species and populations and specific rates are difficult to establish without an abundance of tagging data (see Quinn 2005), if there are only a couple hundred natural Coho in this population to start with there may not be many adults available to stray into the newly accessible habitat. Because all the Coho released from Iron Gate Hatchery are clipped, the number of Coho available to recolonize the areas upstream of Iron Gate Dam can be estimated by the number of natural-origin fish that return to Iron Gate Hatchery annually because the se natural-origin fish are straying into the hatchery. The average number of natural-origin fish entering the hatchery from 1997 through 2017 was 30 adult Coho (Giudice and Knechtle 2018); there is no sex information readily available on these strays so it is impossible to evaluate the true recolonization potential. Even if females make up half of this straying population, 15 pairs of Coho on average does not seem like enough fish to effectively recolonize the area upstream of Iron Gate Dam and any straying that does occur reduces the population size in the source streams.

Hatchery Operations. The ability of Iron Gate Hatchery and the redeveloped Fall Creek Hatchery to capture fish after Iron Gate Dam is removed remains is uncertain. Coho may or may not successfully home to these facilities. The importance of hatchery production in maintaining the Upper Klamath population cannot be overemphasized. Adult Coho escapement data indicate that on average, approximately 50 percent of the Coho spawning naturally in the Shasta River and Bogus Creek were of hatchery origin (Chesney and Knechtle 2017; Knechtle and Giudice 2018). This percentage indicates that all of the natural production in these two streams may only be one generation or less removed from the hatchery. Failure of the hatchery or cessation of the hatchery program could permanently reduce these populations of Coho by 50 percent.

Response to Comment ORG46-5

The comment asserts that the Draft EIR fails to consider population level impacts on coho salmon as a result of predicted mortality to juveniles and smolts under the Proposed Project. Please refer to Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for an analysis of the population level impacts on coho salmon under the Proposed Project, including consideration of stress to outmigrating juveniles. Please also refer to response to comment ORG46-4 for further discussion of the population-level impacts of the Proposed Project on coho salmon.

The comment also asserts that within the Draft EIR there is not adequate discussion of the implications of uncertainty in the coho salmon population response to dam removal as described by the coho salmon expert panel (Dunne et al. 2011), especially since the Klamath Basin Restoration Agreement (KBRA) is no longer proposed. Please refer to Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*, which addresses uncertainty in predicting the effects of the Proposed Project and specifically describes the concerns related to predicting a population-level response as described by Dunne et al. (2011). Please also refer to Master Response AQF-12 for a discussion of the incorporation of expert panel reports in the analysis of effects in the EIR.

Please note that the central benefits predicted for the coho salmon population under the Proposed Project include increased access to suitable coho salmon habitat upstream of Iron Gate Dam and decreased disease risk, as summarized in Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. These benefits are not predicated on the actions that were formally included in the KBRA.

The comment also asserts that the Draft EIR uses the sediment modeling results incorrectly and fails to make the connection between the effects of increased suspended sediment concentrations (SSCs) on coho salmon and the population of coho salmon present that would be impacted by these changes. Please refer to the response to comment ORG46-8 for a discussion of the use of sediment transport modeling in the EIR and addressing PacifiCorp's referenced comments. In addition, Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and Volume II Appendix E Section E.3.2.3 Coho Salmon (pages E-35 to E-38) include a detailed analysis of the connection between predicted suspended sediment release and the population of coho salmon that may be present and affected by increased suspended sediment as a result of the Proposed Project.

The comment asserts that 200 coho salmon on average spawn annually within tributaries to the Klamath River, and it estimates that 15 females on average will stray to newly accessible habitat, suggesting that this is not enough fish to recolonize newly accessible habitat. The average of 200 adult coho salmon that the comment cites as being the potential source population of adult coho salmon available for straying into newly accessible habitat is based on observed returns to tributaries to the Klamath River between Portuguese Creek and Iron Gate Dam. However, adult coho salmon returning to Iron Gate Hatchery, Fall Creek Hatchery (FCH), Bogus Creek, Shasta River, and Scott River would also be potential strays into newly accessible habitat. The returns to these additional locations (excluding Fall Creek Hatchery) averages over 1,500 annually, in addition to the 200 returns cited in the comment, based on the data compiled and cited by PacifiCorp (i.e. Knechtle 2019, MKWC 2016, 2017, 2018). As discussed in Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*, recolonization success and rate would be a function of fish straying into newly available habitats (Pess 2009). The comment appears to underestimate the potential for straying of coho salmon adults into newly accessible habitat by only considering straying of natural returns to Iron Gate Hatchery and not considering straying of adults from other areas, or from hatchery origin returning adults to newly accessible habitat. Different salmon species and populations (and even the same populations from year to year) have highly variable straying rates, with hatchery origin spawners straying at a higher rate (Lasko et al. 2014). As discussed in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries,* data from Ackerman et al. (2006) indicate that substantial straying of Iron Gate Hatchery fish may be occurring into important tributaries of the Middle Klamath River under existing conditions. As discussed in Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*, under existing conditions CDFW and PacifiCorp (2014) estimates that greater than 30 percent of the total adult returns to the upper Klamath River are of hatchery origin, including greater than 70 percent of returns to the hatchery, around 34 percent of returns to Bogus Creek, and around 16 percent of returns to tributaries such as the Shasta and Scott rivers. PacifiCorp cites recent data from Chesney and Knechtle (2017) and Knechtle and Giudice (2018a) to note an even higher proportion of hatchery returns, which would not change the conclusions of the EIR. Between 2004 and 2011 an average of 46 coho salmon hatchery adults per year strayed into Bogus Creek (CDFW and PacifiCorp 2014). Between post-dam removal years 4 and 10, both hatchery returns and returns from newly accessible habitat would occur, providing a likelihood of increased abundance and recolonization of the newly accessible habitat.

As further discussed in Potential Impact 3.3-9 in Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*, coho salmon recolonization of newly accessible habitat was observed following fish ladder installation at Landsburg Dam on the Cedar River, Washington (Kiffney et al. 2009) and following removal of Condit Dam on the

White Salmon River, Washington (Allen et al. 2016). The Landsburg Dam was laddered in 2003, and coho salmon were observed within areas upstream of the dam within the first year. By 2011, salmon (with coho salmon being most abundant) occurred within nearly all of the accessible habitat upstream of Ladsburg Dam. Pess et al. (2011) predicted that within the habitat upstream of Landsburg Dam juvenile coho salmon would establish a population that outnumbered resident salmonid species (e.g., rainbow trout, cutthroat trout) by 40 percent within five years of colonization, suggesting a strong ability of coho salmon to successfully occupy newly accessible habitat.

Without citing specific evidence, the comment expresses the concern that coho salmon may or may not successfully home to the Iron Gate or Fall Creek Hatchery under the Proposed Project, challenging the ability of these hatcheries to operate successfully. As described in Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (page 2-80), hatchery operations would be managed by California Department of Fish and Wildlife (CDFW) in consultation with the National Marine Fisheries Service (NMFS), as occurs under existing conditions. NMFS and CDFW (2018) submitted a memorandum entitled the "*NMFS and CDFW Technical Staff Recommendation for Klamath River Hatchery Operations in California Post-Dam Removal*" in which facility upgrades to increase attraction to the Iron Gate Fish Hatchery collection facility (including increased attraction flow) are described, as are new collection facilities in Fall Creek, which could include construction of an adult ladder and trap, and/or a new picket and weir with trap at the mouth of Fall Creek. In their memorandum, NMFS and CDFW expressed no concerns for the ability of hatchery collection facilities to capture adult coho salmon for the purpose of maintaining successful operations, and under existing conditions sufficient adults are captured each year to maintain production goals.

Comment ORG46-6

2.2 Klamath River Flow Modeling

In the introduction to the effects analysis in the DEIR, Section 3.1 includes a discussion regarding hydrology information, analyses, and provides a rationale to defend the use of the hydrology analysis found in the Klamath Facilities Removal Environmental Impact Statement (EIS)/EIR (2012 KHSA EIS/EIR; DOI and CDFW 2012). Section 3.1 is cross-referenced over 40 times throughout the DEIR. The hydrology and flow analysis from the 2012 KHSA EIS/ EIR is outdated and inconsistent with the best representation available of existing hydrologic conditions, which is the 2013 Biological Opinion (2013 BiOp) Klamath Basin Planning Model (KBPM) hydrologic results (USBR 2012a). Throughout the DEIR, statements like the following are used to justify use of the 2012 KHSA EIS/EIR hydrology analysis (DEIR pg. 3-96):

...model predictions made using hydrology assumptions adopted for the Klamath Dam Removal Secretarial Determination are still appropriate for assessing

Proposed Project impacts since the NMFS 2013 Biological Opinion mandatory flows are encompassed within the modeled range of flows.

In Section 3.1.6 of the DEIR, the 2012 KHSA EIS/EIR Supplemental Information Report (SIR) (USBR 2016) is cited as supporting information for these statements. Specifically, the DEIR states (DEIR pg. 3-4):

USBR (2016) concluded that the relatively small flow differences between 2013 BiOp and KBRA Flows would not substantively alter the conclusions in the 2012 KHSA EIS/ EIR for those environmental resources that would be affected by flows (i.e., water quality, aquatic resources, flood risk, recreation).

Review of U.S. Bureau of Reclamation (USBR 2016) found that it does not provide additional explanation or information to adequately support the conclusion in the DEIR that the difference from the 2013 BiOp and KBRA flows would not alter the previous conclusions. Additionally, information regarding differences in water supply diversion volumes and storage conditions throughout the basin, such as in Upper Klamath Lake, are not provided in Section 3.1.6 of the DEIR or USBR (2016). Review of the differences in KBRA versus 2013 BiOp flows (see DEIR Figure 3.1.1 and Figure 3.1. 2) clearly indicates that in many months the differences are significant, not small. The use of the 2012 KHSA EIS/ EIR (DOI and CDFW 2012) analyses, when more recent flow information is readily available, indicates that the DEIR does not use the best available science to inform its hydrologic analysis, which then impairs all subsequent analysis that relies upon these hydrologic inputs.

The hydrology data forms the foundation upon which analysis in the DEIR is based. Because the more representative 2013 BiOp KBPM analysis was not used to characterize existing hydrologic conditions, the representativeness and accuracy of the DEIR analyses of the Proposed Project as it relates to hydrology, water quality, and aquatic resources impacts are questionable. This includes the DEIR's conclusions regarding significance of impacts on these resources. The KBRA flows and resultant 2012 KHSA EIS/EIR analysis represents a baseline in which river flows are greater under the KBRA flow assumptions as compared to flows from the 2013 BiOp KBPM analysis, which reduces impacts on water quality and aquatic resources. Not using the updated information available from the 2013 BiOp KBPM results in an overstatement of beneficial water quality and aquatic resources effects from the Proposed Project, and an understatement of adverse impacts associated with the Proposed Project. The DEIR incorrectly and inappropriately states that it is sufficient to "bracket the range of 2013 BiOp flows" (DEIR pg. 3-9) rather than maintain more comparable and updated probability distributions of flow duration and magnitude, but the DEIR fails to provide a discussion of why this bracketing is adequate. The DEIR should include a specific analysis and examples (preferably based on formal statistical analysis) to demonstrate the appropriateness of the DEiR's use of the KBRA flows and 2012 KHSA analysis rather than the 2013 BiOp model.

The Klamath Hydroelectric Project has limited flood control capacity as it is currently operated, and storage in Upper Klamath Lake, which is managed by USBR, is relied upon to provide flood control in the Upper Klamath Basin. Flood storage in Upper Klamath Lake is important in order to reduce the potential for Upper Klamath Lake to overtop levies since hydraulic restrictions at the outlet of the lake and at Link River Dam limit the amount of water that can be released from Upper Klamath Lake. Storage in Upper Klamath Lake is also used to limiting downstream releases that can exacerbate flooding in the Keno Plain, as occurred during the 1964 flood. Thus, Upper Klamath Lake elevations impact the amount of storage available for flood control and ultimately drive the need for pre-emptive flood control releases from Link River Dam. Due to concerns over water surface levels in Upper Klamath Lake to protect endangered suckers and the desire to manage to higher lake levels to protect sucker habitat, Upper Klamath Lake levels are being managed to higher elevations under the 2013 BiOp (see Exhibit A, comment 3.3-46). The USBR changed its flood control management with the 2013 BiOp as compared to earlier flood control operations evaluated in the 2010 BiOp (and as used in the 2012 KHSA EIS/ EIR analysis), resulting in less pre-release of water downstream for flood control purposes. There is no discussion in Section 3.1.6 of the DEIR comparing Upper Klamath Lake storage levels between the previous 2012 KHSA EIS/EIR analysis and the 2013 BiOp KBPM analysis, which drives changed river flows. Thus, the DEIR flood risk analysis does not recognize the changed operating conditions in Upper Klamath Lake that affect routing of the 100-year flood, which may underestimate flood risk impacts associated with the Proposed Project.

Response to Comment ORG46-6

Comment noted. Volume I Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project* has been revised to provide additional background information regarding the 2013 Biological Opinion (BiOp), including clarifying statistical analyses and flow exceedance analyses indicating that the hydrologic model outputs previously developed using the Klamath Basin Restoration Agreement (KBRA) Flows for the 2012 KHSA EIS/EIR are sufficient to estimate conditions under 2013 BiOp Flows for the Lower Klamath Project EIR. As explained in the clarifying revisions to Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, the range of 2013 BiOp Flows is within the range of modeled KBRA Flows approximately 99.9 percent of the time at Keno and Iron Gate dams, and the primary differences between the 2013 BiOp Flows and the KBRA Flows are temporal shifts in the flow distribution within some months and changes in expected flows in different water year types. While the specific timing of flows and the likelihood of exceeding a specific flow during individual months changes between the 2013 BiOp and KBRA flows, modeled 2013 BiOp Flows less than or greater than modeled KBRA Flows would occur too infrequently (i.e., 0.01 percent of the time or less) to substantially alter the range of flow conditions in the Klamath River or previous model results using KBRA Flows. The data source for the 2013 BiOp

Flows was also updated from USBR (2016) to USBR (2010b) and USBR (2019a) to include the longest period of record available for the flow comparison (1980−2011), and new monthly flow exceedance plots have been added to the EIR that also indicate in which months there would be a statistically significant difference in the flow distributions ($p<0.01$ or $p<0.05$). Further, the clarifying revisions to the EIR include a comparison plot of the maximum and minimum monthly exceedance curves for the 2013 BiOp Flows and the KBRA Flows for the 1 to 99 percent exceedance flows at Keno Dam and Iron Gate Dam, which further clearly indicates that the distribution of flow duration and magnitude under the 2013 BiOp Flows is sufficiently similar to that of the KBRA Flows that the hydrologic model outputs previously developed using the KBRA Flows for the 2012 KHSA EIS/EIR are sufficient to estimate conditions under 2013 BiOp Flows. Please refer to Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* for the revisions.

Please refer to Master Response HYD-1 for a discussion of how the 2019 BiOp Flows were considered for the Lower Klamath Project EIR analyses.

Please refer to Master Response FLD-1 for a discussion of the limited flood control capacity of the Lower Klamath Project. With respect to the comment's concern regarding the flood risk analysis and Upper Klamath Lake levels, variations in the Upper Klamath Lake levels between the KBRA, the 2010 BiOp, the 2013 BiOp, and the 2019 BiOp are not explicitly discussed in Section 3.1.6 *Environmental Setting, Impacts, and Mitigation Measures – Introduction – Summary of Available Hydrology Information for the Proposed Project* because the analysis of modeled Klamath River flows at Keno and Iron Gate dams inherently includes the net influence of Upper Klamath Lake variations on flows, and potential impacts within the Area of Analysis under the Proposed Project would be the result of Klamath River flows rather than the Upper Klamath Lake levels. United States Bureau of Reclamation (USBR) uses the Upper Klamath Lake levels in the calculations of Klamath River flows at Keno and Iron Gate dams under the KBRA, 2010 BiOp, 2013 BiOp, and 2019 BiOp, so any variations in the water supply diversion volumes, storage conditions in the basin, and the flood control capacity/storage in Upper Klamath Lake would be incorporated into the flows at Keno and Iron Gate dams. Additionally, the Proposed Project does not make changes to the Klamath Irrigation Project operations criteria or applicable biological opinion(s), so there would be no change in the Upper Klamath Lake levels or the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s) under the Proposed Project. Since there would be no change to the applicable biological opinion(s) that specify the Upper Klamath Lake flood release threshold elevations, there would be no impact on the flood storage in Upper Klamath Lake or the potential for Upper Klamath Lake to overtop levees under the Proposed Project. Thus, Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* only discusses the flow variations between the KBRA, the 2010 BiOp, the 2013 BiOp, and the 2019 BiOp to the extent those flow variations would contribute to potential impacts within the Area of Analysis, including those associated with flooding. Please refer to Volume III Attachment 1 for the final Section 3.1.6 *Environmental Setting, Impacts, and Mitigation Measures – Introduction – Summary of Available Hydrology Information for the Proposed Project*.

While there was a flood event during the December 1964 flood in the Klamath Basin, the operational criteria for the Klamath Irrigation Project in 1964 were different from those under the KBRA, 2010 BiOp, 2013 BiOp, or 2019 BiOp. The modeled peak flow releases from Keno Dam under the KBRA, 2010 BiOp, 2013 BiOp, and 2019 BiOp operation criteria do not occur in December 1964. As shown in Figure ORG46-6-1 below, modeled peak flows at Keno Dam under the KBRA and 2013 BiOp operations criteria both occur in January 1997 and they have a similar magnitude (12,854 cfs under the KBRA; 13,136 cfs under the 2013 BiOp), indicating that previous modeling of peak KBRA Flows would characterize peak 2013 BiOp Flows. Modeled peak 2019 BiOp Flows (9,932 cfs) also occur during January 1997, but it is less than the modeled peak KBRA Flows. Analysis of the flood risk impacts using KBRA Flows are expected to overestimate the flood risk impacts under the 2019 BiOp Flows since the modeled peak flow under the 2019 BiOp operations criteria is less than the modeled peak flow under the KBRA operations criteria.

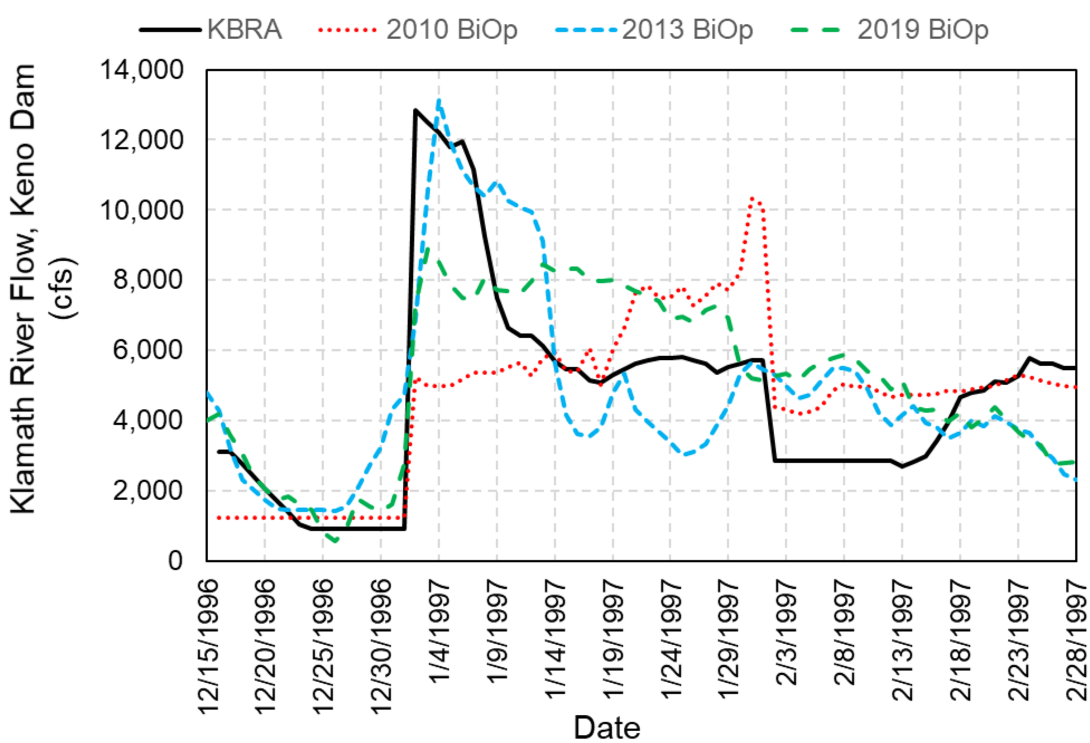


Figure ORG46-6-1. Peak USBR Modeled Klamath River Flow at Keno Dam During January 1997. Source: USBR 2010b, 2019a, 2019b.

Comment ORG46-7
2.3 Water Quality

Upper Klamath Lake is hypereutrophic and is the source of the nutrient loading to the Klamath River. The river itself exceeds phosphorus and nitrogen loading levels typically associated with eutrophic rivers (Dodds 2006; Smith et al. 2003). The DEIR does not consistently acknowledge this or the decades-long timeframe necessary for implementation actions, which remain uncertain, to result in nutrient loading reductions necessary to achieve the Oregon TMDL' s water quality goals in Upper Klamath Lake (ODEQ 2002). Because the flow regime discussed in the DEIR does not accurately represent existing conditions, the water quality modeling and effects analysis that is based on those flows also do not reflect existing conditions nor are they adequate to evaluate the impacts of the Proposed Project. The DEIR acknowledges that "multiple numeric models" (DEIR pg. 3-64) were used in the effects analysis for water quality. The DEIR however, does not use the most recent version of the Klamath Hydroelectric Project water quality model developed by PacifiCorp (2014), which includes numerous model updates and improvements from the version of the model used by ODEQ and others to develop the Klamath River TMDLs. Highlights of the more recent modeling outputs from the PacifiCorp (2014) model are presented here and included in the files that accompany PacifiCorp' s comments.

Water temperatures in the 190-mile lower Klamath River downstream of Iron Gate Dam are generally at or near equilibrium water temperature conditions with the exception of immediately downstream of the dam and in the vicinity of certain tributaries (PacifiCorp 2014). Releases from Iron Gate Reservoir are generally moderated owing to the relatively large reservoir volume and a penstock intake elevation that is about 30 feet below the reservoir water surf ace. These attributes lead to water temperatures that may be at or slightly cooler than equilibrium water temperature during the spring period. The river is considerably smaller in terms of volume per unit length, and thus cools and heats more quickly than the reservoir in response the ambient meteorological conditions.

During the fall period, temperature of water releases from Iron Gate Dam are warmer than equilibrium water temperature due to the thermal lag caused by the reservoir's mass (PacifiCorp 2014). The effect of this seasonal lag is largest in the river just downstream of Iron Gate Dam and diminishes relatively quickly in the downstream direction as the river comes into equilibrium with the local meteorological conditions. PacifiCorp's (2014) water temperature modeling indicates that by the time flows reach the Shasta River (RM 177), the impact of the lag is diminished by approximately 50 percent and continues to diminish in the downstream direction (Figure 6).

Water temperatures are generally at or near equilibrium water temperature conditions over the rest of the lower Klamath River below the Shasta River (RM

177) (PacifiCorp 2014). The major tributaries generally enter the Klamath River at similar temperatures to the river. The overall state of temperature equilibrium may not hold during periods when cold tributary runoff during spring snowmelt runoff or rain on snow events enter the mainstem Klamath River. During warmer periods of the year there are isolated regions at the confluence of many tributaries where inflow water temperatures are markedly colder than the mainstem. These thermal refugia areas may range from a few square yards to several hundred square yards in size depending on the flow and temperature in the tributary, flow conditions in the mainstem Klamath River, and local geomorphology (Sutton et al. 2002). By the time waters reach the Scott River (RM 143), water temperatures indicate minimal seasonal thermal lag and variability in mean daily water temperatures are largely absent, but results may vary among months (Perry et al. 2011). Such results are consistent with PacifiCorp (2014) water quality modeling results (Figure 6). The DEIR repeatedly incorrectly asserts that the temperature effects of releases from Iron Gate Dam are apparent downstream of or to the confluence of the Salmon River (RM 66) (e.g., DEIR pg. 3-78), and that dam removal will provide benefits to outmigrating fish. Such an example is found on pg. 3-277 of the DEIR, where it states (emphasis added), "FERC (2007) concluded that dam removal would enhance water quality and reduce the cumulative effects on water quality and habitat that contribute to disease- induced salmon die-offs in the Klamath River downstream from Iron Gate Dam. In turn, this would benefit salmon outmigrants from tributaries downstream from Iron Gate Dam, such as the Shasta and Scott rivers." This statement is contrary to the best available water quality modeling results, which indicate temperature differences hardly discernible at the Scott River confluence and mean daily temperatures at Iron Gate Dam that are cooler during the juvenile outmigration period as compared to locations further downriver (Figure 7).

PacifiCorp (2014) modeling simulations indicate that the consistently warmest reach of the Klamath River under existing conditions is the reach between approximately Seiad Valley (RM 129) and Clear Creek (RM 98.8). Maximum daily temperatures can reach 30°C and daily minimum temperatures in the 20 to 25°C range are common in this reach during summer (Figure 8). Downstream of this reach, the river experiences considerable accretion and the aspect ratio of the channel changes from a broad shallow stream to a deeper river. As the river approaches the coast, marine influences can moderate river temperatures, but when clear warm conditions prevail, water temperatures respond accordingly. For example, water temperatures at Turwar (RM 6) are cooler overall during spring and summer periods than upriver at Orleans (RM 57) or Seiad Valley (RM 129), with the diurnal range in temperature also more moderated at Turwar (Figure 8). During winter, water temperatures at Turwar are generally warmer overall than at upriver locations (Figure 8) due to milder meteorological conditions at lower elevations.

Because of specific shortcomings created by inappropriate flow data, the complicated interrelated nature of water quality, and the matrix of outdated or flawed water quality models that the DEIR analysis is based upon, it is difficult to discern the actual shortcomings in the water quality discussion in the DEIR. At the most basic level flow rates affect water temperatures which in turn affect dissolved oxygen concentrations, hydraulic retention times, growth of cyanobacteria, nutrient cycling, pH, and so on. Because short-duration adverse water quality events (on the scale of hours to days) can have significant effects on aquatic species, correctly representing the flow regime is critical when assessing potential impacts of a proposed action on water quality. Many of those water quality analysis influence the evaluation of Proposed Project's effects on aquatic species.

Response to Comment ORG46-7

With respect to the comment's assertion regarding Upper Klamath Lake as a continuing source of nutrients to the Lower Klamath Project, please refer to Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin*, which states "The Upper Klamath Basin has naturally elevated levels of phosphorus that combine with human activities (e.g., wetland draining, agriculture, ranching, logging, water diversions), to increase concentrations of nutrients (nitrogen and phosphorus) and suspended sediment, to degrade water quality parameters (e.g., water temperature, pH, dissolved oxygen). This, in turn, affects the water quality entering California." There are also other instances in Section 3.2.2 *Water Quality – Environmental Setting* (e.g., Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients*) and Appendix C *Water Quality Supporting Technical Information* (e.g., Appendix C, Section C.2.1.1 *Suspended Sediments – Upper Klamath Basin – Hydroelectric Reach* and Appendix C, Section C.3.1.1 *Nutrients – Upper Klamath Basin – Hydroelectric Reach*) where the EIR indicates that water quality in Upper Klamath Lake impacts water quality in the Hydroelectric Reach. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

This comment also asserts that the Draft EIR does not reference results from the most recent version of the Klamath Hydroelectric Project (KHP) water quality model. In reviewing the referenced information, it appears that PacifiCorp may have rerun the Klamath River Water Quality Model (KRWQM) in 2014 to produce figures included in its 2014 draft water quality certification application to the State Water Board (reference years 2000 to 2004; Figures 5.2-19 to 5.2-26 in Section 5 and Figures 1-24 in Appendix A of PacifiCorp [2014a]) but did not provide supporting information to substantiate the figures or PacifiCorp's statements in this comment. To thoroughly investigate PacifiCorp's assertions, the State Water Board requested on April 25, 2019, that PacifiCorp provide: 1) all input and output data files (by model reach) for the Klamath River Water Quality Model updated since December 12, 2005, in a Microsoft Excel or tab-delineated .txt file format (.txt format preferred); 2) specific flow assumptions used in PacifiCorp's

KRWQM runs for results presented in the draft 2014 water quality certification application; 4) assumptions used in creating and definitions for existing conditions (EC) and without project (WOP) scenarios included in the habitat suitability analyses reported in Section 5.2.3.3 of the draft 2014 water quality certification application; 5) list of all assumptions and parameters that changed in the 2014 model runs presented in the draft 2014 water quality certification application versus model runs conducted in 2004 and/or 2005; 6) calibration and validation data sets for the 2014 model runs presented in the draft 2014 water quality certification application; and 7) sensitivity analyses conducted for the 2014 model runs presented in the draft 2014 water quality certification application. The 2019 report that PacifiCorp provided in response to the above request from State Water Board included a description of model updates, which were primarily focused on Keno Reservoir, and calibration summary information. The information provided by PacifiCorp in the 2019 report has been incorporated into responses to comments ORG46-17, ORG46-21, ORG46-88, ORG46-90, ORG46-98, ORG46-101, ORG46-122, and ORG46-127, and as described in those responses, this information has resulted in revisions to clarify the EIR. The additional information has not changed any significance determinations and does not otherwise represent significant new information for the EIR.

With respect to the comment's assertion that the water temperature analysis in the Draft EIR does not reflect PacifiCorp (2014), please refer to response to comment ORG46-127.

Daily variations in water quality with the potential to adversely impact aquatic resources under existing conditions are discussed in multiple places in Section 3.2.2 *Water Quality – Environmental Setting* (e.g., Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* and Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen*). Additionally, changes in these daily variations under the Proposed Project are analyzed for multiple water quality parameters in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* (e.g., Potential Impact 3.2-1 [water temperature], Potential Impact 3.2-10 [dissolved oxygen], and Potential Impact 3.2-11 [pH]) using the available Klamath River Total Maximum Daily Load (TMDL) model and PacifiCorp KRWQM results at an hourly to daily time scale that would characterize these variations. PacifiCorp 2008 and 2014 model results are not presented at an hourly to daily time scale. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-8
2.4 Sediment Transport Modeling

The fate and transport of the fine sediment predicted to be released under the Proposed Project is critically important to understanding a wide-range of both short- and long-term environmental impacts. Therefore, the DEIR must include a detailed discussion and supporting numerical or quantitative analysis to *document the expected impacts of the Proposed Project. Because this is a critical area for the effects analysis, PacifiCorp had an independent expert review the sediment transport models and the DEIR's use of the modeling information (see Brookes 2019 which is included in Exhibit C materials).*

In numerous locations throughout the DEIR, there is a repeated conclusion that the fine sediment will be transported the length of the Klamath River and enter the Pacific Ocean. For example, the DEIR states that:

- *"Most of the fine sediment is expected to be transport ed in suspension to the ocean shortly after being eroded. Fine sediment erosion would result in elevated suspended sediment concentrations downstream of Iron Gate Dam in the short term (Stillwater Sciences 2010, USBR 2012)." (DEIR pg. ES-6)*
- *"Over 80 percent of the reservoir sediments are fine sediment (organics, silts, and clays), which are expected to remain suspended in the Klamath River flow as it moves downstream and out into the Pacific Ocean." (DEIR pg. 2-60)*
- *"Because the trapped sediments consist primarily of organic material (e.g., dead algae), silts, and clays, they would be easily eroded and flushed out of the reservoirs into the Klamath River, and would continue to be suspended in the river downstream to the Pacific Ocean." (DEIR pg. 2-68)*
- *"The amount of sediment deposition in the estuary as a result of dam removal is anticipated to be small..." (DEIR pg. 3-83).*

These conclusions represent highly simplified opinions that are not supported by the cited numerical analysis (i.e., Stillwater Sciences 2010; USBR 2012c). The Stillwater Sciences (2010) and USBR (2012c) models both assume that fine sediment behaves as wash load, which by definition does not deposit. The DEIR makes a fundamental error by presenting this assumption as a conclusion of the modeling.

It is reasonable to assume that some proportion of the fine sediment load would behave as wash load (sediment that remains in suspension throughout the river system). However, in the absence of a specific numerical analysis, such an assumption is a broad generalization that only holds true under specific circumstances, presenting significant risk that the wash load flushing would not persist for the duration of the drawdown or the 190 miles of river downstream of Iron Gate Dam. Fine sediment can, and does, settle-out in riverine systems. This is likely to happen in the Klamath River in areas such as backwaters, pools, eddies, slack water, side channels, the estuary, and any floodplains accessed by high flows. Deposition will also occur at the heads of riffles where downwelling will move sediment-laden water into the gravels resulting in deposition of those fine silt s and clays into the interstitial spaces of the riffles; these areas are important spawning habitat for salmon. Deposition of fine sediments into these areas would adversely affect aquatic and riparian biota and important habitat.

Despite the potential significance of the issue to aquatic and fishery resources, analysis of fine sediment transport downstream of Iron Gate was included in a very simple manner in the DEIR's cited references. While the modeling in these cited source materials appears generally technically sound, the models are limited and the DEIR fails to present these model limitations or the uncertainties that remain. Specifically, these areas of uncertainty could substantively affect the analysis in the DEIR include:

- *Errors in estimating the amount and type of stored sediment.*
- *Lack of high flow suspended sediment data.*
- *Definition of the mobilization flow without direct field measurements of sediment movement.*
- *Unknown bed material and channel dimensions that will prevail after dam removal.*
- *Incision and erosion of deposits accumulated behind the dams (e.g. Copco and Iron Gate reservoirs).*
- *Effect of climate change on geomorphology.*
- *Angle of repose of material upstream of dam, which impacts sediment volumes that may be eroded from the reservoirs due to bank failures during drawdown.*
- *The impact of proposed sediment jetting, which is included in the Proposed Action as part of the Definite Plan, but was not included in prior modeling related to sediment volume and transport relied upon in the DEIR.*
- *Cohesive materials (fine silts and clays) that are not addressed in the modeling and this material would behave differently than how it is modeled because of cohesion (the USBR 2012 model is capable of modeling cohesive and non-cohesive sediment transport).*

Because the DEIR does not discuss the uncertainties associated with the numeric modeling, the reader is erroneously led to believe that these models accurately represent conditions likely to occur under dam removal. However, other large-scale dam removal projects, such as on the Elwha River, have had sediment impacts that were not consistent with expectations. The limitations and uncertainties associated with the modeling present significant residual and unaddressed risks that need to be described in the DEIR. Specific areas that need to be addressed include:

1. The DEIR states that a faster drawdown would reduce the time of interaction between flow and reservoir sediment deposits. While this may be true, there are processes involved other than the duration of exposure to erosive forces. The DEIR needs to discuss the rate of erosion because of exposure to higher water velocities generated by a faster drawdown could also produce more slumping and bank failures along reservoir margins because of the pore pressure of water remaining in the sediments and over-steepened banks.

2. The DEIR should analyze the effects of erosion processes operating both upstream and downstream of the dams and within the reservoir footprints (such as lateral channel adjustment following reservoir drawdown), which could extend the duration of downstream sediment effects.

3. The DEIR should identify key sensitive habit at locations downstream of Iron Gate Dam, discuss how susceptible these areas are to deposition, evaluate rates at which deposition could occur, and provide an analysis of effects of deposition on the habitat and resources in those sensitive locations. Some of the key habitats that should be addressed include known Chinook spawning areas and refugia that are important to Coho rearing throughout the year.

4. Spawning sites at the head of riffles where downwelling currents carry oxygenated water into the interstices of salmon spawning sites may be especially vulnerable to deposition (Tompkins and Kondolf 2009). As water is pulled into the gravels, the fine sediment that is suspended moves into the interstices where it is deposited thereby clogging gravel, interrupting important intergravel flow, and reducing survival of deposited eggs or newly hatched fish.

5. The impacts of proposed sediment jetting to remove additional sediments during reservoir drawdown. Sediment jetting as proposed in the Definite Plan was not considered in the modeling work conducted by Stillwater Sciences (2010) and USBR (2012a), and would be expected to increase the amount of sediment discharged from the reservoirs, impacting modeling results.

In summary, while the modeling that was conducted by Stillwater Sciences (2010) and USBR (2012c) may be technically sound, the models are inherently limited. Moreover, the DEIR fails to use these models properly, interprets a basic modeling assumption as a result, does not discuss impacts resulting from deposition of fine sediment downstream of Iron Gate dam that would result from implementation of the Proposed Project, and does not consider changes in the approach to reservoir drawdown (sediment jetting) that may impact model results.

Response to Comment ORG46-8

Comment noted. The first paragraph of the comment cites an independent review of the sediment transport models used in the Draft EIR (Brookes 2019), where the review was commissioned by PacifiCorp and was provided as an attachment to PacifiCorp's comments on the Draft EIR. Paragraph two of the comment includes a bullet list with quotations from the Draft EIR, which provide context for later paragraphs of the comment that are responded to below.

Regarding the third and fourth paragraphs of the comment, which include statements on wash load and settling of fine sediment, please refer to Master Response GEO-1. Master Response GEO-1 explains the fine sediment modeling and analysis approach and the potential for short-term spatially discrete sedimentation impacts.

With respect to the specific points the commenter lists in the second set of bullet points regarding an alleged weakness in disclosing limitations and uncertainty associated with the sediment modeling, it is noted that these points appear to primarily reflect discussions of model uncertainty and sensitivity in USBR (2012a). USBR (2012a), when reviewed in full, provides context and explanation for elements of uncertainty and sensitivity in the SRH sediment models. Responses to the points raised in the second set of bullet points are provided below.

Second Set of Bullet Points, Point 1: The uncertainty in the sediment volume estimates is presented in Volume I Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* Table 2.7-10 (page 2-67), and it is related to the spatial interpolation of sampled sediment flux. Because it is impractical to sample the entire reservoir bed, sediment cores were drilled and sampled, then sediment flux results were spatially interpolated to find the total sediment volume (yd^3) and associated sediment mass (tons) deposited within each reservoir. The spatially distributed core sites are shown in Volume I Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* Figures 2.7-7, 2.7-8, and 2.7-9 (pages 2-62 to 2-64). The uncertainty of the sediment volume estimates is reasonable for sediment yield analyses, which generally use modeling to estimate the order of magnitude of sediment yield. For additional information, please refer to Section 5.6.1.2 *Reservoir Sediment – Current Estimates* of USBR (2012a). Regarding sediment type, this was sampled directly from the spatially distributed sediment cores (USBR 2010a); therefore, there is not considered to be significant uncertainty associated with the type of sediment in the reservoirs.

Second Set of Bullet Points, Point 2: Due to lack of high flow suspended sediment concentration (SSC) data between the dams and Orleans, USBR (2012a) synthesized a relationship between flow and sediment concentrations based on the mass of sediment deposited behind the dams (see USBR [2012a] Section 5.3 *Sediment Loads* page 5-5 for further details). While the lack of high flow SSC data between the dams and the Klamath River at Orleans still introduces uncertainty into the modeled SSCs at high flows, the approach in USBR (2012a) provided a reasonable method to quantitatively resolve a data limitation and estimate the increase in SSCs with increases in Klamath River flow. Overall, USBR (2012a) provides the best available information and quantitative SSC modeling results under reservoir drawdown to analyze the potential impacts from SSCs under the Proposed Project. There are no data or other evidence provided by the comment or publicly available to indicate that additional quantitative analysis, improvements in the precision of the modeling, or changes in the model uncertainty, would alter the result of the analysis in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments*

Potential Impact 3.2-3 that there would be a significant and unavoidable impact for SSCs under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-3.

Second Set of Bullet Points, Point 3: USBR (2012a, pages 5-4 to 5-8) used reach-averaged hydraulic properties to estimate the flows required for slight and significant bed mobilization under existing conditions. USBR (2012a) recognized that there is uncertainty in defining the bed mobilizing flow without direct field measurements of sediment movement. United States Bureau of Reclamation (USBR), therefore, used a range of shear stress values for probable mobilization, rather than a single value. USBR (2012a) also compared their results with previous studies and found that they returned comparable flow estimates for bed mobilization. Results are summarized in Volume I Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Environmental Setting – Sediment Load* (pages 3-748 to 3-753), which is partially modified in Volume III Attachment 1. As USBR (2012a) used a combined data reporting approach for the two-year sediment model simulations, the report does not forecast potential transient sediment storage and bed mobilization following dam removal. This has been considered in Master Response GEO-1.

Second Set of Bullet Points, Point 4: Regarding the alleged unknown post-dam removal bed material, potential changes to bed material associated with dam removal have been interpreted based on sediment transport model simulations (USBR 2012a) in Volume I Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation – Sediment Load* (pages 3-748 to 3-753). Regarding the alleged uncertainty due to unknown post- dam removal channel dimensions, exact future channel dimensions cannot be determined by sediment transport modeling or other means. However, sediment transport modeling is used to inform analysis of channel response to dam removal in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and this impact is modified in Volume III Attachment 1. Please also refer to Master Response GEO-1.

Second Set of Bullet Points, Point 5: The Sedimentation and River Hydraulics sediment transport model (SRH-1D) model (USBR 2012a) uses an above water angle of repose to enable simulations of reservoir sediments moving into the fluvial system; therefore, this process is captured in the sediment model outputs discussed in the EIR. The SRH-1D model (USBR 2012a) does not capture more complex processes of slumping and movement of fine sediment into the fluvial system, which is a limitation recognized in USBR (2012a) and discussed below in this comment response. SRH-1D model simulations found that 36 to 57 percent of the sediment stored behind the reservoirs would not erode during drawdown (i.e., would remain in the reservoir footprints) and the physical properties of the sediments mean that they would consolidate with some cracking (i.e., gullying or incision and erosion) (USBR 2012a). The EIR uses information from the model outputs and hydrology theory to assess potential gullying of the reservoir sediment deposits that would remain following drawdown. Please refer to Potential Impact 3.11-5 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* (pages 3-768 to 3-769) and modifications in Volume III Attachment 1. After the initial drawdown, the greatest potential for gullying of reservoir sediments and associated secondary erosion would occur in the short-term period (within two years of dam removal) following sub-aerial exposure of the reservoir sediments, as a surface runoff network establishes. Although the rate of sediment erosion and transport is dependent on the water year types during and following dam removal, rapid consolidation of the remaining sediment deposits following sub-aerial exposure (USBR 2012a), along with hydroseeding and other restoration work (see Section 6.1.1 *Measures to Manage Remaining Sediment* of Volume II Appendix B: *Definite Plan*), mean that elevated concentrations of suspended sediments, with potential to impact water quality and aquatic species, are not expected to occur in the longer term. Some surface erosion of the remaining reservoir sediment deposits may occur during storm events over the long term. Overall, gullying of the reservoir sediment deposits is accounted for in the sediment model outputs (USBR 2012a) and in the EIR analysis.

Second Set of Bullet Points, Point 6: Consistent with CEQA Guidelines section 15125(a), future climate changes are not part of the existing condition against which this EIR compares potential impacts. While climate change predictions are occasionally used in the Lower Klamath Project EIR to provide additional context for potential impact analyses related to the Proposed Project or the alternatives (e.g., Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1, Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8, Volume 1 Section 4.2.2 *No Project Alternative – Water Quality* Potential Impact 4.2.2-1 [pages 4-103 to 4-108]), the predictions are not relied upon for significance determinations associated with the Proposed Project or the alternatives. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and Section 3.3 *Aquatic Resources*. Long-term changes to the existing (and historical) physical environment resulting from dam removal were analyzed for reference periods of up to 50 years (see Volume I Section 3.11 *Geology, Soils, and Mineral Resources* (pages 3-733 to 3-780), using hydrologic and geomorphic theory and quantitative modeling. The sediment models are described in Master Response GEO-1 and include long-term (50-year) simulations focusing on evolution of the riverbed post dam removal and short-term (2-year) simulations focusing on suspended sediment erosion, transport, and deposition during and following drawdown (USBR 2012a). The water flow conditions input to the sediment models (USBR 2012a) are described in ORG46-203 and include allowance for a wide range of flow conditions that could reasonably occur in the future, accounting for Klamath River flows continuing to be controlled by the Keno Dam under the Klamath Irrigation Project post dam removal. Therefore, anticipated future flow conditions reasonably inform the sediment modeling applied in the EIR sediment and geomorphology analysis (see Volume III Attachment 1 Section 3.11-5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5). It is noted that the sediment models (USBR 2012a) were applied to assess sediment erosion, transport, and deposition at the reach scale as intended by the model framework. Finer scale transitory sediment deposition and remobilization is assessed theoretically (see Master Response GEO-1). It is also noted that as gravel supply would be restored following dam removal under the Proposed Project, deposition of gravel and sand is expected within the active channel bed at specific locations between Iron Gate Dam and Cottonwood Creek under the range of modeled flow conditions, regardless of increases or decreases of peak flows. Higher peak flows could transport transitory sediment deposits downstream within shorter timeframes than expected (see Master Response GEO-1). In addition to the model- and theoretical-based analyses of sediment and geomorphology, and as noted in Brookes (2019, page 7), meteorological effects on hydrographs under a range of climate scenarios predicted by Global Circulation Models (GCMs) are considered in Section 11 *Climate Change Effects* of USBR (2012, page 11-1 to 11-9). Temperatures in the Upper Klamath Basin are expected to increase under climate change, and precipitation may increase or decrease. Although there are variations with 'wet' and 'dry' climate simulations, water flows entering the Upper Klamath Lake in late winter and early spring (February to April) are generally excepted to be similar to, or higher than, existing flows, but from late spring through early fall (May to October) flows are generally expected to be similar to, or lower than, existing flows. Winter flows (November to January) could be higher or lower, depending on the climate change scenario (USBR 2012a). Forecasting of sediment erosion, transport, and deposition under climate change scenarios is not undertaken in USBR (2012a). Such modeling is inherently difficult and a limited outcome of advanced research. However, based on the hydrograph modeling results, theoretical knowledge of how sediment and geomorphology may respond has been applied, which is a standard approach in considering climate change effects on sediment movement. If peak flows increase under a 'wet' climate change scenario, this may create a wider channel and floodplain (USBR 2012a); however, flows will continue to be controlled by Keno Dam, thus unintentional geomorphological effects associated with increased flows are not expected to be significant. In addition to changes of water flow, climate change could influence a change of riparian vegetation, affecting bank properties, with or without the Proposed Project; however, potential bank stability changes are speculative. Climate change effects on water flow and sediment movement impacting flood hydrology are considered in response to comment ORG46-288 and no changes to the Volume I Section 3.6 *Flood Hydrology* analysis are required.

Second Set of Bullet Points, Point 7: The angle of repose, which is related to the stability of above-water reservoir sediments, was included in sediment transport modeling by USBR (2012a), and the outputs of the sediment modeling inform

Volume I Section 3.11 *Geology, Soils, and Mineral Resources* (pages 3-733 to 3-780), which is partially modified in Volume III Attachment 1. The assumed angle of repose was conservatively set at 15°. One limitation of the SRH-1D model is that it cannot input a separate angle of repose for fine sediment (silt and clay) than for sand. Although the angle of repose for drained sand may be closer to 30°, the 15° angle was deliberately selected as most representative when modeling fine sediment and sand together with the same angle of repose (USBR 2012a). The sensitivity of the angle was tested in USBR (2012a) by running simulations of the same sediment model with the angle set at 5° and 10°, separately. Decreasing the angle of repose decreased the maximum SSC and increased the duration of elevated SSC impacts (over 100 milligrams per liter (mg/L) for fine sediment, and over 1000 mg/L for sand). This sensitivity output is related to the unlikely scenario of sand re-depositing in Iron Gate Reservoir and subsequently remobilizing when Iron Gate Reservoir is completely drawn down (with almost all the sand remobilizing and entering the fluvial system when the angle of repose is set at 5°) (USBR 2012a). Given that the angle of repose was cautiously considered most representative at 15°, applying the sediment model simulation that used this angle (i.e., the primary SRH-1D sediment model) to the EIR analyses is considered to capture the best available information (see Potential Impact 3.11-5 in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* [pages 3-765 to 3-775], which is modified in Volume III Attachment 1). While the angle of repose is applied in the SRH-1D sediment model to simulative reservoir sediments moving into the fluvial system, the model assumes instantaneous bank failure and movement of sediment into the fluvial system. The angle of repose does not apply to, or account for, ongoing bank failures (slumping), nor do any of the other sediment model parameters. This is a recognized limitation of the model (see USBR 2012a, pages 9-33 to 9-37 and 23-39 to 23-40). The anticipated small, shallow slumping along upstream embankment slopes during drawdown, when the force of the sediment weight and draining water exceeds the shear strength of the sediment, would not erode enough sediment to substantially change the range of estimates of fine sediment erosion and transport presented in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 – Table 3.11-7 (page 3-768) (see the same table in Volume III Attachment 1). The shear strength of the sediment would increase as the water drains and cohesion would increase as the sediment consolidates, resulting in stabilization of remaining reservoir sediments and reduced potential for slumping. Some localized, small areas of sediment on steeper slopes (greater than 0.2°) surrounding Copco No. 1 Reservoir would remain unstable with potential for slumping post-drawdown (USBR 2012a). As for the discussion of gullying (see above in this comment response), rapid consolidation of reservoir sediments and hydroseeding would reduce potential for bank slumping in the long term (see Volume II Appendix B: *Definite Plan* Section 6.1.1 *Measures to Manage Remaining Sediment*). Therefore, elevated concentrations of suspended sediments, with potential to impact water quality and aquatic species, are not expected to occur in the longer term.

Second Set of Bullet Points, Point 8: For an explanation of sediment erosion associated with sediment jetting, please refer to comment response ORG46-132.

Second Set of Bullet Points, Point 9: Cohesive properties can be input differently in different sediment models. Stillwater Sciences (2008) originally used the peer-reviewed Dam Removal Express Assessment Model (DREAM-1) (Cui et al. 2006a,b) to identify preferred reservoir drawdown options for minimizing suspended sediment impacts to the Klamath River, especially biological resources, downstream of Iron Gate Dam. The DREAM-1 model was designed for simulations where reservoir sediment upstream of dams being removed is composed primarily of non-cohesive fine sediment (sand and silt). The model was considered suitable for assessing reservoir drawdown options, because of the high silt content of the Klamath River reservoirs. USBR (2012a) subsequently applied the SRH-1D model, developed by Huang and Greimann (2010), to examine surface hydrology, groundwater hydrology, hydraulics, geomorphology, and sediment transport within the Klamath River Basin under the No Project Alternative (dams remain in place) and the Proposed Project (dam removal). USBR (2012a) considers cohesive and non-cohesive sediment transport processes within the limits of industry standard numerical sediment transport modeling. Cohesion of the reservoir sediment deposits was considered in the SRH sediment models and reporting that produced the sediment model outputs analyzed in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and modified in Volume III Attachment 1. The erosion rate of cohesive sediment is governed by the simple linear excess shear stress model. The data to support the cohesive parameters was taken from jet tests described in Appendix D of USBR (2012a). Fine sediment (clay and silt) particles would interact with each other, thus were modeled as a single cohesive unit for the purposes of estimating SSCs, longitudinal sediment erosion and transport, and reach-scale sediment deposition (USBR 2012a). The sensitivity of the cohesive erodibility parameter was tested and increasing or decreasing the cohesive sediment critical shear stress from 0.2 Pa to 1.2 Pa, or to 0.03 Pa, respectively, did not have any significant effect on output sediment concentrations, which were essentially the same for each critical shear stress applied (USBR 2012a, pages 9-18 to 9-19). Therefore, the sediment transport results applied in the EIR analyses are not considered to have significant uncertainty with regard to cohesive erodibility.

The comment recommends additional analysis in light of the alleged non-disclosure of model uncertainty in a third set of bullet points. The third set of bullet points are addressed as follows:

Third Set of Bullet Points, Point 1: Please refer to Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* (pages 2-54 to 2-60), as well as to Volume II Appendix B: *Definite Plan*, for explanations of drawdown periods and rates. Please also refer to Section 3.2.4.2 *Water Quality – Impact Analysis and Approach – Suspended Sediments* for a discussion of the reservoir drawdown rate with respect to sediment discharge. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality*. As discussed above in this comment response, the angle of repose accounts for instantaneous movement (erosion) of reservoir sediment into the fluvial system in the SRH-1D model, but the model does not account for ongoing channel bank slumping nor for reservoir rim instability. The angle of repose applied for SRH-1D modeling (USBR 2012a) was set at 15 degrees and sensitivity tested at 5 degrees and 10 degrees, with 15 degrees considered most representative of sediment mobilization upon drawdown. Results associated with sediment mobilization at this angle (and associated velocity) are included in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which is modified in Volume III Attachment 1. The angle of repose applied in the DREAM-1 model (Stillwater Sciences 2008), which was used for identifying preferred reservoir drawdown options for minimizing suspended sediment, was conservatively set at 10 degrees, and results are generally consistent with USBR (2012a). Regarding channel bank slumping, consideration of ongoing channel bank slumping at different drawdown rates is based on hydrology theory, rather than on quantitative modeling. Pore-water pressure, bank steepness, and the shear strength of the bank sediment relative to the forces of sediment weight and velocity are all factors in the occurrence, or lack of, bank slumping. The sediment pore-water pressure and bank steepness would remain similar over the range of drawdown rates (2 to 5 feet per day) considered. Further, the upper limit of the drawdown rate (5 feet per day) proposed would only increase the maximum average water discharge by 3 to 14 percent of the 2-year peak flow and 1 to 7 percent of the 10-year peak flow (see Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* [pages 2-54 to 2-60] and modifications in Volume III Attachment 1), which means that the associated relative increase of velocity in fluvial channels downstream of the reservoir footprints would also be slight. To provide context, please refer to Figures 4-7 and 4-9 in USBR (2012a), which show that reach averaged channel velocities in the Klamath River between Iron Gate Dam and Indian Creek are within the range of approximately 3.5 to 4.5 ft/s under median flow conditions and that this range increases to approximately 5.5 to 8.5 ft/s during the 2-year peak flow. As previously noted, the maximum average flow increase during drawdown would be 3 to 14 percent of the 2-year peak flow and 1 to 7 percent of the 10-year peak flow with the upper limit of the proposed drawdown rate (5 feet per day), so the average increase in the Klamath River velocities during drawdown would typically be less than those experienced under the 2-year peak flow. Thus, there would not be a substantial increase in bank erosion, including slumping, with the upper limit of the proposed drawdown rate (5 feet per day) compared with a slightly slower drawdown rate, and the EIR analysis accurately describes the range of potential erosion. Regarding the latter point of reservoir rim stability from above, this is considered separately from channel bank slumping—see Section 3.11.5 *Geology, Soils, and Mineral*

Resources – Potential Impacts and Mitigation Potential Impact 3.11-3 and Master Response GEO-2. Although the significance determination remains unchanged, Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* – Potential Impact 3.11-3 and associated Mitigation Measure GEO-1 has been revised to clarify the potentially unstable slope segments associated with potential slope instability during drawdown and the actions required in relation to this. The proposed drawdown rate (2 to 5 feet per day) is expected to have minimal effect on the stability of the slopes, and as such Potential Impact 3.11-3 does not differentiate the analysis or significance determinations based on drawdown rate. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* for these revisions.

Third Set of Bullet Points, Point 2: Sediment transport modeling was divided into two model segments: an upstream model extending from upstream of J.C. Boyle Dam to downstream of Iron Gate Dam, and a downstream model extending from Iron Gate Dam to the Pacific Ocean (USBR 2012a). Figures 9-28 and 9-29 of USBR (2012a, page 9-35) show modeled reach averaged erosion and deposition depths from J.C. Boyle to Iron Gate dams. The reaches between J.C. Boyle and Iron Gate dams are modeled to have minimal morphological change following dam removal (USBR 2012a), including the reach upstream of Copco No. 1 Dam in California, which shows the least change. The EIR focuses on the potential geomorphological impacts to reaches downstream of Iron Gate Dam, because this is where modeling indicated that there could be potential impacts in California. Please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and modifications to this impact in Volume III Attachment 1. Please also refer to Master Response GEO-1.

Third Set of Bullet Points, Point 3: Regarding sensitive habitat locations downstream of Iron Gate Dam and the effects on these resources, including sediment deposition effects, please refer to Volume III Section 3.3 *Aquatic Resources* and to Master Responses AQF-7 and AQF-10. Regarding sediment deposition specifically, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and modifications to this impact in Volume III Attachment 1, as well as to Master Response GEO-1. Given that the significance of short-term sediment deposition during and following dam removal is split, with a significant and unavoidable impact between Iron Gate Dam and Cottonwood Creek, and no significant impact downstream of Cottonwood Creek, the associated aquatic impacts are also considered at this spatial scale. As discussed in Master Response GEO-1, the existing sediment models were sufficient to assess potential sediment-related impacts of the Proposed Project against criteria relevant to CEQA, and additional analysis of fine sediment erosion, transport, and deposition, is not necessary for the purposes of the EIR.

Third Set of Bullet Points, Point 4: Regarding fine sediment erosion, transport, and deposition, including behavior in riffles, please refer to Master Response GEO-1, and to Master Responses AQF-7 and AQF-10 for the associated impacts to fish. A more spatially discrete sediment analysis would not change the key findings or impact determinations for aquatic resources. Potential short-term and long-term impacts to critical habitats and Essential Fish Habitats (EFHs), as well to specified salmonid populations, are assessed in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. Geomorphological changes, including channel bed deposition, are considered. For coho salmon critical habitat and Chinook and coho EFH, as well as for salmonid populations generally, increased bedload transport and deposition from the removed dams to Cottonwood Creek would improve spawning substrate following dam removal in the short- and long-term (i.e., once elevated SSCs rescind, habitat would be improved). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Third Set of Bullet Points, Point 5: Prefer to response to comment ORG46-132 for a discussion of sediment jetting.

Lastly, although not specifically discussed in the comment, Brookes (2019) makes the incorrect statement that the sediment volumes trapped behind the Lower Klamath Project dams are unknown. The second row below the header of the table in Section 2 (pages 4-5) of Brookes (2019) misinterprets information from USBR (2012a). The fraction of fine (silt- and clay-sized) material trapped behind the dams is known within a reasonable level of uncertainty based upon data from more than 75 sediment cores collected across J.C. Boyle, Copco No. 1, and Iron Gate reservoirs using standard sampling methods (see Table 5-15 [page 5-25] in USBR 2012a, and Table 2.7-10 [page 2-67] and Table 2.7-11 [page 2-68] in EIR Volume I Section 2.7.2 *Proposed Project – Reservoir Drawdown*, as well as Table 3.11-6 [page 3-766] in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-6). While the proportion of the total fine fraction that is silt- versus clay-sized particles was not distinguished during the sediment core sampling, the analysis of sediment erosion potential for the reservoirs is not sensitive to this uncertainty. The known fine sediment fraction is used for estimating SSCs at high flows (USBR 2012a, page 5-5).

Comment ORG46-9

2.5 Greenhouse Gas

The impacts to greenhouse gas emissions resulting from removal of a non-emitting power source and its relation to California climate change policies are inadequately addressed in the DEIR. The qualitative analysis identifies the replacement of hydroelectric power with possible non-renewable energy sources as an indirect impact. This is not an indirect impact but rather a direct consequence of removing a stable and reliable non-emitting generation source *from PacifiCorp' s resource portfolio that can meet the energy needs of approximately 69,000 homes.*

The analysis repeatedly refers to PacifiCorp's 2017 integrated resource plan (IRP; PacifiCorp 2017) and associated plans to increase renewable energy resources on its system over time. While it is the case that PacifiCorp is in the process of decarbonizing its generating resource portfolio, the analysis in the DEIR is inadequate in that what is required is an assessment of PacifiCorp' s system emissions if the Klamath Hydroelectric Project is not removed, or if specific elements of the project are not removed as considered in the Two Dam Removal and Three Dam Removal alternatives. Since PacifiCorp's (2017) IRP assumes the Klamath Hydroelectric Project is removed, it already represents the scenario where the energy and capacity from the Klamath Hydroelectric Project are replaced with existing or incremental resources. Though future capacity resources may be non-emitting, from an operational perspective low-cost energy from a hydroelectric resource displaces a combination of energy resources and wholesale market purchases on PacifiCorp's system that provide similar capacity and dispatch flexibility as the hydroelectric facilities and that do have an emissions profile that is not accounted for in the DEIR. To continue to balance fluctuating loads and resources in real-time, while providing local voltage and frequency support to the transmission system, PacifiCorp will need to call upon non-renewable resources if the Klamath Hydroelectric Project is removed. While PacifiCorp's continued expansion of renewable resources in its generation portfolio can replace zero-emission energy lost as a result of dam removal, the expansion of non-carbon resources that can provide capacity (e.g. storage) will be needed to reduce these impacts over time. For these reasons, these emissions impacts should be acknowledged in the DEIR.

As calculated pursuant to the California Air Resources Board Mandatory Greenhouse Gas Reporting Rule, PacifiCorp's 2017 system emission factor was 0.6844 metric tons of carbon dioxide equivalent ($MTCO_2e$) per megawatt-hour (MWh). Using this factor, the Klamath Hydroelectric Project developments proposed to be removed, which produce 686,000 MWh of generation per year, displace approximately 469,500 $MTCO_2e$ per year. As a point of reference, PacifiCorp's total obligation for emissions reductions under California' s cap-and-trade program in 2017 was 756,736 $MTCO_2e$. Thus, removal of the Klamath project dams will set back PacifiCorp's compliance with mandated emissions reductions and increase its required emissions reductions to achieve California's climate change policy mandates.

The threshold for a potentially significant impact related to greenhouse gas emissions in the DEIR is set at 10,000 $MTCO_2e$ (DEIR pg. 3-719). Though avoided emissions will go down over time as PacifiCorp decarbonizes its system, the DEIR entirely fails to consider the emissions impacts related to removal of hydroelectric facilities that are qualified generation resources under California' s renewable portfolio standard. In a single year, the increased emissions resulting *from removal of the Klamat h Hydroelectric Project will exceed the DEIR' s significance criteria by a factor of nearly 47. Over the expected life of a new potential FERC license—40 years—the increased system emissions would be on the order of 18 million MTCO2e at PacifiCorp's current system emission factor. Granted, revised instream flow requirements under a new license would reduce the generation output of the Klamath Hydroelectric Project, but the failure of the DEIR to consider the potential impact on greenhouse gas emissions due to dam removal reflects a lack of balance in the document that results in adverse environmental impacts of potential dam removal being downplayed. Millions of tons of avoided greenhouse emissions is not an insignificant environmental impact, particularly in the near-term when reducing emissions to avoid the worst impacts of climate change is critical.*

Indeed, prior environmental analysis of Klamath relicensing and dam removal alternatives (FERC 2007; DOI and CDFW 2012) have considered greenhouse gas emissions impacts to be a direct consequence of Klamath dam removal. In its Final EIS, FERC (2007) estimated the greenhouse gas emissions impacts of removing the four Klamath dams proposed for removal to range between 68,600 to 106,330 metric tons of carbon per year, or 251,500 to 389,900 $MTCO_2e$ per year (see Table 4-8 in FERC 2007). Similarly, the 2012 KHSA EIS/EIR (DOI and CDFW 2012) documented emissions impacts from potential dam removal ranging between 341,539 to 396,575 $MTCO_2e$ per year (see Tables 3.10-6 and 3.10-7 in DOI and CDFW 2012). The DEIR considers the emissions impacts of removing non-emitting generating resources as an indirect impact of the Proposed Project, and then only qualitatively discusses those impacts as being not significant given PacifiCorp's plans to continue to add renewable resources. However, robust and readily available quantitative analysis has been conducted on these greenhouse gas emissions impacts but this information is not incorporated into the DEIR.

The DEIR's lack of balance is also reflected in that its greenhouse gas evaluation considers potential emissions of methane from the hydroelectric reservoirs that would presumably be removed as part of the Proposed Project, even though there has been no thorough assessment of methane production at the Klamath Hydroelectric Project. As FERC (2007) stated, "Given the lack of any site specific data concerning methane production at the Klamath Hydroelectric Project, any attempt to estimate net bio-production of greenhouse gases would be speculative, at best." This remains the case, yet the DEIR assessed reduced methane emissions as a potential benefit of the Proposed Project, but completely fails to assess the greenhouse gas emissions impacts of removing qualified, non-emitting renewable resources.

The DEIR's analysis also does not address California's policies in Senate Bill (SB) 100 (De León). Senate Bill 100 increases California's renewable portfolio standard (RPS) to 60 percent by 2030 and establishes a state policy whereby renewable and zero-carbon resources are to supply 100 percent of retail sales to

California end-use customers by December 31, 2045. Any loss of a zero-carbon resource will make this standard more costly and difficult to meet. While removal of the Klamath Hydroelectric Project may not endanger PacifiCorp's ultimate compliance with California's RPS, it will make such compliance more costly. The intent of California' s RPS and its cap-and-trade program is to reduce greenhouse gas emissions and ultimately the impacts of climate change. The removal of an existing non-emitting resource that could continue to serve customers directly contradicts the purpose of these policies and thus should be more fully evaluated in the DEIR.

Additionally, both Oregon and Washington are considering sweeping climate change bills impacting the electric sector in 2019 legislative sessions. Oregon is considering adopting a cap-and-trade program that will link with California's program, while Washington is considering both a cap-and-trade program and a proposal that would require utilities in Washington to achieve 100 percent carbon neutral energy portfolios by 2030. While not certain to pass this year, it is likely that additional policies targeting emissions from the electric sector will be enacted in the near-term. Hydroelectric generation, which is more predictable and reliable than intermittent resources such as wind and solar, will be a critical component of the shift to a low- cost, reliable carbon-free future. In failing to even acknowledge the benefit of the non-emitting nature of the Klamath Hydroelectric Project and its relation to California's extensive climate change policies, the DEIR conflicts with the California RPS goals by not addressing the increase in carbon emissions resulting from implementation of the Proposed Project.

Response to Comment ORG46-9

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-10

2.6 Uncertainty in Salmon Production and Recolonization

The DEIR does adequately address the uncertainty associated with salmon production and recolonization and presents an unbalanced view of potential out comes. The DEIR states that the Proposed Project will increase fall-run Chinook Salmon abundance based solely on Hendrix (2011) modeling analysis. To be precise, the Hendrix (2011) analysis uses average habitat productivity data from Pacific Northwest streams to forecast that natural fall-run Chinook Salmon production will increase in the absence of harvest. That is, natural production of the important harvest species in the Klamath Basin will increase if there is no fishing for that species. The Hendrix (2011) analysis has significant limitations and does not present data for hatchery fish returning to Iron Gate Hatchery or Trini ty River Hatchery. This distinction is important because as the DEIR states, Iron Gate Hatchery produces about 50,000 adult fall-run Chinook annually (DEIR pg. 3- 248). This rate of supplementation by Iron Gate Hatchery supports a long-

term average harvest rate of about 28,000 fall-run Chinook (CAHSRG 201 2}. Hendrix (2011} estimates that the Iron Gate Dam to Keno Dam reach of the Klamath River would produce 23,000 adult natural origin fall-run Chinook if there was no harvest of those adults. Even using this flawed no harvest assumption, this is approximately 50 percent fewer fall-run Chinook than the corresponding number currently produced by Iron Gate Hatchery. The DEIR fails to recognize the inherent contradiction in these modeling results: namely, that under the most optimum outcomes, implementation of the Proposed Project would result in the production of substantially fewer fish than under existing conditions without allowing any harvest of those fall-run Chinook. If harvest were to occur at close to the historically average rate, even fewer fall-run Chinook would be available to return to the upper Klamath River.

This discussion illustrates how the DEIR underestimates the importance of fall-run Chinook produced at Iron Gate Hatchery. While the DEIR acknowledges that production targets at the hatchery will be changing under the Proposed Project, it does not accurately address the impacts that will occur from the proposed substantial reduction in Chinook production on fish populations or tribal, recreational, or commercial fisheries. The Proposed Project would reduce the yearling Chinook production by 87 percent and the smolt production by 33 percent. Yearling fall-run Chinook have better survival rates, contribute to the fisheries at a higher rate than Chinook released as smolts, and return to Iron Gate Hatchery at a long-term average rate that is about twice that of smolts (Giudice and Knechtle 2018). This makes the proposed 87 percent reduction in yearling production a much larger proportional impact on fall-run Chinook populations and fisheries. Coupled with this short coming, the DEIR does not adequately address the long-term impacts arising from the eventual elimination of Iron Gate Hatchery production 8 years after dam removal.

The DEIR fails to discuss the results from habitat modeling conducted during FERC relicensing (Oosterhout 2005; PacifiCorp 2005) that compared natural production to current hatchery production of adults. These results should be described in the DEIR to adequately inform the public and decision-makers about the potential impacts of the Proposed Project. The analyses by PacifiCorp (2005) and Oosterhout (2005) should be described, because these two analyses are thorough, incorporate habitat and water quality data specific to the Klamath River, and include potential dam removal scenarios. Unlike the Hendrix (2011} model, these two analyses incorporated actual measurements of stream habitat, water quality, and disease for virtually every river mile from Iron Gate Dam upstream. The data for the two analyses were collected by agencies and PacifiCorp as part of FERC relicensing process and data inputs to the models were reviewed and agreed to by the agencies. In contrast, the Hendrix (2011) model used the more simplified assumption that habitat quality is similar to other streams up and down the West Coast (even though the Klamath River is like no other stream on the West Coast). Thus, the analyses of PacifiCorp (2005} and

Oosterhout (2005} are based on basin-specific scientific information in contrast to Hendrix (2011} that uses generic data.

The DEIR acknowledges that there is uncertainty associated with the effects of the Proposed Project on Coho and Chinook. The DEIR notes that one of the reasons that Hendrix (2011) model results are used in the analysis is that it provided variance estimates of uncertainty, yet the results of this uncertainty analysis are not discussed in the DEIR. This uncertainly analysis needs to be described in the DEIR to fully inform decision-makers and public about the range of potential outcomes of the Proposed Project. The DEIR extensively references the Expert Panel report on Coho and Steelhead where Dunne et al. (2011} repeatedly reinforce the uncertainty around how the Proposed Project could affect the Coho population. Dunne et al. (2011} note that there may be a small increase in Coho production from newly accessible habitat, but also that disease and low ocean survival could easily offset this gain. Dunne et al. (2011) state that any increases in Coho populations are expected to be small through the first 10 years following the Proposed Project. This uncertainty was again voiced by the Expert Panel on Chinook where Goodman et al. (2011) stated that "...achieving substantial gains in Chinook salmon abundance and distribution in the Klamath Basin is contingent upon successfully resolving the following nine factors:"

1. *Resolve water quality issues in Upper Klamath Lake and Keno Reservoir*
2. *Address fish disease*
3. *Salmon successfully colonization of the upper basin*
4. *Harvest is managed to support adequate escapement*
5. *Hatchery straying does not adversely impact natural reproduction*
6. *Predation does not impact salmon populations*
7. *Climate change does not overwhelm production*
8. *Fall flows are adequate to minimize impacts to Chinook*
9. *Dam removal impacts do not have multi-year adverse effects*

While these nine items were written for the report on Chinook, they apply to Coho and the overall success of the Proposed Project as a whole. Because of unknown habitat quality upstream of Iron Gate Dam, the small population of Coho from which recolonization could occur (on average Iron Gate Hatchery annually receives 30 stray natural-origin adult Coho), and the fact that most of those fish are not adapted to habitat upstream of Iron Gate Dam, the DEIR conclusions regarding the success and speed of recolonization are overly optimistic. It is also important to recall that the determinations by both of these Expert Panels included the implementation of the KBRA. The KBRA in part provided funding and structure for basin-wide restoration which could address some of the nine factors listed above. The KBRA expired at the end of 2015 and has not been resuscitated. In Dunne et al. (2011) possible larger gains in Coho production were reported as being contingent on successful implementation of the KBRA. Given that this is no longer available, the level of uncertainty *surrounding the successful outcome of the Proposed Project is even higher than it was 2011. Additionally, the DEIR presents no analysis about potential harvest restrictions that could be necessary to support reintroduction and recolonization of Chinook into habitat areas upstream of Iron Gate Dam. Restrictions on harvest are often necessary to support reintroduction efforts to reduce pressure on populations that are attempting to recolonize formerly inaccessible or inadequate habitat areas. The DEIR provides no analysis of these potential impacts, or the duration of these impacts. Similarly, the Hendrix (2011) model provides no time-scale for natural production sufficient to replace hatchery production to occur and simply assumes that peak natural production occurs immediately after dam removal. There is great uncertainty about impacts to harvest from the Proposed Project which is not portrayed in the DEIR.*

Response to Comment ORG46-10
Please refer to Master Response AQF-8. Regarding effects of reduced hatchery production, please refer to Master Response AQF-3 and response to comment ORG46-35. Regarding harvest, please refer to responses to comment ORG46-248, ORG46-481, and ORG46-487. Regarding actions associated with the Klamath Basin Restoration Agreement (KBRA), please refer to response to comment ORG46-250.

As the comment notes, the Draft Environmental Impact Report (DEIR) acknowledges the Expert Panel report's uncertainty regarding the effects of dam removal on key fish populations. Indeed, Dunne, et al. (2011) and Goodman, et al. (2011) both are referenced in the EIR, were considered as part of the State Water Board's analysis, and will be included in the administrative record. To the extent information was available to inform such analysis, the EIR includes discussion of the sources of uncertainty referenced by the comment, putting overall uncertainty regarding the effects of dam removal on key fish populations into appropriate and meaningful context for the public and decision makers. With regard to factor 1, please refer to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* and Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Quality – Upper Klamath River and Connected Waterbodies* for discussion of water quality in waters upstream of the Hydroelectric Reach under the Proposed Project. With regard to factor 2, please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*. With regard to factor 3, please refer to Potential Impact 3.3-7. With regard to factor 4, please refer to Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* and Potential Impact 3.3-7. With regard to factor 5, please refer to Section 3.3.2.3 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries – Habitat Attributes Expected to be Affected by the Proposed Project* and Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries*. With regard to factor 6, please refer to Potential Impact 3.3-18. The best available evidence does not indicate that a shift in predation patterns is likely to occur, during or after implementation of the Proposed Project, much less undermine improvements to salmonid populations resulting from conversion of the Hydroelectric Reach to a riverine system. With regard to factor 7, please refer to Potential Impact 3.2-1. With regard to factor 8, please refer to Potential Impact 3.3-7. With regard to factor 9, please refer to Potential Impact 3.3-7, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project*, and Volume II Appendix E Section E.3.2. However, given that the Expert Panel report was just one of the several lines of evidence considered with respect to those effects – as noted in Master Response AQF-3 – it would be inappropriate to elevate the uncertainty identified by that report to the central role within the EIR's analysis that the commenter suggests. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*, including the subsections listed above.

Comment ORG46-11
• The DEIR does not accurately assess the magnitude of impacts from the Proposed Project on Coho. The DEIR identifies a threshold for a potentially significant impact to Coho Salmon as being a change in "...the abundance (greater than 50 percent reduction) of a year class for aquatic species." (DEIR pg. 3-258.) This definition ignores the fact that over 50 percent of the Coho population returns to the Trinity River (Naman and Perkins 2015; Kier et al. 2018) and would be substantially unaffected by the project. Under this questionable approach, even the extirpation of all Coho from the Klamath River upstream of the Trinity River would not be considered significant because it would affect less than SO percent of a year class of the population. Even though impacts to Coho Salmon may not exceed the significance threshold established by the DEIR, the small population of Coho in the mainstem Klamath River (see Major Issue 2.1) would still be substantially impacted, and should be considered a significant impact. See Communities for a Better Environment v. California Resources Agency (supra, 103 Cal. App. 4th 98).

Response to Comment ORG46-11
Please refer to Master Response AQF-9.

Comment ORG46-12
• The DEIR does not clearly and accurately assess the impacts of the Proposed Project from loss of reservoir storage. The DEIR asserts that because evaporation losses from Copco and Iron Gate reservoirs would be removed under the Proposed Project, more water would be available to the USBR for diversion. However, the loss of reservoir storage and downstream release facilities (namely Iron Gate Dam) would require USBR to release correspondingly larger volumes of water at Keno Dam to achieve required flows downstream to support aquatic and cultural river uses, which would result in flow demands significantly greater than the reduction in evaporative losses.

Response to Comment ORG46-12
Because United States Bureau of Reclamation (USBR) maintains its biological opinion obligations for the mainstem Klamath River regardless of the existence of the Lower Klamath Project, dam removal would not alter the amount of water required for environmental or cultural purposes, or the source of that water. The water source for USBR biological opinion flow obligations is Upper Klamath Lake, not the Lower Klamath Project reservoirs. The Lower Klamath Project reservoirs temporarily store water for hydropower production. By eliminating the evaporative losses that occur under existing conditions due to temporary hydropower storage in the Lower Klamath Project reservoirs, the Proposed Project would reduce the total water volume that USBR must release down the Klamath River to meet biological opinion flow requirements, and therefore, allow USBR to retain additional water available for upstream diversion in the Klamath Irrigation Project. Whether this increase in available supply would contribute to increased instream flows or be used upstream to supplement irrigation deliveries is uncertain, so the EIR discloses the potential increase but does not rely on it for conclusions regarding the impacts of the Proposed Project (see also Volume I Section 3.8.4 *Water Supply/Water Rights – Impacts Analysis Approach*).

Please also refer to Volume I Section 3.8.5 *Water Supply/Water Rights* Potential Impacts 3.8-1 and 3.8-2 (pages 3-676 to 3-680), which discuss the water borrowing agreements made between PacifiCorp and USBR in 2014 and 2018. It is unclear if further water borrowing would occur in the future due to the multiple constraints detailed by USBR and discussed in Potential Impact 3.8-2 (pages 3-679 to 3-680). The EIR's assessment of the unlikelihood of future water borrowing is further bolstered by USBR's elimination of this alternative from further consideration as part of its environmental assessment of the Klamath Irrigation Project operations (USBR 2019).

<u>Comment ORG46-13</u>
• *The DEIR inadequately addresses the impacts of sedimentation on Waters of the U.S. The Klamath River downstream of Iron Gate Dam is a jurisdictional Water of the U.S. and subject to regulation by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. The release of sediment (bedload movement and suspended sediments) from the Proposed Project will result in fill of these jurisdictional waters. The DEIR analysis does not evaluate or quantify the amount of fill to Waters of the U.S. that would occur downstream of Iron Gate Dam as a result of the Proposed Project.*

Response to Comment ORG46-13
Comment noted. As explained in Volume I Section 3.1.4 *Introduction – Impact Analysis Approach* (page 3-2), the EIR establishes criteria for evaluating the significance of the potential direct and reasonably foreseeable indirect effects on the environment associated with the implementation of the Proposed Project and analyzes those effects. This approach adequately discloses the environmental effects of the Proposed Project. For example, with respect to sedimentation, the

EIR estimates the amount of annual average load sediments from the Klamath River to the Pacific Ocean.

For information on potential impacts from sediment deposition related to geomorphology, flood hydrology, and aquatic and terrestrial habitat, please refer to: Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and modifications to this impact in Volume III Attachment 1; Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-5 (page 3-634 to 3-635); Section 3.3 *Aquatic Resources*; and Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources* and Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3.

Note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both sets of SRH-1D simulations that were undertaken by the U.S. Bureau of Reclamation (i.e., forty eight 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

As stated in Volume II Appendix B: *Definite Plan* (pages 36 to 37 of the *Definite Plan*), Klamath River Renewal Corporation (KRRC) is coordinating with the U.S. Army Corps of Engineers regarding the Section 404 individual permit associated with implementation of the Definite Plan.

Comment ORG46-14

• *The DEIR's assessment of reservoir drawdown does not address the effects to downstream fish communities of releasing the entire population of Yellow Perch (or any other reservoir fish) from Copco and Iron Gate reservoirs. Hundreds of thousands of Yellow Perch from the reservoirs would be released into the lower river during and after drawdown of the reservoirs. The DEIR does not address the effect of Yellow Perch competing for the same habitat types used by Chinook, federally-threatened Coho, or Steelhead.*

Response to Comment ORG46-14

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* analyzes the potential effects of introduced reservoir fish species, including yellow perch, competing for the same habitat as native aquatic species in the Klamath River downstream of the Hydroelectric Reach in Potential Impact 3.3-17. As discussed in this impact analysis, dam removal would result in a conversion of lotic (calm water) reservoir habitat, to which yellow perch and other warm water fish species are adapted (Moyle 2002), to high velocity (turbulent) riverine habitat, to which yellow perch are not adapted. As discussed in Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Non-native Fish Species*, yellow perch and other non-native reservoir fish prefer habitat with low water velocity, low turbidity, and warm water temperatures. Under the Proposed Project, the conversion of reservoir to riverine habitat would occur during winter high flows, which would be likely to rapidly (within days) displace, and ultimately result in the mortality of, yellow perch and other introduced reservoir species. Additionally, Potential Impact 3.3-18 has been slightly revised to clarify the effect of reservoir conversion on non-native reservoir species. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Under current conditions, high flows can also result in transport of reservoir fish species over Iron Gate dam and into the Klamath River, such that the introduction of these species in the Klamath River would not be a new risk. Gough et al. (2015) report observations of yellow perch and other current reservoir fish species in the Klamath River directly downstream of Iron Gate Dam that have spilled over Iron Gate Dam (or been entrained though turbines), with very few observations of these species farther downstream. In a report prepared for PacifiCorp, CH2MHill (2003) state that reservoir species including yellow perch that survive passage downstream past Iron Gate Dam, “will eventually perish in the downstream riverine habitat.”

Please also refer to the Klamath River Expert Panel findings (Buchanan et al. 2011a), where the panel was convened to assess Lower Klamath Project dam removal effects on resident fish and concluded that dam removal, “…would change reservoir habitat to free-flowing river, which would adversely affect non-native fishes in the lower Klamath basin between Keno Dam and Iron Gate Dam. Abundances of largemouth bass, yellow perch, bluegill, and brown bullhead would significantly decline or be eliminated because their preferred reservoir habitat would be gone.”

Comment ORG46-15

• *A critical effect of the Proposed Project on the river's periphyton community is absent from the DEIR' s analysis and discussion. Under the Proposed Project, the existing periphyton community downstream of Iron Gate Dam will shift upstream. Aquatic vegetation, currently absent under the reservoirs and in the J.C. Boyle Peaking Reach, will colonize the newly exposed stream reaches. Periphyton-related nitrogen fixation in the river would further increase the nutrient loading in the river, exacerbating nutrient impacts to the river and estuary. While the DEIR mentions the extension of periphyton upstream of Iron Gate Dam in the discussion of fish disease (DEIR pg. 3-278), this is not discussed in Section 3.4 Phytoplankton and Periphyton.*

Response to Comment ORG46-15
Section 3.4 *Phytoplankton and Periphyton* does discuss the potential for periphyton colonization in the Hydroelectric Reach and changes in the periphyton community (i.e., shifts in the abundance of periphyton nitrogen-fixing species). Please refer to Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) and Potential Impact 3.4-5 (pages 3-437 to 3-440) for analysis of periphyton community variations under the Proposed Project due to increased nutrients from upstream dam removal and conversion of the reservoir areas to a free-flowing river.

Please also refer to ORG46-267 for a more detailed discussion of the anticipated changes in the periphyton community under the Proposed Project.

Comment ORG46-15.1
• *The DEIR fails to assess the greenhouse gas emissions impacts of removing renewable generation facilities. Removing non-emitting hydroelectric generation facilities under the Proposed Project will result in millions of tons of additional greenhouse gas emissions, contrary to California climate change policies, and these significant impacts are not disclosed.*

Response to Comment ORG46-15.1
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-16
2.8 Ceratonova shasta Fish Disease Discussion
The DEIR' s assertion that dam removal will lead to reductions in fish disease is based almost entirely on speculation and is unlikely to be realized. Fish disease hosts, triggers, and virulence are unlikely to be substantively changed with the Proposed Project. Recolonization of the project reach by infected salmon will spread the parasite C. shasta upstream of Iron Gate Dam where they will infect the highly abundant population of the polychaete host Manayunkia speciosa. In turn, the infected polychaetes will release the C. shasta actinospore that infects juvenile and adult salmon, which will cause infected salmon to contract the disease ceratomyxosis. The duration of actinospore exposure of juvenile salmon originating from upstream of Iron Gate Dam would be longer than for salmon populations downstream of this point as they must migrate farther to reach the estuary. Additionally, increased spring-time river temperatures following dam removal may increase the prevalence of infection among outmigrating juveniles.

In the analysis of the Proposed Project impacts on fish disease (Section 3.3.5.5), the DEIR indicates that existing conditions contributing to disease in salmonids include (DEIR pg. 3-276):

- *The availability of habitat for the polychaete hosts*

- *Static flows and low velocities that create appropriate microhabitats for polychaete hosts*
- *Congregations of spawned adult salmon with high actinospore loads*
- *Polychaete populations in proximity to spawning salmon*
- *Planktonic food sources for the polychaete hosts from Copco and Iron Gate reservoirs*
- *Water temperatures over 59°F (15°C)*

PacifiCorp agrees that these factors influence infection and mortality rates; however, the DEIR does not accurately represent the possible outcomes of the Proposed Project, or the alternatives, as it relates to disease, specifically ceratomyxosis.

Disease dynamics in the Klamath River from C. shasta infection are incredibly complex and the scientific understanding of them continue s to evolve at a rapid pace. The DEIR (in Section 3.3.2.3) does an insufficient job of presenting an up-to-date discussion of C. shasta effects on salmonids. While C. shasta infection rates have been high at times, the most recent highest levels (2014 and 2015) occurred during extreme drought conditions. The infection rates have declined dramatically since then (Voss et al. 2018), likely for a combination of reasons related to flow, temperature, and fish abundance.

The polychaete host for C. shasta, Manayunkia speciosa, is native to the Klamath River and found throughout the basin. While the densities of this polychaete vary within the basin in response to a variety of factors, they are abundant in the reach downstream of J.C. Boyle Dam, in the Williamson River, and at various locations in the mainstem lower Klamath River from the mouth upstream to Iron Gate Dam.

In Section 3.3 the DEIR recognizes that under the Proposed Project the expected increase in periphytic growth could provide habitat for the polychaetes (DEIR pg. 3-278). However, the DEIR then assumes other factors such as the restoration of bedload sediment transport would offset increases in periphyton-related habitat by enhancing potential scour of polychaetes. The DEIR does not inform the reader that there is very little bedload sediment supply for inducing scour in the Keno Reach, J.C. Boyle Reservoir, J.C. Boyle Bypass Reach, or J.C. Boyle Peaking Reach. The substrate in these reaches is large and the stream beds are stable because: (a) the flows are moderated by upstream dams and storage reservoirs; (b) no tributaries of any consequence enter the system (Spencer and Shovel creeks are not appreciable inputs of sediment); and (c) flows are notably lower here than in downstream reaches where active sediment transport occurs (especially downstream of the Scott River). In sum, these upper reaches will be prime polychaete habitat, with conditions well-suited for abundant polychaete densities, including appreciable organic matter, stable flows, stable stream bed, and stable substrate for polychaetes to colonize. Add to this the DEIR's expectation of producing tens of thousands of Chinook Salmon in this reach *which would provide the myxospores needed to infect polychaetes and expansion of C. shasta throughout the upper Klamath River would result.*

Further, the DEIR does not make use of recent studies that have evaluated the effectiveness of scour as a mechanism for reducing polychaete concentrations. Recent research indicates that while polychaetes may respond to flow changes and be removed from substrates by increasing flows (with specific dislodgment flows that varied depending on the substrate), polychaetes also exhibited a variety of behavioral reactions to flow changes and proved to have relatively high survival rates (M alakauskas et al. 2013). Generally, this research suggests that polychaete populations likely exhibit high resilience to flow-mediated disturbances.

Additionally, the DEIR fails to acknowledge that recent research indicates that the magnitude of high flows that may be necessary to induce scour that could disrupt polychaete habitat (see Shea et al. 2016) are above the thresholds of flows that are expected to be achieved from the Proposed Project. That is, removal of the Klamath Hydroelectric Project is not anticipated to increase peak flows, that result in significant scour events, above conditions that are currently experienced with the hydroelectric dams in place. Thus, recent research indicates that scour may be ineffective at solely combating polychaete densities that contribute to high infectious rates in the Klamath River, and that the expected hydrologic changes from the Proposed Project are unlikely to result in flows that could accomplish scour anyway.

Research by Foott et al. (2016) has shown that relatively few very highly infected adult Chinook carcasses are capable of fully seeding the polychaete populations in the river reaches. This information indicates that C. shasta disease transmission will occur whether salmon spawner density increases of decreases. Reintroduction of Chinook and Coho spawners infected with C. shasta would infect the polychaete hosts through the release of myxospores from fish carcasses. As a result, the Chinook and Coho-specific genotypes of C. shasta would become established in the existing polychaete population and release spores in densities that result in infection of juvenile Chinook and Coho. Based on this information, the DEIR is incorrect to indicate that spreading out the salmon populations would reduce their proximity to polychaete populations and therefore reduce disease effects. In sum, the DEIR' s assumption that the Proposed Project would reduce disease effects is not support ed by the current understanding of fish disease dynamics in the Klamath River.

The DEIR makes reference to the planktonic algae released from Copco and Iron Gate reservoirs as an important polychaete food source that is partially responsible for the abundance of the polychaete host of C. shasta downstream of Iron Gate Dam. While these food sources would no longer be present if the Proposed Project were implemented, the DEIR acknowledges that Keno Reservoir would remain in place and continue to release large amounts of algae *into the Klamath River. Based on KHSA Interim Measure 15 monitoring data and using chlorophyll-a as a surrogate for planktonic algae, it is apparent that Keno Dam would remain a source of planktonic algae for the polychaetes, producing more planktonic algae than is released from Iron Gate Dam (Figure 9). Further, researchers from Oregon State University have routinely harvested polychaetes from the J.C. Boyle Bypass Reach because these populations are some of the densest anywhere in the river (Alexander et al. 2016b). The high densities in this reach are at least partially due to the food supplied from Keno Reservoir and Upper Klamath Lake.*

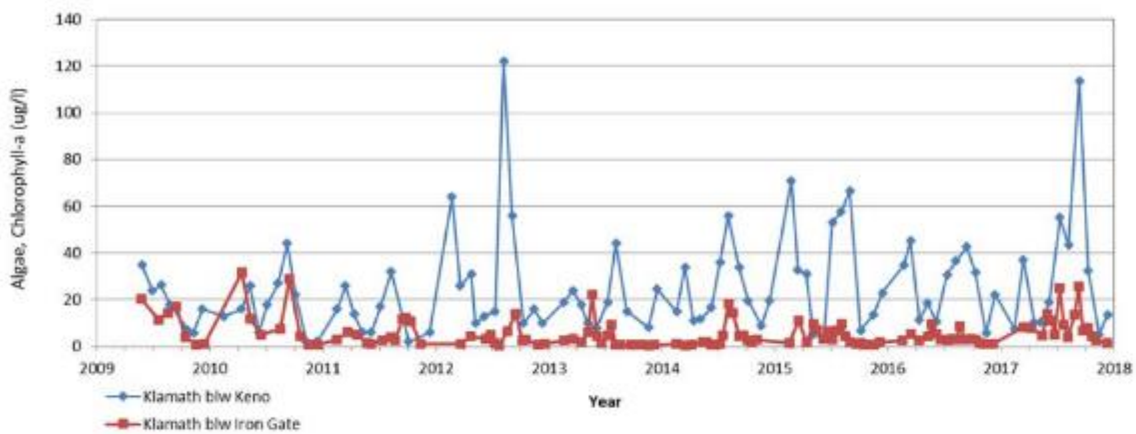


Figure 9. Chlorophyll-a concentrations downstream of Keno Dam and downstream of Iron Gate Dam collected as part of the Klamath Hydroelectric Settlement Agreement Interim Measure 15 monitoring program from 2009 through 2017.

The DEIR asserts that "Dam removal would mean cooler temperatures in the late summer and fall, but slightly warmer temperatures in the spring and early summer" (DEIR pg. 3-2 77). The Klamath Hydroelectric Project dams serve to cool water temperatures during the spring months, which may reduce C. shasta severity in the reach of the river downstream of Iron Gate Dam where the temperature signature from the Klamath Hydroelectric Project is greatest. The DEIR states, and PacifiCorp's prior water quality modeling (PacifiCorp 2006, 2014) confirms, that the spring water temperatures are higher under the Proposed Project. In fact, Figure 3.3-5 (DEIR pg. 3-275) is based on PacifiCorp's water quality modeling for 2002 and is used to describe temperature effects to salmon (Figure 10). The data show that water temperatures would exceed 15°C approximately 2 to 4 weeks earlier with implementation of the Proposed Project (Figure 10). This in turn could increase C. shasta disease rates because polychaete hosts develop spores more quickly under warmer water conditions (Ray et al. 2012). The DEIR spends a great deal of time noting the severity of C. shasta for Klamath River salmonid populations but fails to acknowledge that dam removal has the potential to also exacerbate C. shasta infection prevalence. The

DEIR is required to present both possible positive and negative effects of the Proposed Project.

According to Bartholomew and Foott (2010 as cited in the DEIR), the 59°F (15°C) water temperature criterion that is referenced in the DEIR applies when the infectious dose of C. shasta is low. However, DEIR fails to present the complete finding of Bartholomew and Foott (2010, page 38) that water temperature is not a strong predictor of survival when infectious dose is high. Specifically, Bartholomew and Foott (2010) show substantial effects on salmonids at temperatures ranging from about 55°F to almost 70°F (13°C to 21 °C). Simulated water temperature information presented in the DEIR indicates that water temperatures would reach 13°C in early April for the Proposed Project compared to early May for existing conditions (Figure 10). While the DEIR claims that warmer water temperatures in spring under the Proposed Project would result in earlier fry emergence for mainstem Chinook spawners, this would not be the case for tributary populations. Juvenile migration timing for tributary populations would remain unchanged and the majority of these fish would enter a warmer Klamath River under the Proposed Project, with all of its implications for disease.

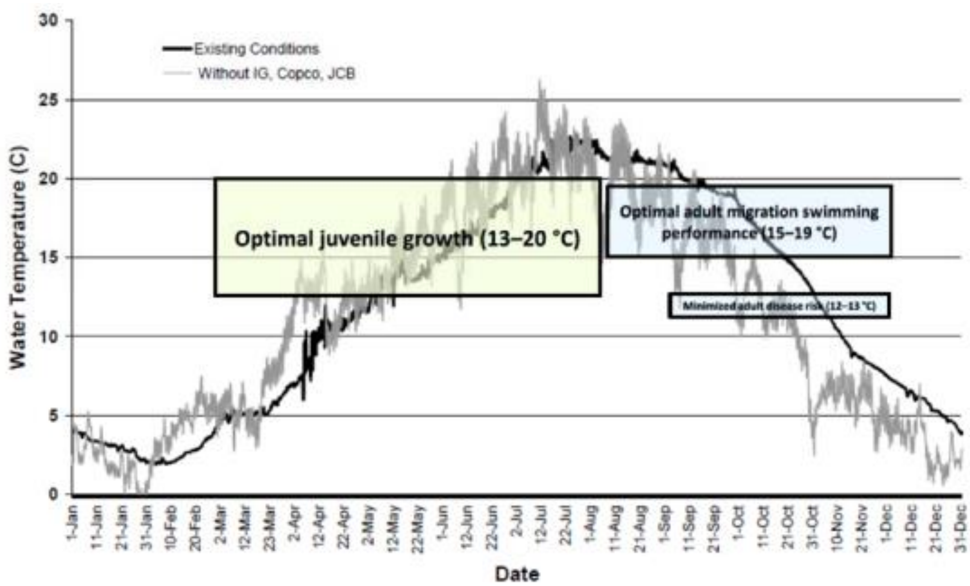


Figure 10. PacifiCorp (2005) simulated hourly water temperatures below Iron Gate Dam based on a dry water year (WY 2002) for existing conditions compared to the Proposed Project (without Lower Klamath Project dams), and USEPA (2003} water temperature criteria for salmonid growth and migration (Reproduction of DEIR Figure 3.3-5, DEIR pg. 3-275).

Routine monitoring of juvenile Chinook outmigration has indicated that water temperature may not be as important as flow in resulting disease infection rates and mortality (see True et al. 2017; Voss et al. 2018). In the discussion of disease, the DEIR should provide a more detailed and accurate summary of the *differences in river flow between alternatives so that possible flow effects on disease are clarified (see Major Issue 2. 2).*

The DEIR indicates that high rates of C. shasta infection downstream of Iron Gate Dam are a function of the concentration of returning salmon spawners at Iron Gate Dam and the hatchery. The DEIR assumes that because the Proposed Project would allow access to new habitat, fish would no longer be concentrated and therefore the rates of C. shasta infection would be reduced. However, as noted by Som et al. (2016), the C. shasta infectious zone has shifted over the years. In the past, samples from Beaver Creek (RM 161) often had the highest actinospore concentrations, but peak concentrations have since moved downstream in some years and in 2016 peak spore counts were obtained near Orleans (RM 58) and Tully Creek (RM 38.5) (Bartholomew et al. 2017). Given that Chinook spawner density in these areas is substantially less than areas closer to Iron Gate Dam, large concentrations of nearby mainstem spawners are not required to produce areas with high C. shasta infection potential. The risk of C. shasta infection is based partially on the number of actinospores per liter of water because as this number increases, so does the dose for each exposed fish. Because flows upstream of Iron Gate Dam steadily decrease to Keno Dam (as fewer tributaries enter the reach), the shifting of adult spawners to upstream areas could result in a higher actinospore densities per liter of water and thus higher exposure rates and corresponding C. shasta disease risk. Thus, the DEIR's assumption that the Proposed Project would spread the spawning adults over a wider area, and that this would in turn reduce C. shasta infection rates and resultant salmonid mortality, is not supported by recent analyses.

The DEIR also does not acknowledge that because water quality conditions in Keno Reservoir could constitute a water quality barrier to adult salmon migration, returning spawners may congregate downstream of Keno Dam. Using the DEIR's logic, a concentration of Chinook in this area would form a new C. shasta infectious hot-spot as this area is just upstream of the J.C. Boyle Bypass Reach, which has some of the largest densities of polychaetes measured in the basin (Alexander et al. 2016b; Bartholomew and Hallett 2017).

The DEIR fails to accurately address the specific Proposed Project objective to "Ameliorate conditions underlying high disease rates among Klamath River salmonids" (DEIR pg. 2-1). The DEIR needs to update the discussion in Section 3.3 to reflect the current understanding of C. shasta on the Klamath River as it relates to Chinook and Coho and then conduct an analysis of potential impacts of the Proposed Project and the alternatives on fish disease. The DEIR should specifically evaluate potential impacts the Proposed Project and the alternatives could have in relation to fish disease. This includes an evaluation of:

- *The impact of a wider range of water temperatures including a complete and accurate analysis of water temperatures as they relate to the different life stages of C. shasta and the susceptible salmonids.*

- *Evaluate the potential for a C. shasta infectious zone to develop downstream of Keno Dam and the impact this would have on salmon recolonization and production.*
- *Evaluate the potential of the river reach extending from Keno Dam to Iron Garn to Dam support polychaete populations and implications for salmon production.*
- *Revisit assumptions regarding salmon spawner density effects, spawner location, and salmon C. shasta infection rates on corresponding polychaete C. shasta infection.*
- *Accurately describe and compare changes in flow between alternatives and how these changes may affect C. shasta infection rates on salmonids.*

Response to Comment ORG46-16

The EIR provides an analysis of the potential risk of fish disease, including *C. shasta*, under the Proposed Project in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, which is based on extensive review of existing scientific information regarding factors controlling fish disease in the Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 Aquatic Resources. Please also refer to Master Response AQF-6 for a detailed discussion of actinospore density, changes in water temperature downstream of Iron Gate Dam under the Proposed Project, and implications for disease risk. Master Responses AQF-5 and AQF-6 also address flows, and implications for disease risk under the alternatives.

Comment ORG46-17

2.9 Salmonid Migration, Spawning, and Rearing Water Temperature Analysis

This section describes information pertaining to the effects of water temperature conditions on anadromous fish species downstream of Iron Gate Dam. The focus here is to present an evaluation of the effects of water temperature conditions on anadromous salmonid migration, spawning, and rearing in the Klamath River downstream of Iron Gate Dam. This is necessary because the DEIR simply reports conditions as being warmer, or cooler, or more "natural" under the Proposed Project, existing conditions, or an alternative but does not discuss the biological significance, if any, of these changes or differences in temperature. In the following discussion the existing conditions are essentially analogous to the existing conditions within the DEIR, and the without-Project discussion approximates the Proposed Project in the DEIR.

This information and analysis was previously included in PacifiCorp's (2014) application to the State Water Resources Control Board for water quality certification of the Klamath Hydroelectric Project under Section 401 of the federal Clean Water Act. The PacifiCorp (2014) application analyzes water quality conditions within the Klamath Hydroelectric Project area in California, and the controllable water quality factors reasonably available to address the Klamath Hydroelectric Project's contribution to compliance with water quality objectives and protection of beneficial uses as designated in the Water Quality Control Plan *for the North Coast Region (Basin Plan). The DEIR does not reference this available and relatively recent analysis in any way. Current distributions of anadromous species in the lower Klamath River Basin are discussed in the DEIR Section 3.3 and the current population status for Coho Salmon is discussed in Section 2.1 of PacifiCorp' s comments.*

2.9.1 Methods and Criteria
The extent to which the Klamath Hydroelectric Project contributes to current water temperature conditions in the Klamath River downstream of Iron Gate Dam are described in PacifiCorp {2014) based on field observations and supported by water temperature modeling of existing conditions for years 2000 through 2004 at several locations in the Klamath Hydroelectric Project reaches in California. Detailed discussions of water temperature modeling methods and results for the Klamath Hydroelectric Project are provided in PacifiCorp 2004a, 2004b, 200Sa, 200Sb, and 2014.

The potential effects of the Klamath Hydroelectric Project on water temperatures released downstream of Iron Gate Dam were evaluated specifically for fall-run Chinook Salmon, Coho Salmon, and Steelhead (PacifiCorp 2014). Average daily water temperature ranges were used to define suitable, low-to-moderate stress, and high stress/lethal effects for these species (Table 2). Suitable conditions reflect a water temperature range behaviorally selected by a species within which growth and survival are high, and susceptibility to other stressors (e.g., disease) is reduced. Low to moderate stressful conditions reflect water temperatures where growth rates are reduced, behavioral avoidance may occur, and susceptibility to other stressors is increased. High stress/lethal temperatures result in severe physiological impairment, loss of equilibrium, and/or direct mortality (e.g., incipient lethal threshold LT10). The temperature ranges have been synthesized from information available in the scientific literature on the biological response of salmonid life -history stages to water temperature conditions including, but not limited to, McCullough (1999), Sullivan et al. (2000), McCullough et al. (2001), Myrick and Cech (2001), and USEPA (2003).

- *These analyses were performed using the average daily water temperatures derived from modeling for 2000 and 2001existing conditions (with the Klamath Hydroelectric dams present) and without-Project (with dams removed akin to the Proposed Project) scenarios. Three metrics were used for this analysis: annual exposure, degree-day exposure, and habitat suitability. These are the same metric previously used by Bartholow et al. (2005) to evaluate the effects of dam removal on water temperature conditions and habitat suitability for Chinook in the Klamath River .*
- *Annual exposure equals the number of days during the year that water temperatures exceed the literature-based criteria for suitable habitat conditions (referred to as index of annual exposure).*

- *Degree-day exposure equals the sum of the differences between mean daily water temperatures above and below a range of suitable temperatures during the appropriate time periods and locations within the river.*
- *Habitat suitability equals the linear distance within a river reach that average daily water temperatures were within the range identified as suitable habitat conditions. Habitat suitability was also evaluated based on average weekly water temperatures at various locations downstream of Iron Gate Dam (running average).*

Table 2. Literature-based Ranges of Average Daily Water Temperature for Designation of Suitable and Stressful ta Lethal Effects for Target Salmon Species in the Klamath River.

Species	Life-History Stage	Suitable	Low to Moderate Stress	High Stress
Fall-run Chinook Salmon	Adult migration, pre-spawning, spawning	<17	18-21	>21
	Egg to emergence	<12	13-14	>14
	Juvenile rearing and emigration	<15	16-23	>23
Coho Salmon	Adult migration, pre-spawning, spawning	<17	18-21	>21
	Egg to emergence	<12	13-14	>14
	Juvenile rearing and emigration	<15	16-23	>23
Steelhead	Adult migration, pre-spawning, spawning	<17	18-21	>21
	Egg to emergence	<12	13-14	>14
	Juvenile rearing and emigration	<15	16-23	>23
	Steelhead smoltification	<12	13-18	>18

The seasonal distribution of the various salmonid life-history stages in the Klamath River assumed in the assessment (Table 3) are somewhat different than those presented in the DEIR (see Table 3.3-5 for example), but the overall range of life stages is roughly analogous. The seasonal periodicity assumptions reflect when various life stages of a target species will occur in the river and when life stage-specific water temperature criteria apply.

Table 3. Estimated Fish Periodicity-Klamath River, updated to include stakeholder comments to PacifiCorp. Current and potential life history strategies from Iron Gate to Link River dams.

Species/Life stage	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fall Chinook-Type II (fall juvenile migrant)												
Adult migration												
Adult spawning												
Incubation												
Fry emergence												
Rearing												
Juvenile Outmigration												
Fall Chinook-Type I (ocean type)												
Adult migration												
Adult spawning												
Incubation												
Fry emergence												
Rearing												
Juvenile Outmigration												
Coho												
Adult migration												
Adult spawning												
Incubation												
Fry emergence												
Rearing												
Juvenile Outmigration												
Steelhead-Fall/Winter												
Adult migration												
Adult spawning												
Incubation												
Fry emergence												
Rearing												
Juvenile Outmigration												

Note: For anadromous juvenile emigration, timing reflects fish migration from Klamath Hydroelectric Project area, not when they reach the estuary. Anadromous salmonid life histories represent stocks currently in the Klamath Basin from Iron Gate Dam to Salmon River. Dark shading equals peak use period.

In addition to the application of the criteria listed previously (Table 2), there is also the California water temperature objective applicable to the Klamath Hydroelectric Project as set forth in Section 3 of the Basin Plan. The state water temperature objective is:

> *Temperature objectives for COLD interstate waters, WARM interstate waters, and Enclosed Bays and Estuaries are as specified in the "Water Quality Control Pion for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" including any revisions thereto.*
>
> *In addition, the following temperature objectives apply to surface waters:*
>
> > *The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.*
> >
> > *At no time or place shall the temperature of any COLD water be increased by more than 5°F above natural receiving water temperature.*
> >
> > *At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.*

Response to Comment ORG46-17

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* provides a thorough analysis of water temperature dynamics and effects on aquatic resources, including the biological implications of different temperature ranges, under existing conditions. The effects of water temperature on aquatic resources under the Proposed Project are discussed in Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature*. The EIR's analysis of water temperature effects on aquatic resources and conclusions are supported by the substantial evidence discussed in these sections and there are no data provided in PacifiCorp (2014) that are substantially divergent from the data analyzed in the EIR. Please see response to ORG46-127 for a complete discussion of the PacifiCorp (2014) water temperature data analysis. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comment ORG46-18</u>

2.9.3 Water Temperature Effects on Anadromous Fish Downstream of Iron Gate Dam

The following discussion summarizes the potential effects of water temperature under existing conditions and a without-Project conditions (analogous to the Proposed Project analyzed in the DEIR) on Chinook, Coho, and Steelhead.

Chinook Salmon

Fall-run Chinook Salmon use the Klamath River downstream of Iron Gate Dam for adult migration, spawning and egg incubation, juvenile rearing, and juvenile emigration. Although fall-run Chinook respond to both high and low water temperatures, the primary focus of concern regarding Klamath Hydroelectric Project operations on habitat suitability has been on seasonally elevated temperatures. As a result, the following analyses emphasize the occurrence of elevated water temperatures (e.g., seasonally low temperatures have been included within the thermal zone identified, for purposes of the analysis of suitable habitat conditions for a given life stage of fall-run Chinook Salmon and other salmonids).

Adult fall-run Chinook Salmon migrate upstream within the Klamath River during the seasonal period from August to October (Table 3). Results of water temperature modeling show a general seasonal pattern with elevated temperatures occurring during August and declining during September and October. Results of the water temperature modeling showed a consistent pattern of diminishing differences in water temperatures between existing and hypothetical without-Project conditions as a function of distance downstream from Iron Gate Dam (RM 190).

Results of the temperature modeling also show that during the fall migration period water temperatures under both existing and without-Project conditions reach a thermal equilibrium where water temperatures are virtually identical under existing and without-Project conditions in the lower reaches of the river below Seiad Valley (RM 129). Klamath Hydroelectric Project operations at Iron Gate Dam, therefore, have no effect on water temperature conditions in these reaches and would not affect water temperature conditions, thermal exposure, or behavioral response of adult fall-run Chinook Salmon entering the Klamath River .

Water temperatures within the Klamath River show a consistent pattern of temperatures considered to be unsuitable for adult upstream migration throughout the entire reach from Iron Gate Dam to Turwar

(RM 6) during August under both existing and without-Project conditions with temperatures decreasing seasonally during September into the range considered to be low to moderately stressful throughout the mainstem river (Table 4). Water temperatures generally decreased and remained within a range considered to be suitable for adult upstream migration beginning in early October and continuing through the end of the migration period. The seasonal pattern in water temperatures was generally similar between 2000 and 2001.

Results of the comparison of the average weekly temperatures (Table 5) showed temperatures above a l6°C average weekly average during approximately 75 to 80 percent of the days within the migration period. The frequency of these average weekly temperatures was similar at mainstem locations extending from Iron Gate Dam downstream to Turwar. This pattern was similar under both existing and without-Project conditions based on analyses of average weekly temperature (Table 5).

The biological significance of the incremental temperature exposure in the reach just downstream of Iron Gate Dam under existing conditions was evaluated to assess potential effects of temperature exposure to pre-spawning adults on subsequent egg viability and hatching success. An investigation of the relationship between temperature exposure for pre-spawning fall-run Chinook Salmon and egg viability was conducted by Mann and Peery {2005). The observed relationship between pre-spawning adult temperature exposure, expressed as degree days above 18 and 20°C and corresponding estimates of percent mortality for incubating eggs from each female, show that the incremental increase in egg mortality over a range of pre-spawning adult temperature exposures is typically less than approximately 5 percent.

Table 4. Habitat suitability based on overage daily water temperatures far adult fall-run Chinook Salmon migration at locations downstream from Iran Gate Dom based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.5	Above Shasta River RM 177.5	At Walker Bridge RM 156.8	Above Scott River RM 143.9	At Seiad Valley RM 129.0	Above Clear Creek RM 99.0	Above Salmon River RM 66.9	At Orleans RM 57.6	Above Bluff Creek RM 49.0	Above Trinity River RM 43.3	At Martins Ferry RM 39.5	At Blue Creek RM 15.9	At Turwar RM 5.3
8/15/2001	EC	21.9	23.1	23.8	23.8	23.7	23.5	23.5	23.5	23.1	22.9	22.6	22.6	22.8
	WOP	21.3	22.3	22.8	23.2	23.5	23.5	23.5	23.5	23.1	22.9	22.6	22.5	22.8
8/29/2001	EC	21.4	22.7	23.5	23.7	23.8	23.9	23.9	23.8	23.2	22.8	21.0	22.2	22.7
	WOP	19.6	21.2	23.0	23.6	23.9	23.8	23.9	23.7	23.2	22.9	21.1	22.2	22.7
9/12/2001	EC	20.4	20.3	19.8	19.7	20.0	20.1	20.0	19.9	19.6	19.4	18.9	19.1	19.4
	WOP	16.5	17.5	18.2	18.7	19.4	19.7	19.8	19.7	19.4	19.3	18.8	19.2	19.5
9/26/2001	EC	18.9	18.1	17.6	17.6	18.0	18.8	19.0	18.9	18.5	18.3	17.9	18.0	18.2
	WOP	14.3	15.0	15.8	16.2	17.3	18.4	18.8	18.8	18.5	18.5	18.0	18.1	18.2
10/10/2001	EC	17.2	16.4	15.3	14.9	14.5	14.9	15.2	15.2	15.0	14.9	14.9	14.8	14.8
	WOP	10.1	10.4	11.2	11.7	12.6	14.2	14.6	14.8	14.8	14.8	14.8	14.9	14.9
10/24/2001	EC	14.1	13.1	11.8	11.4	11.7	12.4	12.2	12.2	12.2	12.3	12.5	12.5	12.4
	WOP	7.2	8.0	9.1	9.7	10.6	11.8	11.7	11.8	12.0	12.1	12.5	12.5	12.4
11/7/2001	EC	11.0	10.3	9.5	9.4	9.5	9.6	9.3	9.6	9.9	10.0	10.5	10.5	10.4
	WOP	6.0	6.7	7.5	8.0	8.4	9.0	8.9	9.4	9.9	10.1	10.6	10.6	10.6
11/21/2001	EC	8.6	8.4	8.2	8.1	8.4	8.3	7.7	8.3	8.4	8.5	9.0	9.1	9.2
	WOP	6.5	6.6	7.1	7.3	7.9	7.9	7.3	8.1	8.2	8.3	9.0	9.1	9.2
12/5/2001	EC	5.5	5.2	5.1	4.9	5.0	5.4	5.4	5.8	6.1	6.4	6.9	7.0	7.1
	WOP	1.4	1.8	2.9	3.0	3.6	4.7	5.0	5.5	5.9	6.1	6.8	6.9	7.0
*12/19/2001	EC	3.1	2.9	3.3	3.3	4.1	4.7	4.7	5.5	5.7	5.9	6.7	6.8	6.7
	WOP	2.4	2.3	2.9	3.0	3.8	4.4	4.6	5.4	5.6	5.8	6.7	6.7	6.7

*Life stage ends 12/15/2001, but for the sake of including the period from 12/19/2001 through the end of the life stage, this date is also shown

suitable: <17°C	low to moderate stress: 17-21 °C	high stress: >21 °C

Table 5. Number of days during life stages that running overage weekly temperature is above the threshold, based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Species/Life Stage	Life Stage Period			Temp. Threshold (C)	Number of Days Temperature Above Threshold							
					Blw Iron Gate Dam		At Seiad Valley		Abv Trinity River		At Turwar	
	Start	End	No. Days		EC	WOP	EC	WOP	EC	WOP	EC	WOP
Chinook Salmon												
Adult Migration	Aug 1	Oct 31	92	16	73	49	70	60	69	68	69	69
Egg to emergence	Oct 1	Mar 31	182	12	28	18	27	21	23	27	31	32
Juvenile Rearing	Feb 1	Jun 30	150	15	45	55	58	64	49	50	46	48
Juvenile Emigration	Apr 1	Jul 31	122	15	76	86	89	93	80	81	77	79
Coho Salmon												
Adult Migration	Sep 15	Jan 31	139	16	28	11	25	17	24	23	24	24
Egg to emergence	Nov 1	Apr 15	166	12	0	8	0	11	0	11	9	12
Juvenile Rearing	Jan 1	Dec 31	365	15	157	147	166	165	157	153	154	155
Juvenile Emigration	Feb 1	Jul 31	181	15	76	86	89	95	80	81	77	79
Steelhead												
Adult Migration	Sep 1	Nov 30	91	16	42	18	39	29	38	37	38	38
Egg to emergence	Dec 1	Jun 30	212	12	55	74	59	77	66	81	78	84
Juvenile Rearing	Jan 1	Dec 31	365	15	157	147	166	165	157	153	154	155
Smoltification	Mar 1	Jul 15	137	12	70	89	92	100	92	96	93	94

Assuming that a female adult Chinook Salmon entered the Klamath River on September 15 and migrated upstream to spawn in the reach downstream of Iron Gate Dam (equal duration of exposure to temperatures within each reach) the degree-day exposure to water temperatures above 18 and 20°C was estimated to be 14.5 and 59.2 degree-days, respectively under existing conditions and 13.2 and 46.4 degree days under hypothetical without-Project conditions. Under these simulated conditions, temperature exposure under existing conditions would be similar to without-Project conditions and would be expected to contribute to an incremental increase in egg mortality of less than 5 percent. Results of these analyses are consistent with observations for fall-run Chinook Salmon spawned at the Iron Gate Hatchery, which show high egg viability under existing conditions (Kim Rushton, former Iron Gate Hatchery Manager, CDFW).

Fall-run Chinook Salmon egg incubation occurs between October and March (Table 3). Water temperatures show a typical seasonally declining trend during the early portion of egg incubation followed by a seasonal increase in water temperatures during the later period of incubation prior to fry emergence in the spring. Examination of the average weekly temperatures during the egg incubation period (Table 6) showed a similar pattern with approximately 21 percent of the observations exceeding 10°C within the reach immediately downstream of Iron Gate Dam, 20 percent within reach upstream of Shasta River, 25 percent upstream of the Scott River, and 28 percent upstream of Clear Creek under existing project operations. Under the without-Project conditions average weekly water temperatures exceeded 10°C in 17 percent of the observations within the reach immediately downstream of Iron Gate Dam, 18 percent within reach upstream of Shasta River, 20 percent upstream of the Scott River, and 24 percent upstream of Clear Creek.

Results of a comparison of habitat suitability conditions for egg incubation (using criteria in Table 2) under existing and without-Project conditions show a consistent pattern of exposure to elevated water temperatures under both existing and without-Project conditions in early October (Table 6). Water temperature exposure under existing project operations, although declining seasonally, are within the range during early October that would contribute to reduced egg viability. The significance of egg exposure to elevated temperatures during early October under existing project operations is reduced, in part, as a result of fewer salmon spawning during the early portion of the spawning period. The peak of Chinook Salmon spawning occurs during the latter portion of October when seasonally declining water temperatures have less effect on the viability and successful hatching of incubating eggs.

Habitat conditions for egg incubation in the reach down stream of Iron Gate Dam potentially could be improved if water temperatures released from the dam during early to mid-October could be reduced under existing conditions. Reducing early to mid-October water temperatures would be expected to improve potential egg viability for those adult Chinook Salmon spawning early while continuing to *provide water temperatures during the late fall that would be warmer when compared to hypothetical without-Project conditions. Continuing to provide warmer water temperatures under existing conditions that are suitable for egg incubation would accelerate embryonic development and early fry emergence (see Section 2.9.4 below).*

Juvenile Chinook Salmon (ocean type migrants) rearing and emigration occurs between February and July (Table 3). Results of water temperature modeling during the juvenile rearing period has shown that water temperatures are cooler under existing conditions when compared to hypothetical without- Project conditions in the reach immediately downstream of Iron Gate Dam. Temperature modeling has shown that differences in water temperature between existing and without-Project conditions diminish as a function of distance downstream from the dam as water temperatures reach thermal equilibrium within the river.

Table 6. Habitat suitability based on average daily water temperatures for fall-run Chinook Salmon egg incubation at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.5	Above Shasta River RM 177.5	At Walker Bridge RM 156.8	Above Scott River RM 143.9	At Seiad Valley RM 129.0	Above Clear Creek RM 99.0	Above Salmon River RM 66.9	At Orleans RM 57.6	Above Bluff Creek RM 49.0	Above Trinity River RM 43.3	At Martins Ferry RM 39.5	At Blue Creek RM 15.9	At Turwar RM 5.3
10/1/2000	EC	18.0	18.6	19.1	19.3	19.6	19.7	19.8	19.7	19.4	19.3	18.8	19.0	19.2
	WOP	16.6	17.7	18.4	18.6	19.0	19.5	19.6	19.6	19.3	19.2	18.7	18.9	19.2
10/15/2000	EC	15.5	15.2	15.0	15.0	15.0	14.9	14.7	14.6	14.5	14.4	14.4	14.5	14.6
	WOP	11.2	11.7	12.3	12.5	12.9	13.3	13.3	13.4	13.5	13.6	13.8	14.1	14.2
10/29/2000	EC	11.9	11.3	10.8	10.6	10.6	11.0	11.1	11.0	11.1	11.1	11.3	11.3	11.4
	WOP	6.8	7.4	8.4	8.8	9.3	10.0	10.1	10.3	10.4	10.5	10.9	11.2	11.3
11/12/2000	EC	8.8	8.0	7.5	7.0	6.5	6.1	6.0	5.9	6.3	6.4	7.0	7.1	7.1
	WOP	2.6	2.7	3.6	3.7	3.9	4.4	4.9	5.2	5.6	5.9	6.7	6.9	6.9
11/26/2000	EC	5.5	5.3	5.1	5.0	5.3	5.7	6.0	6.4	6.7	6.8	7.1	7.4	7.5
	WOP	2.5	2.3	2.8	2.9	3.6	4.4	5.1	5.5	5.9	6.1	6.5	7.0	7.1
12/10/2000	EC	3.9	4.1	4.5	4.7	5.1	5.5	5.6	6.0	6.3	6.5	7.1	7.3	7.3
	WOP	4.2	4.3	4.4	4.6	5.0	5.5	5.7	6.1	6.4	6.6	7.2	7.4	7.4
12/24/2000	EC	2.4	2.6	3.1	3.3	3.9	4.8	5.1	5.4	5.5	5.6	6.1	6.1	6.1
	WOP	3.0	3.3	3.7	3.9	4.5	5.0	5.2	5.5	5.6	5.6	6.1	6.1	6.1
1/7/2001	EC	3.9	4.2	4.5	4.5	4.4	4.6	4.6	4.7	4.9	5.1	5.3	5.5	5.5
	WOP	3.3	3.9	4.3	4.3	4.3	4.5	4.5	4.6	4.9	5.1	5.3	5.5	5.5
*1/21/2001	EC	3.0	3.8	4.1	4.0	4.0	3.9	4.1	4.1	4.4	4.6	4.9	5.1	5.1
	WOP	3.3	3.5	3.9	3.9	3.7	3.2	3.4	3.5	3.8	4.0	4.5	4.7	4.8

*Life stage ends 1/15/2001, but for the sake of including the period from 1/7/2001 through the end of the life stage, this date is also shown.

suitable: <12°C	low to moderate stress: 13-14°C	high stress: >14°C

For example, for juvenile rearing, the running average weekly temperatures exceeded temperature criterion on 45 days (30 percent) under existing conditions within the Iron Gate Dam reach when compared with 55 days (37 percent) under hypothetical without-Project conditions. In contrast, there was no difference in the frequency of exceeding the temperature criterion between existing and without-Project conditions in the lower reaches of the river upstream of the confluence with the Trinity River or at Turwar (Table 4).

Results of a comparison of habitat suitability at various locations within the river for juvenile rearing and emigration show that water temperature condition s under both existing and without-Project conditions are within the range considered to be suitable for juvenile rearing and emigration throughout the river through approximately late April (Table 7). Beginning in May and continuing through June, water temperatures throughout the river under both existing and without-Project conditions were within the range considered to reflect low to moderate stress. Temperature conditions, particularly within the lower reaches of the river in July were within the range characterized by high stress/lethal under both existing and without-Project conditions.

Exposure of juvenile Chinook Salm on to seasonally cooler water temperatures under existing project operations, primarily within the reach down stream of Iron Gate Dam, would be expected to benefit the overall health and condition of juvenile rearing salmon. Exposure to reduced water temperatures within the Iron Gate Dam reach during the spring and early summer juvenile rearing period would contribute to reduced vulnerability of juveniles to disease and infection Operation of Iron Gate Dam also serves to substantially reduce daily variation in water temperatures during the spring and early summer, which would contribute to a reduction in variation in metabolic demands on rearing juveniles and improve growth, when compared to more highly variable temperature conditions that would occur under without-Project conditions.

Although exposure of juvenile salmon to seasonally reduced water temperatures during the spring and early summer rearing period offers benefits in terms of a reduced risk of disease and infection, it was also determined that exposure to cooler water temperatures under existing project operations would not result in reduced juvenile growth rates. Results of studies by Marine and Cech (2004) show that juvenile Chinook growth rates are virtually identical over a temperature ranges from 13-16°C and 17-20°C reflecting the general range of seasonal temperatures expected to occur during the juvenile rearing period under existing conditions in the reach downstream of Iron Gate Dam. Results of these growth studies show no evidence that lower spring and early summer water temperatures under existing project operations would adversely impact juvenile salmon growth rates.

These analyses demonstrate that existing conditions within the Klamath River reach downstream of Iron Gate Dam provide better rearing conditions for juvenile *fall-run Chinook Salmon when compared to water temperature conditions occurring under hypothetical without-Project conditions. As a result of thermal warming within the river, the benefits of project operations on juvenile rearing habitat diminish with distance downstream of the dam. Within the lower reaches of the river, project operations have no effect on water temperature conditions affecting habitat suitability for juvenile rearing period.*

PacifiCorp's conclusions with regard to Project-related water temperature effects on fall-run Chinook Salmon are supported by other recent independent analyses. In an analysis of the effects on fall Chinook of hypothetical temperature conditions with and without Klamath Hydroelectric Project dams and reservoirs, Bartholow et al. {2005) concluded that water temperature conditions for juvenile rearing life stages are better with Klamath Hydroelectric Project dams and reservoirs than without, especially immediately downstream of Iron Gate Dam. In a subsequent analysis of factors limiting fall Chinook production potential, Bartholow and Henriksen (2006) concluded that water temperature during

Table 7. Habitat suitability based on overage doily water temperatures for juvenile fall-run Chinook Salmon rearing at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project scenarios.

Date	Scenario	Iron Gate Dam RM 190.5	Above Shasta River RM 177.5	At Walker Bridge RM 156.8	Above Scott River RM 143.9	At Seiad Valley RM 129.0	Above Clear Creek RM 99.0	Above Salmon River RM 66.9	At Orleans RM 57.6	Above Bluff Creek RM 49.0	Above Trinity River RM 43.3	At Martins Ferry RM 39.5	At Blue Creek RM 15.9	At Turwar RM 5.3
2/1/2001	EC	2.1	2.3	2.6	2.6	2.9	3.3	3.8	4.1	4.5	4.7	5.1	5.3	5.4
	WOP	2.1	1.9	2.1	2.2	2.5	3.2	3.8	4.0	4.4	4.6	5.0	5.3	5.3
2/15/2001	EC	2.1	2.5	3.1	3.3	3.7	4.2	4.6	4.8	5.1	5.3	5.5	5.9	6.0
	WOP	3.3	3.4	3.6	3.6	3.9	4.2	4.6	4.7	5.0	5.2	5.5	5.9	6.0
3/1/2001	EC	2.6	3.1	4.3	4.7	5.5	6.5	7.0	7.1	7.2	7.3	7.1	7.4	7.5
	WOP	4.5	5.0	5.7	6.0	6.4	7.1	7.5	7.4	7.5	7.6	7.2	7.4	7.5
3/15/2001	EC	4.1	4.8	6.2	6.8	8.0	9.0	9.3	9.3	9.2	9.2	8.9	9.2	9.3
	WOP	7.5	8.0	8.8	9.1	9.7	10.0	9.9	9.8	9.6	9.6	9.1	9.4	9.5
3/29/2001	EC	7.3	8.9	10.7	11.6	12.7	12.5	12.1	12.0	11.8	11.7	11.7	11.6	11.7
	WOP	12.1	12.7	13.0	13.0	13.4	12.9	12.5	12.3	12.1	12.0	11.8	11.7	11.8
4/12/2001	EC	7.9	8.6	9.0	9.3	9.8	10.5	10.6	10.6	10.6	10.6	10.4	10.6	10.8
	WOP	7.7	8.4	9.1	9.4	9.9	10.3	10.5	10.5	10.4	10.4	10.3	10.5	10.6
4/26/2001	EC	9.1	11.0	13.4	14.6	16.0	15.8	15.6	15.6	15.2	15.0	14.7	14.8	15.0
	WOP	17.1	17.5	18.1	18.2	18.5	17.4	16.6	16.2	15.7	15.5	15.0	14.9	15.0
5/10/2001	EC	12.4	13.8	15.4	15.9	17.1	16.2	15.8	16.0	15.4	15.2	14.9	14.8	15.0
	WOP	16.2	17.3	18.0	18.3	18.7	17.5	16.4	16.4	15.6	15.3	14.9	14.8	15.0
5/24/2001	EC	16.3	17.7	19.2	19.8	20.4	19.2	18.5	18.9	17.8	17.6	17.3	17.0	17.3
	WOP	21.2	21.6	22.0	21.8	21.7	19.6	18.8	19.1	18.1	17.7	17.4	17.1	17.4
6/7/2001	EC	18.2	18.8	19.2	19.2	19.4	18.7	18.4	18.4	17.8	17.6	17.3	17.2	17.4
	WOP	17.3	17.5	17.7	17.8	18.1	17.7	17.6	17.8	17.3	17.1	17.0	16.9	17.1
6/21/2001	EC	18.5	20.0	21.4	22.0	22.5	22.8	23.1	22.9	22.3	22.0	21.2	21.3	21.7
	WOP	20.5	21.4	22.2	22.5	22.8	22.7	22.9	22.8	22.1	21.9	21.1	21.2	21.5
*7/5/2001	EC	19.0	22.1	24.6	25.3	25.7	25.9	26.3	26.0	25.1	24.8	24.0	24.1	24.5
	WOP	23.0	24.6	25.5	25.8	26.0	26.1	26.3	26.0	25.2	24.9	24.1	24.2	24.6

* Life stage ends 7/01/2001, but for the sake of including the period from 7/05/2001 through the end of the life stage, this date is also shown

suitable: <15°C | low to moderate stress: 16-23 °C | high stress: >23 °C *spawning and egg incubation is not a significant factor affecting fall-run Chinook freshwater production in the Klamath River.*

<u>Coho Salmon</u>
Coho Salmon use the mainstem Klamath River primarily as a migration corridor for the upstream movement of adults and downstream movement of juveniles. Although the majority of Coho spawning, egg incubation, and a substantial portion of juvenile rearing occurs within the tributaries that are not affected by existing Klamath Hydroelectric Project operations, this analysis assumed all life stages of Coho inhabit the Klamath River, and the analysis is useful for those Coho that do spawn in the mainstem. Coho juveniles are known to use the Klamath River throughout the year (Soto et al. 2016; Manhard et al. 2018)

Coho are sensitive to seasonal water temperature conditions that affect quality and availability of habitat for various life stages, growth and survival, behavior, vulnerability to disease, and other biological responses. Although the seasonal time periods of occurrence of Coho vary from those described for Chinook Salmon temperature criteria used in this analysis are similar for the two species (Table 2).

Adult Coho Salmon upstream migration within the Klamath River occurs from approximately mid- September through January (Table 3). Results of temperature analyses show that water temperatures are cooling during the fall and winter Coho adult migration period. As a result of the seasonally cooling temperature conditions, habitat is generally suitable throughout the river under both existing conditions and hypothetical without-Project conditions beginning in approximately October and extending through January (Table 8). In general, there is very little difference in the suitability of river temperature conditions for adult Coho migration under existing and without-Project conditions (Table 8).

Coho Salmon egg incubation occurs from November through April (Table 3). Water temperature conditions during the winter and early spring are naturally low and are generally within the range considered to be suitable for Coho egg incubation. Habitat suitability criteria (Table 9) consistently show that water temperatures are typically within the range considered to be suitable for Coho egg incubation. A comparison of water temperature conditions within the Iron Gate reach show the frequency of occurrence of elevated water temperatures during the Coho egg incubation period is less under existing project operations when compared to hypothetical without-Project conditions (Table 5).

Juvenile Coho Salmon rear within freshwater rivers and tributaries throughout the year (Table 3). Klamath Hydroelectric Project operations result in cooler water temperatures during the spring and early summer months within the reach immediately downstream of Iron Gate Dam when compared to without-Project conditions. Cooler water temperatures during the spring and early summer months within the Iron Gate reach under existing project operations would *improve opportunities and conditions for juvenile Coho rearing and emigration. During the spring and summer months, water temperatures increase within the river, and differences in water temperature conditions between existing conditions and hypothetical without-Project conditions become less as a function of distance downstream from the dam (Table 10). During the mid-summer water temperatures, particularly in the lower reaches of the river, may reach levels under both existing and without-Project conditions that are considered to be highly stressful for juvenile Coho rearing (Table 10).*

Although juvenile Coho may use the mainstem Klamath River throughout the year, this analysis focuses on those fish that use the mainstem Klamath River as a migratory corridor from February through July (Table 3). Water temperature conditions throughout the Klamath River are within the range considered to be suitable for juvenile Coho Salmon emigration during the period from February through approximately mid-May (Table 10). Water temperatures during the spring and early summer months are

Table 8. Habitat suitability based on overage daily water temperatures for adult Coho Salmon migration at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
9/15/2000	EC	19.2	19.3	19.7	20.1	20.3	20.3	20.5	20.5	20.2	20.2	20.0	20.0	20.1
	WOP	18.3	19.1	20.1	20.3	20.4	20.3	20.5	20.4	20.2	20.1	19.9	19.9	20.1
9/29/2000	EC	18.1	18.4	18.5	18.6	18.7	18.3	18.1	18.1	17.9	17.8	17.5	17.7	17.8
	WOP	16.1	17.0	17.6	17.9	18.1	17.9	17.8	17.9	17.7	17.6	17.4	17.6	17.8
10/13/2000	EC	15.9	15.7	15.1	14.8	14.6	14.3	14.1	14.1	14.1	14.1	14.1	14.2	14.3
	WOP	10.6	10.8	10.9	11.0	11.5	12.4	13.0	13.3	13.4	13.5	13.8	14.1	14.2
10/27/2000	EC	12.6	12.3	11.9	11.8	11.6	11.4	11.7	11.8	11.9	11.9	12.0	12.0	12.0
	WOP	8.5	9.0	9.3	9.3	9.8	10.7	11.1	11.1	11.1	11.2	11.5	11.6	11.6
11/10/2000	EC	9.3	8.6	7.9	7.7	7.6	7.6	7.8	7.9	8.1	8.2	8.7	8.8	8.8
	WOP	3.9	4.1	4.8	5.1	5.7	6.4	6.9	7.2	7.5	7.7	8.3	8.5	8.5
11/24/2000	EC	6.0	5.7	5.6	5.5	5.8	5.9	5.9	6.1	6.4	6.5	6.9	7.0	6.9
	WOP	3.8	3.6	3.8	3.6	4.0	4.9	5.5	6.0	6.4	6.6	7.3	7.5	7.5
12/8/2000	EC	4.1	4.1	4.3	4.3	4.5	4.8	4.9	5.2	5.6	5.8	6.5	6.6	6.6
	WOP	3.3	3.4	3.9	3.9	4.3	4.6	4.9	5.2	5.6	5.8	6.5	6.6	6.6
12/22/2000	EC	2.9	3.8	4.6	4.7	4.7	4.4	4.5	4.8	5.1	5.3	5.7	5.8	5.9
	WOP	3.8	4.3	4.8	4.8	4.7	4.3	4.3	4.7	5.0	5.1	5.6	5.8	5.9
1/5/2001	EC	3.9	4.1	4.3	4.4	4.3	4.3	4.4	4.4	4.7	4.9	5.2	5.4	5.4
	WOP	3.6	3.8	4.0	4.0	4.2	4.3	4.1	4.2	4.5	4.7	5.1	5.4	5.4
1/19/2001	EC	2.8	3.1	3.1	2.9	3.1	3.1	3.2	3.3	3.8	3.9	4.3	4.5	4.6
	WOP	1.7	1.4	1.5	1.5	1.6	2.0	2.6	2.9	3.4	3.6	4.1	4.4	4.4
2/2/2001	EC	2.1	3.0	3.7	3.7	3.9	4.2	4.4	4.6	4.9	5.1	5.5	5.7	5.8
	WOP	3.7	3.7	3.7	3.5	3.7	3.9	4.3	4.5	4.8	4.9	5.4	5.6	5.7

*Life stage ends 1/31/2001, but for the sake of including the period from 2/2/2001 through the end of the life stage, this date is also shown.

suitable: <17°C	low to moderate stress: 18-21 °C

Table 9. Habitat suitability based on average daily water temperatures for Coho Salmon egg incubation at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
11/1/2000	EC	11.4	11.0	10.8	10.7	10.5	10.3	9.9	10.0	10.1	10.2	10.6	10.7	10.7
	WOP	6.8	7.2	8.0	8.2	8.3	8.5	9.0	9.2	9.4	9.5	10.1	10.3	10.4
11/15/2000	EC	8.0	7.4	7.0	6.6	6.5	5.8	5.4	5.5	5.7	5.9	6.3	6.3	6.2
	WOP	2.5	2.5	3.1	3.0	3.4	3.8	3.9	4.2	4.7	5.0	5.7	5.8	5.8
11/29/2000	EC	4.4	5.2	5.9	6.0	6.1	6.6	6.7	7.2	7.3	7.5	8.0	8.1	8.2
	WOP	5.3	5.7	5.8	5.9	5.8	6.0	6.1	6.7	6.9	7.1	7.7	7.9	8.0
12/13/2000	EC	3.6	3.5	3.6	3.5	3.5	3.8	4.0	4.5	4.9	5.2	5.9	6.1	6.2
	WOP	2.3	2.2	2.4	2.2	2.6	3.6	4.1	4.6	5.0	5.2	5.9	6.2	6.2
12/27/2000	EC	2.3	2.3	2.5	2.6	2.8	3.2	3.6	4.1	4.4	4.7	5.3	5.5	5.5
	WOP	1.7	1.8	2.1	2.2	2.5	3.2	3.8	4.2	4.6	4.8	5.4	5.6	5.7
1/10/2001	EC	3.7	3.3	3.3	3.2	3.6	4.2	4.8	4.9	5.2	5.3	5.6	5.6	5.6
	WOP	1.8	2.0	2.6	2.8	3.2	4.0	4.7	4.9	5.1	5.2	5.6	5.7	5.7
1/24/2001	EC	2.7	2.9	3.9	4.3	5.1	5.3	5.5	5.7	5.9	6.0	6.2	6.3	6.3
	WOP	3.6	3.8	4.7	4.9	5.4	5.5	5.4	5.6	5.7	5.8	6.1	6.1	6.1
2/7/2001	EC	2.1	1.8	2.0	2.1	3.0	4.7	5.4	5.6	5.8	6.0	6.1	6.5	6.6
	WOP	1.6	1.9	3.0	3.6	4.5	5.7	6.2	6.2	6.5	6.6	6.5	7.0	7.1
2/21/2001	EC	2.3	3.8	5.5	6.0	6.7	6.9	7.1	7.2	7.3	7.4	7.4	7.6	7.7
	WOP	5.2	5.8	6.4	6.7	7.2	7.3	7.4	7.5	7.5	7.6	7.5	7.7	7.8
3/7/2001	EC	3.1	4.7	6.6	7.3	8.1	8.6	8.6	8.6	8.6	8.5	8.4	8.5	8.5
	WOP	9.0	9.1	9.2	9.2	9.3	8.8	8.5	8.5	8.5	8.4	8.4	8.3	8.3
3/21/2001	EC	5.0	7.2	9.1	9.9	11.4	11.9	12.2	12.1	11.8	11.7	11.3	11.4	11.6
	WOP	13.1	13.4	13.8	14.0	14.2	13.6	13.2	12.8	12.4	12.3	11.6	11.6	11.7
4/4/2001	EC	8.5	8.7	8.7	8.7	9.0	9.0	9.3	9.4	9.5	9.5	9.5	9.7	9.8
	WOP	6.5	6.9	7.3	7.5	8.2	9.0	9.7	9.7	9.8	9.9	9.7	10.0	10.1
4/18/2001	EC	7.9	8.1	9.3	9.9	11.1	11.9	12.2	12.3	12.2	12.1	12.0	12.2	12.3
	WOP	10.3	10.6	11.2	11.5	12.3	12.7	12.6	12.6	12.4	12.3	12.1	12.2	12.3
5/2/2001	EC	11.3	11.5	11.4	11.5	12.5	12.9	12.9	13.1	12.8	12.7	12.7	12.6	12.7
	WOP	9.9	10.9	12.0	12.5	13.3	13.3	13.0	13.2	12.9	12.8	12.7	12.7	12.7

*Life stage ends 4/30/2001, but for the sake of including the period from 5/2/2001 through the end of the life stage, this date is also shown.

suitable: <12°C	low to moderate stress: 13-14 °C	high stress: >14 °C

Table 10. Habitat suitability based on overage doily water temperatures for juvenile Coho Solman rearing at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
1/1/2001	EC	4.0	4.1	3.8	3.9	4.0	4.1	4.1	4.2	4.5	4.5	4.9	4.8	4.6
	WOP	2.2	3.0	3.8	3.9	4.1	4.1	4.1	4.2	4.4	4.5	4.9	4.7	4.4
1/15/2001	EC	3.1	2.8	2.7	2.6	2.9	3.6	4.0	4.3	4.6	4.8	5.4	5.5	5.5
	WOP	1.0	1.1	1.6	1.7	2.5	3.4	3.7	4.0	4.3	4.5	5.2	5.3	5.2
1/29/2001	EC	2.3	2.7	3.2	3.1	3.6	4.1	4.5	4.7	4.9	5.1	5.6	5.7	5.7
	WOP	2.4	2.6	3.0	3.1	3.5	3.9	4.2	4.4	4.7	4.9	5.4	5.6	5.6
2/12/2001	EC	1.9	2.1	2.5	2.7	3.3	4.1	4.4	4.5	4.8	5.0	5.4	5.6	5.6
	WOP	1.9	2.1	2.5	2.6	3.4	4.1	4.1	4.3	4.5	4.7	5.2	5.4	5.5
2/26/2001	EC	2.5	3.5	4.7	5.2	5.6	6.2	6.6	6.7	6.8	6.9	7.1	7.3	7.4
	WOP	5.4	5.5	5.5	5.5	5.6	6.2	6.7	6.8	7.0	7.0	7.2	7.4	7.5
3/12/2001	EC	3.5	4.7	6.0	6.5	7.6	8.2	8.6	8.7	8.7	8.7	8.6	8.8	9.0
	WOP	7.8	7.7	7.7	7.8	8.3	8.6	9.1	9.2	9.2	9.2	8.9	9.1	9.2
3/26/2001	EC	6.9	7.6	8.9	9.4	10.9	11.6	12.0	11.6	11.4	11.3	10.7	10.8	10.9
	WOP	9.5	10.0	11.3	11.9	12.5	12.8	13.0	12.3	12.1	12.1	11.1	11.3	11.4
4/9/2001	EC	8.0	8.3	8.5	8.7	9.1	9.2	9.4	9.4	9.5	9.5	9.5	9.6	9.7
	WOP	6.7	6.8	7.0	7.4	8.3	8.9	9.4	9.5	9.5	9.6	9.5	9.6	9.7
4/23/2001	EC	8.3	9.8	11.0	11.4	12.3	12.4	12.5	12.6	12.4	12.4	12.2	12.2	12.4
	WOP	13.4	13.3	13.0	12.8	13.1	12.9	12.8	12.8	12.5	12.4	12.3	12.2	12.3
5/7/2001	EC	12.1	13.7	15.0	15.5	16.4	15.4	15.0	15.1	14.5	14.4	14.1	14.0	14.3
	WOP	15.6	15.9	16.1	16.2	17.0	15.8	15.2	15.2	14.6	14.4	14.1	14.0	14.3
5/21/2001	EC	15.8	17.3	18.5	18.9	19.5	18.3	17.8	18.2	17.2	16.9	16.6	16.4	16.7
	WOP	18.1	18.9	19.8	20.0	20.2	18.4	17.9	18.2	17.3	17.0	16.7	16.4	16.6
6/4/2001	EC	18.4	18.1	17.7	17.4	17.1	16.5	16.4	16.6	16.2	16.1	15.9	15.8	15.9
	WOP	13.6	14.0	14.6	14.8	15.5	16.0	16.5	16.7	16.3	16.2	15.9	15.8	16.0
6/18/2001	EC	18.2	18.6	18.8	19.0	19.6	20.4	20.7	20.7	20.2	20.0	19.5	19.5	19.7
	WOP	16.6	17.5	18.3	18.8	19.5	20.3	20.6	20.6	20.1	20.0	19.4	19.4	19.6
7/2/2001	EC	18.5	21.0	22.4	22.7	22.9	22.7	22.7	22.5	22.1	21.8	21.2	21.3	21.6
	WOP	21.0	22.0	22.1	22.2	22.3	22.4	22.4	22.3	21.8	21.6	21.1	21.1	21.4
7/16/2001	EC	20.1	20.5	21.0	21.2	21.3	21.3	21.4	21.5	21.2	21.0	21.0	20.7	20.8
	WOP	19.0	20.1	21.0	21.3	21.4	21.4	21.4	21.5	21.3	21.2	21.1	21.0	21.2

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
7/30/2001	EC	20.9	21.0	21.0	21.3	22.0	22.2	22.3	22.4	22.0	21.8	21.7	21.6	21.8
	WOP	17.8	19.5	20.5	21.1	22.0	22.0	22.3	22.4	21.9	21.7	21.7	21.6	21.9
8/13/2001	EC	21.6	22.1	22.6	22.8	22.9	23.3	23.3	23.3	22.8	22.7	22.4	22.3	22.5
	WOP	20.0	21.4	22.6	22.9	23.0	23.4	23.3	23.2	22.8	22.6	22.4	22.5	22.8
8/27/2001	EC	21.5	22.5	23.5	23.7	23.5	23.0	22.8	22.7	22.2	22.0	21.6	21.7	22.0
	WOP	20.0	21.5	22.6	23.0	23.0	22.8	22.7	22.6	22.2	22.0	21.5	21.7	22.1
9/10/2001	EC	20.6	20.8	21.0	20.9	20.6	20.2	20.4	20.4	20.1	19.9	19.7	19.7	19.9
	WOP	16.8	18.3	19.3	19.7	19.7	19.7	20.1	20.2	20.0	20.0	19.7	19.8	20.1
9/24/2001	EC	19.1	18.8	18.8	18.9	19.3	19.6	19.5	19.4	19.0	18.8	18.3	18.5	18.7
	WOP	15.5	16.8	17.9	18.3	18.7	19.2	19.4	19.3	18.9	18.8	18.3	18.5	18.8
10/8/2001	EC	17.7	17.3	17.2	17.2	17.3	17.5	17.5	17.4	16.9	16.8	16.5	16.5	16.6
	WOP	12.8	14.8	15.6	16.1	16.5	17.1	17.3	17.2	16.7	16.6	16.3	16.5	16.7
10/22/2001	EC	14.6	14.7	14.6	14.5	14.4	14.1	13.9	13.9	13.6	13.6	13.5	13.6	13.7
	WOP	10.8	11.9	12.7	12.9	13.0	13.1	13.1	13.3	13.3	13.3	13.4	13.6	13.7
11/5/2001	EC	11.4	11.5	11.4	11.4	11.5	10.8	10.6	10.9	11.0	11.1	11.4	11.6	11.7
	WOP	8.6	9.4	9.8	9.9	10.3	10.1	10.3	10.7	10.8	10.9	11.3	11.6	11.7
11/19/2001	EC	8.6	9.2	9.1	8.8	8.4	7.7	7.6	8.3	8.6	8.8	9.4	9.5	9.5
	WOP	6.4	7.0	7.4	7.3	7.3	7.4	7.6	8.2	8.5	8.7	9.4	9.5	9.5
12/3/2001	EC	5.9	5.3	5.0	4.9	5.3	5.7	5.8	6.1	6.4	6.6	7.2	7.2	7.2
	WOP	2.3	2.5	3.1	3.2	3.8	4.8	5.2	5.7	6.0	6.2	6.9	7.0	7.0
12/17/2001	EC	3.7	3.6	4.3	4.4	5.0	5.0	4.9	5.6	5.8	6.1	6.8	6.9	6.9
	WOP	2.5	2.5	3.6	3.8	4.6	4.7	4.6	5.4	5.6	5.8	6.7	6.8	6.8
12/31/2001	EC	1.9	2.0	2.8	2.9	3.9	4.5	4.7	5.8	5.8	6.1	7.5	7.3	7.2
	WOP	4.1	3.7	3.9	3.8	4.4	4.7	4.8	5.8	5.8	6.0	7.4	7.3	7.2

*Life stage ends 4/30/2001, but for the sake of including the period from 5/2/2001 through the end of the life stage, this date is also shown.

suitable: <15°C | low to moderate stress: 16-23 °C | high stress: >23 °C *colder within the reach immediately downstream of Iron Gate Dam under existing Klamath Hydroelectric Project operations. Water temperatures within the lower reaches of the river that serve as the migratory corridor for Coho Salmon are not affected by Klamath Hydroelectric Project operations.*

Steelhead

Steelhead are sensitive to exposure to elevated water temperatures. Like Coho Salmon, Steelhead primarily use the mainstem Klamath River as a migratory corridor for upstream adult and downstream juvenile movement. Spawning, egg incubation, and juvenile rearing primarily occur within the tributaries.

Adult Steelhead upstream migration within the Klamath River occurs from approximately September through November (Table 3). Results of temperature analyses show that during the adult Steelhead migration period, water temperatures are cooling during the fall and winter months. As a result of the seasonally cooling temperatures, conditions are generally suitable throughout the river under both existing and without-Project conditions beginning in approximately October and extending through January. In general, there is very little difference in the suitability of river temperature conditions for adult Steelhead migration under existing and without-Project conditions at locations in the lower reaches of the river (Table 11). As a result of the elevated water temperatures within the lower reaches of the river under both existing and without-Project conditions during September, behavior response and entry of adult Steelhead into the river would be independent of Klamath Hydroelectric Project operations.

Steelhead egg incubation occurs from December through April with fry emergence between March and June (Table 3). Water temperature conditions during the winter and early spring are naturally cool and are generally within the range considered to be suitable for Steelhead egg incubation and fry emergence (Table 12). Analysis of average weekly temperatures show that the frequency of temperatures above 12°C is greater under hypothetical without Project conditions within the Iron Gate reach when compared to existing project operations with the differences declining with distance downstream of the dam (Table 5).

During the latter part of the egg incubation period, water temperatures under existing conditions are colder than spring temperatures predicted under the without-Project scenario. Therefore, existing operations would provide better habitat conditions for Steelhead egg incubation and fry emergence within the reach immediately downstream of Iron Gate Dam (both egg viability and rate of embryonic development) when compared to without-Project conditions. Warming within the river during the spring months reduces the temperature difference between existing operations and without-Project conditions as a function of distance downstream from the dam.

Juvenile Steelhead rear within freshwater rivers and tributaries throughout the year (Table 3). As discussed above, seasonal water temperature conditions significantly affect habitat quality and availability for juvenile rearing within the mainstem Klamath River. Klamath Hydroelectric Project operations result in cooler water temperatures during the spring and early summer months within the reach immediately downstream of Iron Gate Dam under existing operations when compared to hypothetical without-Project conditions (Table 13). Cooler water temperatures during the spring and early summer months within the Iron Gate reach under existing project operations would improve opportunities and conditions for juvenile Steelhead rearing. During the spring and summer months water temperatures increase within the river and differences in water temperature conditions between existing and without-Project conditions become less as a function of distance downstream from Iron Gate Dam.

Table 11. Habitat suitability based on overage doily water temperatures for adult Steelhead migration at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) ond hypothetical without-Project scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
9/1/2000	EC	21.2	18.9	18.4	18.4	18.9	18.8	18.6	18.6	18.5	18.5	18.6	18.4	18.4
	WOP	15.2	16.2	17.3	17.8	18.4	18.5	18.4	18.5	18.4	18.3	18.6	18.3	18.4
9/15/2000	EC	19.2	19.3	19.7	20.1	20.3	20.3	20.5	20.5	20.2	20.2	20.0	20.0	20.1
	WOP	18.3	19.1	20.1	20.3	20.4	20.3	20.5	20.4	20.2	20.1	19.9	19.9	20.1
9/29/2000	EC	18.1	18.4	18.5	18.6	18.7	18.3	18.1	18.1	17.9	17.8	17.5	17.7	17.8
	WOP	16.1	17.0	17.6	17.9	18.1	17.9	17.8	17.9	17.7	17.6	17.4	17.6	17.8
10/13/2000	EC	15.9	15.7	15.1	14.8	14.6	14.3	14.1	14.1	14.1	14.1	14.1	14.2	14.3
	WOP	10.6	10.8	10.9	11.0	11.5	12.4	13.0	13.3	13.4	13.5	13.8	14.1	14.2
10/27/2000	EC	12.6	12.3	11.9	11.8	11.6	11.4	11.7	11.8	11.9	11.9	12.0	12.0	12.0
	WOP	8.5	9.0	9.3	9.3	9.8	10.7	11.1	11.1	11.1	11.2	11.5	11.6	11.6
11/10/2000	EC	9.3	8.6	7.9	7.7	7.6	7.6	7.8	7.9	8.1	8.2	8.7	8.8	8.8
	WOP	3.9	4.1	4.8	5.1	5.7	6.4	6.9	7.2	7.5	7.7	8.3	8.5	8.5
11/24/2000	EC	6.0	5.7	5.6	5.5	5.8	5.9	5.9	6.1	6.4	6.5	6.9	7.0	6.9
	WOP	2.5	2.5	3.0	3.2	3.8	4.5	4.8	5.1	5.5	5.6	6.3	6.5	6.5
12/8/2000	EC	4.1	4.1	4.3	4.3	4.5	4.8	4.9	5.2	5.6	5.8	6.5	6.6	6.6
	WOP	3.3	3.4	3.9	3.9	4.3	4.6	4.9	5.2	5.6	5.8	6.5	6.6	6.6

*Life stage ends 11/30/2000, but for the sake of including the period from 11/24/2001 through the end of the life stage, this date is also shown.

suitable: <17°C	low to moderate stress: 18-21 °C	high stress: >21 °C

Table 12. Habitat suitability based on overage doily water temperatures for Steelhead egg incubation and fry emergence at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
12/1/2000	EC	4.7	4.5	4.5	4.5	4.9	5.7	6.1	6.5	6.7	6.8	7.5	7.7	7.7
	WOP	3.7	3.9	4.5	4.7	5.3	5.9	6.0	6.4	6.6	6.7	7.5	7.6	7.6
12/15/2000	EC	3.4	4.3	4.8	4.8	4.7	4.8	4.8	5.2	5.4	5.5	6.2	6.2	6.2
	WOP	3.3	4.1	4.3	4.3	4.2	4.2	4.3	4.7	4.9	5.0	5.8	5.9	6.0
12/29/2000	EC	2.3	2.3	2.4	2.4	2.5	2.9	3.3	3.6	4.1	4.3	4.8	5.1	5.1
	WOP	2.1	2.2	2.3	2.1	2.2	2.8	3.2	3.5	4.0	4.2	4.8	5.1	5.1
1/12/2001	EC	3.5	3.4	3.7	3.6	3.8	3.9	4.0	4.3	4.6	4.8	5.3	5.5	5.6
	WOP	2.3	2.3	2.5	2.5	2.9	3.4	3.8	4.1	4.4	4.6	5.2	5.4	5.5
1/26/2001	EC	2.6	2.6	2.7	2.7	3.2	3.8	4.5	4.8	5.1	5.3	5.7	5.8	5.8
	WOP	1.6	1.7	2.4	2.7	3.3	4.1	4.8	5.0	5.3	5.4	5.7	5.9	5.9
2/9/2001	EC	2.2	1.9	2.0	1.9	2.2	2.7	3.1	3.3	3.8	4.1	4.5	4.9	4.9
	WOP	1.1	0.7	0.9	1.1	1.8	2.6	3.5	3.8	4.3	4.5	4.8	5.2	5.3
2/23/2001	EC	2.4	2.7	3.4	3.8	4.9	6.0	6.6	6.7	6.9	6.9	7.0	7.1	7.2
	WOP	4.1	4.2	4.7	5.0	5.8	6.4	6.8	6.9	7.0	7.1	7.0	7.2	7.3
3/9/2001	EC	3.2	4.0	5.7	6.5	7.9	8.6	8.8	8.9	8.8	8.8	8.6	8.7	8.8
	WOP	7.3	8.1	9.3	9.7	10.2	10.0	9.7	9.5	9.4	9.3	8.8	8.9	8.9
3/23/2001	EC	5.2	7.9	10.3	11.3	12.9	13.2	13.2	13.0	12.8	12.6	12.2	12.4	12.5
	WOP	14.0	14.7	15.1	15.2	15.4	14.8	14.5	13.9	13.6	13.5	12.6	12.7	12.8
4/6/2001	EC	8.6	8.4	8.9	9.1	9.9	10.0	10.0	10.0	9.9	9.9	9.8	9.9	9.9
	WOP	7.6	8.2	8.7	8.8	9.6	9.5	9.6	9.7	9.7	9.7	9.7	9.8	9.9
4/20/2001	EC	7.9	8.6	9.3	9.6	10.1	10.5	11.1	11.2	11.3	11.3	11.1	11.5	11.7
	WOP	10.2	10.3	10.5	10.7	10.9	11.2	11.7	11.7	11.8	11.9	11.4	11.7	11.9
5/4/2001	EC	11.3	12.4	13.5	13.9	14.7	13.9	13.6	13.9	13.5	13.4	13.3	13.3	13.5
	WOP	13.2	13.5	13.7	13.7	14.4	13.7	13.8	14.0	13.6	13.5	13.3	13.3	13.5
5/18/2001	EC	15.5	16.4	16.9	17.0	16.9	15.8	15.4	15.5	15.0	14.8	14.5	14.3	14.5
	WOP	16.3	16.8	17.6	17.7	17.2	16.0	15.4	15.5	15.0	14.7	14.5	14.3	14.4
6/1/2001	EC	17.8	18.5	19.8	20.3	20.7	20.0	19.4	19.7	18.6	18.3	17.9	17.7	18.0
	WOP	19.6	20.5	21.1	21.0	21.0	19.6	19.2	19.5	18.6	18.3	17.9	17.7	18.0

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
6/15/2001	EC	18.0	18.6	19.1	19.4	19.8	20.0	20.0	19.9	19.5	19.3	18.9	18.9	19.0
	WOP	17.2	18.0	18.3	18.4	18.7	18.9	19.4	19.5	19.2	19.1	18.7	18.7	18.9
6/29/2001	EC	18.6	19.8	20.7	21.1	21.3	21.2	21.3	20.9	20.6	20.4	19.8	19.8	20.0
	WOP	18.4	19.1	19.5	19.7	20.2	20.9	21.1	20.7	20.3	20.1	19.6	19.5	19.7
7/13/2001	EC	20.0	21.7	22.9	23.2	23.6	24.0	24.5	24.4	23.9	23.6	23.1	23.1	23.5
	WOP	21.1	22.5	23.1	23.3	23.8	24.1	24.5	24.4	23.9	23.6	23.1	23.1	23.5

* Life stage ends 6/30/2000, but for the sake of including the period from 6/29/2001 through the end of the life stage, this date is also shown

suitable: <12°C	low to moderate stress: 13-14°C	high stress: >14°C

Table 13. Habitat suitability based on overage doily water temperatures for juvenile Steelhead rearing at locations downstream from Iron Gate Dam based on 2000 and 2001 water temperature modeling results for existing conditions (EC) and hypothetical without-Project (WOP) scenarios.

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
1/1/2001	EC	4.0	4.1	3.8	3.9	4.0	4.1	4.1	4.2	4.5	4.5	4.9	4.8	4.6
	WOP	2.2	3.0	3.8	3.9	4.1	4.1	4.1	4.2	4.4	4.5	4.9	4.7	4.4
1/15/2001	EC	3.1	2.8	2.7	2.6	2.9	3.6	4.0	4.3	4.6	4.8	5.4	5.5	5.5
	WOP	1.0	1.1	1.6	1.7	2.5	3.4	3.7	4.0	4.3	4.5	5.2	5.3	5.2
1/29/2001	EC	2.3	2.7	3.2	3.1	3.6	4.1	4.5	4.7	4.9	5.1	5.6	5.7	5.7
	WOP	2.4	2.6	3.0	3.1	3.5	3.9	4.2	4.4	4.7	4.9	5.4	5.6	5.6
2/12/2001	EC	1.9	2.1	2.5	2.7	3.3	4.1	4.4	4.5	4.8	5.0	5.4	5.6	5.6
	WOP	1.9	2.1	2.5	2.6	3.4	4.1	4.1	4.3	4.5	4.7	5.2	5.4	5.5
2/26/2001	EC	2.5	3.5	4.7	5.2	5.6	6.2	6.6	6.7	6.8	6.9	7.1	7.3	7.4
	WOP	5.4	5.5	5.5	5.5	5.6	6.2	6.7	6.8	7.0	7.0	7.2	7.4	7.5
3/12/2001	EC	3.5	4.7	6.0	6.5	7.6	8.2	8.6	8.7	8.7	8.7	8.6	8.8	9.0
	WOP	7.8	7.7	7.7	7.8	8.3	8.6	9.1	9.2	9.2	9.2	8.9	9.1	9.2
3/26/2001	EC	6.9	7.6	8.9	9.4	10.9	11.6	12.0	11.6	11.4	11.3	10.7	10.8	10.9
	WOP	9.5	10.0	11.3	11.9	12.5	12.8	13.0	12.3	12.1	12.1	11.1	11.3	11.4
4/9/2001	EC	8.0	8.3	8.5	8.7	9.1	9.2	9.4	9.4	9.5	9.5	9.5	9.6	9.7
	WOP	6.7	6.8	7.0	7.4	8.3	8.9	9.4	9.5	9.5	9.6	9.5	9.6	9.7
4/23/2001	EC	8.3	9.8	11.0	11.4	12.3	12.4	12.5	12.6	12.4	12.4	12.2	12.2	12.4
	WOP	13.4	13.3	13.0	12.8	13.1	12.9	12.8	12.8	12.5	12.4	12.3	12.2	12.3
5/7/2001	EC	12.1	13.7	15.0	15.5	16.4	15.4	15.0	15.1	14.5	14.4	14.1	14.0	14.3
	WOP	15.6	15.9	16.1	16.2	17.0	15.8	15.2	15.2	14.6	14.4	14.1	14.0	14.3
5/21/2001	EC	15.8	17.3	18.5	18.9	19.5	18.3	17.8	18.2	17.2	16.9	16.6	16.4	16.7
	WOP	18.1	18.9	19.8	20.0	20.2	18.4	17.9	18.2	17.3	17.0	16.7	16.4	16.6
6/4/2001	EC	18.4	18.1	17.7	17.4	17.1	16.5	16.4	16.6	16.2	16.1	15.9	15.8	15.9
	WOP	13.6	14.0	14.6	14.8	15.5	16.0	16.5	16.7	16.3	16.2	15.9	15.8	16.0
6/18/2001	EC	18.2	18.6	18.8	19.0	19.6	20.4	20.7	20.7	20.2	20.0	19.5	19.5	19.7
	WOP	16.6	17.5	18.3	18.8	19.5	20.3	20.6	20.6	20.1	20.0	19.4	19.4	19.6
7/2/2001	EC	18.5	21.0	22.4	22.7	22.9	22.7	22.7	22.5	22.1	21.8	21.2	21.3	21.6
	WOP	21.0	22.0	22.1	22.2	22.3	22.4	22.4	22.3	21.8	21.6	21.1	21.1	21.4

Date	Scenario	Iron Gate Dam RM 190.54	Above Shasta River RM 177.52	At Walker Bridge RM 156.79	Above Scott River RM 143.86	At Seiad Valley RM 129.04	Above Clear Creek RM 99.04	Above Salmon River RM 66.91	At Orleans RM 57.58	Above Bluff Creek RM 49.03	Above Trinity River RM 43.33	At Martins Ferry RM 39.5	At Blue Creek RM 15.95	At Turwar RM 5.28
7/16/2001	EC	20.1	20.5	21.0	21.2	21.3	21.3	21.4	21.5	21.2	21.0	21.0	20.7	20.8
	WOP	19.0	20.1	21.0	21.3	21.4	21.4	21.4	21.5	21.3	21.2	21.1	21.0	21.2
7/30/2001	EC	20.9	21.0	21.0	21.3	22.0	22.2	22.3	22.4	22.0	21.8	21.7	21.6	21.8
	WOP	17.8	19.5	20.5	21.1	22.0	22.0	22.3	22.4	21.9	21.7	21.7	21.6	21.9
8/13/2001	EC	21.6	22.1	22.6	22.8	22.9	23.3	23.3	23.3	22.8	22.7	22.4	22.3	22.5
	WOP	20.0	21.4	22.6	22.9	23.0	23.4	23.3	23.2	22.8	22.6	22.4	22.5	22.8
8/27/2001	EC	21.5	22.5	23.5	23.7	23.5	23.0	22.8	22.7	22.2	22.0	21.6	21.7	22.0
	WOP	20.0	21.5	22.6	23.0	23.0	22.8	22.7	22.6	22.2	22.0	21.5	21.7	22.1
9/10/2001	EC	20.6	20.8	21.0	20.9	20.6	20.2	20.4	20.4	20.1	19.9	19.7	19.7	19.9
	WOP	16.8	18.3	19.3	19.7	19.7	19.7	20.1	20.2	20.0	20.0	19.7	19.8	20.1
9/24/2001	EC	19.1	18.8	18.8	18.9	19.3	19.6	19.5	19.4	19.0	18.8	18.3	18.5	18.7
	WOP	15.5	16.8	17.9	18.3	18.7	19.2	19.4	19.3	18.9	18.8	18.3	18.5	18.8
10/8/2001	EC	17.7	17.3	17.2	17.2	17.3	17.5	17.5	17.4	16.9	16.8	16.5	16.5	16.6
	WOP	12.8	14.8	15.6	16.1	16.5	17.1	17.3	17.2	16.7	16.6	16.3	16.5	16.7
10/22/2001	EC	14.6	14.7	14.6	14.5	14.4	14.1	13.9	13.9	13.6	13.6	13.5	13.6	13.7
	WOP	10.8	11.9	12.7	12.9	13.0	13.1	13.1	13.3	13.3	13.3	13.4	13.6	13.7
11/5/2001	EC	11.4	11.5	11.4	11.4	11.5	10.8	10.6	10.9	11.0	11.1	11.4	11.6	11.7
	WOP	8.6	9.4	9.8	9.9	10.3	10.1	10.3	10.7	10.8	10.9	11.3	11.6	11.7
11/19/2001	EC	8.6	9.2	9.1	8.8	8.4	7.7	7.6	8.3	8.6	8.8	9.4	9.5	9.5
	WOP	6.4	7.0	7.4	7.3	7.3	7.4	7.6	8.2	8.5	8.7	9.4	9.5	9.5
12/3/2001	EC	5.9	5.3	5.0	4.9	5.3	5.7	5.8	6.1	6.4	6.6	7.2	7.2	7.2
	WOP	2.3	2.5	3.1	3.2	3.8	4.8	5.2	5.7	6.0	6.2	6.9	7.0	7.0
12/17/2001	EC	3.7	3.6	4.3	4.4	5.0	5.0	4.9	5.6	5.8	6.1	6.8	6.9	6.9
	WOP	2.5	2.5	3.6	3.8	4.6	4.7	4.6	5.4	5.6	5.8	6.7	6.8	6.8
12/31/2001	EC	1.9	2.0	2.8	2.9	3.9	4.5	4.7	5.8	5.8	6.1	7.5	7.3	7.2
	WOP	4.1	3.7	3.9	3.8	4.4	4.7	4.8	5.8	5.8	6.0	7.4	7.3	7.2

Life stage ends 6/30/2000, but for the sake of including the period from 6/29/2001 through the end of the life stage, this date is also shown

suitable: <15°C	low to moderate stress: 16-23°C	high stress: >23°C

During the summer and early fall months, water temperatures throughout the river increase to a range considered a low to moderately stressful for juvenile Steelhead rearing. During the mid-summer, water temperatures may reach levels under both existing and without-Project conditions that are considered to be highly stressful for juvenile Steelhead rearing, particularly in the lower reaches of the river (Table 13). The occurrence of these high temperatures, under both existing and without-Project conditions, limits year-round Steelhead rearing within the mainstem Klamath River (perhaps with the exception of limited microhabitat areas providing coldwater refuges).

Juvenile Steelhead outmigration using the mainstem Klamath River as a migratory corridor occurs primarily during the period from March through June and potentially early July (Table 3). Water temperature conditions throughout the Klamath River are within the range considered be suitable for juvenile Steelhead emigration during the period from March through approximately mid-May (Table 13). Water temperatures during the spring and early summer months are colder within the reach immediately downstream of Iron Gate Dam under existing project operations, however temperatures within the lower reaches of the river that serve as the migratory corridor for Steelhead are independent of project operations. Under existing conditions and without-Project conditions seasonal water temperatures increase during the summer, particularly in the lower reaches of the river, where temperatures are typically within the range considered to be low to moderately stressful during June and high stress/lethal during July.

Summary

As discussed in PacifiCorp (2014), Klamath Hydroelectric Project operations and the presence of Copco and Iron Gate reservoirs do not affect temperature in the Klamath River to an extent that causes biologically significant adverse effects to anadromous fish species that use the reach downstream of Iron Gate Dam at the time of migration, spawning, and egg incubation. Copco and Iron Gate reservoirs create a thermal lag that causes Iron Gate Dam release temperature to be slightly cooler in the spring and slightly warmer during the fall than would theoretically occur in the absence of the reservoirs. However, the thermal lag effect is not detrimental, and may be beneficial, to certain life stages of Chinook, Coho, and Steelhead that use the river downstream of Iron Gate Dam. In addition, as a result of basin climatological conditions and tributary inflows in the lower basin, Klamath Hydroelectric Project operations have no effect on water temperature conditions for Chinook, Coho, and Steelhead within the lower reaches of the Klamath River. The DEIR should incorporate a similar evaluation of the Proposed Project and alternatives to allow for an accurate understanding of the Proposed Project's potential effects on salmonid use of the Klamath River.

PacifiCorp' s conclusions in this regard are support ed by other recent independent analyses. In an analysis of the effects on fall-run Chi nook of hypothetical temperature conditions with and without Klamath Hydroelectric Project facilities, Bartholow et al. (2005) concluded that water temperature *conditions for juvenile rearing life stages are better with the Klamath Hydroelectric Project dams and reservoirs in place than without, especially immediately downstream of Iron Gate Dam. In a subsequent analysis of factors limiting fall-run Chinook production potential, Bartholow and Henriksen (2006) concluded that water temperature during spawning and egg incubation is not a significant factor affecting fall-run Chinook freshwater production in the Klamath River. In the 2006 EPAct trial-type proceeding, the presiding administrative judge ruled, based on the testimony of agency fisheries experts, that existing temperatures conditions will not preclude the various life stages of anadromous fish from successfully utilizing habitat either below or above Iron Gate Dam (McKenna 2007).*

Response to Comment ORG46-18

The modeling results provided in PacifiCorp (2014) do not change EIR conclusions on potential effects on salmonid use of the Klamath River because the PacifiCorp (2014) data do not substantially differ from the data analyzed in the EIR. For additional detail, please refer to response to comment ORG46-17.

Comment ORG46-19

2.9.4 Fall-run Chinook Fry Emergence Timing and Juvenile Growth
The DEIR puts forth a hypothesis regarding the effect that changes in river temperature from the Proposed Project would have on fall-run Chinook fry emergence timing and implications regarding juvenile growth, migration timing, and stress and disease (DEIR pg. 3-272).

The DEIR analysis claims that fall-run Chinook emergence timing would be earlier with the Proposed Project compared to existing conditions. This difference in emergence timing is theorized to result because of warmer water temperatures in the spring under the Proposed Project (Figure 11). However, an inspection of the temperature data in the DEIR (see bottom panel in Figure 11 below) shows that fall water temperatures are about 2 to 5°C cooler and spring temperatures 1 to 2°C warmer for the Proposed Project compared to existing conditions. In short, the degree days lost in the fall are about 2 to 5 times higher than the degree days gained in the spring. A total of 889 degree days are required for fry emergence and is calculated from the day the fish spawned. Thus, it is a combination of fall, winter, and spring water temperature that determines fry emergence date. The DEIR in correctly looks only at the spring degree-days to conclude that emergence timing is delayed under existing conditions as compared to the Proposed Project.

Review of DEIR Analysis

While text presented throughout the DEIR claims an earlier fry emergence timing for fall-run Chinook under the Proposed Project, the data (Figure 11) do not support such an assertion. In fact, the data indicate emergence timing is later for fish spawning on similar dates for the Proposed Project compared to existing conditions. For example, a dot ted line in the middle panel of Figure 11 shows *that under the Proposed Project there are about 120 days to emergence, compared to 60 days for existing conditions for fish spawning mid-September. This results in fry emergence dates of January (Proposed Project) and November (existing conditions) (Figure 11, top panel). This relationship (i.e., later emergence date for Proposed Project) holds for fish spawning until about late November, when emergence date becomes similar for the two alternative, with emergence timing being marginally earlier for the Proposed Project.*

What is unclear in the DEIR, is the meaning of the solid lines in the days to emergence and emergence date panels (Figure 11 middle and top panels). No explanation is provided in the DEIR text as to what the lines denote. Perry et al. (2011), the reference to which this figure is linked, has temperature data but nothing on emergence timing. It is unclear from the DEIR how this figure was actually derived or if Perry et al. (2011) is even the correct source.

Emergence Timing Analysis

Because data from graphs are difficult to precisely interpret and the source material does not contain an adequate explanation, water temperature data for 2004 (an average water year) were used to perform a similar emergence timing analysis in order to verify the conclusions made from interpreting Figure 11. The results of this analysis show fall-run Chinook fry emergence timing is earlier under existing conditions for spawn dates between September 1 and December 1. After this date, emergence timing is predicted to be earlier for the Proposed Project (Table 14). Using data from 2004 and 2006 water years and the same type of analysis generates similar results.

For emergence timing under the Proposed Project to be similar to existing conditions, fall-run Chinook spawning must be approximately 2 to 3 weeks earlier for the Proposed Project. For example, fish spawning on September 29 in the Proposed Project would have about the same fry emergence timing as fish spawning between October 13 and 20 under existing conditions (Table 14). Even with similar fry emergence timing, river temperatures would be warmer at emergence for the Proposed Project.

Whether fall-run Chinook migration or spawn-timing changes under the Proposed Project would be highly dependent on resulting fall stream temperatures. Cooler stream temperatures in the fall should equate to earlier adult migration timing as conditions become more favorable for earlier arriving fish.

However, while the DEIR indicates that stream temperatures in the fall at Iron Gate Dam for the Proposed Project would be cooler, water temperatures would remain largely unchanged downstream of the Scott River (RM 143) through the Klamath Estuary and into the marine near shore environment. Because stream temperatures in the lower river are not affected by the Proposed Project, it is highly uncertain that adult run-timing would change dramatically for fall-run Chinook because they would still encounter warm water temperatures in the *lower Klamath River as they do currently. These conditions, which currently limit upstream migration timing and cause fish to hold in the lower river, would persist under the Proposed Project.*

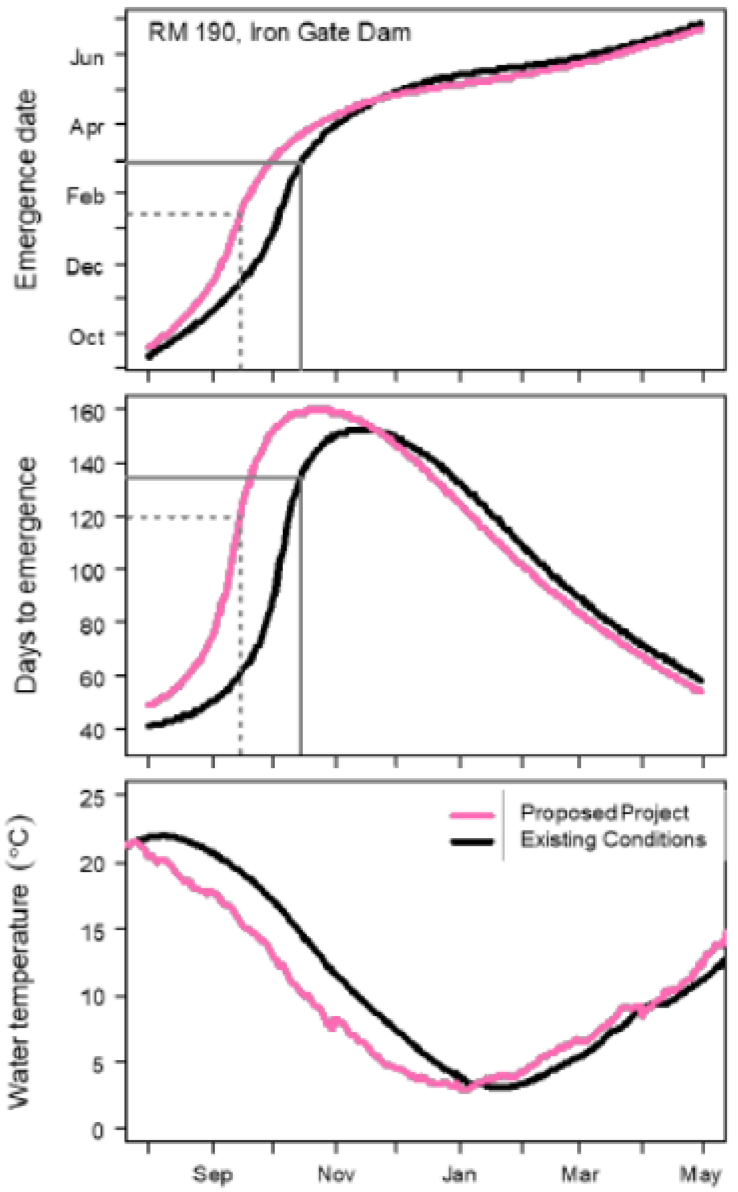


Figure 11. Perry et al. (2011) Modeled Time Series of Average Daily Mean Water Temperature (lower panel) Predicted at Iron Gate Dam (RM 193.1) Under the Proposed Project and existing conditions. Days to emergence (middle panel) and date of emergence (upper panel) for fall-run Chinook Salmon was estimated as a function of spawning date assuming that emergence would occur at 889 degree days (accumulated heat related to development) after spawning (Perry et al. 2011). (Reproduction of DEIR Figure 3.3-4, pg. 3-274).

*Table 14. Spawning date versus emergence timing for the existing conditions and Without Dams (represents Proposed Project alternative) where green cells indicate the alternative with earlier emergence timing.**

	Existing Conditions		Without-Project	
Spawning Date	Emergence Date	#Days	Emergence Date	#Days
1-Sep	19-Oct	49	11-Nov	72
8-Sep	30-Oct	53	13-Dec	97
15-Sep	12-Nov	59	28-Jan	136
22-Sep	28-Nov	68	21-Feb	153
29-Sep	24-Dec	87	11-Mar	164
6-Oct	2-Feb	120	23-Mar	169
13-Oct	13-Mar	152	3-Apr	173
20-Oct	28-Mar	160	10-Apr	173
27-Oct	8-Apr	164	14-Apr	170
3-Nov	16-Apr	165	19-Apr	168
10-Nov	24-Apr	166	23-Apr	165
17-Nov	30-Apr	165	27-Apr	162
24-Nov	4-May	162	29-Apr	157
1-Dec	8-May	159	1-May	152
8-Dec	11-May	155	1-May	145
15-Dec	14-May	151	3-May	140
22-Dec	16-May	146	5-May	135
29-Dec	17-May	140	6-May	129

*Analysis assumes 889-degree days from spawning to emergence. The without-Project data set is from PacifiCorp's (2014) Without Project (WOP) 2004 temperature data.

<u>Disease</u>

Assuming the fry emergence timing analysis above is correct, the statements in the DEIR regarding temperature effects of fish disease on juvenile salmon need to be revisited. For example, water temperatures for the Proposed Project are warmer in the spring than for existing conditions which means losses resulting from C. shasta may also be higher for the Proposed Project as compared to existing conditions simply because of the difference in water temperature (See Major Issue 2.8)

<u>Juvenile Growth</u>

The DEIR (pg. 3-272) states that juvenile Chinook growth rates would be higher for the Proposed Project and this would encourage earlier juvenile outmigration *compared to existing conditions. This statement is correct only when Chinook fry emergence timing is the same; as was discussed above, fry emergence timing is not the same for the Proposed Project as compared to existing conditions (Table 14). Fall-run Chinook fry emergence is earlier for existing conditions for the same spawn date through December 1. Thus, although spring water temperatures are warmer for the Proposed Project, Chinook fry may have up to 30 more days to grow under existing conditions.*

<u>Conclusion</u>
The analysis of fall-run Chinook fry emergence timing and growth for the Proposed Project, existing conditions, and all alternatives to the Proposed Project should be rerun. Once this analysis is complete, the discussion and conclusions in the DEIR need to be reevaluated to accurately present the potential impacts of the Proposed Project and the alternatives in relation to existing conditions. As it stands, the DEIR analysis is incorrect and does not support the conclusions in the DEIR that water temperature changes as a result of the Proposed Project will benefit Coho, Chinook, and Steelhead.

Response to Comment ORG46-19
The EIR considers fall-run Chinook salmon emergence timing under the Proposed Project in Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation –Water Temperature*, including Figure 3.3-4. The analysis does not look only at spring-degree days in relation to fry emergence, but it considers a variety of factors that affect emergence timing, including fall river water temperatures.

The Federal Energy Regulatory Commission (FERC) 2007 Environmental Impact Statement (EIS) concluded that without J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams, more rapid cooling of river water temperatures in the fall may also allow for fall Chinook salmon spawning to occur earlier in the fall. This, in turn, would likely result in earlier emergence and growth, and encourage earlier emigration. Contrary to the PacifiCorp comment, the EIR does not claim that earlier spawning timing would necessarily result in earlier migration timing.

Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Middle and Lower Klamath River* has been revised to clarify the analysis presented in Figure 3.3-4 and the caption was revised to clarify the solid and dashed lines, and source data. Please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Middle and Lower Klamath River* for the revisions.

<u>**Comment ORG46-20**</u>

- *The DEIR Lacks Over all Clarity. The DEIR does not comply with CEQA's requirements that Environmental Impact Reports (EIRs) be organized and written in a manner that will make them "meaningful and useful to decision makers and to the public," (Pub . Res. Code§ 21003 (b)) and that EIRs be* *written in plain language and drafted to be understandable to decision-makers and the public (14 Cal. Code Regs. § 15140; 15147). Throughout the DEIR, the data and information is not presented in a manner designed to adequately inform the public and decision-makers.*

A non-exhaustive list of examples of this problem include:

- *In Section 2 of the DEIR, the project description presents 'dam removal year 1' as being up through December 2020 and 'dam removal year 2' starts in January 2021. Actual removal of facilities is currently scheduled to take place in 2021. As the DEIR discusses impacts in terms of 'dam removal year 1' or 'dam removal year 2', it is easy to get confused about when an event might actually happen. This confusion is compounded in the effects analysis for example, where the DEIR discusses the end of hatchery supplementation in 'post dam removal' year 7, which is presumably 'dam removal year 2' plus 7 years (DEIR pg. 3- 315). Another example of this can be found in Section 3.4.3 (DEIR pg. 3-422) where "short-term" and "long-term" are defined as: "This period [short-term] corresponds to pre-dam removal years 1 and 2, dam removal year 1, dam removal year 2, and post-dam removal year 1 (Table 2.7-1). Long-term is defined as occurring after post-dam removal year 1 (i.e., greater than three years after dam removal begins)." Terminology such as this will confuse the public and decision-makers and should be clarified in the recirculated DEIR; it would be much clearer to use calendar years.*
- *The discussion of cultural resources is so vague and non-specific that it is impossible to tell if the resources potentially affected by the Proposed Project are accurately described. PacifiCorp recognizes the extremely sensitive nature of these resources. There are, however, ways to present information in such a manner that readers understand that the impact analysis was performed correctly and understand the magnitude of the impact.*
- *The analysis of impacts to Chinook and Coho are presented in terms of percent increased mortality with no discussion of population sizes (Appendix Tables E-8 and E-1 0). The impacts to Steelhead however, are presented in actual numbers of fish (Appendix Table E-12). There is an abundance of population data for Chinook and Coho that is not included or considered in the DEIR, which when added in a recirculated DEIR, would allow an analysis to be done in a manner similar to that for Steelhead. By failing to do this analysis, the DEIR disguises the actual effects of the Proposed Project in percentages that the reader is not able to connect to actual populations-particularly populations of Coho that are exceptionally small.*
- *The definition of "short-term impacts" in Section 3.3 Aquatic Resources, is 5 years. In Appendix F, which discusses potential impacts of bedload transport of sediment to aquatic resources, the short-term period is 2 years. Similarly, Section 3.2 Water Quality uses a 2-year period as short*

> *term. The disparity in these timeframes makes the connection between the analysis in one section of the DEIR and the analysis in another extremely difficult to follow. For example, the effects analysis in Section 3.3 discusses short-term impacts to fish from bedload transport and references Appendix F which covers two of these years. The DEIR does not explain what happens in the three extra short-term years necessary to meet the definition of short term in Section 3.3. As a result, the reader' s ability to understand short-term impacts (i.e., Proposed Project impacts occurring over a consistently defined period of years) is compromised.*

Response to Comment ORG46-20

The Lower Klamath Project EIR meets the requirements of Public Resources Code section 21003, subdivision (b), which states that an EIR should be organized and written in a manner that will be meaningful and useful to decision makers and to the public. The EIR contains a list of its contents, including sections to third-level headings, all figures, tables, and appendices; a key for acronyms and abbreviations; an executive summary; an introduction section that plainly and succinctly describes the authorization, purpose, and use of EIR, an overview of the scope and content of the EIR, and summaries of the public process, public involvement, and agency consultation during preparation of the EIR; a detailed description of the Proposed Project and a discussion of the intended uses of the EIR; a thorough analysis and discussion of the environmental resources that may be affected by the Proposed Project, including potential cumulative effects, where each environmental resource area analyzed includes five parts (Area of Analysis, Environmental Setting, Significance Criteria, Impact Analysis Approach, Potential Impacts and Mitigation); a discussion of the alternatives selection process and a detailed analysis of each of six alternatives to the Proposed Project; and numerous technical appendices that present additional, supporting information.

Further, the Lower Klamath Project EIR meets the requirements of CEQA Guidelines section 15140, which states that EIRs shall be written in plain language and may use appropriate graphics so that decision makers and the public can rapidly understand the documents. There are approximately 250 figures in the EIR, many of which were developed to assist the reader in understanding complex scientific concepts (e.g., Figure 2.7-1 depicting the dam removal schedule and the distribution and life-history timing of aquatic species in the Klamath Basin; Figure 3.2-2 depicting the general seasonal pattern of physical, chemical, and biological processes in reservoirs such as the Lower Klamath Project reservoirs, where these processes are relevant to the impact analyses; Figure 3.3-2 and Figure 3.3-3 depicting the lifecycles of organisms that cause fish disease*;* Figure 3.4-10 depicting the transport of blue-green algae from the Upper Klamath Lake into the Upper Klamath River, which is relevant to the impact analyses). Where technical terms must be used in the EIR to succinctly and accurately support the analyses, the technical terms are defined at first use, using parenthetical definitions for short statements, and footnotes for longer statements.

The Lower Klamath Project EIR also meets the requirements of CEQA Guidelines section 15147 regarding technical detail, which states that information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Of the roughly 200 figures in the EIR, many are maps and schematics that convey spatial information relevant to the EIR analyses in a clear and concise manner. Highly technical and specialized analysis and data (e.g., modeling results) are presented in Volume II of the Lower Klamath Project EIR, which contains the EIR scoping report (Appendix A), the Klamath River Renewal Corporation's (KRRC's) Definite Plan (Appendix B), and nineteen technical appendices, along with excerpted Tribal Trust information and additional information incorporated by reference.

With respect to the comment's assertion that the approach to presenting the facilities removal schedule in the EIR is confusing, because the proposed dam removal activities would span two calendar years, with construction activities (e.g., recreation area facilities removal, power generation facilities removal at Copco No. 1, modifications to dam diversion tunnels) occurring prior to actual dam removal and early drawdown of Copco No. 1 Reservoir beginning prior to drawdown of the other reservoirs, the terminology "dam removal year 1" and "dam removal year 2" are used in the EIR to indicate the anticipated timeframe for removal. Volume I Section 2 *Proposed Project* Table 2.7-1 (page 2-27) presents the proposed Lower Klamath Project schedule and defines the proposed project activities as pre-dam removal years 1−3, dam removal year 1, dam removal year 2, and post-dam removal years 1 through 10, as informed by the KRRC's Definite Plan. Table 2.7-1 is referenced in numerous locations throughout the EIR impact analyses, as appropriate. The aquatic resources analysis also contains a resource-specific schedule that ties the impact analysis to the dam removal years in Table 2.7-1 (i.e., Table 3.3-11 presents the timing of hatchery releases and adult returns under the Proposed Project using the dam removal year terminology). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With respect to the comment regarding the use of 'dam removal year 1' and 'dam removal year 2' terminology rather than calendar years, the 'dam removal year' terminology does not tie the EIR analyses to particular calendar years, which may change as the Proposed Project process continues. For example, in 2019, following issuance of the Draft EIR, the KRRC indicated that the project schedule has shifted by a year such that dam removal pre-construction actions would occur May–December 2021 and reservoir drawdown, construction, and mitigation actions would be completed in 2022. Minor updates have been made to Table

2.7-1 based on the information provided in KRRC (2019b); these updates are presented in Volume III Attachment 1 Section 2 *Proposed Project*.

With respect to the comment's assertion that the discussion of cultural resources is vague and non-specific, the EIR presents the available public information characterizing tribal cultural resources in an effort to help the public and decision-makers understand the conclusion that particular impacts under the Proposed Project would be significant and unavoidable (Public Resources Code section 21082.3, subdivision (b)). Any apparent non-specificity or vagueness in the cultural resource descriptions contained within the EIR is a necessary consequence of the need to maintain confidentiality regarding these resources, as CEQA requires (Public Resources Code section 21082.3, subdivision (c)). Please also refer to responses to comments ORG46-292 to ORG46-304. Volume III Attachment 1 presents the final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

With respect to the comment's assertion that the use of percent increased mortality for characterizing the potential effects of dam removal on fish species is not appropriate, please refer to response to comment ORG46-504.

With respect to the comment regarding the varying definitions of short term in the water quality and aquatic resources analyses, please refer to responses to comments ORG46-30 and ORG46-199. Please note that Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* has been revised to clarify the definition of short-term effects. Please refer to Volume III Attachment 1 Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* for the revisions.

Comment ORG46-21

- *The DEIR Relies on Out of Date Information. The Klamath Basin is a data rich environment. The DEIR background and analyses, however, does not rely on recent data; instead, it relies on older information prepared in the FERC (2007) EIS and the KHSA 2012 EIR/ EIS (DOI and CDFW 2012) that was developed in connection with the Secretarial Determination. There has not been a consistent effort made to present an up-to-date analysis of potential impacts based on the best available data and information. CEQA requires adequate information to ensure that "decisions be informed, and therefore balanced" (Association of Irritated Residents v. County of Modero (2003) 107 Cal. App. 4th 1383, 1398; see also North Coast Rivers Alliance v. Mar in Municipal Water Dist. Bd. af Directors (2013) 216 Cal. App. 4th 614, 642-643).*

  A non-exhaustive list of examples of this issue include:

  - *The stream flow data relies on KBRA flow data and does not take in to account mandatory flows being implemented by the USBR under its 2013 BiOp {NM FS and USFWS 2013). Even the information in the*

DEIR shows that these flows are quite different in some months (see DEIR Figures 3.1-1 and 3.1-2) (See Major Issue 2.2). Data reflecting actual mandatory flows should be used.

- *The DEIR does not reference any of the information and extensive analysis presented in PacifiCorp's (2014) Section 401 Water Quality Certification application for the Klamath Hydroelectric Project. The State Water Board should focus on incorporation of the up-to-date water quality modeling which includes results for water temperatures, dissolved oxygen, nutrients, pH, and other constituents, for Existing Conditions and without-Project conditions as presented in PacifiCorp (2014). PacifiCorp' s application is being provided electronically to the State Water Board with these comments.*
- *The DEIR only includes selective elements from the water quality analysis and data collected under the comprehensive water quality monitoring effort conducted under the KHSA Interim Measure 15 program. The Interim Measure 15 program was developed specifically to inform water quality analysis related to dam removal, is readily available on PacifiCorp's Klamath Hydroelectric Project website2 and is annually updated. All of the Interim Measure 15 data is being provided electronically to the State Water Board with these comments.*
- *The aquatic resources section does not include up-to-date information relating to the status of the Coho Salmon population in the upper Klamath River. Specifically, there is no mention of the annual reports prepared for Iron Gate Hatchery, the Scott River, Shasta River, or Bogus Creek, or the results of Coho spawning surveys on the tributaries between Iron Gate dam and Portuguese Creek which PacifiCorp has been conducting annually since 2015 (see CDFW 2018a , 2018b; Knecht le and Giudice 2018b; MKWC 2016, 2017, 2018; Chesney and Knechtle 2017; Knecht le and Chesney 2017).*
- *It is not clear if the data regarding cultural resources potentially affected by the Proposed Project was updated to reflect the field work conduct ed by the KRRC over the last 2 years.*
- *The recreational use data cited in the DEIR is from 2007, while the Definite Plan provided by the KRRC (see DEIR Appendix B) provides data from 2015. Similarly, use data for whitewater boating used in the DEIR is from 2011 or 2007 when annual data is readily available from the Bureau of Land Management.*

Response to Comment ORG46-21

In compliance with CEQA requirements, the EIR has made a consistent effort to present up-to-date analyses based on the best available data and information.

The statement in the comment that the Draft EIR does not take into account the 2013 Biological Opinion (BiOp) Flows is incorrect. The Draft EIR presents a detailed discussion of the 2013 BiOp Flows in Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, and Section 3.1.6.2

Comparison of Klamath River Flows under 2013 BiOp Flows and KBRA Operations Criteria discussed why the hydrologic model outputs previously developed using the Klamath Basin Restoration Agreement (KBRA) Flows for the 2012 KHSA EIS/EIR are sufficient to estimate conditions under 2013 BiOp Flows. Please also refer to responses to comments ORG46-6, ORG46-24, ORG46-24.1, ORG46-25, ORG46-82, ORG46-203, and ORG46-215.

The statement in the comment that the Draft EIR does not reference any information presented in PacifiCorp's 2014 Section 401 Water Quality Certification application for the Klamath Hydroelectric Project (KHP) is incorrect. Please refer to the numerous references to PacifiCorp's current Reservoir Management Plan (Plan), and reports cited within the Plan, in Section 3.2 *Water Quality* and the water quality-related subsections of the No Project Alternative (Volume I Section 4.2) and the Continued Operations with Fish Passage Alternative (Volume I Section 4.4). Volume III Attachment 1 presents the final Section 3.2 *Water Quality*. The water quality modeling reported in PacifiCorp's 2014 Section 401 Water Quality Certification application for the Klamath Hydroelectric Project does not appear to use the 2013 BiOp Flows as the basis for Klamath River hydrology.

With respect to water quality data collected under the Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) program, please refer to Master Response WQ-4. As noted, the IM15 data was reviewed for the EIR, and does not present a general departure from previous data sets. The IM15 data was added to prior data analyses, figures, and tables where the IM15 data provided additional information. However, in many instances, consideration of the new data did not warrant changes to existing analyses, figures, or tables.

Regarding the status of the coho population in the Upper Klamath River, please refer to responses to comments ORG46-159 and ORG46-187.

The comment does not specify which field work conducted by the Klamath River Renewal Corporation (KRRC) over the last two years is of concern. Given that PacifiCorp's comment was submitted in 2019, the State Water Board presumes that PacifiCorp is referring to field work conducted during 2017 and/or 2018. As noted in Section 6.2.2 of Appendix L of Appendix B: *Definite Plan*, disposal site areas within the Limits of Work that were not previously surveyed were subject to pedestrian surveys by KRRC in 2017. More specifically, in July 2017, KRRC conducted a cultural resources pedestrian survey inventory of approximately 27 acres at the Iron Gate Dam disposal site. The inventory identified one historic-period archaeological site (LKP-RB-1) and one historic-period isolated find (LKP-EN1-IF). The State Water Board is unaware of additional field work efforts by KRRC in the last two years.

Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of* *the Proposed Project – Summary of California Historical Resources Information System Record Searches*, including Table 3.12-1, has been revised to clarify that these two sites were identified in the 2017 pedestrian survey. Please refer to Volume III Attachment 1 Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project – Summary of California Historical Resources Information System Record Searches* for the revisions.

Please also refer to Volume III Attachment 1 Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* Potential Impact 3.12-12, which analyzes pre-dam-removal activities that involve disturbance of the landscape, including activities at disposal sites among other locations within the Limits of Work, and Potential Impact 3.12-16, which analyzes ground disturbance associated disposal site restoration along with other sites within the Limits of Work. The two historic-period sites noted above are included in the EIR analyses.

Please note that not all of the required cultural resources inventory and significance analyses will be completed prior to certification of this EIR. Please refer to the introductory paragraphs of Section 3.12 *Historical Resources and Tribal Cultural Resources*. Volume III Attachment 1 presents the final Section 3.12 *Historical Resources and Tribal Cultural Resources*. Please also refer to response to comment LA9-73. Additionally, as stated in Volume I Section 2.7.8.5 *Proposed Project – Proposed Project – Other Project Components – Cultural Resources* (page 2-95), KRRC is preparing a Cultural Resources Plan (Volume II Appendix B: *Definite Plan – Appendix L*) that would identify the cultural resources studies that KRRC has completed, those that are currently ongoing, and others that KRRC anticipates completing in order to comply with regulatory requirements under Section 106 of the National Historic Preservation Act and California Assembly Bill 52.

With respect to available recreational data, information requests were submitted to corresponding facilities and reservoir representatives (e.g., PacifiCorp, California Department of Fish and Wildlife [CDFW], and Bureau of Land Management [BLM]) to obtain the most recent recreational data for Section 3.20 *Recreation* and related analyses in the EIR. Where available, updated information has been added to the EIR. The additional data do not constitute significant new information (CEQA Guidelines section 15088.5(a)). Please also refer to responses to comments ORG46-332 to ORG46-342.

<u>Comment ORG46-22</u>

- *Modifying Language Contained Throughout the DEIR May be Interpreted as Bias towards Certain Outcomes and Conclusions. The DEIR presents information that is misleading, based on opinion without adequate factual or technical support, may be interpreted as suggesting a bias towards certain outcomes and conclusions, and fails to adequately inform the* *public and decision-makers about the environmental consequences of the Proposed Project. This conflicts with CEQA' s policy that EIRs "provide decision makers with information that enables them to make a decision which intelligently takes account of environmental consequences" (14 Cal. Code Regs. § 15151). CEQA requires that an EIR contain facts and analysis, not just an agency' s bare conclusions or opinions (Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal. 3d 553, 568), and should, when looked at as a whole, provide a reasonable, good faith disclosure and analysis of potential environmental impacts (Laurel Heights Improvement Ass' n v. Regents of Univ. of Cal. (1988) 47 Cal. 3d 376; California Oak Found. V. Regents of Univ. of Cal. {2010} 188 Cal. App. 4th 227, 269)). An EIR must state the bases for its findings; a bare conclusion regarding an environmental impact without an explanation of its factual and analytical basis is not sufficient (Laurel Heights, supra at 404; Whitman v. Board of Supervisors (1979) 88 Cal. App. 3d 397; People v. County of Kern (19 74) 39 Cal. App . 3d. 830, 841; see also 14 Cal. Code Regs. § 15151).*

A non-exhaustive list of examples of this problem include:

- *In the discussion of screening criteria for chemical contamination, the ecological and human health-based screening levels are intermingled, and it is impossible to tell which is being discussed (DEIR pg. 3-42).*
- *The DEIR references the "current degraded condition" without specifically defining what degraded means or analyzing the meaning or significance of the term (DEIR pg. ES-24).*
- *The DEIR dismissively states that "...some commenters indicated their belief that the Lower Klamath Project reservoirs improve water quality by serving as a sink for phosphorus..." (DEIR pg. 3-14). The fact that Copco and Iron Gate reservoirs are nutrient sinks is not a belief; but rather a fact that the DEIR acknowledges on page 3-27 (See also Kann and Asarian 2007; Asarian and Kann 2005; Asarian et al. 2009). The DEIR provides no analysis of the potential impact of increased nutrient delivery to the Klamath River downstream of Iron Gate Dam, or, importantly, to the estuary after the reservoirs are drawn down.*
- *The DEIR states that "(o]n an annual basis, the majority of nutrients entering a reservoir from a watershed are eventually discharged downstream, with only a small fraction being retained in the reservoir sediments" (DEIR pg. 3 -20). The "only a small" modifier is unsubstantiated and unexplained, and should be replaced with the actual quantity of retention in both the percent of annual loading and mass (in tons).*
- *The DEIR states that "[s]tress associated with high water temperatures can make cold water species more vulnerable to disease and parasites, and have been associated with fish kills in the Klamath River downstream of Iron Gate Dam during low flow periods in late*

summer..."(DEIR pg. 3-236). This sentence misconstrues the effects of Iron Gate Dam on water temperature and in correctly relates the existence of Iron Gate Dam to fish kills in the Klamath River. Taken individually, the various components of this sentence are true: warmer water does make fish more susceptible to disease, disease and parasites have been associated with fish kills in the Klamath River, and the fish kills have occurred downstream of Iron Gate Dam. However, this information is presented in a way to lead the reader to believe that Iron Gate Dam has resulted in fish kills, which is incorrect. Analysis of the 2002 fish kill does not specifically attribute effects from Klamath Hydroelectric Project facilities on the key factors considered to have caused the fish kill (i.e., large returns of Chinook, low flows, warm water temperatures, the pathogens lchthyophthirius and Columnaris) over 150 miles downstream of Iron Gate Dam (CDFG2004).

- *Regarding gravel augmentation downstream of Iron Gate Dam per the Coho Habitat Conservation Plan, the DEIR (pg. 3-235) states that "...details on the extent of downstream movement have not been reported." This statement implies monitoring of gravel placed into the Klamath River was a requirement of the project that was not met. However, downstream movement monitoring was not a requirement of the project, although mobilization of the gravel from its placement site has been reported consistent with the project objectives and gravel monitoring plan established for this work.*
- *Regarding populations of polychaetes, the DEIR (pg. 3-242) states that "abundant polychaete populations that are found in atypically stable habitats." Polychaetes are found in stable and unstable stream habitat and there is nothing atypical about either of these habitat types.*

Response to Comment ORG46-22

The comment addresses the commenter’s disagreement with the use of terminology or presentation of information in the Draft EIR. The use of terms and presentation of information in the EIR is intended to enable decisionmakers and the public to understand the factors that have contributed to the existing environmental condition, and how the Proposed Project and the various alternatives would alter the existing condition. In addition, because the EIR is intended to inform the State Water Board’s decision with respect to potential issuance of a water quality certification for the proposed project under the federal Clean Water Act, the terms and presentation of information are intended to convey the effect of the Proposed Project and various alternatives on water quality at a general level, not just with reference to changes to the existing condition. This is particularly important because the Proposed Project is a restoration project intended to improve the environment over the existing condition in the long term. To accomplish these goals, the EIR uses modifying terms that assist a lay reader’s understanding of the available data. Terms such as “small” or “degraded” are useful in conveying the import of raw data numbers. Although some parties might argue with a specific use of terminology or prefer that information be presented in different ways, the EIR provides the information that allows the public to understand the connection between the existing evidence and the selected action.

Regarding sediment screening criteria, please refer to response to comment ORG46-115.

With respect to use of the phrase "current degraded condition" in Volume I *Executive Summary – Issues to be Resolved* (paragraph 2, page ES-24), the text has been revised to provide additional context for use of this phrase. Please refer to Volume III Attachment 1 *Executive Summary* for the revisions.

Regarding the comment's assertion that use of the term "belief" is problematic in the referenced sentence, please note that each environmental resource area analyzed in Section 3 for the Proposed Project begins with a summary of public comments received during the scoping process for the Lower Klamath Project and in that context it is appropriate to use the term belief. The comment is correct that the Draft EIR cites the scientific literature regarding nutrient retention in the reservoirs. The comment's assertion that the Draft EIR does not analyze the potential impacts of increased nutrient transport to the Middle and Lower Klamath River and the Klamath River Estuary is incorrect; please refer to Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-7 and Potential Impact 3.2-8 for analysis of the potential short-term and long-term effects of dam removal on nutrient transport. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*. Please also refer to Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-3 for a discussion of the potential for short-term increase in growth of nuisance periphyton species due to increases in sediment-associated nutrients from release of sediments currently trapped behind the Lower Klamath Project dams (pages 3-433 to 3-435), and Potential Impact 3.4-4 for a discussion of potential alterations in growth of nuisance periphyton species in the Hydroelectric Reach due to increased nutrients and available low-gradient channel margin habitat formed by conversion of the reservoir areas to a free-flowing river and the elimination of hydropower peaking operations (pages 3-435 to 3-437). Please also refer to response to comments ORG46-139, ORG46-140, ORG46-142, ORG46-143, ORG46-145, and ORG46-267.

With respect to the "only small" modifier mentioned in the comment, please refer to responses to comments ORG46-88, ORG46-97, ORG46-98, and ORG46-381.

Regarding the comment's assertion that the Draft EIR misconstrues the effects of Iron Gate Dam on water temperature as related to fish kills in the Klamath River, please refer to response to comment ORG46-174.

With respect to the comment regarding gravel augmentation and PacifiCorp monitoring activities, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Bed Elevation and Grain Size Distribution* has been revised for clarity. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Bed Elevation and Grain Size Distribution* for the revisions.

With respect to the use of the term "atypically" to describe preferred riverine habitat for polychaetes, please refer to response to comment ORG46-183.

Please refer to responses to comments ORG46-98, ORG46-380, ORG46-447, ORG46-453, and ORG46-465, which discuss use of the modifier "adverse" in the Draft EIR alternative analysis.

Comment ORG46-23

- *The DEIR Should Propose Enforceable Mitigation for Significant Environmental Effects. The DEIR states that some mitigation measures are outside the State Water Board's regulatory reach but that they expect "...that the KRRC may agree to implement certain mitigation measures through good neighbor agreements or other legally enforceable mechanisms..." (DEIR pg. 3-2). An EIR must "propose and describe mitigation measures to minimize the significant environmental effects identified" (Pub. Res. Code§§ 21002.l(a), 21100(b)(3;) 14 Cal. Code Regs § 15126.4), and mitigation measures adopted by the agency must be fully enforceable through permit conditions, legally enforceable agreements, or other measures (Pub. Res. Code§ 21081.6; 14 Cal. Code Regs. § 15126 .4(a)(2); see also Pub. Res. Code§§ 21002.l (a), 21100(b)(3); 14 Cal. Code Regs§ 15126.4; ..." Tracy First v. City of Tracy (2009) 177 Cal. App. 4th 912, 937).*

  Additionally, the DEIR concludes that numerous impacts of the Proposed Project are significant and unavoidable, but lacks a consistent discussion regarding why mitigation is not feasible or why an impact is considered unavoidable. The DEIR should set forth the bases for its findings on a project's environmental impacts, and contain an explanation of the reasoning and evidence supporting the DEIR's impact findings (Association of Irritated Residents v. County of Madero (2003) 107 Cal. App. 4th 1383; Napa Citizens for Honest Gov' t v. Napa County Bd. of Supervisors (2001) 91 Cal. App. 4th 342, 359).

  A non-exhaustive list of examples of the problems presented above include:

  - *Recommended, but non-enforceable, mitigation measures are explicitly called out in Section 3.5 Terrestrial Resources in*

Recommended Measures TER-1 through TER-12; Section 3.17 Public Services in Recommended Measure PS-1; Section 3.22 Transport ation and Traff ic in Recommended Measure TR-1.

- *Mitigation Measure WSWR-2, which requires the KRRC to relocate the City of Yreka's water supply pipeline, may have environmental effects of its own that are not analyzed in the DEIR (beyond a brief discussion of construction-generated noise and vibration) per the requirements of Pub. Res. Code Regs. § 15126.4(a)(1)(D).*
- *In Section 3.11 Geology, Soils, and Mineral Resources, Mitigation Measure GE0-1, requires the KRRC to monitor slopes and implement any necessary slope stabilization measures (including roads, structures, etc.). Slope stability for water quality protection may be within the State Water Board's jurisdiction, but roads, structures, and other infrastructure are clearly outside the State Water Board's jurisdiction.*
- *In Section 3.12 Historical Resources and Tribal Cultural Resources, Mitigation Measures TCR-6, TCR-7, and TCR-8 are clearly beyond the State Water Board's ability to enforce.*
- *In Section 3.17 Public Services, Potential Impact 3.17-1 is listed as being potentially significant and unavoidable with mitigation, yet no mitigation is included in the DEIR (DEIR pg. 3-913 to 3-915).*
- *Examples of significant and unavoidable impacts that do not include a discussion of potential mitigation measures or any reasoning as to why that mitigation is not feasible include but are not limited to:*
  - *Impacts 3.23-1, 2, 4, 5, and 6 which all relate to noise levels associated with working two shifts during facilities removal. Mitigation would appear to be feasible by simply scheduling work to occur during normal daytime hours, but the DEIR simply calls the impact significant and unavoidable without any reasoning.*
  - *Impact 3.11-5 regarding deposition of sediment downstream of Iron Gate Dam provides no reasoning for why the impact is considered unavoidable.*
  - *Impact 3.2-3 regarding suspended sediments released by the Proposed Project throughout the Klamath River provides no reasoning for why the impact is considered unavoidable. Mitigation through a slower drawdown or a phased multi-year removal could be considered as a potential mitigation measure to reduce sediment concentrations released into the river.*
  - *Impact 3.2-9 regarding potentially low levels of dissolved oxygen downstream of Iron Gate Dam following removal and release of sediments is categorized as significant and unavoidable with no discussion of potential mitigation. The analysis indicates that reaeration alleviates the impact naturally at points downstream of the Salmon River (RM 65), but does not discuss the possibility of artificial aeration at upstream locations or why this is not feasible.*

Response to Comment ORG46-23
With respect to the comment's general assertion that the Draft EIR does not comply with Pub. Res. Code sections 21002.1(a) and 21100(b)(3) and 14 Cal. Code Regs section 15126.4, please refer to Master Response CEQ-2 for a discussion of the scope of Federal Power Act preemption and how the EIR applied that principle to responsible agencies and to Recommended Measures and Mitigation Measures.

With respect to the comment's general assertion that the EIR needs more discussion regarding why mitigation is not feasible or why an impact is considered unavoidable, please see the responses below to the bulleted list of examples provided by PacifiCorp in its comment, as well as responses to comments ORG46-38, ORG46-73, ORG46-303, and ORG46-306. The comment indicates that the list of examples is "non-exhaustive"; however, CEQA does not require the Lead Agency to speculate regarding other possible examples that the commenter may have intended to include in the comment.

Regarding recommended measures TER-1 through TER-12, PS-1, and TR-1, please refer to Master Response CEQ-2.

With respect to the comment's assertion that Mitigation Measure WSWR-2 does not meet the requirements of CEQA Guidelines section 15126.4(a)(1)(D), please note that relocation of the City of Yreka water supply pipeline after drawdown of Iron Gate Reservoir is included in the set of primary construction activities under the Proposed Project, as described in Volume I Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* (pages 2-84 to 2-86). The potential impacts of this action on water supply/water rights are analyzed in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (pages 3-682 to 3-683), which is also where Mitigation Measure WSWR-2 is presented. The purpose of Mitigation Measure WSWR-2 is to limit the water delivery outage necessary to reconnect the replacement pipe for the City of Yreka's current water supply pipeline to a maximum of 12 hours for the section of pipe that crosses Iron Gate Reservoir, and to ensure that any work the Klamath River Renewal Corporation (KRRC) undertakes with respect to the water supply intake screens and compliance with fish screen criteria would be completed within the same water delivery outage period. Mitigation Measure WSWR-2 does not propose other construction activities that would be outside of those covered under the Proposed Project, in terms of the spatial location within the Limits of Work, and with respect to the timing of construction activities that would occur during dam removal year 1 and dam removal year 2 (Volume III Attachment 1 Table 2.7-1).

Construction activities associated with the relocation of the City of Yreka water supply pipeline are considered along with the suite of other construction activities under the Proposed Project in the following analyses:

- Volume III Attachment 1 Potential Impact 3.2-4;

- Volume I Potential Impact 3.5-1 (see also Volume I page 3-454 for Proposed Project activities that have the potential to affect terrestrial resources at particular locations including the City of Yreka pipeline location), Potential Impact 3.5-6, Potential Impact 3.5-7, Potential Impact 3.5-9, Potential Impact 3.5-10, Potential Impact 3.5-11, Potential Impact 3.5-12, Potential Impact 3.5-13, Potential Impact 3.5-14, and Potential Impact 3.5-15, as modified in Volume III Attachment 1;
- Volume I Potential Impact 3.11-2;
- Volume III Attachment 1 Potential Impact 3.12-1 and Potential Impact 3.12-12;
- Volume I Potential Impact 3.17-1;
- Volume III Attachment 1 Potential Impact 3.19-6 and Potential Impact 3.19-7;
- Volume III Attachment 1 Potential Impact 3.20-1;
- Volume I Potential Impact 3.21-1, Potential Impact 3.21-2, and Potential Impact 3.21-3;
- Volume I Potential Impact 3.22-1, Potential Impact 3.22-2, and Potential Impact 3.22-3;
- Volume I Potential Impact 3.23-1.

Further, Potential Impact 3.3-22 specifically focuses on the potential impacts to aquatic resources due to short-term noise disturbance and water quality alterations from deconstruction activities and long-term fish screen upgrades from the relocation of the City of Yreka Water Supply Pipeline under the Proposed Project.

As potential construction-related impacts associated with Mitigation Measure WSWR-2 are analyzed with construction-related impacts analyzed under the Proposed Project, and there would be no other potential environmental impacts of this mitigation measure, the EIR is consistent with CEQA Guidelines section 15126.4(a)(1)(D). For construction-related potential impacts associated with air quality, greenhouse gases (GHG), and energy, these portions of the Draft EIR were recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality* and *Greenhouse Gas Emissions and Energy*).

Regarding the comment's assertion that the aspects of Mitigation Measure GEO-1 that specify measures to avoid or minimize the impacts of slope instability on structures, and roads are outside of water quality certification authority, and that mitigation measures TCR-6, TCR-7, and TCR-8 are beyond the State Water Board's ability to enforce, please refer to Master Response CEQ-2, and specifically the subsection entitled "Other Recommended or Mitigation Measures".

The comment is incorrect that Potential Impact 3.17-1 does not include mitigation. As stated in Volume I Section 3.17.5 *Public Services – Potential*

Impacts and Mitigation Potential Impact 3.17-1 (pages 3-913 to 3-915) Mitigation Measure HZ-1 and Mitigation Measure TR-1 would reduce the potential impacts related to construction activities. The text goes on to state that implementation of these two measures would reduce the potential for a short-term increase in personal and public health and safety risks due to the Proposed Project as related to emergency response services. Table ES-1 also indicates that Mitigation Measure HZ-1 is associated with Potential Impact 3.17-1. Mitigation Measure HZ-1 is under the State Water Board's water quality certification authority and can be found in Volume III Attachment 1 Section 3.21 *Hazards and Hazardous Materials*.

Regarding the comment's concern that significant and unavoidable impacts for Potential Impacts 3.23-1, 3.23-2, 3.23-4, 3.23-5, and 3.23-6 are due to noise levels associated with working two construction shifts and do not include a discussion of why mitigation to schedule construction work during "normal daytime hours" is not feasible, the comment is incorrect that noise impacts under Potential Impact 3.23-1, Potential Impact 3.23-2, Potential Impact 3.23-4, and Potential Impact 3.23-6 are due to noise levels associated with working two construction shifts. As stated in Volume I Section 3.23.5 *Noise – Potential Impacts and Mitigation* Potential Impact 3.23-1 (specifically page 3-1093), given the maximum allowable noise levels identified in the Siskiyou County General Plan Noise Element (Siskiyou County 1978), any use of dozers, jackhammers, and/or tractors during the Proposed Project would constitute an exceedance of County maximum allowable noise levels and this would be a significant impact. As stated in Volume I Section 3.23.5 *Noise – Potential Impacts and Mitigation* Potential Impact 3.23-2 (specifically page 3-1096), construction work during both shifts exceeds the significance criteria at all times because of the high source noise level. As stated in Volume I Section 3.23.5 *Noise – Potential Impacts and Mitigation* Potential Impact 3.23-5 (page 3-1098), noise associated with reservoir restoration activities would add to already significant noise levels for other construction activities and thus would be significant and unavoidable (i.e., is not associated with working two construction shifts). As stated in Volume I Section 3.23.5 *Noise – Potential Impacts and Mitigation* Potential Impact 3.23-6 (pages 3-1098 and 3-1099), blasting at each dam is proposed to occur infrequently, would be restricted to the time between 8 a.m. and 6 p.m., and would be dependent on scheduling; however, daytime vibration impacts to humans would remain significant and unavoidable for outdoor receptors during the blasting activities. While the comment does not define what is meant by "normal daytime hours", proposed blasting activities analyzed under Potential Impact 3.23-6 would occur between 8 a.m. and 6 p.m., which is within "daytime hours" defined as 7 a.m. to 10 p.m. by USEPA (1974) such that the significant and unavoidable impact determination is not associated with working two construction shifts.

With respect to the potential for mitigation to require construction work during "normal daytime hours" for Potential Impact 3.23-4, the Proposed Project schedule requires that major earthworks and removal activities would be performed using two 10-hour shifts (i.e., 20 hours in each 24-hour period), six days per week. Based on analysis of information provided in the Definite Plan, restricting construction activities to a total of fifteen daytime hours (i.e., 7 a.m. to 10 p.m. [USEPA 1974]) would not feasibly allow the amount of excavation and other construction activities required to remove Iron Gate Dam and restoration to occur in the timeframe proposed by KRRC (Appendix B: *Definite Plan)*. Extending the period of construction and restoration activities beyond the timeframe proposed in Table 2.7-1 (please refer to Volume III Attachment 1), would also extend the period of noise and vibration impacts. Regardless, for the reasons described above, an extension of the period of construction would not reduce the significant and unavoidable impacts.

The comment is incorrect that Potential Impact 3.2-3 provides no reasoning for why the impact is considered unavoidable. Please refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3 for a discussion of why the short-term significant impact of increased suspended sediment concentrations (SSCs) due to dam removal cannot be avoided or substantially decreased through reasonably feasible mitigation, including physical removal of reservoir bottom sediments prior to drawdown, slower drawdown to potentially mobilize less sediment, or altering the timing of drawdown to lessen the potential of precipitation after drawdown and before plantings have stabilized sediments. Given that the mechanism for short-term sediment deposition in the Klamath River downstream of Iron Gate Dam, which is analyzed in Potential Impact 3.11-5, is erosion of the reservoir sediment deposits that results in elevated SSCs as analyzed in Potential Impact 3.2-3, the reasons that the impacts cannot be avoided or substantially decreased through reasonably feasible mitigation described in Potential Impact 3.2-3 also apply to Potential Impact 3.11-5.

With respect to the possibility of artificial aeration to reduce the occurrence of low dissolved oxygen in the Klamath River downstream of Iron Gate Dam during reservoir drawdown, where this water quality impact is analyzed in Potential Impact 3.2-9, the process of re-aeration in a river, including enhancement by artificial means, requires a turbulent mixing distance to incorporate additional oxygen. While adding air or oxygen directly to the river could reduce the distance along the river in which dissolved oxygen concentrations remain below the Basin Plan water quality objective of 90 percent saturation, it would not be possible to ensure that no stretch of river downstream of J.C. Boyle, Copco No. 1, and/or Iron Gate dams would exhibit substantial biochemical oxygen demand (BOD) at the scale of the reservoir drawdown peak monthly flows (i.e., 1,000 to 8,700 cfs in Table 3.2-14) given the relatively high BOD of the suspended sediments that would be mobilized from the reservoirs. Thus, artificial aeration would only provide a marginal benefit to fish during drawdown. Additionally, it would not be feasible to subject the reservoir sediments to pre-oxygenation or pre-aeration prior to reservoir drawdown in order to exhaust the sediment BOD prior to the flows entering the river downstream of J.C. Boyle, Copco No. 1, and

Iron Gate dams, because in the absence of plausible predictions of which sediment deposits would mobilize and which deposits would remain in place, all sediments would have to be oxygenated throughout their entire thickness, where the deposits extend greater than ten feet deep in some locations (Volume I Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* Figures 2.7-7, 2.7-8, 2.7-9 [pages 2-62 to 2-64]). There is currently no known sediment oxygenation technique that could accomplish this degree of pre-oxygenation or pre-aeration at the scale of J.C. Boyle, Copco No. 1, and Iron Gate reservoirs. Overall, the short-term significant impact of increased oxygen demand and decreased dissolved oxygen in the Middle Klamath River upstream of the Salmon River cannot be avoided or substantially decreased through reasonably feasible mitigation involving artificial re-aeration (or oxygenation).

Comment ORG46-24

- *The DEIR Baseline for the Project Is Inconsistent. Baseline conditions are inconsistently described throughout the Draft EIR. Under CEQA, the baseline must be based on conditions at the time the Notice of Preparation (NOP) for the Proposed Project was issued in 2016 (14 Cal. Code Reg s. § 15125(a)). "Environmental conditions must be described as they exist when the notice of preparation is published, or, if a notice of preparation has not been published, at the time the environmental analysis begins" (14 Cal. Code Regs. § 151 25(a)). "These existing physical conditions 'will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant" (14 Cal. Code Regs. § 15125(a); see also Neighbors for Smart Rail v. Exposition Metro Line Constr. Auth. (2013) 57 Cal. 4th 439, 448; Communities for a Better Env't v. South Coast Air Quality Mgmt. Dist. (2010) 48 Cal. 4th 310, 320.)*

  A non -exhaustive list of examples of this problem include:

  - *In the fish disease discussion (Section 3.3.5.5), the DEIR does not present the effects of routine implementation of Court-ordered disease management flows (i.e., surface flushing, deep flushing, or dilution) as part of the existing conditions (see Hoopa Valley Tribe v. National Marine Fisheries Service et al., 230 F. Supp. 3d 1106 (2017)). The DEIR does, however, discuss the effects of these flows on the polychaetes that host C. shasta. While these flows are not included in the modeling used in the DEIR (flows, sediment transport, or water quality) and they are not part of the Proposed Project, USBR will be implementing them through the removal period and has proposed surface flushing flows in their Biological Assessment for reconsultation (USBR 2018 a).*

- *In Section 3.19 Aesthetics, the DEIR misleadingly uses a pre-dam construction baseline to evaluate effects of the Proposed Project and justify a less-than-significant impact to visual resources.*
- *In the alternative s analysis, Section 4, the aesthetics analysis consistently uses the pre-dam construction baseline conditions.*

Response to Comment ORG46-24
As stated in Volume I Section 3.1.2 *Environmental Setting* (page 3-2), pursuant to CEQA Guidelines section 15125, subdivision (a), the environmental setting for comparison is conditions at the time of issuance of the Notice of Preparation for the Proposed Project, which is December 2016 for the Lower Klamath Project EIR. The EIR consistently uses this baseline to define existing conditions for the Proposed Project and the alternatives, although in some cases where information characterizing the baseline is only available using older studies, the analyses acknowledge how those older studies are still relevant to the Proposed Project and the EIR.

Regarding consideration of the 2017 court-ordered flushing and emergency dilution flows in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease*, the EIR acknowledges the re-initiation of consultation on the 2013 BiOp Flows by considering the 2017 court-ordered flushing and emergency dilution flow requirements downstream of Iron Gate Dam as interim flow requirements until completion of formal consultation. The 2017 court-ordered flushing and emergency dilution flows were not modeled as part of existing conditions hydrology for the Proposed Project because they went into effect in February 2017 after the December 2016 Notice of Preparation was filed. Note that the Final EIR has been updated to also include consideration of the 2019 BiOp Flows, as summarized in Master Response HYD-1.

With respect to how the EIR describes the existing condition baseline for aesthetics, please refer to responses to comments ORG46-321, ORG46-323, ORG46-324, ORG46-325, ORG46-326, ORG46-328, ORG46-329, and ORG46-330. Volume III Attachment 1 presents the final Section 3.19 *Aesthetics*. The alternatives analysis of potential aesthetic impacts has been clarified to remove reference to natural conditions.

Comment ORG46-24.1

- *The DEIR Should Reanalyze the No Project Alternative. The DEIR's discussion of the No Project Alternative (DEIR Section 4.2) falls short of CEQA's requirement that analysis of the no project alternative give decision-makers a gauge for measuring the environmental advantages and disadvantages of the project and the alternatives to it (Planning & Conserv. League v. Castaic Lake Water Agency, supra, 180 Cal. App. 4th at 247).*

An EIR's discussion of alternatives to a project must include a no project alternative, including an analysis of the impacts of that alternative. The purpose of discussing the no project alternative is to allow the public and agencies to compare the environmental impacts of approving the proposed project with the effects of not approving it (14 Cal. Code Regs. § 15126.6(e)(1)). "The no-project alternative is a fact-based forecast of the environmental effects of maintaining the status quo" (Planning and Conserv. League v. Castaic Lake Water Agency (2009) 180 Cal. App. 4th 210, 247). Also the no-project alternative allows decision-makers to compare impacts of a proposed project with impacts of no project (Mira Mar Mobile Community v. City of Oceanside (2004) 119 Cal. App. 4th 477) and is necessary to provide decision-makers and public with basic information on impacts of project (Planning & Conserv. League v. Department of Water Resources (2000) 83 Cal. App. 4th 892, 917).

A non -exhaustive list of examples of this problem include:

- *The DEIR indicates that the long-term effects of the No Project Alternative are not discussed because they "would be speculative…and would be contrary to the CEQA Guidelines' mandate to discuss and assess the environmental impacts that would 'reasonably be expected to occur in the foreseeable future'" (DEIR pg. 4-15). The DEIR could have assumed that existing operations simply continued into the future making a uniform set of conditions in both the short and long term against which the Proposed Project and the alternatives could have been compared.*
- *The No Project Alternative analysis includes analysis of the 2017 Court-ordered flushing and dilution flows. The DEIR should make it clear that this order was directed at USBR and not PacifiCorp's operations. The inclusion in this section of the DEIR is confusing because USBR (2018a) proposed to only include surface flushing flows in their update to their operations that is currently undergoing consultation under Section 7 of the Endangered Species Act, a process that is expected to be complete in 2019, well within the short-term period analyzed in the DEIR. The DEIR does not include operations under a new 2019 USBR BiOp in the short-term No Project Alternative.*
- *The hydrology under the 2013 BiOp should have been included in the baseline conditions for the Proposed Project analysis. Using 2013 BiOp flows for the No Project Alternative analysis makes comparisons of this alternative and the Proposed Project inconsistent.*

Response to Comment ORG46-24.1

The EIR is consistent with CEQA Guidelines section 15126.6(e)(2), which states that the No Project analysis shall discuss the existing conditions at the time the

Notice of Preparation is published, or if no Notice of Preparation is published, as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.

As stated in Volume I *Executive Summary – No Project Alternative* (page ES-16), the No Project Alternative describes the environment should the Klamath River Renewal Corporation's (KRRC's) Proposed Project − to decommission the four dams and associated facilities − not proceed. While the EIR describes the foreseeable existing conditions that would continue in the short term under the No Project Alternative, the EIR also clearly discloses that there is significant uncertainty about the long-term disposition of the Lower Klamath Project facilities if the KRRC's Proposed Project does not proceed. Projecting one specific No Project scenario for the long term would be speculative, in light of the fact that the continued operation of the Lower Klamath Project as permitted under annual licenses is infeasible, and would be contrary to the CEQA Guidelines' mandate to disclose and assess the environmental impacts that would "reasonably be expected to occur in the foreseeable future." Please also refer to Volume I Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis* for additional discussion of the short term and long term conditions associated with the No Project Alternative, as well as Volume I Section 4.2.1.1 *Alternatives – No Project Alternative – Alternative Description* (pages 4-15 to 4-23) for detailed discussion of foreseeable short-term operations, including hydrology, Total Maximum Daily Loads (TMDLs), and Klamath Hydropower Settlement Agreement (KHSA) Interim Measures.

Regarding the 2013 BiOp Flows, the 2017 court-ordered flushing and emergency dilution flows, and the 2019 BiOp Flows, please refer to Volume III Attachment 1 Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project*, which has been revised to include discussion of the 2019 BiOp Flows that were adopted after issuance of the Draft EIR in 2018. The Draft EIR did include the 2013 BiOp Flows as the hydrologic baseline for the EIR analyses, including the baseline for the analysis of the Proposed Project; for additional information, please refer to Volume III Attachment 1 for the final Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project.*

Additionally, Section 4.2.1.1 *Alternatives – No Project Alternative – Alternative Description* has been revised to include discussion of the 2019 BiOp Flows that were adopted after issuance of the Draft EIR in 2018. Please refer to Volume III Attachment 1 Section 4.2.1.1 *Alternatives – No Project Alternative – Alternative Description* for the revisions. Please also refer to Master Response HYD-1 for additional discussion of how the EIR considers the 2019 BiOp Flows.

<u>Comment ORG46-25</u>

- *<u>The DEIR Should Reanalyze Alternatives</u>. The DEIR does not uniformly to present, discuss, and analyze each of the alternatives, including comparing <u>both</u> short- and long-term effects; therefore, it does not satisfy CEQA's requirement that the EIR provide information sufficient to allow an informed comparison of the impacts of the project with those of the alternatives (Kings County Farm Bureau v. City of Hanford (1990) 221 Cal. App. 3d 692, 733 [absence of comparative data precluded meaningful consideration of alternatives]). Omitting such a meaningful analysis prevents decision-makers and the public from making informed comparisons bet ween the alternatives and the Project, precluding meaningful public participation (Laurel Heights, supra.; City of Rancho Palos Verdes v. City Council (1976) 59 Cal. App. 3d 869, 892 [An ElR's analysis of alternatives must be specific enough to allow informed decision-making and public participation; alternatives should be described in sufficient detail to provide information to governmental body that will act and public that will respond through political process]).*

A non-exhaustive list of examples of this problem include:

- *The Partial Removal Alternative includes a series of detailed tables (DEIR Tables 4.3-1 to 4.3-6) with the recommended eligibility of various Klamath Hydroelectric Project facilities under the National Register of Historic Places. This same information was not provided in the No Project Alternative even though that alternative would result in preservation of these resources.*
- *The Continued Operations with Fish Passage Alternative includes implementation of the USBR' s 2013 BiOp flows. These are not included in the existing conditions or Proposed Project discussions.*
- *Climate change effects appear to be included in the Continued Operations with Fish Passage Alternative, but not in the other alternatives or the Proposed Project.*
- *There are no spring-run Chinook Salmon in the Klamath River upstream of the Salmon River. It is unclear why the alternatives evaluate the impacts to a species that does not occur (e.g., DEIR pg. 4-140).*
- *While Table ES-1 presents an alternatives comparison of sorts, not all of the alternatives are evaluated for every impact.*

Response to Comment ORG46-25

The EIR analyzes the alternatives in both the short term and the long term, consistent with the Proposed Project. Please also refer to responses to comments ORG46-201, ORG46-374, ORG46-406, ORG46-422, ORG46-438, and ORG46-439 for discussion of the EIR’s approach to assessing short-term and long-term potential impacts under the Proposed Project and the alternatives.

With respect to the comment's concern regarding historical information presented in the No Project Alternative, Volume I Section 4.2.12 *No Project Alternative – Historical Resources and Tribal Cultural Resources* states that there would be no impacts to Copco No. 1 Dam, Copco No. 2 Dam, and Iron Gate Dam, their associated hydroelectric facilities, and the Klamath River Hydroelectric Project District (Potential Impact 3.12-11), because the Lower Klamath Project would remain in place. It is not necessary to repeat the tables presented in the Partial Removal Alternative in the analysis of the No Project Alternative, since both sets of tables would contain the same information regarding National Register eligibility. However, reference to Tables 4.3-1, 4.3-3, and 4.3-5 has been added to Section 4.2.12 *No Project Alternative – Historical Resources and Tribal Cultural Resources* to direct the reader to that information. Please refer to Volume III Attachment 1 Section 4.2.12 *No Project Alternative – Historical Resources and Tribal Cultural Resources* for the revisions. Reference to Tables 4.3-1, 4.3-3, and 4.3-5 also has been added to the Proposed Project impact analysis in Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation*, Potential Impact 3.12-11, to direct the reader to the tabulated eligibility information. Please refer to Volume III Attachment 1 Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* for the revisions.

The comment's concern that the Proposed Project and the Continued Operations with Fish Passage Alternative use different flows is misplaced: both are analyzed in the Draft EIR using the 2013 BiOp Flows as the existing condition. Please refer to Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* and Volume I Section 4.4.1.1 *Alternatives – Continued Operations with Fish Passage Alternative – Introduction – Alternative Description* (pages 4-99 to 4-101). Additionally, please note that the Final EIR has been updated to also include consideration of the 2019 BiOp Flows as a second baseline, which is summarized in Master Response HYD-1. Please also refer to Volume III Attachment 1 for the final Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* and Section 4.4.1.1 *Alternatives – Continued Operations with Fish Passage Alternative – Introduction – Alternative Description* for the revisions associated with inclusion of the 2019 BiOp Flows.

Regarding the comment's concern that climate change effects are considered for the Continued Operations with Fish Passage Alternative but not for the Proposed Project and other alternatives, please note that, consistent with CEQA Guidelines section 15125(a), future climate changes are not part of the existing condition against which the EIR compares potential impacts. While climate change predictions are occasionally used in the Lower Klamath Project EIR to provide additional context for potential impact analyses related to the Proposed Project or the alternatives (e.g., Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1, Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts* *and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8, Volume 1 Section 4.2.2 *No Project Alternative – Water Quality* Potential Impact 4.2.2-1 [pages 4-103 to 4-108]), the predictions are not relied upon for significance determinations associated with the Proposed Project or the alternatives. For reasons described in Volume I Section 4.2.1.1 *No Project Alternative – Introduction – Alternative Description* (pages 4-15 to 4-16), the No Project Alternative analysis focuses on the reasonably foreseeable period of 0−5 years, whereas climate change would be anticipated to only significantly influence environmental resources compared to existing conditions in the long term (5+ years). Thus, climate change is not discussed under the No Project Alternative, except to refer the reader to other relevant sections of the EIR where climate change is discussed.

For discussion of why spring-run Chinook are analyzed under the alternatives, please refer to responses to comments ORG46-251, ORG46-426, and ORG46-440.

Each of alternatives is evaluated for the set of potential impacts that would reasonably apply. If a potential impact would not apply to a particular alternative, then the alternative is not listed in association with that potential impact number in Table ES-1. For example, Potential Impact 3.3-17 *Effects on species interactions between introduced resident fish species and native aquatic species due to short- and long-term changes in habitat quality and quantity due to dam removal*, is not evaluated for the No Project Alternative or the Continued Operations with Fish Passage Alternative because neither of those alternatives involve dam removal. Similarly, Potential Impact 4.2.3-1 *Effects on coho salmon critical habitat quality and quantity due to continued operations of the Lower Klamath Project* is not evaluated for the Proposed Project, Partial Removal Alternative, Two Dam Removal Alternative, Three Dam Removal Alternative, or the No Hatchery Alternative because none of those alternatives or the Proposed Project involve leaving all of the Lower Klamath Project dams in place.

Comment ORG46-26

- *DEIR Reliance on Total Maximum Daily Load (TMDL) Modeling and Data Approaches Requires Additional Explanation. The DEIR relies on the flawed TMDLs from Oregon and California without providing a reasonable explanation supporting its TMDL analysis, nor does it adequately summarize the substantial body of technical information discrediting the TMDL modeling approach, nor does the DEIR provide any other substantial evidence supporting the use of the TMDL in the DEIR. As it relates to the TMDL, the DEIR does not fulfill CEQA's requirement that the EIR summarize the main points of disagreement when experts disagree about data or methodology (14 Cal. Code Regs. § 15151). A lead agency may choose among differing expert opinions as long as the EIR identifies arguments correctly and in a responsive manner (Browning-Ferris Indus. v. City Council 1986, 181 Cal. App. 3d 852) which the DEIR fails to do. An* *impact analysis that fails to explain major discrepancies in critical data may be legally inadequate in the absence of evidence supporting the EIR's discussion or resolution of the conflict (Preserve Wild Santee v. City of Santee (2012) 210 Cal. App. 4th 260).*

For example, the DEIR relies extensively on the TMDLs for both Oregon and California reaches of the Klamath River. The State Water Board should be aware that the 2010 temperature TMDL in Oregon (ODEQ 2010) was withdrawn by Oregon Department of Environmental Quality (ODEQ 2015), does not represent the best available information upon which to base the DEIR analysis, and therefore should not be used to set conditions in the Klamath River at the state line. This 2010 temperature TMDL was withdrawn because it was based on modeling that contained substantial errors which, along with other technical deficiencies, overstated the Klamath Hydroelectric Project 's effects on water temperatures in the river, and did not accurately account for natural pollutant loadings and processes (Campbell 2011). An updated version of the nutrient Upper Klamath and Lost River Subbasin TMDL (ODEQ 2018) was released for public comment in mid-2018 and a final version in January 2019 (ODEQ 2019). PacifiCorp understands that a revised temperature TMDL for the Oregon portions of the Klamath River may be complete in Fall 2019.

The California TMDL modeling results are not an appropriate basis for comparing alternatives. PacifiCorp has previously documented substantial technical flaws with the assumptions, modeling, and analyses used in development of the California TMDLs. PacifiCorp's position that the compliance scenarios, technical analysis, and modeling supporting the California Klamath River TMDL are flawed was presented during the development of the TMDL and is contained in PacifiCorp ' s Petition for Writ of Mandate filed to challenge the same (PacifiCorp v State Water Resources Control Board, 2011, case 34-2011-80000769). PacifiCorp's legal challenge has not been resolved, and is currently stayed.[3]

Response to Comment ORG46-26

Regarding Total Maximum Daily Load (TMDL) modeling, please refer to Master Response WQ-5.

Comment ORG46-27

- *The DEIR Lacks Sufficient Analysis of Regional Power Supply in the Utilities Section. The DEIR fails to describe the baseline condition concerning electric utilities and power generation provided by the Klamath Hydroelectric Project, which violates CEQA's requirement that an EIR describe the existing environment in the vicinity of the project from both a local and regional perspective (14 Cal. Code Regs. § 1512S(a)). The DEIR does not describe the potentially significant impacts associated with* *removal of the dams and associated power transmission facilities on electricity service in the region, which violates CEQA's requirement that the EIR identify and describe a proposed project's significant environmental effects (Cal. Pub. Res. Code § 21100(b)(l); 14 Cal. Code Regs. § 15126.2(a)). The DEIR also fails to comply with CEQA's requirements by failing to evaluate potentially significant energy implications of a project (CEQA Guidelines Appendix F (II); Pub. Res. Code § 21100(b)(3)). The environmental impacts to be evaluated in an EIR include (but are not limited to): 1) the project's effects on local and regional energy supplies and on requirements for additional capacity; 2) the project's effects on peak- and base-period energy demands; and 3) the project' s effects on energy resources (CEQA Guidelines, Appendix F (II)).*

The DEIR does not describe the baseline condition concerning electric utilities, the power generated by the Klamath Hydroelectric Project, or the impacts associated with removing those dams and associated power generation and transmission facilities on electricity service in the region. In the DEIR, Section 3.18 Public Services and Utilities, should contain a complete description about the ability to deliver utilities, including electricity. While the Proposed Project likely will not result in new need for local power generation, it will eliminate existing power sources at the hydroelectric dams, and remove local generation resources that provide power in an area without significant generation resources. The impact analysis should address the removal of these utilities, how those utilities will be replaced, and the impacts of that replacement. Because the DEIR fails to do so, it does not satisfy CEQA' s requirements.

Response to Comment ORG46-27

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-28

- *The Application of the DEIR's Significance Criteria Is Inconsistent. The DEIR attempts to define significance criteria for each resource area in the DEIR. While this is generally accomplished, the actual definitions are subject to reasonable differing interpretation and, in places, the definitions even contradict each other. CEQA requires that a threshold of significance be an identifiable quantitative, qualitative, or performance level of a particular environmental effect (14 Cal. Code Regs. § 15064.7(a); Protect the Historic Amador Waterways v. Amador Water Agency (2004) 116 Cal. App. 4th 1099, 1107). Inconsistent and insufficient definitions also creates the issue of misapplication of the thresholds of significance. CEQA requires that the EIR consider evidence of potential significant environmental effects, and therefore; a threshold of* *significance cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant (Comm unities for a Better Environment v. California Resources Agency (2002) 103 Cal. App. 4th 98, 114).*

A non-exhaustive list of examples of this problem include:

- *The term "substantial" or "substantially" is not consistently defined. In Section 3.2 Water Quality, for example, the definition of "substantial" is meaningless (DEIR pg. 3-44) because according to the DEIR "...'substantial'...means the effect on water quality and the support of beneficial uses...is of considerable importance." The DEIR does not define "of considerable importance." This same "of considerable importance" phrase is used in the same manner in Section 3.11 Geology, Soils, and Mineral Resources and is not defined there either.*
- *As an example of an improperly applied threshold of significance, the threshold the DEIR identifies that a short-term impact to Coho Salmon is defined as significant if it would "substantially reduce the abundance (greater than 50 percent reduction) of a year class for aquatic species" (DEIR pg. 3-258). This definition ignores the fact that over 50 percent of the Coho Salmon population returns to the Trinity River (Naman and Perkins 2015; Kier et al. 2018) and would be substantially unaffected by the project. This significance definition also has the absurd result that even a complete extinction of the upper Klamath Coho population would not be considered significant. Under Communities for a Better Environment v. California Resources Agency, supra, 103 Cal. App. 4th 98, the small population of Coho in the mainstem Klamath River upstream of the Trinity River would be substantially impacted, and therefore this impact should be considered significant. This is just one example where the DEIR's significance criteria lack meaningful or adequate definition and application, in contravention of the requirements of CEQA.*
- *In Sections 3.5, 3.6, 3.7, 3.9, 3.15, 3.16, 3.17, 3.19, 3.20, 3.21, 3.22, the term "substantial" is used in the criteria, but is not defined.*
- *In Section 3.8 Water Supply/Water Rights the term "unreasonable injury" is not defined as it applies to water rights.*
- *The first criteria in Section 3.5.3 (DEIR pg. 3-514) says that impacts would be considered significant if they "[r]esult in population-level impacts on state species of special concern, USDA Forest Service sensitive wildlife species on USDA Forest Service lands, or BLM sensitive species on BLM lands." The next bullet (DEIR pg. 3-515) states that an impact would be significant if it would "[r]esult in any of the following to the other types of special-status species[112]:[sic] not listed above: direct mortality or physical harm to individuals...". Footnote 112 goes on to define a long list of sources of special status*

species leaving the reader to attempt to sort out what's to be analyzed at the population level per the first bullet and which could be analyzed at the individual level per the second bullet.

Response to Comment ORG46-28

As stated in Volume I Section 3.1.3 *Environmental Setting, Impacts, and Mitigation Measures – Introduction – Significance Criteria* (page 3-2), in setting criteria for evaluating significance, this EIR relies on scientific and factual data, analysis, consideration of relevant local, regional and state standards, and the questions presented in Appendix G of the CEQA Guidelines. These are then applied as appropriate in the various resource areas.

With respect to the comment's general assertion regarding the definition of "substantial", and the list of EIR sections in which the commenter indicates that "substantial" is not defined, please refer to Master Response CEQ-3.

For a discussion of the significance criterion for coho salmon please refer to response to comment ORG46-199 Item 4.

Regarding use of the term "unreasonable injury," an unreasonable injury to a water right is one that involves interference with the water right that would support a complaint made under Article 10 Section 2 of the California Constitution.

Please refer to Tables 3.5-4 (plants) and 3.5-5 (wildlife) for identification of special-status species, including the agency that lists each species. As described in the significance criterion in Volume I Section 3.5 *Terrestrial Resources – Significance Criteria* (page 3-514) that the comment cites, the population-level criterion applies to three groups of sensitive species: (1) state species of special concern, (2) United States Department of Agriculture (USDA) Forest Service sensitive wildlife species on USDA Forest Service lands, and (3) Bureau of Land Management (BLM) sensitive species on BLM lands. The second significance criterion cited in the comment (page 3-515) applies to all the remaining groups of special-status species. Footnote 112 on page 3-515 provides a listing of these remaining sources for special-status species, drawing together the information from both the plant and wildlife species tables.

Comment ORG46-29

The DEIR Should be Augmented. The DEIR omits inclusion and analysis of significant information critical to an appropriate analysis of the effects of the Proposed Project, much of which is in the existing public record (Pub. Res. Code § 21092.1; 14 Cal. Code Reg s. § 15088.5 [recirculation is generally required when the addition of new information deprives the public of meaningful opportunity to comment on substantial adverse project impacts or feasible mitigation measures or alternatives that are not adopted]; see Mountain Lion Coalition v. Fish & Game Comm'n (1989) 214 Cal. App. 3d 1043 [recirculation *required where draft EIR omitted any analysis of cumulative impacts, and a detailed analysis was first provided in the final EIR]; Vineyard Area Citizens for Responsible Growth v. City of Rancho Cordova (2007) 40 Cal. 4th 412, 447; see also Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. (1993) 6 Cal. 4th 1112, 1129).*

The DEIR should analyze substantial information cited in these comments concerning significant effects on water quality, Coho Salmon, fill of Waters of the U.S., and loss of Copco and Iron Gate reservoirs as related to instream flows, substantial changes in periphyton communities, impacts associated with greenhouse gas emissions , and impacts from release of reservoir fish from the Proposed Project, which are not addressed in the DEIR but must be addressed in a recirculated DEIR (14 Cal. Code Regs. § 15088.5(a)(1)).

If new mitigation measures or alternatives are considered in response to comments, the DEIR should be augmented and provided for additional public review and comment (South County Citizens for Smart Growth v. County of Nevoda (2013) 221 Cal. App. 4th 316, 330); Laurel Heights Improvement Ass'n v. Regents of Univ. of Cal. (1993) 6 Cal. 4th 1112; CEQA Guidelines (14 Cal. Code Regs. § 15088.5(a)(3)); In Spring Volley Lake Ass' n v. City of Victorville (2016) 248 Cal. App. 4th 91, 108).

Response to Comment ORG46-29

The concerns raised by PacifiCorp in this overarching comment (i.e., concerns that the Draft EIR should analyze substantial information cited in the PacifiCorp comments about significant effects on water quality, coho salmon, fill of Waters of the U.S., loss of Copco and Iron Gate reservoirs as related to instream flows, periphyton communities, greenhouse gas emissions, and release of reservoir fish to the Middle and Lower Klamath River) are set forth in more detail throughout PacifiCorp's comment letter. They are accordingly addressed by the set of detailed responses to comments ORG46-2 through ORG46-516.

Comment ORG46-30

In the Draft Environmental Impact Report's (DEIR's) impacts and alternatives analyses, "short-term" is variably defined. For example, for analyses of water quality, dam-released sediment, and sediment resupply, short-term is generally defined as 2 years following dam removal (e.g., DEIR pgs. ES-6, 3-44, 3-760, 3-77S). For the aquatic resources impact analysis, short-term is defined as less than S years following dam removal (e.g., DEIR pg. 3-2S8). In the alternatives analysis, short-term is considered to be less than 5 years (e.g., DEIR pgs. 4-15, 4-24, 4-26). Correspondingly, long-term is defined as occurring greater than 2 years after dam removal for water quality and sediment resources (DEIR pg. 3-44) and greater than 5 years after dam removal for aquatic resources (DEIR pg. 3-258). These variable definitions pose a dilemma in that long-term water quality and sediment impacts overlap with short-term impacts to fish and other aquatic biota. In the case of water quality and sediment impacts on fish, this overlap underestimates the severity of short-term impacts, particularly as they pertain to *fish and other resources. The DEIR does not account for this when evaluating the severity and significance of short-term impacts. This discrepancy will mislead the public and decision-makers about the actual short- and long-term impacts of the Proposed Project across the various environmental resources and alternatives.*

Response to Comment ORG46-30

The definition of short term is provided for each EIR environmental resource area analyzed under the Proposed Project and the alternatives, and each definition is selected for a period of time that is relevant to the resource and type of impacts being analyzed. For the Proposed Project and dam removal alternatives, short term is often defined as the two- to three-year dam removal construction period, but this time period is not the most appropriate period of analysis for all resource areas (e.g., fisheries uses a period of five years because for most aquatic resources this represents one to two generations [see Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria*]). The No Project Alternative does not involve construction and so a two- to three-year short-term construction period is not relevant to this alternative; instead, a five-year period is the most relevant short-term period based upon the anticipated duration of the FERC proceeding for relicensing of the hydroelectric facilities (see Volume I Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description* [page 4-15]).

The Draft EIR does not underestimate the severity of short-term water quality and sediment impacts to fish by having different definitions of short term for water quality-focused impact analyses versus fisheries-focused impact analyses. This is because the short-term fisheries impact determinations are not dependent on whether the short-term water quality impact determinations are significant; rather, the fisheries impacts analysis considers the potential effects of water quality parameters (e.g., water temperature, suspended sediment concentrations [SSCs], algal toxins) independently from the water quality impacts analysis and in combination with other aspects of the Proposed Project and alternatives that would affect fisheries (e.g., Aquatic Resource Measures).

Overall, presenting specific definitions of short term for each resource area and alternative better informs the public and decision-makers about the potential short- and long-term environmental impacts of the Proposed Project and the alternatives consistent with CEQA Guidelines section 15126.2 (a).

<u>Comment ORG46-31</u>

The DEIR states "approximately 36 to 57 percent of the total sediment stored in J.C. Boyle, Copco No. 1, and Iron Gate reservoirs by 2021 is expected to be eroded and transported downstream during the drawdown period and the year following dam removal (i.e., short-term), which is equivalent to 5.4 to 8.6 million cubic yards (1.2 to 2.3 million tons)."

These eroded volumes estimates are very large numbers that are difficult to put into perspective; it would be helpful for the DEIR to relate the eroded volume estimates to the average annual sediment load to provide context. These estimates also indicate that approximately 6.5 to 9.7 million cubic yards of sediments would be retained in the reservoirs after initial reservoir drawdown. The DEIR should address the longer-term effects caused by these retained sediments that could occur during future high flow events.

Response to Comment ORG46-31

Regarding the background annual sediment loads, please refer to Volume I Section 3.11.2.4 *Geology, Soils, and Mineral Resources, Environmental Setting – Sediment Load* Table 3.11-3 (pages 3-749 to 3-750). Please also refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 and modifications in Volume III Attachment 1. Specifically, Volume I page 3-769 of this impact places the anticipated erosion volume due to dam removal into the context of annual basin-wide sediment discharge. For further explanation, please refer to Stillwater Sciences (2010, pages 27–29), which discusses the ratio of modeled sediment release from dam removal to cumulative average annual basin sediment delivery. Downstream of the Dillon Creek confluence (river mile [RM] 85.5), the lower estimate of sediment load release from dam removal is less than the average annual basin sediment delivery. Downstream of the Trinity River confluence (RM 43.5), the median estimate of sediment load release from dam removal is less than average annual basin sediment delivery.

Regarding background suspended sediment concentrations (1961−2008), please refer to USBR (2012a) Section 9.2.1.2 *Future Geomorphology and Sediment Transport Conditions, Dam Removal Alternative, One-Dimensional Simulation of Reservoir Drawdown and Erosion of Reservoir sediment – Background Sediment Loads*. Additionally, please refer to Volume II Appendix C Section C.2 *Suspended Sediments* (pages C-14 through C-23).

Regarding long-term effects relating to reservoir sediments, please refer to Potential Impact 3.11-5 (pages 3-768 to 3-769) in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* and modifications to this impact in Volume III Attachment 1, and to ORG46-8 for information on erosion and stabilization of reservoir sediment deposits.

Comment ORG46-32

The DEIR contains the repeated conclusion that the fine sediment predicted to be released during drawdown will be efficiently and shortly locations transported all the way to the Pacific Ocean. For example, on page ES-6, the DEIR states: "Most of the fine sediment is expected to be transported the report in suspension to the ocean shortly after being eroded. Fine sediment erosion would result in elevated suspended sediment concentrations downstream of Iron Gate Dam in the short term (Stillwater Sciences 2010, USBR 2012)."

For example, on page 2-60, the DEIR states: "Over 80 percent of the reservoir sediments are fine sediment (organics, silts, and clays), which are expected to remain suspended in the Klamath River flow as it moves downstream and out into the Pacific Ocean."

For example, on page 2-68, the DEIR states: "Based on estimated annual sediment deposition rates, an approximately 15.13 million cubic yards (4.16 million tons [dry weight]11) of sediment would be present behind the dams by 2020 (USBR 2012c) (Table 2.7-10). Because the trapped sediments consist primarily of organic material (e.g., dead algae), silts, and clays, they would be easily eroded and flushed out of the reservoirs into the Klamath River, and would continue to be suspended in the river downstream to the Pacific Ocean."

The notion implied in these statements is highly simplified. Some deposition of fine sediment would occur downstream during high discharges when flows go over-bank and inundate the floodplain - a scenario that could occur during drawdown. In addition, at lower discharges when flows remain in-channel, fine sediment likely would deposit in backwaters, alcoves, side-channel inlets and outlets, and areas along the channel margins. Fine sediment that deposits in backwater areas such as alcoves and side-channels could adversely affect aquatic and riparian biota and habitats and could become remobilized in subsequent high flow events, extending the duration of sediment impacts on aquatic biota. For example, fine sediment can infiltrate spawning gravels and significantly impact spawning success. The DEIR should be revised and recirculated to include this analysis.

The transport and deposition of the fine sediment predicted to be released under the Proposed Project is fundamentally important to understanding a wide-range of environmental impacts, both short-term and long-term. Therefore, the DEIR should include a more detailed discussion and supporting numerical or quantitative analysis to document the expected impacts from fine sediment transport and deposition.

Analysis of fine sediment transport and deposition downstream of Iron Gate is not included in either of the DEIR's cited references (i.e., Stillwater Sciences 2010 and USBR 2012c). In general terms, the 1-D modeling used in the DEIR's cited references (i.e., Stillwater Sciences 2010 and USBR 2012c) is a computationally efficient means to assess overall sediment loads for many miles of river, over several years, and for multiple scenarios. However, the 1-D modeling has germane limitations in that it cannot simulate the distribution of sediment erosion and deposition in the river, particularly across the channel or in split or side channels. The modeling also assumes that fine sediment would behave as wash load, which by definition is sediment that remains in suspension and does not deposit. However, while the DEIR's cited references (i.e., Stillwater Sciences 2010 and USBR 2012c) intend this as only a simplifying assumption of *the 1-D modeling, the DEIR appears to couch this basic modelling assumption as a finding from the model.*

This is a global comment that applies to all statements which conclude that the fine sediment predicted to be released during the drawdown will be transported to the Pacific Ocean without any discernible deposition in the river reaches downstream of Iron Gate Dam.

Response to Comment ORG46-32
Please refer to Master Response GEO-1 and ORG46-8.

Comment ORG46-33
Regarding the Phytoplankton and Periphyton section, there is no discussion of periphyton benefits expected to occur as a result of the Proposed Project such as those to seasonal nutrient uptake and sequestration, photosynthesis, habitat, and food web. Such benefits should be acknowledged (see detailed comments on Section 3.4).

Response to Comment ORG46-33
Please refer to Volume III Attachment 1 Potential Impact 3.2-8, Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437), and Volume I Potential Impact 3.4-5 (pages 3-437 to 3-440) for discussion of the potential impacts to nutrients and periphyton under the Proposed Project, including the influence of periphyton on nutrient uptake and sequestration along with the general importance of periphyton in aquatic food webs. Please refer to Volume III Attachment 1 Potential Impact 3.2-10 and Potential Impact 3.2-11 for discussion of the potential impacts of periphyton to dissolved oxygen and pH from photosynthesis and growth, respectively, under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Periphyton growth in the Klamath River under the Proposed Project would potentially create habitat, contribute to the food web, uptake, sequester, or contribute nutrients on a seasonal basis, and contribute to daily variations in pH and dissolved oxygen due to photosynthesis and respiration, but the magnitude of these potential effects would depend on the extent of periphyton growth that would occur. The response of periphyton in the Klamath River under the Proposed Project is subject to many competing processes that could either accelerate or hinder periphyton growth. While the Proposed Project would likely result in periphyton growth in the newly created low gradient river channel within the Copco No. 1 and Iron Gate reservoir footprints, there is considerable uncertainty about the exact extent and types of periphyton that would occur. As a result of this uncertainty, the EIR avoids overstating the potential for benefits related to periphyton under the Proposed Project.

Comment ORG46-34

Regarding the Water Quality section, adverse impacts associated with increased turbidity include burying and scour of aquatic vegetation (e.g., periphyton, macrophytes), which could limit or preclude growth. The resultant effects would include: lack of photosynthesis (oxygen production), lack of nutrient uptake, lack of cover and food for macroinvertebrates, and lack of cover and food for juvenile fish rearing. Such effects should be acknowledged in the DEIR. Additionally, TMDLs have been established for the Klamath River to address nutrient impairment. The removal of Copco and Iron Gate reservoirs, which retain 18 to 21 percent of total nitrogen and 12 to 16 percent of annual phosphorus loading from the Klamath River (PacifiCorp 2006; Kann and Asarian 2005, 2007; Asarian et al. 2009), should be acknowledged in the DEIR as potentially having adverse impacts on Klamath River water quality. The long-term impacts of increased nutrient delivery to the Klamath River downstream of Iron Gate on water quality has not been evaluated in the DEIR. See comments 3.2-53 to 3.2-55 and 3.4-5 below.

Response to Comment ORG46-34

Please refer to Volume I Section 3.5.5 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3 (pages 3-521 to 3-522) for a discussion of the short-term and long-term impacts of dam removal on wetland habitat, including aquatic macrophytes such as cattails (*Typha spp.*), bulrushes, pondweeds (*Potamogeton spp*.) and coontail (*Ceratophyllum demersum*), downstream of the Lower Klamath Project dams due to erosion or sediment deposition. As stated in Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (page 3-392), since no surveys have been conducted to determine the relative distribution or biomass of large aquatic plants (i.e., macrophytes) in the Klamath River, they were not discussed further in Volume I Section 3.4 *Phytoplankton and Periphyton*. However, to address the concerns raised in the comment, the following provides additional consideration of potential impacts to large aquatic plants (i.e., macrophytes), referencing the EIR impact analyses for periphyton where the discussions overlap.

With respect to the comment regarding scour of aquatic vegetation due to increased turbidity, please refer to Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-3 (pages 3-433 to 3-435) for an analysis of the short-term potential impacts of dam removal on periphyton abundance in the Klamath River, including scour of periphyton during drawdown of the reservoirs. Under existing conditions, periphyton abundance in the Klamath River naturally decreases after high flows associated with storm events as the periphyton communities in the river reduce to a thin layer of scour-resistant diatoms (Asarian et al. 2015). The magnitude of drawdown flows in the Klamath River downstream of Iron Gate Dam would not exceed the range of flows occurring under existing conditions (see Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* [pages 3-590 to 3-621] for additional details) and the drawdown flows would occur between November 1 and March 15 when high flows would naturally occur in the Klamath River due to winter storms, so periphyton scour during drawdown and dam removal is anticipated to be within the range occurring under existing conditions. As such, variations in water quality due to reductions in periphyton abundance during dam removal would be within the range occurring under existing conditions and there would be no significant impact. While larger aquatic plants (i.e., macrophytes) may also be present in quiet backwater areas in the Klamath River in addition to periphyton, no known quantitative or species-specific information about these aquatic plants has been collected in the phytoplankton and periphyton Area of Analysis, as noted in the introduction of Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (page 3-392). The potential impacts of erosion and deposition associated with dam removal on macrophytes within wetland habitats downstream of Iron Gate Dam are addressed in Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impacts 3.4-3, 3.4-4, and 3.4-5 (pages 3-433 to 3-440) and Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3, as revised in Volume III Attachment 1. The potential impact of dam removal on larger aquatic plants within the main river channel (i.e., not wetlands or riparian habitats) is expected to be similar to the potential impact of dam removal on periphyton (see Volume I Potential Impact 3.4-3 [pages 3-433 to 3-435]) since the larger aquatic plants in the main river channel grow in similar habitats as periphyton. Thus, scour of larger aquatic plants and variations in the abundance of larger aquatic plants in the Klamath River is anticipated to be within the range occurring under existing conditions and would not result in a significant impact under the Proposed Project.

With respect to the comment regarding burying of aquatic vegetation due to increased turbidity, the abundance of periphyton and larger aquatic plants (i.e., macrophytes) would potentially be altered by coarse reservoir sediment deposition in the Klamath River from Iron Gate Dam to approximately Cottonwood Creek (river mile [RM] 185.1) (USBR 2012a) since sediment transport modeling of dam removal indicates coarse reservoir sediments would deposit in this reach, with reach-averaged deposition of gravel and sediment estimated to be from 0.9 feet to 1.7 feet between Bogus Creek (RM 192.68) and Willow Creek (RM 187.8) (see Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5). As previously stated in Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-3 (pages 3-433 to 3-435) and Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, there would be minimal deposition of fine sediments in the Klamath River due to reservoir drawdown and high winter flows (note that revisions in Potential Impact 3.11-5 in Volume III Attachment 1 do not change this conclusion). If rain and snowmelt levels are high during drawdown, relatively less deposition of coarse reservoir sediments would occur in downstream reaches, as there would be higher flows in the system to flush out reservoir sediments (Stillwater Sciences 2008). Please refer to Volume III Attachment 1 for Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5.

In the short term, reach-averaged sedimentation levels of 0.9 to 1.7 feet are not expected to substantially negatively impact periphyton or larger aquatic plants downstream of Iron Gate Dam since periphyton and larger aquatic plants are generally adapted to this scale of perturbation due to seasonal and inter-annual sedimentation dynamics typical of dynamic river systems. Burial of existing periphyton and larger aquatic plants with coarse reservoir sediment would reduce the abundance of periphyton and larger aquatic plants in localized areas immediately following sediment deposition, but periphyton and larger aquatic plants would be expected to re-colonize these sediment deposits within the short term (i.e., three years after dam removal begins or sooner), similar to the way scoured streambeds and new sediment deposits on the streambed are recolonized after naturally occurring high winter flows. Thus, there would be a less than significant effect on periphyton and larger aquatic plant abundance downstream of Iron Gate Dam due to localized short-term sediment deposition caused by dam removal.

Overall, short term scour and burial of existing periphyton and larger aquatic plants would potentially reduce the abundance of periphyton and larger aquatic plants in localized areas in the Klamath River under the Proposed Project, but this decrease in periphyton and larger aquatic plant abundance would be within the range occurring under existing conditions and periphyton and larger aquatic plants would recolonize and regrow. In the long term, scour and deposition associated with dam removal, drawdown flows, and reservoir sediment transport under the Proposed Project would return to background rates (see Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for more details). Thus the identified processes would not significantly change the existing range of periphyton and larger aquatic plant abundance in the Klamath River.

With respect to the comment regarding the potential for reduced rates of photosynthesis and oxygen production from aquatic vegetation due to increased turbidity, modeled suspended sediment concentrations (SSCs) in the Klamath River under the Proposed Project during the two primary periphyton and larger aquatic plant growth seasons (i.e., May to October[9]) that would occur in dam removal year 2 and post-dam removal year 1 are within the estimated range of background SSC concentrations (e.g., 1 to 100 milligrams per liter [mg/L] at Orleans between May and October depending of water year type [USBR 2012a]), and they are typically on the low end of that range (i.e., less than 50 mg/L).

[9] Periphyton and aquatic macrophytes are generally dormant during November through April and/or river flows are too high to conduct surveys.

While SSCs would potentially increase above 50 mg/L for approximately 2 weeks or less during the primary periphyton and larger aquatic plant growth season in some water year types during dam removal year 2 and post-dam removal year 1, because the modeled concentrations are within the estimated range of background SSC concentrations, they would not be anticipated to significantly alter periphyton and/or larger aquatic plant growth, including associated rates of photosynthesis and oxygen production, due to reduced light availability under the Proposed Project. Because there are no quantitative data on variations in periphyton and larger aquatic plant growth, rates of photosynthesis, or the amount of associated oxygen production, due to changes in SSC (or turbidity) in the Klamath River or other comparable rivers, the magnitude of changes in periphyton and larger aquatic plant growth, photosynthesis, and oxygen production due to increased SSCs cannot be explicitly quantified. Further, the comment does not provide additional evidence or data that turbidity (or SSCs) in the Klamath River following dam removal would limit or preclude growth of periphyton and/or larger aquatic plants. Overall, increases in SSCs in the Klamath River under the Proposed Project would not significantly inhibit periphyton or larger aquatic plant (i.e., macrophyte) growth compared to the baseline condition. As such, it would not cause significant effects through the various pathways the comment posits.

With respect to the comment regarding nutrient retention in Copco No. 1 and Iron Gate reservoirs, please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for a discussion of the long-term alterations in nutrients to the Klamath River downstream of Iron Gate Dam from lack of interception and retention by the dams and conversion of the reservoir areas to a free-flowing river. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*. Please also refer to response to comment ORG46-88 for a discussion of how Section 3.2.2.1 *Water Quality – Environmental Setting –Overview of Water Quality Processes in the Klamath Basin – Nutrient cycling in reservoirs and internal loading* has been clarified to specify the most recent calculated annual nutrient retention amounts for the Lower Klamath Project dams (Asarian et al. 2009).

Additionally, Appendix C, Section C.3.1.1 *Hydroelectric Reach* (pages C-24 to C-33) has been revised to clarify the amount of variability in seasonal nutrient retention/release from the reservoirs by adding a discussion of the May 2005 to December 2007 (i.e., the time that nutrient data were measured by Asarian et al. [2009]) time series for Copco No. 1 and Iron Gate reservoirs. Please refer to Volume III Attachment 1 Appendix C, Section C.3.1.1 *Hydroelectric Reach* for the revisions.

Please also refer to responses to comments ORG46-122, ORG46-123, ORG46-139 and ORG46-140 for further discussion of the analysis of nutrient retention in the Copco No. 1 and Iron Gate reservoirs.

Please also refer to Volume I Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 (pages 3-426 to 3-433) and Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437) and Potential Impact 3.4-5 (pages 3-437 to 3-440) for analysis of the alterations in the phytoplankton and periphyton growth due to increased nutrients under the Proposed Project.

Comment ORG46-35

The loss of production from Iron Gate Hatchery, which contributes a substantial portion of the Tribal, commercial, and sport fishing Chinook salmon harvest, would seem to be an unavoidable adverse impact of the Proposed Project, but this impact is not discussed in the Executive Summary. The contribution of Iron Gate Hatchery to Chinook harvest has averaged about 28,000 per year (California HSRG 2012).

Response to Comment ORG46-35

Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* discusses the likely effects of eight years of hatchery production following dam removal, including an analysis of the sources of hatchery and natural production likely to occur each year of dam removal and following dam removal through post-dam removal year 10. The potential for natural production of salmon smolts upstream of the current location of Iron Gate Dam is discussed for each species in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* and is based on extensive review of scientific literature, and in the case of fall-run Chinook salmon Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, a quantitative life-cycle model (Hendrix 2011). This analysis concludes a likelihood of successful recolonization and robust fall-run Chinook salmon production following dam removal and eight years of hatchery operation. Please also refer to Master Response AQF-2.

Please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for an analysis of the effects of a reduction in hatchery production on the escapement of fall-fun Chinook salmon, and Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts to Tribal Cultural Resources* Potential Impact 3.12-9 for a discussion of the potential impacts of reduced hatchery production on tribal fisheries. Please also refer to Master Response AQF-3.

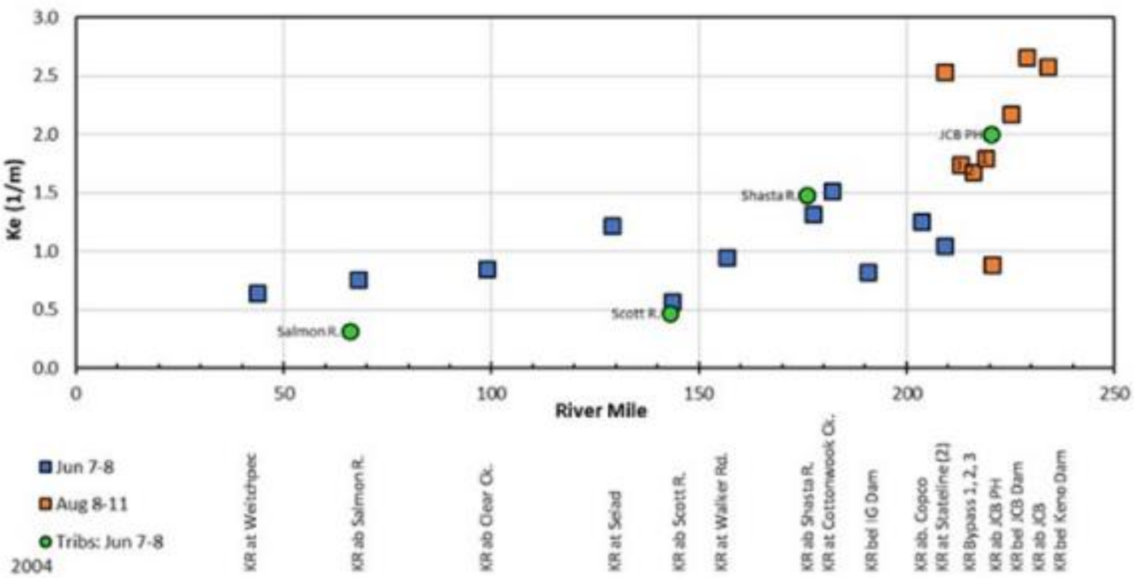
Comment ORG46-36

Regarding the Phytoplankton and Periphyton section, there is no reason on and why growth of periphyton would be restricted to the margins of the stream. Light limitation, which would be the element restricting periphyton growth, is not a restricting factor for much of the growing season in the Klamath River *downstream of Iron Gate Dam but can be a factor in the river upstream of Copco Reservoir.*

Light conditions in aquatic systems are typically characterized based on irradiance values for photosynthetically available radiation (PAR). Light limitation is assumed to occur beneath water depths associated with "onset saturation" values of PAR, which are values that occur when photosynthesis for typical macrophytes and diatoms produces excess oxygen. Onset saturation values in aquatic systems are typically less than about SO µmol PAR m·2 s·1 (Kirk 1994). Previous PAR measurements in the Klamath River have been used to calculate light extinction coefficients (PacifiCorp 2004a, 2014), which can then be used to calculate the depth of water where onset saturation occurs.

The approximate range of light extinction (Ke) measurements are O.S/m to 1/m in the Klamath River downstream of Iron Gate (see graph below). Based on this Ke range and a maximum PAR intensity of 1800 µmol PAR m· 2 s·1 (measured) at the water surface, the saturation compensation value of SO µmol PAR m·2 s·1 (per Kirk 1994) is reached at depths of about 11 to 20 feet. The vast majority of the Klamath River downstream of Iron Gate Dam is less than 11 feet in depth during the growing season. This indicates that light is generally not limiting periphyton growth in the Klamath River downstream of Iron Gate Dam.

By comparison, the approximate range of Ke measurements are 1.0 / m to 2.5/ m in the Klamath River upstream of Copco Reservoir (see graph below). This higher range of Ke measurements is atributable to the large organic loads contributed to the upper river by Upper Klamath Lake (PacifiCorp 2004a, 2014). Based on this Ke range, the saturation compensation value is reached at depths of about 5 to 11 feet. The depth of the Klamath River upstream of Copco Reservoir is more variable, with an appreciable portion is 5 to 11 feet or more in depth during the growing season. This indicates that light is likely limiting periphyton growth in many areas of the Klamath River upstream of Copco Reservoir.



Response to Comment ORG46-36

The EIR analysis for Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) determined that potential periphyton growth within the Hydroelectric Reach would be most likely to occur along the channel margins since potential disruption of periphyton growth by increased flow variability during storm flow (see also Volume I Potential Impact 3.6-3) and more frequent river bed sediment movement (see also Volume I Potential Impact 3.11-5) under the Proposed Project would be more likely to limit periphyton growth in the middle of the river channel than along the channel margins. As acknowledged in Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437), there are multiple processes that influence periphyton establishment and growth (e.g., light availability, nutrient availability, water temperature, seasonal flow variations, sediment transport), so light availability alone would not determine the extent of growth within the channel.

Additionally, variations in the light extinction measurements upstream and downstream of the Oregon-California state line presented in the comment cannot be conclusively attributed to longitudinal differences in the Klamath River since the measurements upstream and downstream of the Oregon-California state line were collected at different times of the year when algal-derived (organic) suspended sediments in the Klamath River that would potentially influence light extinction measurements likely would be different. Light extinction measurements upstream of the Oregon-California state line were primarily conducted during August 8 to 11 (year not specified in the graph) when algal growth would likely be peaking, but light extinction measurements downstream of the Oregon-California state line were primarily conducted during June 7 to 8 (year not specified in the graph) when algal growth may be less. Light extinction (Ke) measurements varied abruptly near the same location (i.e., Oregon-California state line) between June (Ke approximately 1.0/m) and August (Ke approximately 2.5/m), suggesting the variations between the upstream and downstream light extinction measurements is potentially due to seasonal rather than longitudinal differences. As such, the longitudinal variations in light extinction should be considered for each period separately only. While there are likely variations in the light extinction between the upstream and downstream reaches of the Klamath River, additional data would be needed to determine that variation throughout the Klamath River.

While Volume I Potential Impact 3.4-4 explained why increased flow variability and sediment transport under the Proposed Project would likely limit periphyton growth to the channel margins, Potential Impact 3.4-4 has been revised to clarify that there is potential for periphyton growth in the Hydroelectric Reach wherever suitable habitat conditions occur in the river channel. Please refer to Volume III Attachment 1 Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* for the revisions.

However, the overall effect of the Proposed Project would likely increase periphyton in the portions of Copco No. 1 and Iron Gate reservoir footprints with suitable habitat for periphyton growth due to the creation of new, previously uncolonized low gradient river channels. Periphyton growth would be most likely to occur along the channel margins with shallower water depths, more light availability, warmer water temperatures, and lower probability of seasonal sediment transport and scour, but periphyton growth could also occur elsewhere in the channel where ever suitable habitat conditions exist. While there is considerable uncertainty, there is the potential under the Proposed Project that nuisance periphyton species could be part of the periphyton assemblages that grow in the new low gradient river channels. The nuisance periphyton species would potentially provide habitat for the polychaete worm (*Manayunkia speciosa*) that is the intermediate host of the fish parasites *Ceratomyxa shasta* and *Parvicapsula minibicornis*. Thus, if there were a short-term or long-term increase in growth of nuisance periphyton species due to increases in available habitat, especially along channel margin areas within the Copco No. 1 and Iron Gate reservoir footprints of the Hydroelectric Reach, potentially result in a new or further impairment of designated beneficial uses. It would therefore be a significant impact.

Comment ORG46-37

The DEIR states "efforts aimed at meeting Klamath River total maximum to the daily loads (TMDLs) are not analyzed for the short term under No Project Proposed Alternative because the basin response to the restoration measures to Project meet the TMDLs during the short term is too speculative." The DEIR is not clear in this section or elsewhere in the document whether and how the TMDLs are relied upon for analysis of short-term impacts for other alternatives. The DEIR also does not include a specific single location in the document where the rationale, assumptions, and approach for long-term impacts using the TMDLs are described.

Response to Comment ORG46-37
The EIR discusses the Total Maximum Daily Loads (TMDLs) where it is appropriate to do so (i.e., analyses about or related to water temperature, dissolved oxygen, pH, and nutrients). *Executive Summary* has been revised to clarify that the 'various efforts' and the 'restoration measures' cited in the text are referring to the same thing. The same statement in Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description* has also been revised. Please refer to Volume III Attachment 1 *Executive Summary* and Volume III Attachment 1 Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description* for the revisions.

Regrading TMDLs please also refer to Master Response WQ-5.

Comment ORG46-38
If the impacts are increasing in severity toward the right of the table, Significant and Unavoidable should be the final column. Switch the final two columns and indicate when there is no feasible mitigation for a specific impact.

Response to Comment ORG46-38
A significant and unavoidable impact is not necessarily more severe than a significant and unavoidable impact with mitigation. The impact severity depends on the resource in question, the details of the analysis, and the details of feasible mitigation. If there is no feasible mitigation for a particular impact, then there is no mitigation provided in the mitigation column. The footnote to Table ES-1 shown below has been repeated at the front of the table to be more easily seen by the reader.

"* Indicates a Significant and Unavoidable Impact that would be reduced to No Significant Impact with Mitigation if one or more Recommended Measures were to be implemented. Due to federal preemption, the State Water Board cannot guarantee the implementation of Recommended Measures."

For additional information regarding federal preemption and the Lower Klamath Project, please refer to Master Response CEQ-2.

Comment ORG46-39
The coding of long-term Potential Impacts 3.17-2 (Public Services) as significant and unavoidable with mitigation does not match the significance statement on page 3-919 (significant and unavoidable). The coding in Table ES-1 appears correct because the text on page 3-919 indicates that even with mitigation response time would increase, and any additional response time is defined as significant on p 3-916.

Response to Comment ORG46-39
The *Executive Summary – Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts* Table ES-1 has been revised to state

that in the long-term (L) for Potential Impact 3.17-2, impacts under the Proposed Project (PP), Partial Removal Alternative (PR), Two Dam Removal Alternative (2R), Three Dam Removal Alternative (3R),and No Hatchery Alternative (NH) would be significant and unavoidable. Likewise, the No Project (NP) has been corrected to be 'No Significant Impact'. These minor modifications to Table ES-1 are consistent with the analysis presented in EIR Section 4 *Alternatives*. Please refer to Volume III Attachment 1 *Executive Summary of Proposed Project Effects, Potential Impacts, and Potential Cumulative Impacts* for the revisions.

Comment ORG46-40

The potential impacts 3.10-1 and 3.10-2 contained in Table ES-1 related to Greenhouse Gas Emissions do not acknowledge the emissions impacts of removing hydroelectric generating resources that are qualified renewable resources under the California Renewal Portfolio Standard. Previous environmental analysis of potential removal of the Klamath Hydroelectric Project dams have evaluated a range of emissions impacts. FERC (2007) estimated an increase in carbon emissions impacts of removing the four Klamath dams to range between 68,600 and of 106,330 metric tons of carbon per year (FERC 2007, Table 4-8) while the Department of the Interior (DOI) and California Department of Fish and Wildlife (CDFW) (2012) estimated that removal of the hydroelectric facilities would result in an increase in regional emissions impacts from potential dam removal ranging between 341,S39 to 396,575 metric tons of carbon dioxide equivalent (MTC02e; see Tables 3.10-6 and 3.10-7 in DOI and CDFW 2012) assuming PacifiCorp attains the California Renewable Portfolio Standard of 33 percent renewable energy in 2020. The DEIR fails acknowledge the emissions impacts related to dam removal and only evaluates the increased emissions impacts related to dam deconstruction activities. However, the DEIR does state that removing the reservoirs would reduce methane emissions from the reservoirs. It is inconsistent for the DEIR to describe the potential for reduced methane emissions from Klamath Hydroelectric Project reservoirs - emissions which have never been documented and that FERC (2007) described as "speculative" - while failing to acknowledge or even attempt to quantify the emissions increase that will result from dam removal. The Klamath Hydroelectric Project generates carbon-free energy that can power the equivalent of approximately 70,000 homes. The Klamath Hydroelectric Project also provides voltage support, dependable capacity necessary to meet planning reserve and reliability standards mandated by the North American Energy Reliability Corporation. The Klamath Hydroelectric Project also provides ancillary services such as spinning reserve and voltage support that contribute to the reliability of the transmission system that cannot be entirely replaced through renewable energy resources. PacifiCorp will need to rely on the remainder of its generation fleet and market purchases to make up power lost from the Klamath Hydroelectric Project, and those sources, while increasingly renewable, have higher emissions than the Klamath Hydroelectric Project. The DEIR should be revised and recirculated to evaluate these impacts.

Response to Comment ORG46-40

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-41

Potential impacts 3.22-1 through 3.22-6 (Transportation and Traffic) should be coded as Significant and Unavoidable because the State Water Resources Control Board (State Water Board) cannot ensure implementation of that mitigation.

Response to Comment ORG46-41

The EIR's analysis of traffic and transportation impacts has been revised for the Proposed Project (PP) and for the Partial Removal Alternative (PR), Two Dam Removal Alternative (2R), Three Dam Removal Alternative (3R), and No Hatchery Alternative (NH) to reflect that traffic impacts referenced in the comment now are identified as less than significant with the implementation of Mitigation Measure TR-1. Table ES-1 has been revised accordingly. It is not clear whether the hydroelectric project owner or operator would implement traffic measures, including Implementation of Mitigation Measure TR-1, through 'good citizen' agreements under the Continued Operations with Fish Passage Alternative (CO) and it is unclear how these measures would be enforced. Thus, the significance determination has not been changed for the Continued Operations with Fish Passage Alternative. Please refer to Master Response CEQ-2. Please refer to Volume III Attachment 1 Table ES-1, Section 3.22 *Transportation and Traffic* and Section 4 *Alternatives* for the revisions.

Comment ORG46-42

This table of potential impacts shows no quantified data associated with each alternative, study area, or resource type (e.g., tribal, historic period archaeological, historic built environment) that allow for an effective comparison between alternatives and the Proposed Project. The numerous cultural resources studies previously conducted for the Klamath Hydroelectric Project identified tribal cultural resources, historic-period Resources) archaeological resources, and historic built environment resources using records searches, surveys, and consultation with tribes and local agencies. As-yet identified resources certainly will be found during future phases of the Proposed Project; however, known quantifiable data should be shared in the DEIR as a way to effectively compare alternatives and the Proposed Project while preserving the confidential nature of that data.

Response to Comment ORG46-42

As the title indicates, Table ES-1 is a summary of impacts and mitigation measures identified for the Proposed Project and six alternatives, across all resource areas, at specific geographic locations (where appropriate), and for the short term and long term timeframes analyzed in the EIR. It would not be appropriate for Table ES-1 to also present detailed quantified data for tribal, historic period archaeological, and/or historic built environment resources, as suggested by the comment. Greater detail, including known non-confidential resource data, can be found in Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* and in the corresponding alternative subsections in Volume I Section 4 *Alternatives*.

Comment ORG46-43

We recommend referencing the USBR hydrology, hydraulic, and sediment transport study as 2011 even though an errata was issued in 2012.

U.S. Bureau of Reclamation (USBR). 2011. Hydrology, Hydraulics and Sediment Transport Studies for the Secretary's Determination on Klamath River Dam Removal and Basin Restoration, Technical Report No. SRH-201102, including Jan 2012 errata. Prepared for Mid-Pacific Region, Bureau of Reclamation, Technical Service Center, Denver, Colorado.

Response to Comment ORG46-43

The citation provided on the title page of United States Bureau of Reclamation's (USBR's) report is "Reclamation (2012). Hydrology, Hydraulics and Sediment Transport Studies for the Secretary's Determination on Klamath River Dam Removal and Basin Restoration, Technical Report No. SRH-2011-02. Prepared for Mid-Pacific Region, US Bureau of Reclamation, Technical Service Center, Denver, CO." The EIR Volume I correctly cites this report as a 2012 publication.

Comment ORG46-44

Neither J.C. Boyle or Copco No. 1 have functional low-level outlets as indicated on the table.

Response to Comment ORG46-44

Section 2.3 *Proposed Project – Existing Lower Klamath Project Features,* row six of Table 2.3-1, has been revised to clarify the type of feature that allows water to flow past the dams under existing conditions. References to diversion culverts/tunnels are no longer associated with J.C. Boyle and Copco No. 1 dams in Table 2.3-1, since these features are not functional under existing conditions. Please refer to Volume III Attachment 1 Section 2.3 *Proposed Project – Existing Lower Klamath Project Features* for the revisions.

Comment ORG46-45

Lost River and Shortnose suckers were listed in 1988 (53 FR 27130) not 1998 as listed in the text.

Response to Comment ORG46-45

Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* has been clarified as requested. Please also note that the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III.

Please refer to Volume III Attachment 1 Section 2.6.1 *Proposed Project – Project Background – Water History in the Klamath River Basin* for the revision.

Comment ORG46-46
The DEIR states that the Klamath Tribes have experienced their 92nd year without access to salmon yet provides no supporting evidence for this point. This year count does not correspond to the completion date for Copco No. 1 in 1918 which did block fish passage.

Response to Comment ORG46-46
The timeline in Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* has been modified to correct the year count to be 93 years. Please also note that the title for Section 2.6.1 of the EIR has been revised for clarity in Volume III. Please refer to Volume III Attachment 1 Section 2.6.1 *Project Background – Water History in the Klamath River Basin* for the revisions.

Comment ORG46-47
The timeline (in Section 2.6.1) is incomplete in terms of it missing any PacifiCorp actions (like the issuance of the original Project license in 1954, relicensing application in 2004, implementation of a Habitat Conservation Plan (HCP) for Coho salmon in 2014, the use of reservoir storage to benefit USBR irrigators and river flows in 2014 and 2018}, and so on. There is also no mention of water quality issues and cyanobacterial blooms in Upper Klamath Lake that will persist following potential dam removal.

Response to Comment ORG46-47
This section focuses on major events associated with water-related disputes in the Klamath Basin and is not intended to be a comprehensive history of water use and/or management in the basin.

Comment ORG46-48
The second half of this paragraph has no bearing on the content of the DEIR and should be removed.

Response to Comment ORG46-48
As described in Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* (page 2-22), the second half of the paragraph referenced by the commenter is included in the EIR to acknowledge the broader context within which the issue of dam removal currently exists in the Klamath Basin.

Comment ORG46-49
While basically accurate, this discussion omits mention of the current FERC status. The text should clarify that at this time, PacifiCorp is still the sole owner of the entire Klamath Hydroelectric Project and that FERC has not acted on the

transfer request let alone the surrender request. Significantly, FERC has not yet evaluated the Definite Plan (presented in DEIR Appendix B) or conducted analysis in accordance with the National Environmental Policy Act (NEPA) to determine if the Definite Plan should be modified to reflect dam safety concerns or mitigate potential environmental impacts.

Response to Comment ORG46-49

The EIR states that PacifiCorp currently owns and operates the Lower Klamath Project, and that, among other authorities, Federal Energy Regulatory Commission (FERC) must approve and set conditions for transfer of ownership and decommissioning (please refer to Volume I Section 2.4 *Surrounding Land Ownership and Land Use* [page 2-16] and Section 2.6.2 *Relationship with Klamath Hydroelectric Project* [pages 2-22 to 2-23]).

Comment ORG46-50

Using the term 'Dam Removal Year 1' to refer to Proposed Project actions that occur before dams are actually removed is confusing to the reader.

Response to Comment ORG46-50

As shown in Volume I Table 2.7-1, Dam Removal Year 1 is the year that drawdown and dam removal begins (i.e., Copco No. 1 Dam drawdown and dam removal begin in November and December). Drawdown and dam removal are the primary actions in the Proposed Project, and these actions involve impacts that are distinct from other types of actions in this multi-year project. Therefore, it is helpful to the reader to designate a timeframe based on the start of these actions.

Comment ORG46-51

This figure oversimplifies the relationship between reservoir drawdown and the fish life cycles on the Klamath River. Based on the other information in the DEIR, suspended sediment loads could extend well through the spring following drawdown yet the figure limits this to early March for Copco No. 1 and Iron Gate reservoirs. This is misleading. Also, this figure is missing Eulachon, an anadromous and ESA-listed species found in the lower Klamath River. Coho adult migration may end in December at Iron Gate Dam, but in the tributaries downstream of Iron Gate Dam it can extend into early January (MKWC 2015, 2016, 2017).

*Why is there a * for Copco 1 which according to the footnote means "No significant release of sediment expected" yet there is no information presented to support this assertion?*

Response to Comment ORG46-51

Section 2.7 *Proposed Project – Proposed Project* has been revised to clarify that based on the distribution and life-history timing of aquatic species in the Klamath Basin, only a portion of fish populations are likely to be present in the mainstem

Klamath River during the reservoir drawdown period, which is also the period of greatest sediment transport, and to refer the reader to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3 for additional information. Figure 2.7-1 has been revised to include eulachon and to make associated updates to the figure legend associated with this species and reservoir drawdown timing. Coho salmon spawning timing is shown for mainstem Klamath River, and not the tributaries, since it is the life history timing within the mainstem that is relevant for assessing impact of sediment release illustrated by the figure. Please refer to Volume III Attachment 1 Section 2.7 *Proposed Project – Proposed Project* for the revisions.

Comment ORG46-52

The Proposed Project includes the cessation of power generation at Copco No. 1 in fall 2020. As per Section 7.3.3 of the Klamath Hydropower Settlement Agreement (KHSA), cessation of generation before December 31, 2020, requires that additional value to customers be identified. Unless that is included, the Proposed Project should be revised to accurately reflect the requirements of the KHSA.

Operations of Copco No. 2 following drawdown of Copco No. 1 are unclear from the Proposed Project discussion in the DEIR. PacifiCorp would not continue to attempt to operate Copco No. 2 after drawdown of Copco No. 1. Once the sediment from Copco Reservoir begins to mobilize, operations of Copco No. 2 would not be feasible.

Response to Comment ORG46-52

The Klamath River Renewal Corporation's (KRRC's) Definite Plan (2017) proposed that generation of power at Copco No. 2 Dam (with sediment-laden flow) would continue for up to four months after January 1, 2021 (or until May 1, 2021) to offset lost revenue from shutting Copco No. 1 down prior to January 1, assuming that the Copco No. 2 generating equipment will be capable of operating under such conditions. As noted in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, the shift in the Proposed Project Copco No. 2 drawdown timing from January 1 (Appendix B: *Detailed Plan*) to May 1 (Appendix B: *Definite Plan*) would not change the anticipated magnitude or timing of significant impacts due to elevated suspended sediment concentrations (SSCs) in the Hydroelectric Reach during dam removal year 2. The State Water Board notes that the KRRC has now proposed that dam removal year 1 – which includes the cessation of power production at Copco No. 1 – would be 2021. This is after the December 2020 date in the Klamath Hydropower Settlement Agreement (KHSA).

While in general, comments on the Definite Plan should be submitted to the KRRC, the State Water Board notes PacifiCorp's statement that the company would not continue to operate Copco No. 2 Powerplant once the sediment from Copco No. 1 Reservoir begins to mobilize and after drawdown of Copco No. 1

Reservoir. The EIR indicates that Copco No. 2 Reservoir drawdown would occur in May of dam removal year 2, as proposed by KRRC (see Volume I Section 2.7 *Proposed Project – Proposed Project* Table 2.7-1 and Figure 2.7-1 [as modified in Volume III Attachment 1]), and the analyses assume continued production at Copco No. 2 Powerhouse because the need to halt production is speculative. The EIR also acknowledges the uncertainty related to continuing Copco No. 2 Powerplant operation by stating that if Copco No. 2 Powerhouse is not capable of operating under sediment-laden conditions, then drawdown of this reservoir would still use the penstock (Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* [specifically page 2-57]).

Please note that the State Water Board issued a draft water quality certification which sets forth Condition 3 requiring that Copco No. 2 Reservoir drawdown conclude no later than March 15 of the year following initiation of Copco No. 1 Reservoir drawdown.

Comment ORG46-53

The discussion of operations of the low-level outlets seems to have gotten confused with the spillways. Presumably once reservoirs are drawn down, there would be no complete refill such that the spillways at Iron Gate or Copco dams could be activated.

Response to Comment ORG46-53

Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* has been revised to clarify the reference to the diversion control tunnels and structures, rather than the spillways. Please refer to Volume III Attachment 1 Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* for the revisions.

Comment ORG46-54

Once Iron Gate Reservoir is below the spillway elevation, the only way to pass water out of the reservoir is through the turbine, bypass valve at the turbine, or the low-level outlet. The powerhouse will be offline and unavailable and the spillway will be well above the water surface elevation. It is unclear from this paragraph what the intent is, but the facilities would not be able to spill this water and so inflow greater than the capacity of the low-level outlet would accumulate in the reservoir. The list of flood capacities seems inappropriate and does not include March-May which includes the peak snowmelt period.

Response to Comment ORG46-54

Volume I Section 2.7.2 *Proposed Project – Reservoir Drawdown* has been revised to clarify that the spillway at Iron Gate Dam would not be used unless Iron Gate Reservoir were to fully refill, and the diversion control gates would be used for passing water through the dams. Additionally, the flood capacities have been corrected and text regarding dam removal timing has been included to indicate that during dam removal of all four dams, the drawdown of Iron Gate

Reservoir would maintain enough capacity to pass a 1 percent probable flood for that time of year, in order to reduce the potential for flow to overtop the Iron Gate Dam embankment (Volume II Appendix B: *Definite Plan*). This statement includes the spring runoff period. Further, removal of Copco No. 1 Dam sections and Copco No. 2 Dam would begin after May 15 of dam removal year 2, and removal of Iron Gate would occur between June 1 and September 30 of dam removal year 2, the dams would retain their existing flood capacity during the peak snowmelt period. Please refer to Volume III Attachment 1 Section 2.7.2 *Proposed Project – Reservoir Drawdown* for the revisions.

Comment ORG46-55

This paragraph has the same flow control issues as the one on the previous page (see comment 2.12). With J.C. Boyle Powerhouse offline, use of the power intake and the power canal to move water would require use of the emergency spillway which seems unlikely. The DEIR also fails to consider the possibility of flood flows during spring when snowmelt is most likely. J.C. Boyle Reservoir would be drawn down by mid-March like the rest of the reservoirs.

Response to Comment ORG46-55

Section 2.7.2 *Proposed Project – Reservoir Drawdown* has been revised to clarify that because removal of J.C. Boyle Dam would occur beginning in mid-June of dam removal year 2, the dam would retain its existing flood capacity during the peak snowmelt period. Please refer to Volume III Attachment 1 Section 2.7.2 *Proposed Project – Reservoir Drawdown* for the revisions.

Comment ORG46-56

The DEIR states that "Release flows would add water to the otherwise existing flows in the river (i.e., Keno Reservoir releases and tributary inflows)." This is true, but if the Klamath River Renewal Corporation (KRRC) is releasing water from Copco and Iron Gate reservoirs as part of drawdown, PacifiCorp expects that USBR will release the minimum necessary to achieve biological opinion (BiOp) target flows at the Iron Gate U.S. Geological Survey (USGS) gage and not release anything above the absolute minimum from Keno Dam to J.C. Boyle Dam. All that extra water would be retained in Upper Klamath Lake by USBR for other uses.

Response to Comment ORG46-56

The paragraph referenced in the comment discusses the range of release flows that would occur in the Klamath River due to drawdown of the three larger reservoirs, and contextualizes these flows by providing the 2-year and 10-year peak flows in the Klamath River at the three reservoir locations. It does not rely on any assumptions regarding United States Bureau of Reclamation's (USBR's) operations during drawdown. As noted in the reference paragraph, more detail regarding release flows and associated assumptions is in Volume I Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain*.

Comment ORG46-57

The DEIR does not include any of the 2017 reservoir sediment boring data to collected by the KRRC.

Response to Comment ORG46-57

To the State Water Board's knowledge, there were no sediment cores collected from the Lower Klamath Project in 2017. In February 2018, Klamath River Renewal Corporation (KRRC) collected eleven sediment cores at Copco No. 1 Reservoir to characterize and analyze the stability of the sediment deposits present around much of the rim of the reservoir and within the reservoir bed, and three sediment cores at Iron Gate Reservoir to characterize past landslides and to inform design of the replacement water supply pipeline for the City of Yreka (Volume II Appendix B: *Definite Plan – Appendix E*). No sediment cores were collected at J.C. Boyle Reservoir.

The 2018 sediment core data were not collected to further characterize the composition or thickness of the sediment deposits for the purpose of informing estimates of the total amount of sediment present in the reservoir footprints or how much sediment would erode during reservoir drawdown, which are the focus of the discussion in Volume I Section 2.7.3 *Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown*.

The sediment core data referenced in Section 2.7.3 are spatially distributed across the reservoirs and the depth of the cores (i.e., record length) is sufficiently long that pre-reservoir sediment could be distinguished, thus the data are considered technically sound for providing an estimate of the volume of reservoir sediment deposits (see Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants*). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Using more recent sediment core data would not be expected to change the range of stored sediment estimates presented in Volume 1 Section 2.7.3 *Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* Table 2.7-10 (page 2-67) and Volume I Section 3.11.2.5 *Geology, Soils, and Mineral Resources – Environmental Setting – Reservoir Sediment Storage and Composition* Table 3.11-4 (page 3-754). The uncertainty of the reservoir sediment volume estimates is reasonable for sediment yield analyses, which generally use modeling to estimate the order of magnitude of annual sediment yield.

Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* has been revised according to the above discussion. Please refer to Volume III Attachment 1 Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* for the revisions.

Please also note that the February 2018 sediment cores do provide additional information useful for the assessment of potential sediment instability along the reservoir rims and within the deposits on the reservoir beds during and immediately following reservoir drawdown, and as such are discussed in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 (pages 3-761 to 3-765).

Comment ORG46-58

The DEIR states that 80 percent of the reservoir sediment is composed of fine sediment but other references in the DEIR (e.g., Stillwater Sciences 2010, USBR 2012c) say the value is 85 percent.

Response to Comment ORG46-58

Silt and clay comprise 84.8 percent of reservoir sediments, averaged across J.C. Boyle, Copco No. 1, and Iron Gate reservoirs (see Volume I Table 2.7-10 in Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* (page 2-67) and Table 3.11-4 in Section 3.11.2.5 *Geology, Soils, and Mineral Resources – Environmental Setting – Reservoir Sediment Storage and Composition* (page 3-754). Therefore, stating "over 80 percent of the reservoir sediments are fine sediment" and "more than 80 percent fine sediment" is accurate.

Comment ORG46-59

This section of the DEIR should include a discussion of how the sediment size classes are distributed spatially within the reservoir and what impact that spatial variability has on the mobilization of the respective sediment classes during drawdown. For example, larger particles are often preferentially located at the head of the impoundment and these head areas will be the first areas exposed to steeper water surface slopes and increased bed shear stress during the drawdown.

Response to Comment ORG46-59

Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* (pages 2-60 to 2-69) Section 2.73 *[Proposed Project] Reservoir Sediment Deposits and Erosion During Drawdown* (pages 2-60 to 2-69) of the EIR has been clarified revised in Volume III to include information on the spatial patterns of sediment accumulation in the reservoirs. Please refer to Volume III Attachment 1 Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* for the revisions. Coarse-grained sediments are concentrated near the primary inlets of the J.C. Boyle, Copco No. 1, and Iron Gate reservoirs, and in the Copco No. 2 Reservoir where minimal reservoir sediment accumulation has occurred (USBR 2010; USBR 2012a). These coarser particles may be mobilized during drawdown but are unlikely to be transported substantial distances downstream because total water discharge during drawdown would be similar to, or less than, the historical seasonal 10-year flood. The coarser particles may be mobilized in later flood events but are not modeled to be transported past Cottonwood Creek (USBR 2012a). Although, Section 2.7.3 *[Proposed Project] Reservoir Sediment Deposits and Erosion During Drawdown* (pages 2-60 to 2-69) discusses sediment erosion during drawdown, please note that this subject is more comprehensively addressed in Potential Impact 3.11-5 in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* (pages 3-765 to 3-775), which is modified in Volume III Attachment 1.

Comment ORG46-60

The figures in the DEIR showing sediment depths should be updated to reflect data collected by the KRRC during studies to support removal, including detailed bathymetric mapping and additional geotechnical investigations. This would help address the "uncertainty in sediment volume estimates" (DEIR pg. 2-65).

Response to Comment ORG46-60

The primary technical reports relating to in-reservoir sedimentation are USBR (2010) and USBR (2012a). Volume I Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* has been clarified by adding information characterizing in-reservoir sediment deposition. Please refer to Volume III Attachment 1 Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* for the revisions. Bathymetric figures for Copco No. 1 and Iron Gate reservoirs are already included in Volume I Section 2.7.2 *Proposed Project – Reservoir Drawdown,* Figure 2.7-5 and Figure 2.7-6 (pages 2-55 and 2-56). These figures represent the most recent data, the Klamath River Renewal Corporation (KRRC) and their consultants have not provided the State Water Board with any new information.

Regarding the uncertainty of sediment deposit volumetric estimates, please refer to comment response ORG46-8.

Comment ORG46-61

The DEIR states that "Whether the actual reservoir sediment volumes are on the higher end or the lower end of the uncertainty estimate, the dam removal approach and the significance of potential impacts due to sediment transport during reservoir drawdown would remain the same." The DEIR should explain why the significance of potential impacts associated with downstream sediment transport during the drawdown is unrelated to the total volume predicted to be transported. This conclusion appears tied to the DEIR's incorrect assumption that fine sediment released during the drawdown would remain in suspension in the 190-mile-long reach downstream of Iron Gate Dam to the Pacific Ocean (see Major Issue 2.4 and comment 3.5-8). However, some fraction of the total fine sediment load will settle out in the riverine system, such as on the channel margins, back waters, pools, or point bars. Therefore, it follows that the magnitude of the impact would be directly related to the volume of sediment estimated to transported downstream.

Response to Comment ORG46-61
The statement quoted by the commenter explains that the EIR has considered the potential lower and upper estimates of sediment deposits that would mobilize during drawdown, and that deposited sediment volumes within this range do not result in a change to the breadth or severity of potential impacts analyzed in the EIR. This is because: a) for water quality, exceedances of 100 mg/L suspended sediment concentrations (SSCs) over a continuous two-week exposure period would occur for a similar number of months during and following drawdown for the range (lower and upper estimates) of sediment volume expected to mobilize (see Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3). Additionally, please refer to Volume II, Appendix D, Section D.2 for a discussion of how and why the State Water Board chose the significance criteria for potential water quality effects; b) for geomorphology, the anticipated morphological responses are not expected to differ substantially while sediment volumes are within an order of magnitude (see Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 [pages 3-765 to 3-775] and modifications to this impact in Volume III Attachment 1); and c) the potential impacts to aquatic organisms are related to both SSCs and morphological change (see Volume III Attachment 1 *Aquatic Resources*).

Please also refer to Master Response GEO-1, relating to fine sediment erosion, transport, and deposition, and morphological responses.

Comment ORG46-62
The DEIR states "Sediment jetting would be focused in the six areas where restoration actions are proposed within the Copco No. 1 Reservoir footprint (Figure 2.7-11) and the three areas where restoration actions are proposed within the Iron Gate Reservoir footprint (Figure 2.7-12)." It is not clear from the referenced figures where sediment jetting will occur as these areas are not called out in the figures.

Response to Comment ORG46-62
Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown*, Section 2.7.4.2 *Proposed Project – Proposed Project – Restoration Within the Reservoir Footprint – Reservoir Restoration Features,* Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, and Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 have been clarified to indicate the location of sediment jetting. Please refer to Volume III Attachment 1 Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown*, Volume III Attachment 1 Section 2.7.4.2 *Proposed Project – Proposed Project – Restoration Within the Reservoir Footprint – Reservoir Restoration Features,* Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, and Volume III

Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

Comment ORG46-63

Sediment jetting was not included in the modeling conducted by USBR (2012). The DEIR needs to explain how this activity would affect suspended sediment concentrations and should be discussed to determine if sediment jetting will increase the amount of sediment mobilized from the reservoirs, which could presumably increase the magnitude and/or duration of sediment impacts downstream.

Response to Comment ORG46-63

With respect to the potential for additional inputs of sediment due to the proposed sediment jetting during reservoir drawdown, Table 3.2-12 (page 3-86) presented in Potential Impact 3.2-3 in Volume I Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments,* includes explicit consideration of the volume and percentage of sediment that would be eroded by sediment jetting, separate from sediment transport analyzed by the U.S. Bureau of Reclamation (USBR) 2012 model. The column in Table 3.2-12 entitled "2020 Sediment Volume Erosion[3,4] (cubic yards)" includes the volume of sediment that would be eroded by drawdown plus sediment jetting, and the "Percentage of 2020 Sediment Volume Transported by Sediment Jetting (%)" presents the amount of sediment that would be mobilized via sediment jetting as a fraction of the total reservoir sediment deposits to be eroded. Sediment jetting would be conducted in a limited number of locations within the reservoir footprints and in a manner that would not erode significant additional masses of surficial sediment compared with the original USBR (2012a) estimates of sediment mobilization, which did not include sediment jetting. As such, the assessment in Potential Impact 3.11-5 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* (pages 3-765 to 3-775), is accurate. The analysis in Potential Impact 3.11-5 is consistent with both USBR (2012a) and Section 3.2 *Water Quality* of the EIR. Please also refer to Master Response WQ-3.

Comment ORG46-64

The DEIR states "A faster drawdown rate would reduce the time of interaction between the flow and reservoir sediment deposits, thus reducing the overall amount of sediment erosion, whereas a slower drawdown rate would increase the time of interaction between the flow and reservoir sediment deposits, thus increasing the overall amount of sediment erosion. It is expected that increasing the previously modeled maximum drawdown rate of 2.25 to 3 feet per day (USBR 2012c) to the Proposed Project maximum drawdown rate of 5 feet per day (Appendix B: Definite Plan - Appendix P) would slightly decrease the total amount of sediment erosion that occurs during drawdown."

The DEIR needs to clarify the basis for this stated conclusion. As written, this statement is an oversimplification of a complex set of interrelated forces. A faster drawdown rate might reduce the duration of direct erosion, but it might increase the rate of erosion resulting from the steeper water gradient (higher velocities) and increase the probability of slump failures due to increased pore-pressure. In addition, the numeric model used in the DEIR does not account for erosion from slump failures. Therefore, the conclusion in the DEIR that a faster drawdown rate would result in lower total mass erosion is not accurate. Rather, it is possible that a faster drawdown rate would produce higher volumes of eroded sediment.

Response to Comment ORG46-64
Please refer to response to comment ORG46-8.

Comment ORG46-65
The DEIR states "The previously modeled maximum drawdown rate would result in 36 to 57 percent of erosion of the sediment deposit from the reservoirs (Table 2.7-11) and increasing the drawdown rate to 5 feet per day would most likely result in an amount of erosion toward the lower end of the estimated range or slightly lower." See the comment 2.22 above regarding effects of drawdown rates on potential erosion.

These eroded volume estimates are very large numbers that are difficult to put into perspective; it would be helpful for the DEIR to relate the eroded volume estimates to the average annual sediment load to provide context. These estimates also indicate that approximately 6.5 to 9.7 million cubic yards of sediments would be retained in the reservoirs after initial reservoir drawdown. The DEIR should address the longer-term effects caused by these retained sediments that could occur during future high flow events.

Response to Comment ORG46-65
Regarding sediment erosion during drawdown, please see ORG46-8.

In terms of relating the potential mass of sediment erosion to the average annual sediment load, please refer to response to comment ORG46-31.

Regarding the potential long-term effects related to the sediment retained within the reservoirs after drawdown, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-768 to 3-769) and modifications to this impact in Volume III Attachment 1, and to ORG46-8.

Comment ORG46-66
According to the KHSA, PacifiCorp is to provide funding for up to 8 years of operations of Iron Gate Hatchery following decommissioning. What happens to

the hatchery after that period of time is unclear, but it is speculative to assume that it would cease to function entirely.

Response to Comment ORG46-66
The EIR acknowledges that there is uncertainty as to whether the Iron Gate Hatchery facility would be decommissioned in place, demolished, or partly or fully repurposed after the eight-year operational period (Volume I Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery*, page 2-77). In light of the lack of identified funds for operation, a scenario involving continuing operation is speculative. Please also refer to Master Response AQF-2.

Comment ORG46-67
The auxiliary trap at the Iron Gate Hatchery already exists. While there is other construction work proposed to occur at the hatchery, there is no new construction for this item.

Response to Comment ORG46-67
Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery* has been clarified as requested. Please refer to Volume III Attachment 1 Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery* for the revision.

Comment ORG46-68
It would appear that there is not enough water to operate Iron Gate Hatchery during certain months of the year (in both spring and fall) and the DEIR does not propose a viable alternative. The DEIR says that recirculation and early release 'would be studied' to see if they meet the goals. Early smolt releases would have an effect on overall returns of adult Chinook salmon and should be evaluated as an alternative hatchery operations in the effects analysis. These fish would be smaller than target sizes and may not survive as well as those released later in the season.

Response to Comment ORG46-68
Based on available flow data for Bogus Creek (Volume I Figure 2.7-14), the Iron Gate Hatchery water supply may not be sufficient to provide for all of the three hatchery raceways for short periods of time during fall and winter months under dry conditions; however, since the hatchery raceways would not be used for rearing Chinook salmon smolts during the fall and winter, this would not present a concern. It is also possible that during some years Iron Gate Hatchery could experience a deficit of up to 4 cubic feet per second (cfs) to operate the hatchery for several consecutive days in the mid- to late spring, when Chinook salmon smolts would be rearing in the raceways. Each of the three rearing ponds at Iron Gate Hatchery requires 2.25 cfs to operate, for a total 6.75 cfs requirement for the raceways. A temporary deficit of 4 cfs could result in one to two rearing ponds experiencing insufficient flows to operate, requiring an "early" release of

one- to two-thirds of Iron Gate Hatchery rearing smolts to the Klamath River. As the intended release period for Chinook salmon at Iron Gate Hatchery is April through May (mid- to late spring), smolts released in mid-April of some years would not necessarily be released earlier than would otherwise occur, or they may only experience release a few weeks earlier than would otherwise occur. Smolts released early in the season may be slightly smaller than smolts released later in the season, and therefore they could experience somewhat lower riverine and marine survival than their larger counterparts (Scheuerell et al. 2009, Feldhaus et al. 2016). Chinook salmon yearlings (which have higher survival) would be raised at Fall Creek Hatchery (FCH) and would not be affected by reduced instream flows in Bogus Creek.

In sum, there is potential that in some years, one- to two- thirds of Chinook smolts rearing at Iron Gate Hatchery may be released slightly earlier than would occur if more water were available in Bogus Creek. Overall, the infrequent occurrence of the potential for early smolt release for a proportion of Chinook smolts from Iron Gate Hatchery, and the small difference in timing (and therefore smolt size and survival) is unlikely to result in a significant reduction in returns of adult fall-run Chinook salmon to the Klamath River.

Comment ORG46-69

The DEIR states that "As Fall Creek Hatchery is part of PacifiCorp's Klamath project...facilities are subject to the terms of any new FERC action for 2082." While the Fall Creek Development (diversions, penstock, powerhouse, tailrace, etc.) are in the FERC license, the Fall Creek Hatchery is not in the current license for the Klamath Hydroelectric Project (P-2082). Reference to any terms and conditions for Fall Creek Development (including the hatchery facilities) is speculative and should be removed from the DEIR.

Response to Comment ORG46-69

Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* and Section 4.7.1 *Alternatives – No Hatchery Alternative – Introduction* have been clarified as requested. Please refer to Volume III Attachment 1 Section 2.7.6.2 *Proposed Project – Proposed Project – Hatchery Operations – Fall Creek Hatchery* and Section 4.7.1 *Alternatives – No Hatchery Alternative – Introduction* for the revisions.

Comment ORG46-70

This figure is out of date and does not represent the current proposed improvements at the Fall Creek Hatchery. PacifiCorp's understanding is that the two settling pond locations shown in the inset on this figure were removed from consideration because of cultural resource concerns and that the settling pond is currently planned to go where the figure shows the lower rearing tanks. The DEIR needs to be updated to reflect the actual proposal.

Response to Comment ORG46-70
The Proposed Project description is based on the information provided in Volume II Appendix B: *Definite Plan – Appendix H* and acknowledges that selection of the settling pond site is pending cultural resources investigations and consultation with tribes with historical and cultural connection to the area (see Volume I Section 2.7.6.2 *Proposed Project – Hatchery Operations – Fall Creek Hatchery*, page 2-81). Additionally, Volume I Section 2.7.6.2 *Proposed Project – Hatchery Operations – Fall Creek Hatchery* Figure 2.7-15 (page 2-83) states in the legend that the location of the Fall Creek powerhouse and hatchery infrastructure is approximate.

Additionally, as listed in Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources –Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* Tribal Cultural Resources Mitigation Measure TCR-1, the KRRC shall develop, in consultation with Affected Tribes, a Historic Properties Management Plan. In part, the Tribal Cultural Resources Management Program (TCRMP) shall include site-specific mitigation measures for potentially affected TCRs [Tribal Cultural Resource]. The TCRMP shall provide for ongoing consultation or site-specific mitigation refinement with the relevant Affected Tribe(s) with a traditional and cultural affiliation to an impacted TCR, as appropriate and feasible consistent with the schedule for Project implementation.

Mitigation Measure TCR-1 further states, "Consistent with KHSA [Klamath Hydroelectric Settlement Agreement] Section 7.6.6, the TCRMP shall also include recommended measures to identify, avoid, minimize, or mitigate adverse impacts to TCRs during rehabilitation and expansion of Fall Creek Hatchery (FCH), consistent with California Public Resources Code section 21084.3(a) and (b). Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

The EIR thus discloses the potential for changes to the Fall Creek Hatchery plans based on cultural resources.

Comment ORG46-71
Similar to the comment on the Fall Creek Hatchery, the DEIR does not accurately represent the Proposed Project, which would limit the upstream distribution of anadromous fish in Fall Creek such that they would not be provided access to either of the areas where the City of Yreka diverts water thereby eliminating the need for updated fish screens.

Response to Comment ORG46-71
Section 2.7.7 *Proposed Project – City of Yreka Water Supply Pipeline Relocation* has been revised to include the Klamath River Renewal Corporation's (KRRC's) updated proposal to include a permanent fish passage barrier at the Fall Creek Hatchery (FCH), located approximately 200 to 300 feet downstream of both Dams A and B (KRRC 2019a), such that there would be no need for updates to

the City of Yreka's Dam A or B existing diversion intake structures. This would reduce by 200 to 300 feet the approximately one mile of increased habitat for anadromous salmonids upstream of Iron Gate Dam that would occur under the Proposed Project; however, as discussed in Potential Impact 3.3-24, the proportion of anadromous salmonids anticipated to use the habitat in Fall Creek is relatively minor in comparison with the totality of newly accessible habitat upstream of Iron Gate Dam under the Proposed Project and there would be no change in significance determinations in the EIR. Please refer to Volume III Attachment 1 Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* for the revisions.

Comment ORG46-72

Daggett Road bridge gets completely replaced under the Proposed Project. The DEIR references the "...existing timber traffic bridge along Daggett Road..."

Response to Comment ORG46-72

Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* has been clarified as requested. Please refer to Volume III Attachment 1 Section 2.7.7 *Proposed Project – Proposed Project – City of Yreka Water Supply Pipeline Relocation* for the revisions.

Comment ORG46-73

Except for the salvaging of overwintering fish from the mainstem Klamath River, AR-2 does nothing to minimize the impacts of high loads of suspended sediments juvenile salmonids migrating from the tributaries. This means that AR-2 is not a true mitigation measure for many of the impacts associated with the Proposed Project.

Response to Comment ORG46-73

As described in Volume I Section 2.7.8.1 *Proposed Project – Other Project Components – Aquatic Resource Measures*, Aquatic Resource Measure AR-2 proposes three primary actions to reduce short-term suspended sediment impacts to outmigrating juvenile fish: (1) salvaging mainstem overwintering juvenile salmonids prior to reservoir drawdown; (2) maintaining tributary-mainstem connectivity to ensure volitional fish passage between tributaries and the Klamath River (in conjunction with AR-1 efforts); and (3) developing a water quality monitoring network, trigger thresholds, and plan for salvaging and relocating juvenile fish from tributary confluence areas to cool water tributaries or nearby off-channel ponds. These actions are included in the Proposed Project and are not subject to CEQA Guidelines section 15126.4. As proposed by Klamath River Renewal Corporation (KRRC), these actions are appropriate in scale and type to offset anticipated impacts to juvenile salmonids from release of sediment under the Proposed Project. However, as discussed in Volume III Attachment 1 Potential Impact 3.3-1, mitigation measures AQR-1 and AQR-2 would be required to increase certainty of the effectiveness of the aquatic resource measures AR-1 and AR-2 and to reduce the short-term significant adverse impacts of the Proposed Project on coho salmon critical habitat. Mitigation measures AQR-1 and AQR-2 are consistent with CEQA requirements for feasible, enforceable, and proportional mitigation, as detailed in CEQA Guidelines section 15126.4.

Comment ORG46-74

The DEIR indicates that the KRRC recreation plan is proposing a trail from J.C. Boyle to Iron Gate even though this crosses property that would be retained by PacifiCorp. No easement or easement-related discussions have occurred that would make this a reasonably foreseeable action. PacifiCorp recognizes that the DEIR says that the KRRC "may" provide these recreational opportunities, but inclusion of them in the DEIR misleads the reader into thinking that these are actually proposed. If they are truly proposed, then the DEIR needs to evaluate the impact of constructing, operating, and maintaining these elements of the Proposed Project.

Response to Comment ORG46-74

The Klamath River Renewal Corporation's (KRRC's) Definite Plan (2017) proposes that new river-based opportunities may include a new trail between J.C. Boyle Dam and the Iron Gate Fish Hatchery. Additional detail about land ownership is provided in Volume II Appendix B: *Definite Plan – Appendix Q*, where KRRC recognizes that the new trail would need to cross PacifiCorp Parcel A lands, Bureau of Land Management (BLM) lands, private lands, and potentially United States Forest Service (USFS) lands. For discussion of how the EIR considers the level of detail in KRRC's Recreation Plan, please refer to Master Response REC-2. This discussion notes that recreation plans are still under development. The EIR thus describes the proposed action, but also notes that the recreation components of the action are subject to change. Please also refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-75

The DEIR says the Proposed Project would alter the 100-year floodplain immediately downstream of Iron Gate Dam but does not explain the cause or the nature of the alteration.

Response to Comment ORG46-75

As described in Volume I Section 2.7.8.4, *Proposed Project – Other Project Components Downstream Flood Control* (page 2-95) is part of the description of the applicant's Proposed Project. Volume I Section 3.6 *Flood Hydrology* describes the environmental resources that may be affected by the Proposed Project and is the more appropriate location for a detailed discussion of the causes and nature of expected floodplain alteration under the Proposed Project. More specifically, Potential Impact 3.6-3 (pages 3-630 to 3-633) presents the analysis of the causes and nature of the expected floodplain alteration under the Proposed Project.

Comment ORG46-76

There are two concerns with this discussion. First, given that more sediment has accumulated behind the dams since USBR completed their floodplain modeling in 2012 and that material would be moved downstream under the Proposed Project, the DEIR needs to explain why the modeling from 2012 is still accurate. Second, what happens if, after dam removal, FEMA decides that the 100-year floodplain is substantially higher than that generated by USBR in 2012 and there are MORE structures in this zone that should have been protected? Who is responsible for providing flood protection for those additionally at-risk structures? The DEIR also needs to state how was the 0.5 foot (ft) threshold chosen as the level at which flood mitigation was required.

Response to Comment ORG46-76

As discussed in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), United States Bureau of Reclamation's (USBR's) hydraulic modeling approach used estimated sediment volumes that would be deposited behind the dams by 2020 (USBR 2012). The primary reservoir drawdown period for the Proposed Project would occur in early 2022. The increase in sediment volume between 2020 and 2022 would be an order of magnitude less than the uncertainty of the 2020 total sediment volume estimates, such that model results using the anticipated 2020 sediment volumes would still be applicable to the Proposed Project.

Hydraulic and sediment transport modeling conducted by USBR (2012) used methods consistent with accepted standards detailed by Federal Emergency Management Agency (FEMA) (2018). While the commenter speculates that FEMA could determine that the 100-year floodplain following dam removal is substantially greater (i.e., higher) from that modeled by USBR (2012) and that therefore, more structures could be at risk under a FEMA determination, the comment provides no particular reason why the USBR's (2012) floodplain delineation is incorrect or any reason to conclude that FEMA intends to re-delineate the floodplain. The comment does not explain why the USBR's modeling is an inaccurate assessment of the changed floodplain inundation, or that a different assessment would be either much larger, or a more accurate description of flood risk. Given the consistency of modeling approaches used by USBR with FEMA standards, it would be speculative to anticipate that FEMA would expand the 100-year floodplain such that the number of structures located in the altered 100-year floodplain would change materially from those identified by Klamath River Renewal Corporation (KRRC) in the Definite Plan, regardless of whether the altered floodplain boundary is provided by USBR (2012) or by FEMA as part of a future map update.

Regarding the use of a 0.5 foot threshold used in determining the area of potential significant impacts to the Klamath River floodplain, Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* and

Volume II Appendix B: *Definite Plan* (page 270), explain that USBR (2012b) and KRRC have estimated that below Humbug Creek any change to the floodplain will be less than 0.5 feet, and that changes of less than 0.5 feet would not result in a significant effect. As FEMA does not recognize changes in flood elevations less than 1 foot, the application of a 0.5-foot change in flood elevation to rule out areas that could be significantly affected is a conservative approach to determining the potential effects of the Proposed Project on the Klamath River floodplain. Please refer to Volume III Attachment 1 for the revised Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain*.

Comment ORG46-77

The DEIR states that "The Draft Cultural Resources Plan, submitted with the Definite Plan CITE [sic], describes consultation completed by the date of submission by KRRC and PacifiCorp, acting as FERC's non-federal representatives..."

- *CITE appears to be a missing citation*
- *PacifiCorp is only involved tangentially in the consultation process*
- *The KRRC has been leading this effort and is responsible for all of the material in the Definite Plan including the Cultural Resources Plan.*

Response to Comment ORG46-77

Section 2.7.8.5 *Proposed Project – Proposed Project – Other Project Components – Cultural Resources* has been amended from the description in the Definite Plan and clarified to emphasize that Klamath River Renewal Corporation (KRRC) is leading the consultation process. The reference to "CITE" has been removed, as the citation was already in the text. Please refer to Volume III Attachment 1 Section 2.7.8.5 *Proposed Project – Proposed Project – Other Project Components – Cultural Resources* for the revisions.

Comment ORG46-78

The Traffic Management Plan represents coordination with the Oregon Department of Transportation, Caltrans, Klamath and Siskiyou counties, and the Oregon State Police/California Highway Patrol. However, the DEIR does not mention whether the Traffic Management Plan represents coordination with local towns, communities, and neighborhoods. These communities will be directly impacted by the Proposed Project and the DEIR should expand the discussion of outreach to include local towns, communities, neighborhoods, citizen's groups, and businesses.

Response to Comment ORG46-78

Please refer to Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (starting on page 3-1069) for a discussion of transportation-related impacts. As specifically noted in Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (page 3-1072), "The Proposed Project includes a draft Traffic Management Plan (Traffic Management

Plan) that identifies the key requirements that would be incorporated by the construction contractor into a final Traffic Management Plan. According to Appendix B: *Definite Plan – Appendix O2*, the Traffic Management Plan is a specialized program tailored to minimize impacts by applying a variety of techniques such as *Public Information, Motorist Information, Incident Management and Construction Strategies*. The major objectives of the Traffic Management Plan are to maintain efficient and safe movement of vehicles through the construction zone covered by activities in the Definite Plan and to provide public awareness of potential impacts to traffic on both haul routes and access roads to the four dam complexes". Definite Plan Appendix O-2 Traffic Management Plan, Section 1.2 further describes these 'Management Strategies' proposed to minimize construction-related traffic delays and maintain safe movement of vehicles during implementation of the Definite Plan".

As noted in their Draft EIR comments (ORG56), Klamath River Renewal Corporation (KRRC) has committed to addressing all potential traffic conflicts as part of their Final Traffic Management Plan (TMP). KRRC states that they are committed to ensuring that the TMP *"will maintain efficient and safe movement of the vehicles through the construction zone covered by activities in the Definite Plan".* The KRRC's comment also states that the *"Final TMP would be informed by KRRC's contractor's specific measures and methods for construction and input received from relevant local jurisdictions."* The TMP specifically describes a public outreach process.

Comment ORG46-79

In the first line of this table and footnote #2, the DEIR indicates that the Interim Measures Implementation Committee (IMIC) would continue to function following implementation of the Proposed Project. This is not the case; the IMIC would cease to exist when the KHSA is fully implemented. Additionally, footnote #2 references the Priority List of Projects and funds to be provided by PacifiCorp for water quality projects. Although this is accurate, it should only be attached the table entry for Interim Measure 11; as is noted in PacifiCorp (2018c) this water quality fund would be overseen by a steering committee and while member organizations may be similar to the IMIC, it would not be the IMIC.

PacifiCorp has no responsibility to continue any of the interim measures except Interim Measures 19 and 20 past decommissioning.

Response to Comment ORG46-79

References to Interim Measures Implementation Committee (IMIC) continuation following implementation of the Proposed Project have been corrected throughout the EIR to acknowledge that the IMIC would cease to exist when the Klamath Hydropower Settlement Agreement (KHSA) is fully implemented. Table 2.7-19 and reference to footnote number 2, within Section 2.7.9 *Proposed Project – Proposed Project – KHSA Interim Measures* have been revised according to the above discussion. For consistency, Table 3.24-1 in Section 3.24.1

Cumulative Effects – Introduction – Analysis Approach and Table 4.2-1 in Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description – KHSA Interim Measures* have also been revised per the above discussion. Please refer to Volume III Attachment 1 Section 2.7.9 *Proposed Project – Proposed Project – KHSA Interim Measures*, Section 3.24.1 *Cumulative Effects – Introduction – Analysis Approach*, and Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description – KHSA Interim Measures* for the revisions.

Comment ORG46-80

The transfer of lands from PacifiCorp's ownership to the KRRC is included in the transfer application for the lower Klamath Project that is pending before FERC.

Response to Comment ORG46-80

Section 2.7.10 *Proposed Project – Proposed Project – Land Disposition and Transfer* has been revised to clarify that this transfer is the subject of the KRRC's *Joint Application for Approval of License Amendment and License Transfer* submitted to Federal Energy Regulatory Commission (FERC) on September 23, 2016. Please refer to Volume III Attachment 1 Section 2.7.10 *Proposed Project – Proposed Project – Land Disposition and Transfer* for the revisions.

Comment ORG46-81

The inclusion of the statement "Because CEQA requires analysis of potential impacts and mitigation measures that are outside the State Water Board's regulatory purview for the Proposed Project, this EIR discusses and analyzes the effects of some mitigation measures that would not be enforceable by the State Water Board. It is the State Water Board's understanding that the KRRC may agree to implement certain mitigation measures through good neighbor agreements or other legally enforceable mechanisms (Appendix B: Definite Plan -Section 1)" leads to confusion in the document about which of these measures are enforceable by the CEQA lead agency, despite the footnotes, and it would be inappropriate to rely on any speculative agreements as the basis for the DEIR to reduce an impact to less than significant [Pub. Res. Code§ 21002.l (b); CEQA Guidelines§ 15126.4(a)].

Response to Comment ORG46-81

Please refer to Master Response CEQ-2.

Comment ORG46-82

In addition to the topics raised in Major Issue 2.2, the following specific changes should be made to Section 3.1.6:

- *A description of differences in assumptions and analytical methods used to derive the model results.*
- *Figures and charts should include clear definition of the parameter and time periods presented, including the hydrologic period used.*

- *A complete discussion of why it is sufficient to "bracket the range of 2013 BiOp flows" rather than maintain more comparable and updated probability distributions of flow duration and magnitude.*
- *Specific examples that demonstrate the robustness of the DEIR's assumption that merely bracketing the range of flows is sufficient to assess impacts.*

Response to Comment ORG46-82

Please refer to response to comment ORG46-6, which provides a response to the comment letter's identified Major Issue "2.2 Klamath River Flow Modeling". Additionally, Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project* has been revised to clarify assumptions and analytical methods used to derive the hydrologic model results by explicitly stating how the Biological Opinion (BiOp) flows during fall/winter and spring/summer periods are calculated, to provide updated figures that include the most extended hydrologic period available for each flow comparison, and to provide additional discussion of how the range of 2013 BiOp Flows is within the range of modeled KBRA Flows approximately 99.9 percent of the time at Keno and Iron Gate dams. As discussed in response to comment ORG46-6 and revisions to Section 3.1.6, while the specific timing of flows and the likelihood of exceeding a specific flow during individual months changes between the 2013 BiOp and KBRA flows, modeled 2013 BiOp Flows less than or greater than modeled KBRA Flows would occur too infrequently (i.e., 0.01 percent of the time or less) to substantially alter the range of flow conditions in the Klamath River or previous model results using KBRA Flows. Please also refer to Master Response HYD-1 and Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*.

Comment ORG46-83

The DEIR states "cold air temperatures and precipitation generally occur from November to March, corresponding to periods of higher flows and paragraph on colder water temperatures. Warmer air temperatures and drier conditions occur from April to October, corresponding to periods of lower flows and warmer water temperatures." These statements erroneously attribute water temperature conditions solely to air temperature changes. Water temperature responds in a more complex manner to heat exchange associated with meteorological parameters that include solar radiation, relative humidity (or wet bulb or dew point temperatures), wind speed, barometric pressure, as well as air temperature.

Response to Comment ORG46-83

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* provides a summary of general water temperature trends within the Klamath Basin. The following statement in this EIR section notes general seasonal trends in air temperature and precipitation and the *corresponding* general seasonal trends in water temperature and Klamath

River flows, and does not imply or assert that water temperature conditions are caused solely by air temperature changes: "Cold air temperatures and precipitation generally occur from November to March, corresponding to period of higher flows and colder water temperatures. Warmer air temperatures and drier conditions occur from April to October, corresponding to period of lower flows and warmer water temperatures." As set forth in Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* water temperatures in the Klamath River are the result of multiple heat exchange processes, including short wave radiation (i.e., solar radiation), long wave radiation, sensible heat transfer, latent heat transfer (i.e., evaporation), heat transfer across the streambed, and advective and diffusive/dispersive heat transfer (i.e., flow and mixing) in the river, as well as groundwater interactions. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-84

Regarding "River and reservoir water temperatures," the DEIR's general description that cooler water is released from reservoirs in spring and warmer water is released in early fall is not a universal tenet. This description is overly simplistic and does not account for reservoir residence time, stratification, outlet works, operations, and other factors.

Regarding Figure 3.2-2, algal toxins should probably not be on this graphic; recommend that the figure use the term "Algae" instead.

Response to Comment ORG46-84

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin – River and Reservoir Water Temperatures* provides a summary of the general water temperature trends within the Klamath Basin. While there are occasional exceptions to the general water temperature trends that cooler water is released from the reservoirs in spring and warmer water is released in early fall, historical data from 2010 to 2017 downstream of Iron Gate Dam support the accuracy of the stated general trends as discussed in Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* and Appendix C, Section C.1 *Water Temperature*. The specific water temperature conditions in the Hydroelectric Reach, Middle and Lower Klamath River, Klamath River Estuary, and Pacific Ocean Nearshore Environment are analyzed in Potential Impacts 3.2-1 and 3.2-2, so variations between the measured and modeled water temperature conditions downstream of Lower Klamath Project reservoirs and the general water temperature trends presented in Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin – River and reservoir water temperatures* would not alter the analysis of potential impacts in the EIR. Additional factors that can influence the water temperature trends in rivers within and downstream of reservoirs, including installation of a powerhouse intake barrier/thermal curtain, are discussed further in the aforementioned EIR sections.

Figure 3.2-2 represents the intensity of algae growth with darker green shading in surface waters, as noted in the figure caption. Algal toxins are specified on the figure because they are released when algae (i.e., phytoplankton) blooms die, as noted in the text accompanying Figure 3.2-2.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Comment ORG46-85

The DEIR states "Releases or this deeper, oxygen depleted water from the bottom of the reservoir can cause serious problems for downstream fish and other aquatic biota." This statement should include: "...if release waters are not oxygenated through the outlet facilities and/or powerhouse, or through other means." While this statement can be true in general, it does not necessarily apply to the existing Klamath Hydroelectric Project where intakes for the powerhouses are not at the bottom or the reservoir. There is also no evidence that dissolved oxygen has ever been a problem downstream or Iron Gate Dam as is implied in the DEIR. The discussion should more accurately reflect existing conditions.

Response to Comment ORG46-85

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* for the revision.

Appendix C, Section C.4.2.1 *Iron Gate Dam to Salmon River* provides a discussion of dissolved oxygen data from 2001 to 2016 in the Klamath River from Iron Gate Dam to its confluence with the Salmon River. Data show dissolved oxygen conditions immediately downstream of Iron Gate Dam regularly falling below 8.0 milligrams per liter (mg/L) and the current Basin Plan minimum dissolved oxygen criteria based on percent saturation. Dissolved oxygen data (in mg/L and in percent saturation) in the Klamath River immediately downstream of Iron Gate Dam (river mile [RM] 193.1) measured by PacifiCorp using a multi-parameter sonde are summarized from June 2008 to December 2016 in Appendix C, Section C.4.2.1 *Iron Gate Dam to Salmon River* Table C-4. The summary specifically highlights the average monthly dissolved oxygen percent saturation has continued to exhibit in recent years dissolved oxygen percent saturation values below the Basin Plan minimum dissolved oxygen criteria during portions of the year, with the majority of measured low dissolved oxygen saturation values occurring from August through November. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information*.

Comment ORG46-86

In the discussion or "Reservoir mixing and dissolved oxygen," the DEIR states "In late fall, thermal stratification typically breaks down as the surface water layer cools and wind mixing or the water column occurs. This process is called reservoir turnover (Figure 3.2-2)." This discussion belongs in Section 3.2.2.2 Water Temperature.

Response to Comment ORG46-86

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* has been slightly modified to move the sentence below from the end of the *Reservoir mixing and dissolved oxygen* sub-section to the end of the preceding *River and reservoir water temperature* sub-section. Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* for the revision.

Comment ORG46-87

In the discussion of "Phytoplankton in reservoirs," the DEIR states "This can result in wide daily swings in dissolved oxygen and pH, which is stressful to aquatic biota." The Klamath River is naturally weakly buffered and within both reservoir surface waters and in river waters the pH can vary considerably over a day during summer periods (PacifiCorp 2004a, 2014). These pH swings will occur in this weakly buffered aquatic system with or without reservoirs (PacifiCorp 2004a, 2014).

The remainder of paragraph 2 (pg. 3-20) focuses on toxin producing algae and toxins. The DEIR should clarify that there are always times or locations where the reservoirs do not have toxin producing algae present. In addition, PacifiCorp has installed and maintained a barrier curtain in Iron Gate Reservoir to segregate surface waters and limit release of phytoplankton to downstream reaches. Although operational refinements and investigations are still going on, work to date indicates that the barrier curtain successfully segregates the surface waters and reduces release of surface waters were most of the cyanotoxins are found (Watercourse 2016; PacifiCorp 2017b).

Response to Comment ORG46-87

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* discusses the general effects of hydroelectric project operations on water quality. Please see Section 3.2.2.6 *Water Quality – Environmental Setting – pH* and Appendix C, Section C.5 *pH* for a more specific discussion of pH existing conditions in the Klamath River, including the weakly buffered nature of the Klamath River. Please see Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a* for a more specific discussion of the algal toxins under existing conditions in the Klamath River.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

The discussion in Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin – Phytoplankton in reservoirs* regarding algal toxins indicate that blue-green algae blooms and algal toxins can occur seasonally, not that they are always present throughout the reservoirs during any time of the year. Whether or not there are always times when or locations where the reservoirs do not have toxin-producing algae present has no bearing on overall compliance with water quality standards for these algae or algal toxins.

Please refer to Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) for a discussion of the effects to date of the intake barrier/thermal curtain on releases of blue-green algae [cyanobacteria] downstream of Iron Gate Dam.

The text has been revised to amplify other statements in the EIR indicating that the Klamath River is a weakly buffered system. Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting –Overview of Water Quality Processes in the Klamath Basin* for the revisions.

Comment ORG46-88

In the discussion of "Nutrient cycling in reservoirs and internal loading," the DEIR states "On an annual basis, the majority of nutrients entering a reservoir from a watershed are eventually discharged downstream, with only a small fraction being retained in the reservoir sediments." The "only a small" modifier is biased and should be replaced with the actual quantity of retention in percent and mass (in tons). The magnitude of nutrient retention has been calculated for Copco and Iron Gate reservoirs combined at 12 to 16 percent of the total phosphorus inflow and about 18 to 21 percent of the total nitrogen inflow (PacifiCorp 2006; Kann and Asarian 2007; Asarian and Kann 2005; Asarian et al. 2009).

The DEIR states "During reservoir turnover when the stratification breaks down, these nutrient rich waters are mixed throughout the reservoir water column and the nutrients can be released downstream, resulting in a secondary (fall) phytoplankton bloom (which includes blue-green algae)." However, the DEIR does not describe or address the dynamics of destratification in the reservoir, including the fact that Copco 1 and Iron Gate reservoirs are two large reservoirs in series which can affect the turnover of Iron Gate Reservoir depending on conditions in Copco Reservoir.

The DEIR suggests that downstream releases of nutrients can lead to phytoplankton blooms in the river. This is undocumented, and late in the year has a low chance of occurring. Complete destratification and a return to isothermal conditions typically occurs in Iron Gate during November or

December, which is after the growth season for phytoplankton is over (see PacifiCorp 2014).

Response to Comment ORG46-88

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been clarified to specify the most recent calculated annual nutrient retention amounts for the Lower Klamath Project dams (Asarian et al. 2009). While these annual nutrient retention amounts are cited in PacifiCorp (2014), the magnitudes of the most recent annual nutrient retention for Copco No. 1 and Iron Gate reservoirs in Asarian et al. (2009) differ from previous studies due to earlier studies either analyzing nutrient data from only part of a year or improving the methods for estimating nutrient retention in the reservoirs.

Kann and Asarian (2005) and PacifiCorp (2006) analyze nutrient data from March/April to November 2002, so the nutrient retention estimates in those citations do not represent *annual* nutrient retention. Asarian et al. (2009) analyzes nutrient data from May 2005 to December 2007, while Asarian and Kann (2007) analyzes nutrient data from May 2005 to May 2006, but the estimates of nutrient retention in Copco No. 1 and Iron Gate reservoirs for May 2005 to May 2006 changed between Asarian and Kann (2007) and Asarian et al. (2009) because Asarian et al. (2009) had more accurate accounting of the effects of hydropower peaking, incorporated ungaged flows, and used multiple regression models to estimate nutrient load. Please see Asarian et al. (2009) for more details on the methodological improvements and resulting differences in nutrient retention estimates in Copco No. 1 and Iron Gate reservoirs between Asarian and Kann (2007) and Asarian et al. (2009). Please refer to Volume III Attachment 1 Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin – Nutrient cycling in reservoirs and internal loading* for the revisions.

Comment ORG46-89

The DEIR states "Slow transport of water downstream and modified timing and magnitude of river flows can affect the growth of periphyton downstream of hydroelectric dams." Although this statement can be true in the larger-scale and the Klamath Hydroelectric Project reservoirs do impound water, the overall flow rates in the Klamath River are largely unaffected by the hydroelectric dams due to their lack of active storage capacity, with the exception of the peaking reach between J.C. Boyle Powerhouse and Copco Reservoir. Downstream of Iron Gate Dam, flow rates under current operations, particularly during summer periods when periphyton growth occurs, will be similar to those under the Proposed Project because they would continue to be managed by USBR with essentially the same target flow rates (USBR 2018b). Under current operations, periphyton is limited to the river margins, and growth in the inundated river channel is absent due to depth and light limitation.

The DEIR states "Natural scouring of periphyton populations can be diminished downstream of large dams due to altered flows and interception of coarse sediment movement by the dam, leading to seasonal occurrence of large periphyton mats that can cause water quality problems and provide abundant habitat for fish parasites." However, the flow rates downstream of Iron Gate Dam under current operations during summer (when much of the periphyton growth occurs) will be similar to those under the Proposed Project. Periphyton colonizes the channel bed after winter flows abate and will extend continuously throughout the river reaches from J.C. Boyle Reservoir to the Iron Gate Dam site following potential dam removal.

The DEIR needs to further update this discussion with recent observations from the Klamath Fish Disease Workgroup that the polychaete worms that are the intermediate host for fish parasites are also found in high densities in sand/silt habitat and on boulders (see True et al. 2016). The DEIR should also acknowledge that the Klamath Hydroelectric Project does not meaningfully reduce the magnitude of river flows downstream of Iron Gate Dam that would be necessary to result in periphyton scouring. Prior analysis conducted by USBR shown that river flows will not appreciably change as a result of potential dam removal (USBR 2011) due to the small amount of active storage in the reservoirs. Dam operations can achieve flow variability downstream of Iron Gate Dam to provide biological benefits that can mitigate for potential impacts related to flow modifications. Reservoir storage can also be activated to provide for special flow releases downstream of Iron Gate Dam to mitigate fish disease in the Klamath River as has occurred in recent years (PacifiCorp 2018b).

The DEIR states "Periphyton can influence riverine water quality by affecting nutrient cycling and diel (i.e., 24-hour cycle) fluctuations in dissolved oxygen and pH." However, the impact of an additional 30 miles of periphyton and macrophytes on water quality has not been addressed in the DEIR.

Response to Comment ORG46-89

Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* summarizes the ***general*** influence of hydroelectric project operations on water quality. The discussion of the general influence of hydroelectric project operations on periphyton growth downstream of reservoirs such as the Lower Klamath Project reservoirs is meant to provide background context for the potential physical, chemical, and biological effects of dams, rather than the details of the specific effects that have been documented the Klamath River due to the presence of the Lower Klamath Project dams. The specific details about water quality existing conditions in the Klamath River are discussed in Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* through Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants*. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The specific details about periphyton growth downstream of Iron Gate Dam are discussed in Volume I Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River – Periphyton* (pages 3-418 to 3-420).

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project* summarizes the influence of the Lower Klamath Project dams on habitat for aquatic resources in the Klamath River, including a summary of the influence of the Lower Klamath Project dams on diseases and parasites. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* specifically states that polychaete worms are present in a variety of habitat types, including runs, pools, riffles, edge-water, and reservoir inflow zones, as well as sand, gravel, boulders, bedrock, aquatic vegetation, and they are frequently found among mats of filamentous periphytic algal species (e.g., *Cladophora sp.*) that traps fine sediment and detritus (Bartholomew and Foott 2010). As such, an additional citation about the habitats of polychaete worms is unnecessary. Additionally, the comment citation to True et al. (2016) does not support the comment's assertion that polychaete worms are found in high densities in sand/silt habitat and on boulders because True et al. (2016) did not collect or report any data on the habitats where polychaete worms are found. True et al. (2016) collected fish samples from five reaches in the Klamath River and analyzed the prevalence of *Ceratonova shasta* and *Parvicapsula minibicornis* parasite infections with variations in water temperature and flow. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Potential Impact 3.2-8, Potential Impact 3.2-10, and Potential Impact 3.2-11 provide a discussion of the potential impacts of periphyton growth on nutrients, dissolved oxygen, and pH. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please refer to response to comment ORG46-34, ORG46-136, ORG46-137, ORG46-146, ORG46-149, ORG46-266, ORG46-451 for additional discussion of the influence of periphyton and macrophytes on water quality conditions in the Klamath River. Please refer to response to comment ORG46-267 for additional information regarding the potential impacts of the Proposed Project on the distribution of periphyton and macrophyte communities in the Klamath River.

Comment ORG46-90

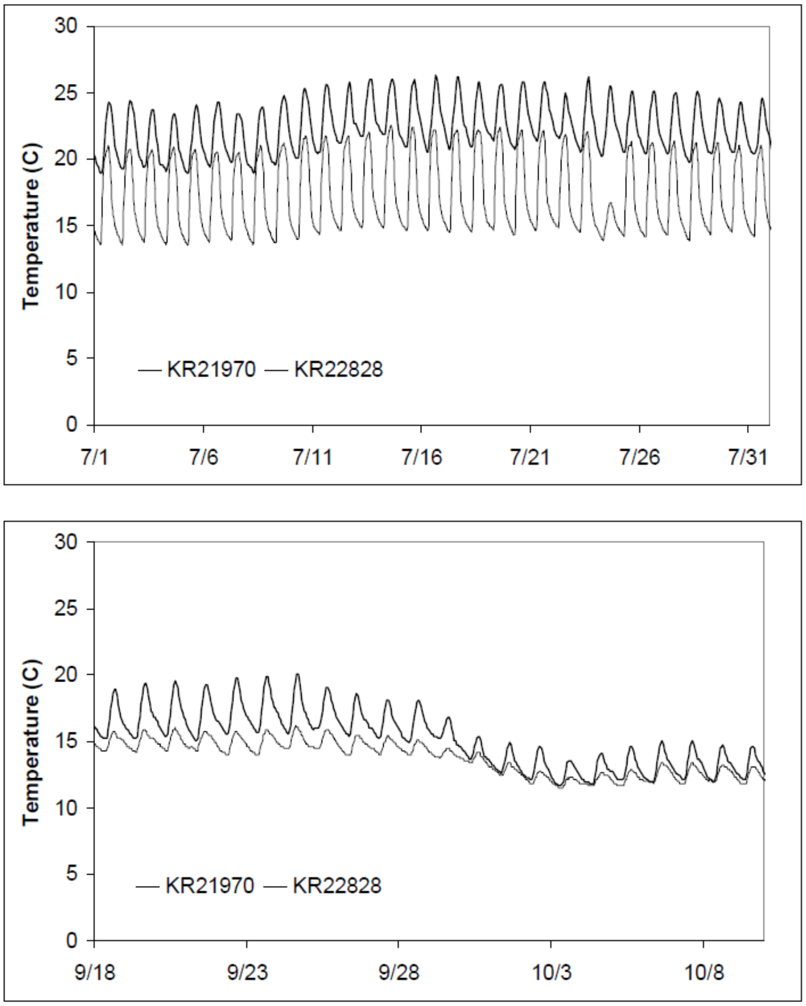
The DEIR states "While natural diel (24-hour) water temperature variations occur in the river, daily peaking operations at J.C. Boyle Powerhouse (river mile [RM) 225.2) result in an increase in the daily water temperature range in the Bypass Reach because warmer reservoir discharges are diverted around this reach (see also Section 2.3.1 J.C. Boyle Dam Development) and cold groundwater springs enter the river and dominate remaining flows." The DEIR should clarify that *bypassing waters around this reach result in a notably cooler river and reduced diurnal range (not increased) because of the dominance of spring inflows in the bypass reach.*

The DEIR incorrectly states that "At the upstream end of the Peaking Reach, the natural, cold groundwater input into the Bypass Reach, combined with fluctuations in river flow due to hydroelectric power operations in the Peaking Reach also produces an observed increase in daily water temperature range above the natural diel water temperature fluctuations (Kirk et al. 2010)." Peaking flows are derived from water stored in J.C. Boyle Reservoir and are large relative to those likely to exist if the J.C. Boyle Development were not in place and USBR was managing flow releases for salmonids out of Keno Dam. Both factors lead to a diel range that is more attenuated under existing conditions than would occur under a no dams scenario such as the Proposed Project.

Response to Comment ORG46-90

J.C. Boyle Bypass Reach water temperatures are typically cooler from May to September and warmer from November to March than ambient river temperatures upstream or downstream and daily variations in water temperatures are reduced due to spring inflows to the J.C. Boyle Bypass Reach with a relatively constant water temperature (approximately 11 to 12°C) throughout the year (PacifiCorp 2004a-1; Kirk et al. 2010).

Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* correctly states J.C. Boyle hydroelectric power operations produce an increase in the daily water temperature range above the natural diel water temperature fluctuations in the J.C. Boyle Peaking Reach. As detailed in PacifiCorp (2004a-1) Figures 3.7-7a and 3.7-7b (reproduced below), the Klamath River water temperature and daily water temperature variations are greater during peaking operations than non-peaking flows. PacifiCorp (2004a-1) Section 3.7.1 *Water Temperature* (page 3-13) specifically states that the diurnal range of water temperature variation is larger in the peaking reach downstream of the J.C. Boyle Powerhouse during peaking operations and the range of daily water temperature variation downstream of the powerhouse is greatly reduced when no peaking operations occur (i.e., constant daily discharge). The water temperature data under non-peaking flows from 2002 (Figures 3.7-7a and 3.7-7b from PacifiCorp [2004a]) indicate that the water temperature and daily water temperature variations would decrease under the Proposed Project after J.C. Boyle Dam is removed and peaking operations cease.



Figures 3.7-7a and 3.7-7b from PacifiCorp (2004a-1). Klamath River water temperature measured in 2002 at KR22828 (approximately river mile [RM] 233.3) (upper curve in both plots) upstream of the J.C. Boyle Reservoir and at KR21970 (approximately RM 224.45) (lower curve in both plots) downstream of the J.C. Boyle Powerhouse during peaking operations (top plot) and during non-peaking flows (bottom plot).

Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify the water temperature conditions in the J.C. Boyle Bypass Reach and the Peaking Reach. Please refer to Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for the revisions.

Comment ORG46-91

The DEIR mentions the powerhouse intake barrier curtain in Iron Gate Reservoir installed by PacifiCorp under Interim Measure 11. The principal purpose of the barrier curtain is to segregate surface waters in Iron Gate Reservoir and thereby reduce concentrations of blue-green algae releases to the Klamath River. A *byproduct of the curtain is slightly cooler release temperatures (Watercourse 2016; PacifiCorp 2017b).*

The DEIR concludes that "modest" water quality improvement is possible with the curtain but suggests such improvement would not be adequate to achieve compliance with the Water Quality Plan or Klamath River TMDLs. Aside from PacifiCorp's position that the Klamath River TMDLs are technically flawed (as explained in TMDL-specific comment 3.2-34), the DEIR does not accurately point out that the powerhouse intake barrier curtain in Iron Gate Reservoir installed by PacifiCorp under Interim Measure 11 is a prototype for testing and design refinement. The curtain is not designed and installed, nor is it operated to achieve compliance with the thermal plan included in the TMDL.

The DEIR also does not adequately explain or assess the results of the studies conducted on the prototype intake barrier curtain in Iron Gate Reservoir. These studies indicate that the curtain is effective at isolating near-surface waters of Iron Gate Reservoir upstream of the curtain (e.g., Watercourse 2016; PacifiCorp 2017b). Water quality samples, physical measurements, velocity profiles, and field observations of conditions consistently identified that waters of the photic zone, where the majority of blue-green algae occur, were largely isolated to the upstream side of the curtain. Water that ultimately passed under the curtain was drawn from deeper, cooler depths in regions of Iron Gate Reservoir upstream of the curtain. Regarding blue-green algae concentrations, monitoring results indicated reductions in Aphanizomenon (97 percent), Microcystis (82 percent), microcystin (70 percent), and chlorophyll-a (61 percent) occurred downstream of Iron Gate Dam when compared to surface samples collected at a depth of O .S meter upstream of the barrier curtain (Watercourse 2016; PacifiCorp 2017b).

Response to Comment ORG46-91

Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* explains and assesses the results of the intake barrier/thermal curtain studies with respect to its influence on water temperature. In addition, Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* notes that a purpose of the powerhouse intake barrier/thermal curtain was to isolate surface waters in Iron Gate Dam to reduce downstream releases of blue-green algae in the reservoir. Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify that the primary purpose of the intake barrier/thermal curtain is to manage blue-green algae releases to the Klamath River. The intake barrier/thermal curtain tested in 2014 was referred to as a prototype and the current intake barrier/thermal curtain installed in 2015 has not been described as a prototype in published, publicly available PacifiCorp reports on its operation and performance since then (PacifiCorp 2016a, 2017a, 2018a). Water temperature improvements from operation of the intake barrier/thermal curtain would be potentially limited by the need to access water with higher dissolved oxygen concentrations to comply with dissolved oxygen standards, with the curtain completely rolled up during portions of 2017 to maximize dissolved oxygen concentrations for aquatic life (PacifiCorp 2018a). Please refer to Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for the revisions. Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* is focused on the water temperature under existing conditions, so it does not summarize the influence of the intake barrier/thermal curtain on blue-green algae, chlorophyll-*a*, or microcystin.

The potential water temperature improvement from the intake barrier/thermal curtain is considered modest relative to the magnitude of the thermal lag caused by Iron Gate Reservoir during summer through fall (i.e., mid-June to early-November). Monitoring results indicate that the curtain reduces the entrainment of *Aphanizomenon flos-aquae*, *Microcystis aeruginosa*, microcystin, and chlorophyll-*a* into the Iron Gate Powerhouse intake and subsequent release downstream into the Klamath River during the period the intake barrier/thermal curtain was in use (PacifiCorp 2016a, 2017a), but the magnitude of the reduction varies widely over time for some parameters such that the 72- to 96-hour average percent reduction reported in the comment would not fully characterize the intake barrier/thermal curtain performance. While 72-hour average percent reduction of *Aphanizomenon flos-aquae* (i.e., 97 percent) reasonably represents the 24-hour percent reduction of *Aphanizomenon flos-aquae* range (i.e., 93 to 99 percent), the *Aphanizomenon flos-aquae* cell count still exceeded the California Cyanobacteria Harmful Algal Bloom (CCHAB) Human Health Secondary Trigger Level for Total Potentially Toxigenic Cyanobacteria [blue-green algae] Species of 4,000 cells/mL in two measurements (i.e., 9/2/2015 18:00 and 9/3/2015 2:00). The 72-hour average percent reduction of *Microcystis aeruginosa* from the intake barrier/thermal curtain is 82 percent, but the 24-hour percent reduction of *Microcystis aeruginosa* ranges from 74 to 92 percent. Additionally, the ranges in the 24-hour percent reduction of microcystin (i.e., 25 to 84 percent) and chlorophyll-a (i.e., 1 to 89 percent) are significantly different from the 72- or 96-hour average percent reduction (70 percent for microcystin; 61 percent for chlorophyll-a) (PacifiCorp 2016a). It is also worth noting that monitoring results from 2016 show a relatively large percent reduction in the total cyanobacteria and total *Microcystis aeruginosa* from upstream of the curtain to downstream of Iron Gate Dam, but the total cyanobacteria and total *Microcystis aeruginosa* downstream of Iron Gate Dam exceeded the CCHAB Human Health Secondary Trigger Level for Total Potentially Toxigenic Cyanobacteria [blue-green algae] Species during multiple sampling events. Water quality monitoring data from 2017 and 2018 downstream of Iron Gate Dam also show multiple exceedances of the Klamath Total Maximum Daily Loads (TMDLs) phytoplankton chlorophyll-a target (i.e., 10 ug/L) and multiple microcystin posting limits (e.g., 6 ug/L for CCHAB Warning TEIR I; Table 3.2-10) (Watercourse Engineering, Inc. 2018, 2019). An analysis of the intake barrier/thermal curtain performance during 2017 or 2018 has not been published and PacifiCorp continues to test and refine the intake barrier/thermal curtain design and operations.

Overall, the available data show the intake barrier/thermal curtain would potentially reduce transport of *Aphanizomenon flos-aquae*, *Microcystis aeruginosa*, microcystin, and chlorophyll-*a* from Iron Gate Reservoir into the Klamath River downstream of Iron Gate Dam, but the data do not indicate that this measure would consistently reduce *Aphanizomenon flos-aquae*, *Microcystis aeruginosa*, microcystin, and chlorophyll-*a* such that they would no longer cause an exceedance of water quality standards, cause an exceedance of CCHAB trigger levels, or achieve the Klamath TMDLs phytoplankton chlorophyll-a target of 10 ug/L for Copco No. 1 and Iron Gate reservoirs during the May to October growth season.

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the influence of the powerhouse intake barrier/thermal curtain on chlorophyll-a and microcystin concentrations in the Klamath River downstream of Iron Gate Dam. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

As discussed in ORG46-384, Section 4.2.2 *No Project Alternative – Water Quality – Chlorophyll-a and Algal Toxins* Potential Impact 4.2.2-*7* has been revised to clarify the influence of the powerhouse intake barrier/thermal curtain on chlorophyll-a and microcystin concentrations in the Klamath River downstream of Iron Gate Dam under the No Project Alternative. Please refer to Volume III Attachment 1 Section 4.2.2 *No Project Alternative – Water Quality – Chlorophyll-a and Algal Toxins* Potential Impact 4.2.2-*7* for these revisions.

Volume I Section 4.4.2.2 *Continued Operations with Fish Passage Alternative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) provides a discussion of the results of the intake barrier/thermal curtain studies with respect to its influence on blue-green algae and organic suspended material under the Continued Operations with Fish Passage Alternative. As explained above, available data indicate the intake barrier/thermal curtain would reduce *Aphanizomenon flos-aquae*, *Microcystis aeruginosa*, microcystin, and chlorophyll-*a* downstream of Iron Gate Dam when it is deployed, but the available data do not indicate that this measure would improve algal-derived (organic) suspended material such that that there would no longer be an exceedance of water quality standards, CCHAB trigger levels, or the Klamath TMDLs phytoplankton chlorophyll-a target of 10 ug/L for Copco No. 1 and Iron Gate reservoirs during the May to October growth season.

Section 4.4.2.6 *Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins* Potential Impact 4.2.2.7 also has been revised to clarify the influence of the powerhouse intake barrier/thermal curtain on chlorophyll-a and microcystin concentrations in the Klamath River downstream of Iron Gate Dam under the Continued Operations with Fish Passage Alternative. Please refer to Volume III Attachment 1 Section 4.4.2.6

Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins Potential Impact 4.2.2.7 for these revisions.

Comment ORG46-92

The DEIR should include a discussion of the magnitude of "relatively low" diurnal temperature range downstream of Iron Gate Dam, and how that range is associated with intake depth in Iron Gate Reservoir.

Response to Comment ORG46-92

Please refer to Appendix C, Section C.1.2.1 *Water Temperature – Mid- and Lower Klamath Basin – Iron Gate Dam to Salmon River* (pages C-4 to C-10), especially Figures C-3 to C-6 (pages C-6 to C-8), for details on the relatively low variability in water temperature immediately downstream of Iron Gate Dam compared to Klamath River locations farther downstream.

Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify the influence of the Iron Gate Dam intake structure on water temperature downstream of Iron Gate Dam. The intake barrier/thermal curtain tested in 2014 was referred to as a prototype and the current intake barrier/thermal curtain installed in 2015 has not been described as a prototype in published, publicly available PacifiCorp reports on its operation and performance since then (PacifiCorp 2016a, 2017a, 2018a). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including the revisions to Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature*.

Comment ORG46-93

The DEIR states "Water temperatures in the Klamath River Estuary are linked to temperatures and flows entering the estuary, salinity of the estuary and resulting density stratification, and the timing and duration of sand berm formation across the estuary mouth." The DEIR should state that meteorological conditions are a large factor as well. While coastal "fog" and ocean-water input minimizes extreme water temperature much of the time, short duration heat spells (e.g., clear weather in the late summer and early fall) can quickly lead to elevated Estuary temperatures.

Response to Comment ORG46-93

Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* has been revised to clarify the influence of meteorological conditions on water temperature in the Klamath River Estuary. Please refer to Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for the revisions.

Comment ORG46-94

The DEIR states that the trapping of fine sediments does not appear to be a critical function of the Lower Klamath Project reservoirs with respect to the overall system, citing that only 3.4 percent of the annual sediment load originates *from the upper and middle Klamath River. This statement appears intended to demonstrate that the fine sediment load flowing into the reservoirs is nominal relative to the overall basin and thus has little impact to the river system. However, adopting a basin-scale perspective neglects to acknowledge the relative importance of the upstream sediment load at the reach-scale, for example, for the reaches immediately downstream of Iron Gate Dam where the relative proportion of the sediment load that comes from upstream of the reservoirs is nearly 100 percent. The relative proportion of sediment originating from upstream of the reservoir system may only be 3.4 percent for the basin as a whole but may be close to 100 percent of the annual load for the reach immediately downstream of the reservoirs. Therefore, from the reach-scale perspective, the local impact may be more significant.*

Response to Comment ORG46-94

Appendix C, Section C.2.1.1 *Hydroelectric Reach*, especially Figure C-13, provides a discussion of the trapping of suspended materials within individual reservoirs. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information.* Please refer to Volume I Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Environmental Setting –Sediment Load* (pages 3-748 to 3-753) for a discussion of trapping of bedload materials.

Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* has been updated to clarify the Lower Klamath Project dams' influence on suspended material in the reaches immediately downstream of the dams. Please refer to Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* for the revisions.

<u>Comment ORG46-95</u>

The DEIR does not explain the seasonal periphyton and macrophyte growth on the bed of the Klamath River downstream of Iron Gate Dam, and how that extensive growth contributes to the Klamath River organic matter load. Periphyton and macrophyte growth in the Klamath River is extensive, particularly upstream of the Scott River, where sediment transport frequency is lower. Growth is made possible by nutrients transported downstream from upstream sources including natural geologic nutrients (Shasta River springs, springs downstream of J.C. Boyle Dam, and sources from Upper Klamath Lake and in the Upper Klamath Basin), inputs at Upper Klamath Lake via nitrogen-fixing blue-green algae Aphonizomenon flos oquoe, and anthropogenic activities along the mainstem (including Upper Klamath Lake and upstream sources) and in tributaries. Periphyton and macrophytes convert bioavailable nutrients to plant biomass, and subsequent senescence yields particulate organic matter to the Klamath River. With removal of the dams under the Proposed Project, the spatial extent of periphyton and macrophytes would increase by approximately 30 miles (from Iron Gate Dam through what is now J.C. Boyle Reservoir). The *impacts of this substantial spatial increase in periphyton and macrophytes on water quality are not addressed in the DEIR.*

Response to Comment ORG46-95

Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* summarizes the ***existing suspended sediment*** conditions in the Klamath River. Please refer to Volume I Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River – Periphyton* (pages 3-418 to 3-420) for discussion of the seasonal periphyton (including macrophytes) abundance in the Klamath River downstream of Iron Gate Dam. Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* provides a summary of organic suspended material in the Klamath River and Appendix C, Section C.2 *Suspended Sediments* provides additional discussion of organic suspended material in the Klamath River based on measurements of total organic suspended material in the Klamath River, so periphyton (including macrophyte) contributions to the organic suspended material is inherently included in this discussion. However, the relative magnitudes of the phytoplankton and periphyton contributions to organic (algal-derived) suspended material in the Klamath River have not been and cannot be quantified from the available data since measurements of organic (algal-derived) suspended material in the Klamath River do not distinguish between the potential sources of the organic suspended material. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information.*

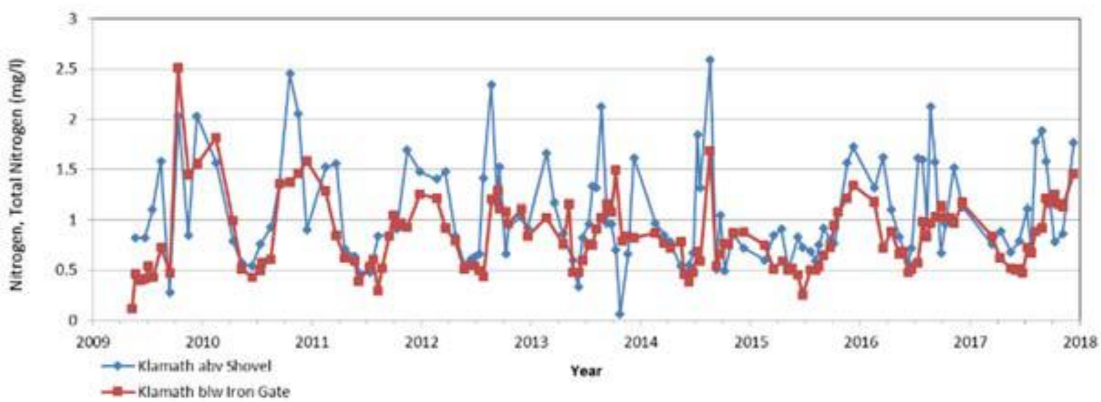
Potential Impact 3.2-6 provides a discussion of the potential changes in organic (algal-derived) suspended material in the Klamath River under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-6.

Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) provides a discussion of the potential changes in periphyton growth in the Hydroelectric Reach under the Proposed Project. However, Potential Impact 3.4-4 has been revised to address other comments (e.g., ORG46-36), so please also refer to Volume III Attachment 1 Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 for the revisions. Please refer to response to comment ORG46-267 for additional information regarding the potential impacts of the Proposed Project on the distribution of periphyton and macrophyte communities in the Klamath River.

Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* has been revised to clarify that the discussion of existing organic suspended material conditions in the Klamath River includes the contribution of periphyton. Please refer to Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* for the revisions.

Comment ORG46-96

The DEIR states "On an annual basis, nutrients typically decrease slightly through the Hydroelectric Reach due to settling of particulate matter and associated nutrients in Copco No. 1 and Iron Gate reservoirs..." However, the critical aspect of the residence time through the reservoirs is absent from this discussion. Using data from KHSA Interim Measure 15 monitoring, the attenuation and lag through Project reservoirs (for example from upstream of Copco Reservoir at the Klamath above Shove l Creek site to downstream of Iron Gate Dam) is apparent. In the data presented below, the annual outflow in total nitrogen was notably less than the annual inflow in total nitrogen. This nutrient loading lag effect is also assessed in PacifiCorp (2006).



Response to Comment ORG46-96

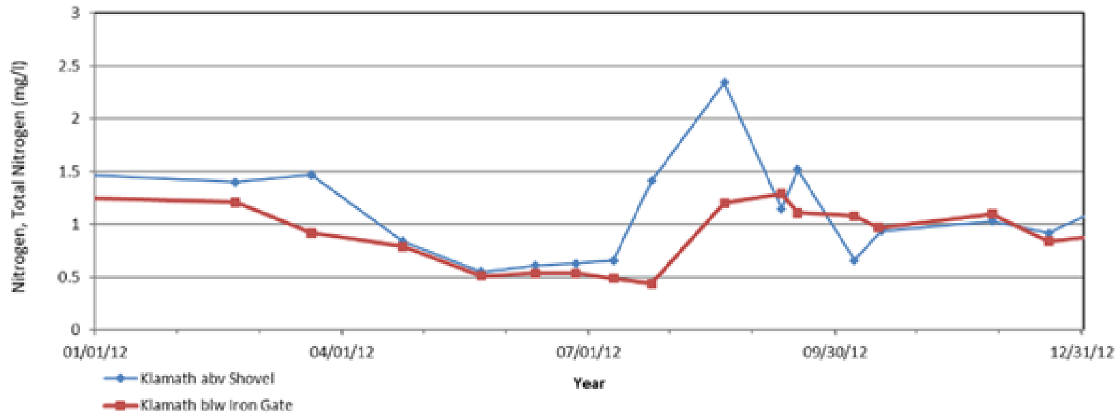
Contrary to the assertion in the comment, Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* does acknowledge that seasonal nutrient variations are a combination of processes, including reservoir residence times. Please refer to the beginning of the next paragraph for the following statement: "Seasonal variations in concentrations of Total Nitrogen (TN) and Total Phosphorus (TP) occur in the Klamath River downstream of Iron Gate Dam, due to a combination of nutrient storage and release from the water column and reservoir sediments, varying water concentrations at the elevation of the penstock intakes, residence times, and possible atmospheric losses through denitrification (for TN only) (Asarian and Kann 2011)." Thus, the Interim Measure 15 (IM15) nutrient data presented in this comment do not conflict with the EIR discussion of annual and seasonal nutrient cycling in the reservoirs.

Appendix C, Section C.3.1.1 *Hydroelectric Reach* provides further discussion of the temporal lag in nutrients due to the hydraulic retention time of the Lower Klamath Project reservoirs. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information*.

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been clarified with further discussion of seasonal nutrient dynamics in the Lower Klamath Project reservoirs from Appendix C, Section C.3.1.1 *Hydroelectric*

Reach. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions.

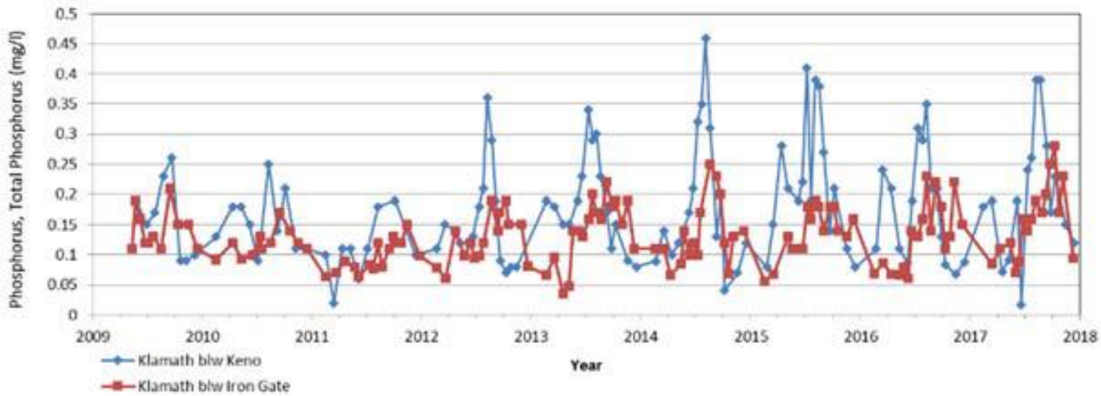
Comment ORG46-97



The DEIR states "Seasonal nutrient releases occur during periods of in-reservoir phytoplankton growth, and, in the case of TP [total phosphorus), can also result in downstream transport of bioavailable nutrients to the Lower Klamath River where they can stimulate excessive growth of periphyton (aquatic freshwater organisms attached to river bottom surfaces)." While nutrients sourced from the sediments do occur, the overall concentrations (or loads) are minor compared to the loads conveyed into the reservoirs via the Klamath River. Production occurs year-round, albeit seasonal maxima occurs in the late spring through early fall. While seasonal nutrient release occurs during periods of <u>*peak*</u> *in-reservoir production, this nutrient release coincides with periods of thermal stratification and hypolimnetic anoxia - a necessary condition. However, thermal stratification also impedes mixing of hypolimnetic waters with surface waters (i.e., epilimnion) where the vast majority of primary production occurs. Thus, while nutrient release occurs during the peak primary production period, these nutrients are trapped in the hypolimnion and unavailable to promote surface water productivity. Further, the thermoclines in both Copco and Iron Gate reservoirs associated with seasonal stratification are located downstream of the invert of the intake works at both dams. Thus, little hypolimnetic water is entrained in the outlet works, and little nutrient enriched water is released to downstream river reaches.*

The DEIR overstates this contribution and attributes seasonal variations downstream of the reservoir, in part, to this internal loading of the reservoirs. However, the inflowing Klamath River is by far the dominant source of nutrients into these reservoirs. Typical summer flows into (and through) Copco and Iron Gate reservoirs are on the order of 900 to 1,000 cubic feet per second (cfs). Given that Copco and Iron Gate reservoir storages are approximately 40,000 acre-feet and 50,000 acre-feet, respectively, and both stratify seasonally, these flow rates result in residences times of several weeks. Large upstream organic matter and nutrient loads are thus conveyed continuously throughout summer into these reservoir s and having a dominant impact on reservoir water quality

{PacifiCorp 2006, 2014). This can be clearly seen in the KHSA Interim Measure 15 data for total phosphorus concentrations at the Klamath River at Keno Dam as compared to the Klamath River downstream of Iron Gate Dam (see below).



Response to Comment ORG46-97

Appendix C, Section C.3.1.1 *Hydroelectric Reach* provides further information about the seasonal release of nutrients from in-reservoir production, including a discussion that total phosphorus (TP) released from sediments in Copco No. 1 and Iron Gate reservoirs during summertime anoxia remains in the hypolimnion until the reservoirs begin to turn over in the fall, rather than being released to downstream river reaches during the summer period of peak periphyton growth. Data from the reservoirs and downstream of Iron Gate Dam also indicate that some release of TP may occur between August and November, which could stimulate downstream periphyton growth during the late summer and fall. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information*.

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* focuses its summary of existing nutrient conditions on increasing or decreasing nutrient trends through the Hydroelectric Reach and the Lower Klamath Project reservoirs rather than presenting a comparison of the magnitude of nutrients being transported by the Klamath River or exported from the Lower Klamath Project reservoirs. Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* does not overstate the contribution of the nutrient releases from reservoir sediments because it only discusses the total magnitude of the nutrients in the Klamath River downstream of Iron Gate Dam. As discussed in Asarian et al. (2009) and cited in Appendix C, Section C.3.1.1 *Hydroelectric Reach*, nutrients being transported by the Klamath River into the Hydroelectric Reach and the Lower Klamath Project reservoirs are the dominant source of nutrients into these reservoirs and comprise the majority of nutrients being transported downstream of the reservoirs. While nutrient releases from reservoir sediments are typically a small percentage of the incoming nutrients to reservoirs, these sediment releases can result in nutrients downstream of one or more of the reservoirs being greater than nutrients upstream of the corresponding reservoir (Asarian et al. 2009). As noted in response to comment ORG46-96, the discussion of nutrient loading accounts for the effect of residence time in the Lower Klamath Project reservoirs.

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify that nutrients being transported into the Hydroelectric Reach and the Lower Klamath Project reservoirs from upstream sources are the dominant source of nutrients into these reservoirs and comprise the majority of nutrients being transported downstream of the reservoirs. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revision. The clarification does not change the results of the impact analysis.

Comment ORG46-98

The DEIR recognizes that the Copco No. 1 and Iron Gate reservoirs act to retain particulate matter and nutrients on an annual basis but characterizes the resulting decrease in particulate matter and nutrients as "slight." What this modifying adverb actually means in this instance is clearly debatable. A similar use of "slight" or "very small" is used throughout the DEIR when discussing nutrient retention effects of the reservoir s (e.g., DEIR pgs. 3-114, 3-115, 3-117, 3-118, 3-137, 3-431, 3-846). For example, on page 3-117, even after making the unrealistic assumption of full compliance with TMDL load allocations, the DEIR characterizes annual increases in total phosphorus of 10 to 15 micrograms per liter (µg/L) as "very small," when in fact such increases are arguably substantive. Furthermore, on page 3-116, the DEIR states "...TP [total phosphorus] concentrations in the Middle and Lower Klamath River would increase by approximately 2 to 12 percent for the June–October period if the dams were to be removed, while increases in TN [total nitrogen] concentrations would be relatively larger, at an estimated 37 to 42 percent for June through October and 48 to 55 percent for July through September (see Figure 3.2-18)." It is inaccurate to characterize changes in nutrient loading of up to 55 percent as either "slight," "very small," or "relatively larger." In fact, given the large inflowing nutrient loads to Copco Reservoir, particularly the large loads emanating to the Klamath River from Upper Klamath Lake, the substantial net retention provided by Copco and Iron Gate reservoirs (618 and 38 metric tons of nitrogen and phosphorus annually, respectively; Asarian and Kann 2007) is an important process for reducing nutrient loads to the Klamath River downstream of Iron Gate Dam.

The DEIR goes on to conclude that the loss of this long-term nutrient retention following reservoir elimination is "No Significant Impact" for the Proposed Project and the other partial dam-removal alternatives (e.g., see Table ES-1). On the other hand, the DEIR describes in several places that Copco No. 1 and Iron Gate reservoirs do not retain but rather release nutrients on a seasonal basis and the DEIR concludes that elimination of this seasonal release would be a "Beneficial Effect" of the Proposed Project and the other partial dam-removal alternatives (e.g., see Table ES-1). This differing characterization of annual versus seasonal *nutrient retention in Copco No. 1 and Iron Gate reservoirs is not supported with any analysis and instead represents a bias in which the significance of long-term nutrient retention in the reservoirs is downplayed and the significance of seasonal effects is elevated.*

Regarding the seasonal effects related to reservoir nutrient retention or release, the DEIR does not adequately explain or account for the substantial variability in these assumed seasonal effects as evident in the calculated input and output nutrient loading values. Moreover, the DEIR' s analysis of the reservoirs' seasonal nutrient loading and retention does not adequately explain or account for the hydraulic residence time of water in the reservoirs. The reservoir residence times are considerable, allowing for processes such as decay and settling to occur. These processes are important to recognize and consider when assessing the roles of nutrient retention in the system. If inflow and outflow nutrient conditions are compared for a time interval that is less than water residence and travel time through the reservoirs, it is easy to mistakenly identify the reservoirs as sources of nutrients. For example, as discussed in PacifiCorp (2006), Copco Reservoir inflows may indicate higher levels of total nutrients than Iron Gate Reservoir outflows. However, Iron Gate is actually further reducing the input from Copco Reservoir because of the considerable residence time in Iron Gate Reservoir; that is, total nutrients in Copco Reservoir inflows has been reduced as the "peak" passes through the reservoirs.

Response to Comment ORG46-98

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify the most recent calculated annual nutrient retention amounts for the Lower Klamath Project reservoirs (Asarian et al. 2009) and what is meant by the use of "slight" when describing nutrient retention. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions according to the following discussion. The magnitudes of the most recent annual nutrient retention for Copco No. 1 and Iron Gate reservoirs in Asarian et al. (2009) differ from previous studies cited by PacifiCorp (2014) and the comment (i.e., Asarian and Kann [2007]) due to earlier studies either analyzing nutrient data from only part of a year or improvements in the methods for estimating nutrient retention in the reservoir, as discussed in detail below.

Kann and Asarian (2005) and PacifiCorp (2006) analyze nutrient data from March/April to November 2002, so the nutrient retention estimates in those citations do not represent *annual* nutrient retention. Asarian et al. (2009) analyzes nutrient data from May 2005 to December 2007, while Asarian and Kann (2007) analyzes nutrient data from May 2005 to May 2006. The estimates of nutrient retention in Copco No. 1 and Iron Gate reservoirs for May 2005 to May 2006 changed between Asarian and Kann (2007) and Asarian et al. (2009) because Asarian et al. (2009) had more accurate accounting of the effects of hydropower peaking, incorporated un-gaged river flows, and used multiple regression models to estimate nutrient load. Please see Asarian et al. (2009) for more details on the methodological improvements and resulting differences in nutrient retention estimates in Copco No. 1 and Iron Gate reservoirs between Asarian and Kann (2007) and Asarian et al. (2009).

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify the analysis of seasonal nutrient retention or release with the most recent calculated seasonal nutrient retention or release amounts for the Lower Klamath Project reservoirs (Asarian et al. 2009). Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions.

Appendix C, Section C.3.1.1 *Hydroelectric Reach* also has been revised to clarify the variability in the seasonal nutrient retention/release from the reservoirs considered in the impact analyses using the May 2005 to December 2007 time series of Copco No. 1 and Iron Gate reservoir nutrient retention/release estimates, including adding Asarian et al. (2009) Figures 23 through 26 (see below) showing this nutrient retention/release variability for Copco No. 1 and Iron Gate reservoir. Please refer to Volume III Attachment 1 Appendix C, Section C.3.1.1 *Hydroelectric Reach* for the revisions.

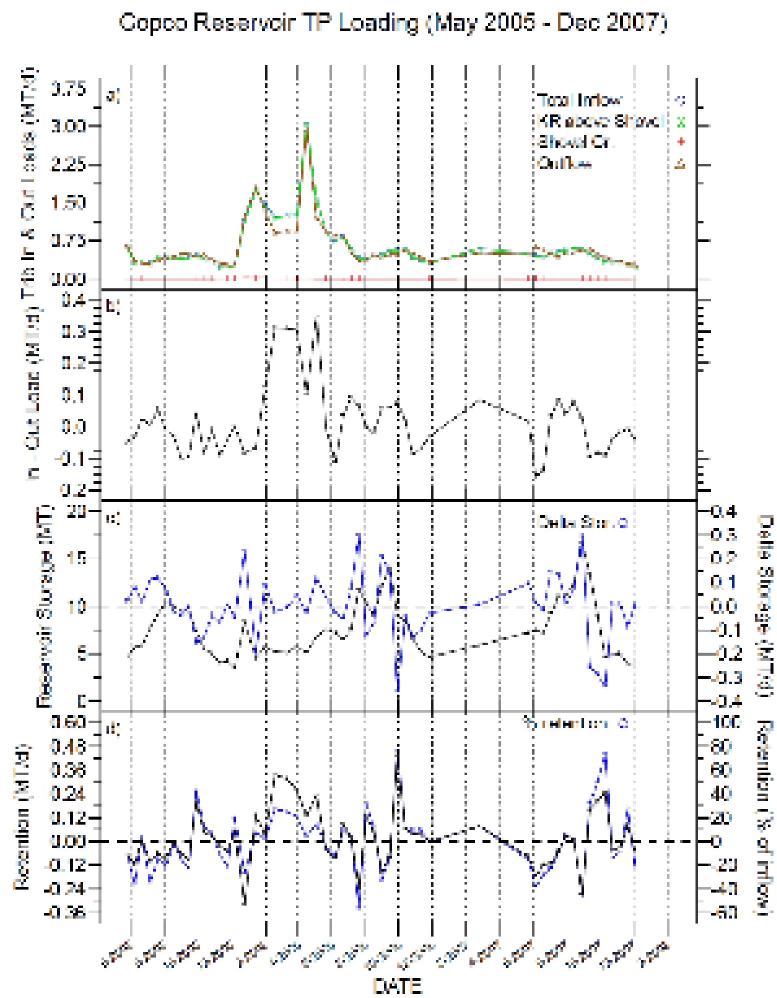


Figure 23 from Asarian et al. (2009). Time Series of Copco No. 1 Reservoir Total Phosphorus Loading, May 2005 to Dec 2007. Each Point Represents Data from an Entire Sampling Interval (Approximately Biweekly) and is Placed at the Midpoint of the Two Adjacent Sampling Dates. Horizontal Dashed Lines are Placed at Zero for Delta Storage and Retention.

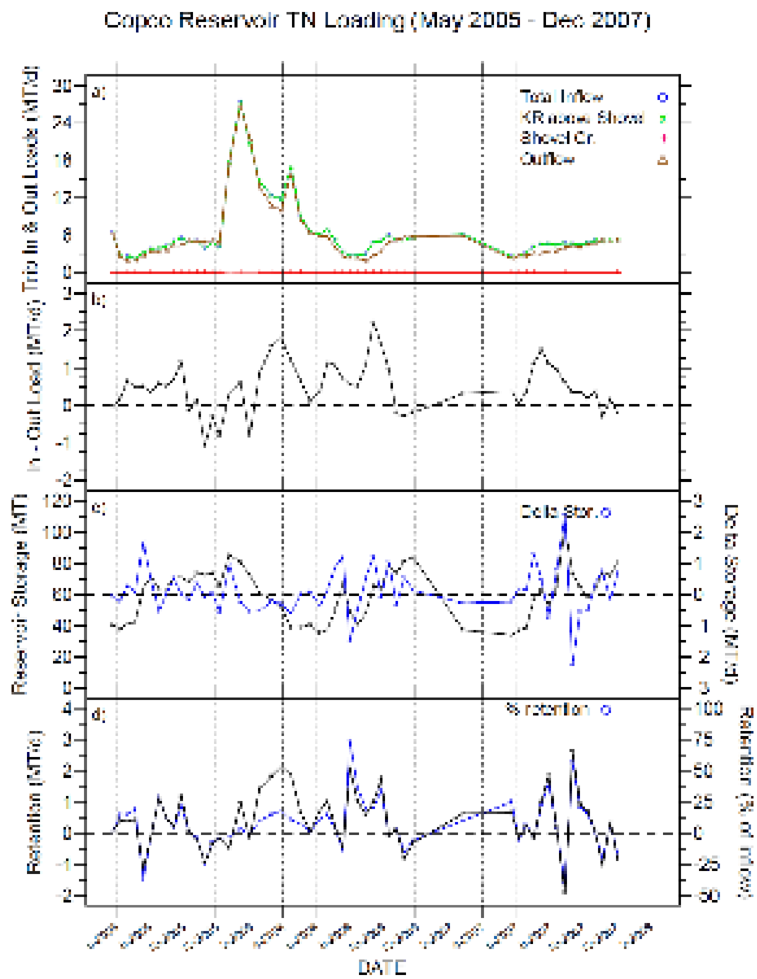


Figure 24 from Asarian et al. (2009). Time Series of Copco No. 1 Reservoir Total Nitrogen Loading, May 2005 to Dec 2007. Each Point Represents Data from an Entire Sampling Interval (Approximately Biweekly) and is Placed at the Midpoint of the Two Adjacent Sampling Dates. Horizontal Dashed Lines are Placed at Zero for Delta Storage and Retention.

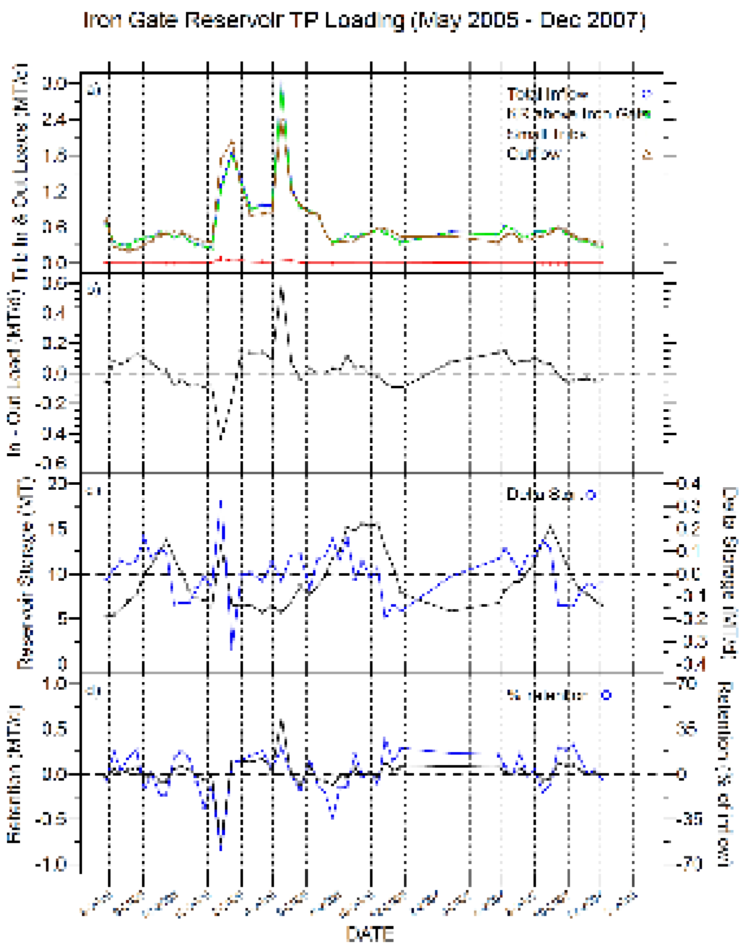


Figure 25 from Asarian et al. (2009). Time Series of Iron Gate Reservoir Total Phosphorus Loading, May 2005 to Dec 2007. Each Point Represents Data from an Entire Sampling Interval (Approximately Biweekly) and is Placed at the Midpoint of the Two Adjacent Sampling Dates. Horizontal Dashed Lines are Placed at Zero for Delta Storage and Retention.

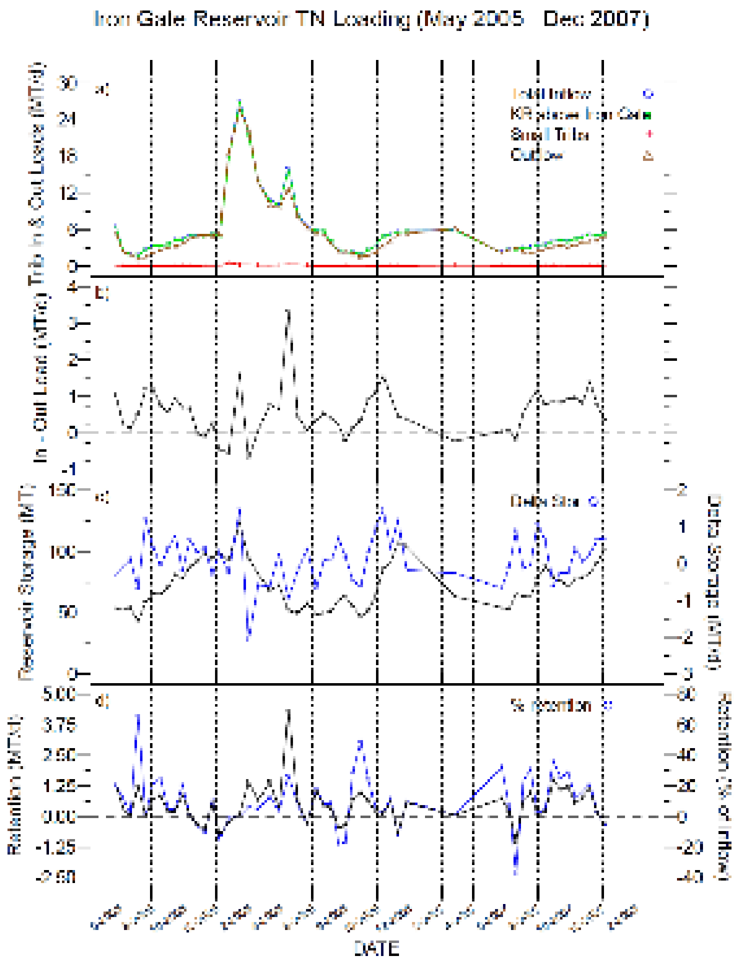


Figure 26 from Asarian et al. (2009). Time Series of Iron Gate Reservoir Total Nitrogen Loading, May 2005 to Dec 2007. Each Point Represents Data from an Entire Sampling Interval (Approximately Biweekly) and is Placed at the Midpoint of the Two Adjacent Sampling Dates. Horizontal Dashed Lines are Placed at Zero for Delta Storage and Retention.

As necessary, estimates of nutrient retention or release in Asarian et al. (2009) account for the hydraulic residence time of water in the reservoirs and its influence on nutrient retention and release, so the comment’s assertion that the EIR nutrient retention or release discussion does not adequately account for the reservoir residence time is incorrect. Asarian et al. (2009) calculated the hydraulic residence time for Copco No. 1 and Iron Gate reservoirs from May 2005 to December 2007. As explained by the comment, the hydraulic residence time of water is important to consider when evaluating upstream and downstream nutrient trends over a time scale similar to the inflows/outflows since the effect of the hydraulic residence time on nutrients would have a similar magnitude as the effect of inflows/outflows on nutrients. However, the hydraulic residence time becomes less important to consider as the time scale increases since the magnitude of the inflows/outflows would become much larger than the magnitude of the hydraulic residence time. The hydraulic residence time does not need to be explicitly considered in the seasonal (e.g., 3 month) or annual estimates of nutrient retention because these time scales are approximately three times or greater than the average hydraulic residence time calculated for Copco No. 1 and Iron Gate reservoirs from May 2005 to December 2007 (i.e., approximately 5 days during high winter and spring flows and approximately 15 to 25 days during summer low flows for Copco No. 1 Reservoir and approximately 3 to 10 days during winter/spring and approximately 25 to 30 days during summer for Iron Gate Reservoir). Seasonal and annual estimates of nutrient retention or release in Asarian et al. (2009) would accurately quantify the nutrient dynamics in Copco No. 1 and Iron Gate reservoirs.

Additional comments about the use of adverbs like “slight” or “very small” describing the magnitude of nutrient changes appear to be unrelated to Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients*; rather they appear to be related to Potential Impact 3.2-8 and several other locations in the EIR. While the comment’s overall point about the potentially subjective meaning of adverbs is noted and clarifications to the magnitude of “slight” or other adverbs are incorporated in the relevant sections of the EIR, the specific example presented in the comment is an incorrect interpretation of the discussion in Potential Impact 3.2-8 since “very small” was used to describe the 0.01 to 0.015 mg/L annual increase in Total Phosphorus (TP) and “relatively larger” 0.1 to 0.125 mg/L annual increase in Total Nitrogen (TN) estimated by the *Klamath River Total Maximum Daily Load (TMDL) model,* but the previous discussion of percentage increases in nutrients after dam removal (i.e., approximately 2 to 12 percent increase in TP during June to October or a 27 to 42 percent increase in TN during June to October and a 48 to 55 percent increase in TN during July through September) is related to a *different* model: the Yurok Tribe analysis. Potential Impact 3.2-8 clearly explains that these results are from different models because after the sentence stating the “very small” increase in TP and “relatively larger” increase in TN, the EIR specifies: “It should be noted that while following the same relative trend as the Yurok Tribe analysis, the absolute increases predicted by the Klamath River TMDL model for the “TMDL dams-out” California scenario (TCD2RN) are much lower (e.g., 0.1–0.125 mg/L TN increase for the TMDL model vs. 0.1 to 0.5 mg/L TN increase for the Yurok Tribe analysis).”

Comparing the Klamath River TMDL model results of a “very small” 0.01 to 0.015 mg/L annual increase in TP and “relatively larger” 0.1 to 0.125 mg/L annual increase in TN with the measured nutrient concentrations listed in Figure 3.2-18 (i.e., existing [with dams]), the “very small” annual increase in TP is 6 to 9 percent and the “relatively larger” annual increase in TN is 9 to 14 percent. Thus, Potential Impact 3.2-8 does not characterize a change in nutrient loading of up to 55 percent as “slight”, “very small”, or “relatively larger.” Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Potential Impact 3.2-8.

Comment ORG46-99

These paragraphs do not adequately address the role of primary production and associated impacts on water quality in the Klamath River. The Klamath River is weakly buffered and existing seasonal primary production can readily produce pH in excess of 9 coincident with elevated water temperatures, particularly between Iron Gate Dam and the Scott River. Further, review of periphyton data indicates that the lower Klamath River is nitrogen-limited in late summer, as evidenced by the dominance of Epithemia sorex. Epithemia sorex contains endosymbiotic cyanobacteria in many of the cells, which fix atmospheric nitrogen for use by the cells. The seasonal dominance by Epithemia sorex (as well as other nitrogen-fixing periphyton) are a source of nitrogen to the Klamath River that are not discussed in the DEIR. Also, there is minimal light limitation in much of the Klamath River from Iron Gate Dam to the Trinity River creating good growing conditions for periphyton.

The DEIR states "Measured levels of TP [total phosphorus] in the estuary are typically below 0.1 mg/L during summer and fall (June–October) and TN [total nitrogen] levels are consistently below 0.7 mg/L (June–October)." These total nutrient values mean little without some context that establishes the bioavailable, inorganic forms of nutrients, such as ammonia, nitrate, and orthophosphate, which are more directly usable for primary production. Primary production can occur at very low values of inorganic nitrogen and phosphorous based on their half saturation constants, e.g., 0.014 milligrams per liter (mg/L) and 0.003 mg/L respectively (Tetra Tech 2009). These half saturation constant values are far lower than the estuary concentrations presented in the DEIR.

Response to Comment ORG46-99

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* summarizes the measured nutrient concentrations in the Middle and Lower Klamath River, specifying that in-river nutrient spiraling processes by phytoplankton and periphyton strongly affect nitrogen concentrations in the Klamath River. Please refer to Volume III Attachment 1 Appendix C, Section C.3.2 *Mid- and Lower Klamath Basin* for further discussion of seasonal variations in the nutrients due to primary productivity in the Klamath River, including quantification of the overall nutrient variations in the river due to nutrient removal processes (e.g., storage in phytoplankton/plant biomass) and nutrient production processes (e.g., nitrogen fixation).

The influence of primary production on other water quality parameters is discussed under the relevant water quality parameter sections in the EIR. Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen*, Section 3.2.2.6 *Water Quality – Environmental Setting – pH*, and Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* provides a summary of the influence of primary production in the Klamath River on dissolved oxygen concentrations, pH, and chlorophyll-*a* concentrations, respectively. Section *Water Quality – Environmental Setting* – 3.2.2.6 *pH* specifically discusses the photosynthesis-driven daily and seasonal variations in pH due to primary production. Appendix C, Section C.4 *Dissolved Oxygen*, Appendix C, Section C.5 *pH*, and Appendix C, Section C.4 *Algal Toxins and Chlorophyll-a* provide further discussion of the influence of primary production in the Klamath River on dissolved oxygen concentrations, pH, and chlorophyll-*a* concentrations, respectively. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Please refer to Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River – Periphyton* (pages 3-418 to 3-420) for a discussion of the periphyton communities in the Klamath River during summer, including the prevalence of *Epithemia sorex*, *Epithemia turgida*, and *Rhopalodia gibba*, which all contain cells of cyanobacteria [blue-green algae] that live inside the diatom cells to help the diatoms fix nitrogen. Total nitrogen (TN) measurements in the Klamath River discussed in Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Appendix C, Section C.3.2 *Mid- and Lower Klamath Basin* would include all sources of nitrogen, including TN from nitrogen fixing periphyton that seasonally dominate the periphyton community in the Lower Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Appendix C, Section C.3.2.3 *Klamath River Estuary* provides a discussion of the ammonia, nitrate, and orthophosphate nutrient concentrations measured in the Klamath River Estuary. Primary production can occur at very low values of inorganic nitrogen and phosphorus. The half-saturation constants for inorganic nitrogen and phosphorus represent the upper concentration at which algae growth is directly proportional to nutrient concentrations (Cole and Wells 2015). Nutrient concentrations greater than the half saturation constants indicate that there are sufficient nutrients available to meet primary productivity growth needs and nutrient concentrations in excess of those half saturation constants would have a diminishing influence on algae growth. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information*.

In the Klamath River Estuary, inorganic phosphorus (i.e., soluble reactive phosphorus) ranges from approximately 0.004 to 0.102 mg/L, so it is consistently greater than the phosphorus half-saturation constant reported in Tetra Tech (2009) (i.e., 0.003 mg/L), indicating that phosphorus is not limiting algae growth in the estuary. Inorganic nitrogen (i.e., ammonia and nitrate plus nitrite) ranges from approximately 0.011 to 0.348 mg/L, with approximately 70 percent of the measurements representing the primary phytoplankton and periphyton growth season (i.e., May through October) at greater than the nitrogen half-saturation constant reported in Tetra Tech (2009) (i.e., 0.014 mg/L). Since measured inorganic nitrogen concentrations are typically greater than the nitrogen half-saturation constant, nitrogen generally does not limit algae growth in the estuary. Further, nitrogen-fixing periphyton species that dominate in the lower Klamath River reaches and likely dominate periphyton communities in the estuary would be able to obtain nitrogen from the atmosphere for growth, so nitrogen is unlikely to limit algae growth in the estuary even during the periods when the inorganic nitrogen concentrations are less than the nitrogen half-saturation constant.

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised to clarify that measured nutrient levels in the Klamath River Estuary typically exceed the half-saturation constant and so may, at times, promote algal growth at levels that cause nuisance effects or adversely affect beneficial uses. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions.

Comment ORG46-100

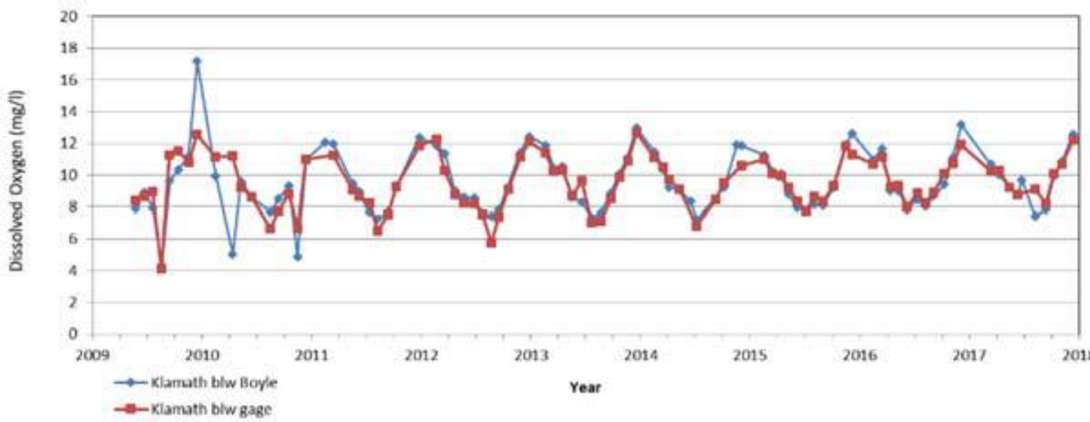
The text in this paragraph focuses solely on blue-green algae and relates all dissolved oxygen conditions to this group of algae, suggesting there are no other algae present or that have an impact on dissolved oxygen conditions. Blue-green algae should be replaced with "phytoplankton" in this text.

Response to Comment ORG46-100

Section 3.2.2.5 *Water Quality – Environmental Setting –Dissolved Oxygen* has been revised to clarify that dissolved oxygen in the reservoirs is mainly driven by phytoplankton, especially large blue-green algae blooms. Please refer to Volume III Attachment 1 Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* for the revisions.

Comment ORG46-101

While there is some variation in dissolved oxygen concentrations in J.C. Boyle Reservoir, the DEIR erroneously states that "This variation can affect dissolved oxygen concentrations further downstream in the California portion of the Hydroelectric Reach." A simple review of the KHSA Interim Measure 15 data indicates that dissolved oxygen levels downstream of J.C. Boyle Dam (labeled "Klamath blw Boyle" in figure below) are essentially identical to those downstream of the J.C. Boyle Powerhouse (Klamath blw gage in figure below). The DEIR acknowledged that high gradient stream reaches increase dissolved oxygen to near saturation for the reach from Keno Dam to J.C. Boyle Reservoir. The DEIR fails to note that the same effect is found downstream of J.C. Boyle Dam. The reaeration rate is sufficient that by the time waters reach the California-Oregon state line the dissolved oxygen levels in the river are near saturation and any deficit introduced from J.C. Boyle Reservoir has been largely ameliorated via mechanical reaeration.



Response to Comment ORG46-101

The Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM 15) dissolved oxygen concentrations are discrete measurements conducted at an approximately two-week to monthly frequency, so they would not characterize the dissolved oxygen variations that occur at the sub-daily time scale of peaking flows. Dissolved oxygen concentrations in the Klamath River would need to be measured at a sub-daily (e.g., hourly) time scale to represent the dissolved oxygen concentration variations resulting from peaking flows with low dissolved oxygen concentrations. While the comment is correct that fast-moving, turbulent flows in the J.C. Boyle Peaking Reach of the Klamath River provide aeration of river water, Klamath River Water Quality Model (KRWQM) and Total Maximum Daily Load (TMDL) modeling of dissolved oxygen concentrations in the J.C. Boyle Peaking Reach indicate that during the summer and fall hydropower peaking flows can release lower dissolved oxygen water from J.C. Boyle Reservoir that potentially affects dissolved oxygen concentrations farther downstream in the California portion of the J.C. Boyle Peaking Reach.

KRWQM modeling of dissolved oxygen concentrations shows dissolved oxygen concentrations upstream and downstream of J.C. Boyle Powerhouse are similar during non-peaking periods, but dissolved oxygen concentrations decrease downstream of J.C. Boyle Powerhouse during hydropower peaking operations (see Figure 4.8-42 below; PacifiCorp 2004a-1). Once peaking operations stop, the dissolved oxygen concentrations downstream of J.C. Boyle Powerhouse become the same as dissolved oxygen concentrations upstream of J.C. Boyle Powerhouse. The pattern of lower dissolved oxygen concentrations during peaking operations and higher dissolved oxygen concentrations during non-peaking periods that is apparent in the modeled dissolved oxygen concentrations downstream of the J.C. Boyle Powerhouse under existing conditions, is also apparent in dissolved oxygen concentration data at the J.C. Boyle Powerhouse measured in 2019 (see Figure ORG46-101-1 below). The 2019 measured data indicate that the dissolved oxygen modeling is correctly characterizing dissolved oxygen dynamics downstream of the J.C. Boyle Powerhouse.

A comparison of the modeled dissolved oxygen concentrations “above Copco” (i.e., downstream of the Oregon-California state line) under existing conditions and under “without-Project” (i.e., dam removal) conditions indicates that the low dissolved oxygen concentrations associated with hydropower peaking operations produce lower dissolved oxygen concentrations for several hours each day as compared with conditions under a dam removal scenario (see Figure 4.8-42 below; PacifiCorp 2004a-1). TMDL dissolved oxygen modeling results at the Oregon-California state line shown in EIR Figure 3.2-19 also indicate periods of lower dissolved oxygen concentrations in the summer under existing conditions (i.e., “TMDL dams-in” [T4BSRN] scenario) as compared with the Proposed Project (i.e., “TMDL dams-out, Oregon” [TOD2RN] scenario), further supporting the notion that hydropower peaking operations have the potential to influence dissolved oxygen concentrations in the California portion of the J.C. Boyle Peaking Reach.

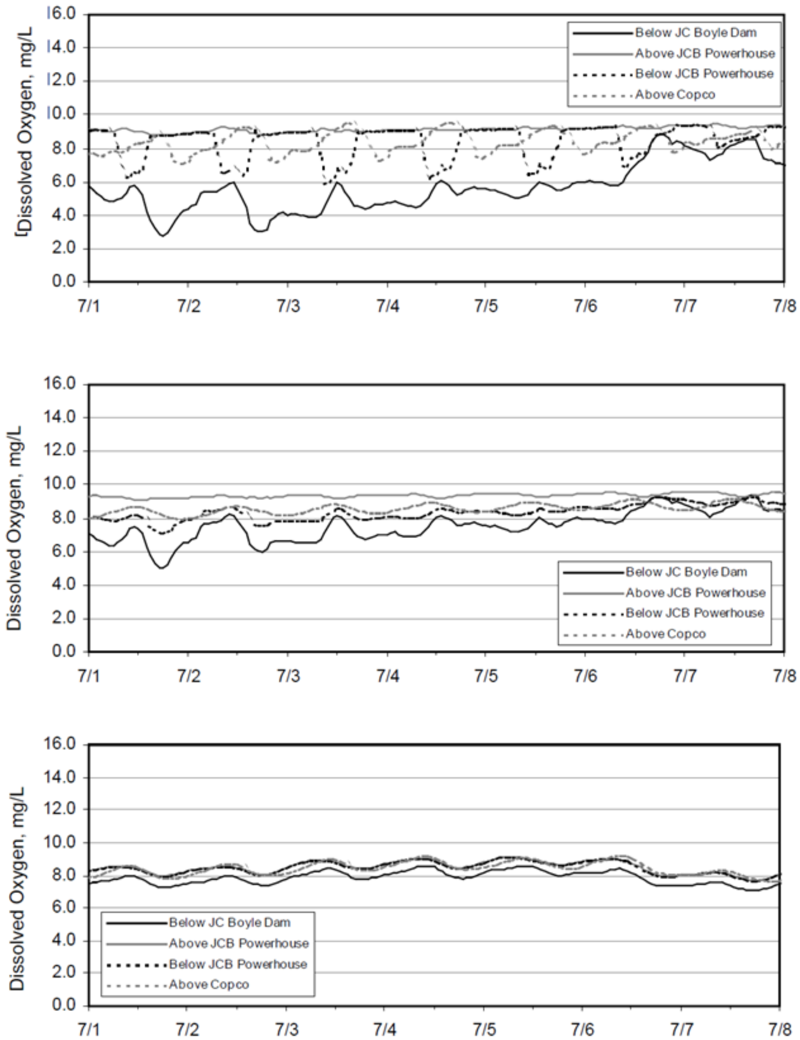


Figure 4.8-42 from PacifiCorp (2004a-1). J.C. Boyle Bypass and Peaking Reach Dissolved Oxygen, 2000: EC [Existing Conditions] (Top), SF [Steady Flow] (Middle), WOP [Without-Project] (Bottom). Note: The Without-Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Included the Removal of Keno Dam in Addition to Removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

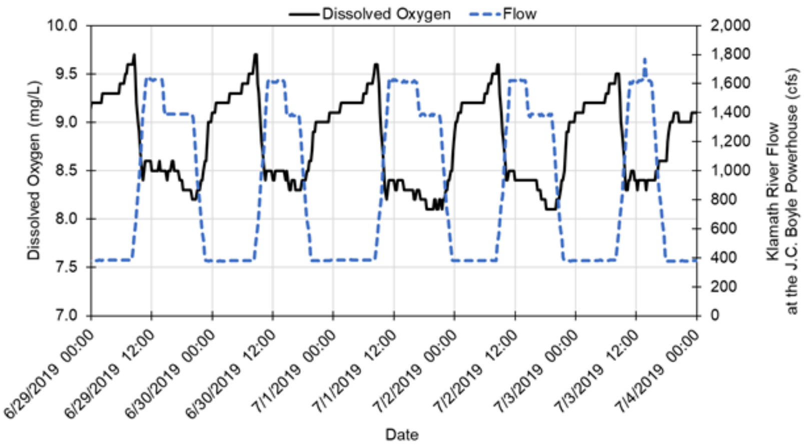


Figure ORG46-101-1. Dissolved Oxygen and Klamath River Flow Measured at the U.S. Geological Survey (USGS) 11510700 Gage Downstream of J.C. Boyle Powerhouse. Source: USGS 2019.

Data directly documenting the influence of low dissolved oxygen concentrations in J.C. Boyle Reservoir on dissolved oxygen concentrations at the Oregon-California state line are unavailable, but USGS dissolved oxygen data measured downstream of the J.C. Boyle Powerhouse indicate that hydropower peaking flows diverted from J.C. Boyle Reservoir decrease dissolved oxygen concentrations in the J.C. Boyle Peaking Reach downstream of the powerhouse, and modeling results consistently indicate that hydropower peaking operations potentially impact dissolved concentrations in the California portion of the Hydroelectric Reach. The data set thus indicates that variations in dissolved oxygen concentrations in J.C. Boyle Reservoir can affect dissolved oxygen concentrations farther downstream in the California portion of the Hydroelectric Reach.

Comment ORG46-102

The DEIR states "The low surface dissolved oxygen levels and their occurrence later in the season at Iron Gate Reservoir is believed to be associated with seasonal algal blooms, as dead algal cells are decomposed by aerobic organisms, exhausting dissolved oxygen in reservoir bottom waters and sediments." The DEIR should clarify that low surface concentrations of dissolved oxygen are associated with seasonally diminishing photosynthesis and continued algae biomatter loading from Upper Klamath Lake and other upstream Klamath River sources. Stratification persists through October for Copco Reservoir and well into November for Iron Gate Reservoir, precluding anoxic bottom waters from mixing with surface waters as is alluded to in the DEIR. Fall cooling and deepening of the epilimnion may contribute to lower dissolved oxygen water; however, the process of fall cooling deepens the epilimnion and increases its volume, and lower primary production cannot overcome the continued oxygen demand associated with organic matter (and associated oxygen demand) in Klamath River inflows.

Response to Comment ORG46-102

Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* has been revised in Volume III Attachment 1 to clarify that the period of low surface dissolved oxygen in Iron Gate Reservoir corresponds with the period when photosynthesis by algae would decline and organic matter from upstream sources increases, such that the incoming organic matter would also contribute to reduced surface dissolved oxygen concentrations in the reservoir. Please refer to Volume III Attachment 1 Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* for the revisions.

<u>Comment ORG46-103</u>

The DEIR states "Daily fluctuations in dissolved oxygen (ranging from 1 to 3 mg/L per day) measured in the Klamath River immediately downstream from Iron Gate Dam have been attributed to daytime algal photosynthesis and nighttime bacterial respiration in the upstream reservoirs." This sentence should be corrected to "...algal and bacterial respiration..." The DEIR also should clarify that releases from the reservoir experience modest diurnal variation. Additionally, monitoring locations "immediately downstream of Iron Gate Dam" are some 1,000 feet downstream of the dam. Mechanical reaeration occurs in this reach between the powerhouse and the monitoring equipment, as does aquatic vegetation photosynthesis and respiration (and bacterial respiration). These latter mechanisms also contribute to variable dissolved oxygen conditions downstream of the dam.

Response to Comment ORG46-103

Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* text has been revised to specify algal and bacterial respiration and to indicate that the Iron Gate Dam monitoring site is 1,000 feet downstream of the dam. Please refer to Volume III Attachment 1 Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* for the revisions.

<u>Comment ORG46-104</u>

The DEIR should acknowledge that dissolved oxygen levels reach saturation in the Klamath River within a couple of miles downstream Iron Gate Dam (PacifiCorp 2018a), well above Seiad Valley, which is approximately 60 miles downstream.

Response to Comment ORG46-104

Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* has been revised in Volume III Attachment 1 to clarify that existing data indicate that in 2017 dissolved oxygen concentrations were reaerated to above the minimum Basin Plan saturation levels within approximately 2 to 3 miles downstream from Iron Gate Dam. Please refer to Volume III Attachment 1 Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* for the revisions.

Comment ORG46-105

The water quality impact assessment of reservoir drawdown on pH does not address sediment-related acidification. This is an important omission that affects the adequacy of this section. The substantial sediment load released by the Proposed Project to downstream reaches will include anoxic sediments. As stated elsewhere in the DEIR (Section 3.2.5.4), these sediments will exert a substantial oxygen demand in downstream reaches during reservoir drawdown. Section 3.2.5.4 states that part of the oxygen demand would be from ferrous iron content of anoxic sediments.

However, nowhere in the DEIR is the re consideration of the acid production potential in these oxidation reactions. Oxidation of sulfidic minerals will produce acid. With such a large sediment load and in such weakly buffered waters (Section 3.2.2.6), the DEIR must assess the potential for acidification in the river downstream of Iron Gate Dam.

Another potential source of acidification that is not acknowledged and assessed in the DEIR is drainage from residual sediments in reservoirs. These drained sediments are no different than dredge spoils in their potential for acidification with oxidation. Acid seeps can form on the exposed banks within the former reservoir areas. Low pH can also mobilize metals in the seeps at concentrations that could have adverse impacts on water quality.

It may be that acidification will not be severe; however, without any analysis, it is impossible to know. Typically, an acceptable analysis of acidification potential is based on analysis of sediment mineralogy and a pH mass balance model is created to assess potential acidification impacts. The DEIR is lacking any of this information.

Response to Comment ORG46-105

While the comment asserts that there is a potential for sediment-related acidification, the comment does not provide substantial evidence regarding this potential physical impact of the Proposed Project on the environment (CEQA Guidelines section 15384). The existing evidence supports the conclusion that sediment-related acidification is unlikely to occur as the result of the project and that further study is not necessary.

Section 3.2.2.6 *Water Quality – Environmental Setting – pH* summarizes the available literature and data on existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Measurements of the potential for sediment-related acidification were not conducted as part of the previous reservoir sediment investigation (Shannon and Wilson 2006; USBR 2011) because the 2009 or 2018 Sediment Evaluation Framework (SEF) for the Pacific Northwest does not include assessment of the acid generation potential by sediments (RSET 2009, 2018). The 2018 SEF was prepared by Northwest Regional Sediment Evaluation Team Agencies (i.e., the U.S. Army Corps of

Engineers (Northwestern Division and Portland, Seattle, and Walla Walla Districts), U.S. Environmental Protection Agency, Region 10, National Oceanic and Atmospheric Administration, West Coast Region, U.S. Fish and Wildlife Service, Pacific Region, Oregon Department of Environmental Quality, Idaho Department of Environmental Quality, Washington Department of Ecology, and Washington Department of Natural Resources) and incorporates the best available science to evaluate discharges of dredged material. The acid generation potential discussed in the comment is typically evaluated for mining wastes that are extracted from underground anoxic environments (USEPA 1994) rather than anoxic reservoir sediments.

Measurements of pH in the elutriate sediment samples undertaken for the 2012 KHSA EIS/EIR and Secretarial Determination analyses indicate low acid generation potential from reservoir sediments during reservoir drawdown and downstream transport of the sediment deposits. The pH of the reservoir sediment cores ranged from 6.6 s.u. for J.C. Boyle Reservoir samples to 7.8 s.u. for Copco No. 1 Reservoir samples (USBR 2011). Klamath River Renewal Corporation (KRRC) collected measurements of soil pH during 2017 reservoir sediment core sampling and plant nutrient availability (PNA) laboratory analyses and these soil pH data indicate that the soil pH is slightly acidic. During the PNA lab analyses, which were undertaken to evaluate reservoir sediments as a growth medium, the pH ranged from 6.2 to 6.5 s.u. in sediment samples from J.C. Boyle, Copco No. 1, and Iron Gate reservoirs (Volume II Appendix B: *Definite Plan – Appendix H, Section 8.1.2 Reservoir Revegetation and Grow Tests* [pages 141 to 152]). In the reservoir sediment cores (USBR 2011) and the more recently collected PNA reservoir sediment samples, pH was measured after the sediment samples had been stored for several days to approximately five weeks. As a result, the available pH measurements likely represent a range of anoxic to slightly aerobic conditions in the sediments, but they are unlikely to characterize the pH under completely aerobic conditions.

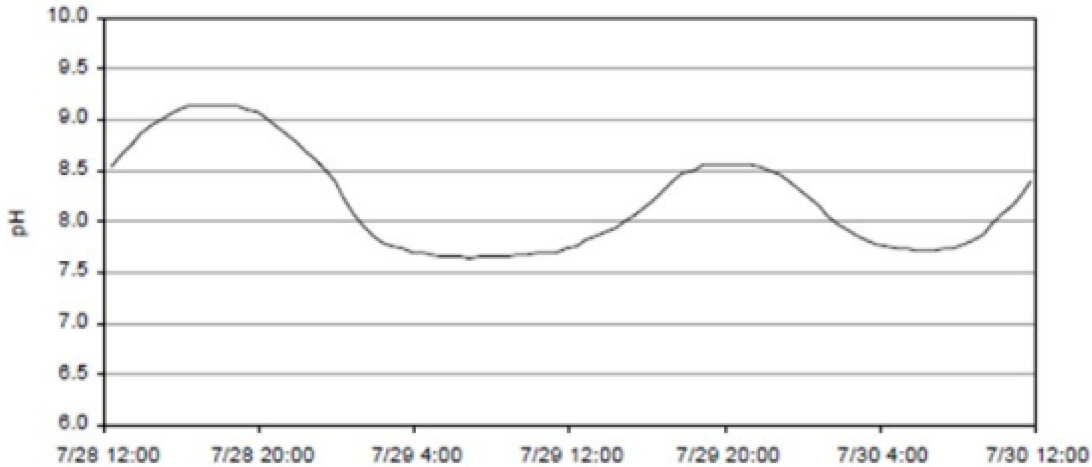
Measurements of elutriate sediment sample pH are potentially the most representative of pH under aerobic conditions. The elutriate sediment samples were prepared by vigorously mixing four parts reservoir sediment with one part native (i.e., reservoir) water for thirty minutes, letting the mixture settle for one hour, extracting the overlying solution, and centrifuging the solution to remove particles. The native water was collected from the surface of the reservoirs where dissolved oxygen levels were measured between approximately 6.5 milligram per liter (mg/L) to approximately 11 mg/L, so the mixing during preparation of the elutriate sediment samples would have exposed the reservoir sediment to an aerobic environment and would thus represent the acid generation potential from rapidly oxidizing iron or sulfide minerals in the sediments. The elutriate sediment sample pH ranged from 7.6 standard units (s.u.) in Iron Gate Reservoir to 8.0 s.u. in J.C. Boyle Reservoir (USBR 2011) suggesting there is a low acid generation potential for reservoir sediments as they are reaerated during sediment mobilization and transport downstream of the Hydroelectric Reach.

To date, no measurement or analysis results for the Lower Klamath Project reservoir sediments or elutriate test results, including acid volatile sulfide measurements in the reservoir sediments and sulfide measurements in the elutriate sediment samples, have identified a significant potential for acid generation during or following reservoir drawdown and no further testing along these lines has been recommended by the prior studies (Shannon and Wilson 2006; GEC 2006; USBR 2011; CDM 2011).

Overall, the multiple lines of evidence discussed above, including direct measurement of pH after reservoir sediments were exposed to an aerobic environment, indicate that the acid generation potential of reservoir sediments is low and a more detailed analysis of the acid generation potential of the reservoir sediments based on an analysis of sediment minerology and a pH mass balance model is not necessary.

Comment ORG46-106

The DEIR states that alkalinity "Levels below 10 mg/L indicate that the system is poorly buffered and very susceptible to changes in pH." The correct value indicative of a weakly buffered system is 100 mg/L, not 10 mg/L. The pH of water is an important parameter in aquatic systems because many reactions that control water quality are pH dependent. Typically, surface freshwater (rivers and lakes) contain both acids and bases, and biological processes tend to increase either acidity or basicity. The interactions among these opposing compounds and processes determine pH. Carbon dioxide ($CO_{2(aq)}$) is particularly influential in regulating pH in aquatic systems. $CO_{2(aq)}$ is acidic, and its concentration varies as a result of its utilization by aquatic plants in photosynthesis and release in respiration of aquatic organisms. The alkalinity of water results primarily from carbonate (CO_3^{-2}) and bicarbonate ions (HCO_3^-). And alkalinity tends to buffer water against excessive pH change (Boyd 2000; Stumm and Morgan 1996; Tchobanoglous and Schroeder 1987). Alkalinity in environmental waters is beneficial because it minimizes pH changes in response to various factors that include acidification (e.g., acid rain), pollutant inputs to aquatic systems, and primary production (Kalff 2002). Primary production in systems that have low to moderate alkalinity can experience increases in pH during periods of high photosynthesis. During these periods, algae deplete available $CO_{2(aq)}$ and utilize HCO_3^- as a secondary source of $CO_{2(aq)}$, excreting excess hydroxyl ions (OH^-) to the water, contributing the elevated pH conditions (Kirk 2011). Review of the 2009 through 2017 KHSA Interim Measure 15 water quality data indicates that alkalinity concentrations in the Klamath River system typically in the 40 to 70 mg/L (as $CaCO_3$) range in the upper basin (Link River Dam), 65 to 85 mg/L (as $CaCO_3$) range downstream of Iron Gate Dam, and SO to 100 mg/L (as $CaCO_3$) range in the lower basin (Orleans). Given the naturally productive nature of the Klamath River, alkalinity values below approximately 100 mg/L are subject to *seasonal pH deviations during periods of maximum photosynthetic activity. A 48-hour trace of pH is shown in the figure below for the Klamath River downstream of the Shasta River (June 28, 12:00 to June 29, 12:00, 1997; Deas 2000), indicating an increase of 1.5 pH units due to primary production. Elevated pH in the upper basin and throughout the river system in response to seasonal productivity has been identified through the KHSA Interim Measure 15 monitoring program as well as other monitoring efforts. Elevated pH can lead to short duration chronic, and in extreme cases acute ammonia toxicity (USEPA 2013).*



Response to Comment ORG46-106
Please refer to Volume III Attachment 1 Section 3.2.2.6 *pH* and Volume II Appendix C, Section C.5 *pH* (pages C-59 to C-68) for a discussion of pH and the variations in pH due to photosynthesis in the Klamath River. The second paragraph in Section 3.2.2.6 *pH* specifically states that the “Klamath River is a weakly buffered system (i.e., has typically low alkalinity less than 100 mg/L as calcium carbonate [CaCO3]; PacifiCorp [2004a], Karuk Tribe of California [2010a]), so it is susceptible to photosynthesis-driven daily and seasonal swings in pH.” While alkalinity levels less than 100 mg/L do indicate that the system is weakly buffered, it is also correct that alkalinity levels below 10 mg/L would indicate that the system is ***poorly*** buffered and very susceptible to changes in pH. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

Volume II Appendix C, Section C.5.2.1 *Iron Gate Dam to Salmon River* (pages C-62 to C-65) also notes that observed exceedances of pH water quality objectives usually occur during later afternoon or early evening, following the period of maximum photosynthesis (North Coast Regional Board 2010, Asarian and Kann 2013).

Section 3.2.2.6 *pH* has been revised to clarify the range of pH variations measured in the Klamath River downstream of its confluence with the Shasta River during July 1997 (the comment incorrectly identified it as June 1997). Please refer to Volume III Attachment 1 Section 3.2.2.6 *pH* for the revisions.

Comment ORG46-107

The DEIR states "Historically, seasonal algal blooms and elevated chlorophyll-a concentrations have been observed in the Hydroelectric Reach, including a 1975 survey in Iron Gate Reservoir documenting algal blooms in March, July, and October, including diatoms and blue green algae (USEPA 1978)." It should be noted that of the three sample dates in USEPA (19 78), Microcystis sp. and Dolichospermum sp. are absent, and in only one of the three sample dates is a blue-green algae dominant (Oscillatoria sp.).

The "more contemporary data" discussion in this paragraph should be updated following a review of the data generated in the KHSA Interim Measure 15 monitoring program through 2017. The reference in the text to Figure 3.2-5 only includes data through 2007 (note that the DEIR text incorrectly refers to Figure 3.2-25). In addition, the DEIR states that "...chlorophyll-a levels in Copco No. 1 and Iron Gate reservoirs can be two to ten times higher than in the Klamath River..." without telling the reader where in the river the data are being compared. This is important because chlorophyll-a levels in Iron Gate Reservoir, for example, have been consistently lower than those in Keno reservoir. Since 2015, reductions in chlorophyll-a downstream of Iron Gate Dam when compared to Iron Gate Reservoir are at least partially attributable to operation of the intake barrier curtain in Iron Gate Reservoir (Watercourse 2016; PacifiCorp 2017b).

Response to Comment ORG46-107

Water quality data collected under Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) include chlorophyll-*a* data for summer through early fall (i.e., May to October) during the period 2000 to 2017 at monitoring locations in the Klamath River and the upper 10 meters of the Lower Klamath Project Reservoirs (Figure ORG46-107-1). The IM15 data include chlorophyll-*a* concentrations measured downstream of Iron Gate Dam during periods between 2014 and 2017 when an intake barrier/thermal curtain was used in Iron Gate Reservoir. The IM15 data and the chlorophyll-*a* data plotted in Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* Figure 3.2-5 exhibit generally similar chlorophyll-*a* trends, with the following exceptions: the range of chlorophyll-*a* concentrations in the IM15 2000 to 2017 dataset (Figure ORG46-107-1) is greater than the range of chlorophyll-*a* concentrations in the 2005 to 2007 dataset plotted in Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* Figure 3.2-5, and chlorophyll-*a* concentrations for locations downstream of Keno Dam to upstream of Copco No. 1 Reservoir are generally greater in J.C. Boyle Reservoir in the IM15 2000 to 2017 dataset (Figure ORG46- 107-1) than in the 2005 to 2007 dataset plotted in Figure 3.2-5. Maximum chlorophyll-*a* concentrations measured at multiple Klamath River stations and in Copco No. 1 and J.C. Boyle reservoirs in the IM15 2000 to 2017 dataset are higher than those plotted in Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* Figure 3.2-5, with maximum chlorophyll-*a* concentrations measured in

J.C. Boyle Reservoir (825 micrograms per liter [ug/L]) at two orders of magnitude greater than those measured in the 2005 to 2007 dataset (5 ug/L). Minimum chlorophyll-*a* concentrations measured in Iron Gate Reservoir in the IM15 2000 to 2017 dataset are lower than those plotted in Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* Figure 3.2-5.

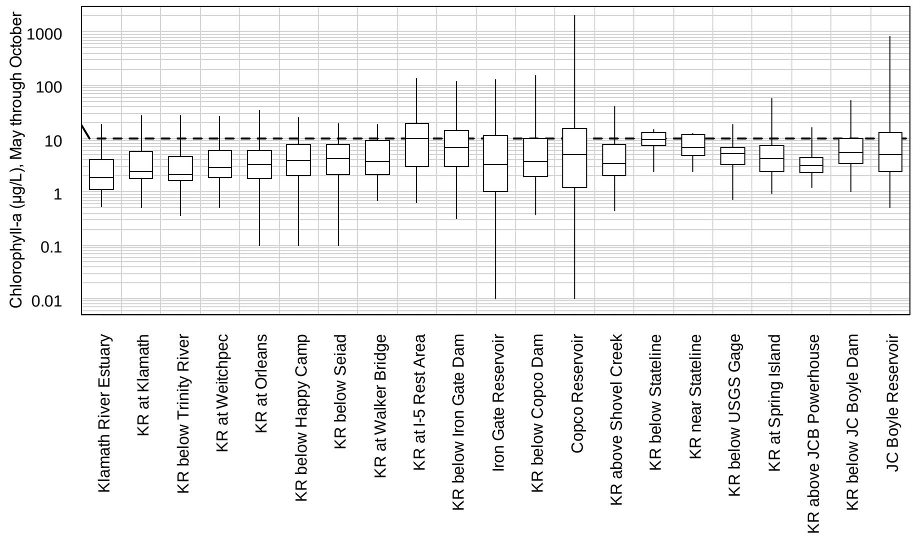


Figure ORG46-107-1. Longitudinal Analysis of Summer Through Fall (May to October) KHSA Interim Measure 15 (IM15) Chlorophyll-*a* Concentrations from 2000 to 2017 Along the Klamath River and in the Upper 10 Meters of the Reservoirs. Whiskers extend from minimum to maximum value, boxes extend from the first to the third quartile, and the horizontal line indicates the median of the dataset at each site. The Dashed Horizontal Line is the Chlorophyll-a Klamath River Total Maximum Daily Load (TMDL) Target (i.e., 10 ug/L). Note the Logarithmic Scale. Chlorophyll-*a* Data From Stations That Shifted Locations Between Years Are Plotted Together (e.g., KR at Walker Bridge). Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

It is appropriate to state "chlorophyll-*a* levels in Copco No. 1 and Iron Gate reservoirs can be two to ten times greater than those in the mainstem Klamath River" without specifying the exact comparison point in the mainstem Klamath River; Figure 3.2-5 provides the reader with the data to determine the multiple locations within the mainstem Klamath River where the statement is true, including the monitoring locations "Abv Shovel", "I-5", "Walker Bridge", "Seiad Valley", "Orleans", "Weitch", "Bel Weitch", "Turwar", and "Lower Est" in Figure 3.2-5.

Water quality measurements during 2015 and 2016 when the intake barrier/thermal curtain was in use in Iron Gate Reservoir indicate that the intake barrier/thermal curtain reduces entrainment of blue-green algae into the Iron

Gate Powerhouse intake and subsequent release downstream into the Klamath River. Chlorophyll-*a* concentrations downstream of Iron Gate Dam during 2015 and 2016 when the intake barrier/thermal curtain was in use also showed a decrease compared to chlorophyll-*a* concentrations in Iron Gate Reservoir, with chlorophyll-*a* concentrations consistently below 10 ug/L (i.e., Klamath TMDLs phytoplankton chlorophyll-*a* target) even when chlorophyll-*a* concentrations in the reservoir were greater than 10 ug/L (PacifiCorp 2016a, 2017a). However, water quality monitoring data from 2017 and 2018 downstream of Iron Gate Dam show multiple exceedances of the Klamath TMDLs phytoplankton chlorophyll-*a* target (i.e., 10 ug/L) (Watercourse Engineering, Inc. 2018, 2019). The intake barrier/thermal curtain was completely rolled up during portions of 2017 to maximize dissolved oxygen concentrations for aquatic life (PacifiCorp 2018a), so decreases in chlorophyll-*a* downstream of Iron Gate Dam from operation of the intake barrier/thermal curtain would be potentially limited by the need to access water with higher dissolved oxygen concentrations to comply with dissolved oxygen standards. An analysis of the intake barrier/thermal curtain performance during 2017 or 2018 has not been published and PacifiCorp continues to test and refine the intake barrier/thermal curtain design and operations, but available data do not indicate that this measure would prevent releases from Iron Gate Dam that exceed the Klamath TMDLs phytoplankton chlorophyll-*a* target of 10 ug/L for Iron Gate Reservoir during the May to October growth season (North Coast Regional Board 2010).

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to clarify the algal species present during the 1975 surveys of Iron Gate Reservoir and to clarify the influence of the intake barrier/thermal curtain on chlorophyll-*a*. Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* Figure 3.2-5 also has been revised by replacing it with Figure ORG46-107-1 above showing the measured KHSA IM 15 chlorophyll-*a* concentrations from 2000 to 2017. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Chlorophyll-a and Algal Toxins* for the revisions.

Comment ORG46-108

Algae toxins may be produced wherever conditions are suit able for associated blue-green algae growth (benthic or planktonic forms), and there are no data to support the conclusion that algal toxins in the lower river only occur because of the presence of Iron Gate and Copco reservoirs. The DEIR should be revised to acknowledge this. The DEIR indicates that Copco No. 1 and Iron Gate reservoirs are responsible for the production of algal toxins, such as microcystin, in the Klamath River downstream of Iron Gate Dam. This is not thoroughly correct and is somewhat misleading. Algal toxins (including microcystin) have been documented upstream of the hydroelectric projects in Agency Lake, Upper Klamath Lake, and Keno Reservoir.

The DEIR should be revised to accurately reflect the complexity of algal-toxin production in the Klamath River. For example, in addition to the citation of Otten et al. (2015), the DEIR should include more recent information on the causes and instances of algal toxins in the Klamath River such as presented by Otten (2017), Otten and Dreher (2017), and Paerl et al. (2018). This more recent information indicates that Microcystis blooms and microcystin concentrations have increased in magnitude and persistence in recent years in Upper Klamath Lake, and that microcystin concentrations are consistently elevated in the lake during the bloom season (Otten 2017b; Otten and Dreher 2017). Key message from Paerl et al. (2018) is that management of eutrophication and harmful algae blooms should recognize causes and interconnection across watershed gradients. Paerl et al. (2018) conclude that it makes little sense to attempt controls in the downstream reservoirs without first addressing the predominant sources coming from upstream. However, Paerl et al. (2018) indicate that in practice most management responses to eutrophication issues have involved interventions aimed at treating individual segments of the system and frequently focus on the problem rather than the underlying causes of the blooms that often take place upstream.

Response to Comment ORG46-108

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* does not claim that algal toxins occur in the Middle and Lower Klamath River only because of Copco No. 1 and Iron Gate reservoirs; instead, this section summarizes the available data characterizing microcystin (an algal toxin) from the Klamath River indicating that Iron Gate Reservoir is the principal source of *Microcystis aeruginosa* cells to the Klamath River downstream of Iron Gate Dam (Otten et al. 2015). The comment is correct that algal toxins potentially would be produced wherever there is suitable habitat for blue-green algae growth in the Klamath River. Blue-green algae growth has been observed in calm, slow-moving habitats along shorelines and protected coves and backwaters during low-flow periods in the Middle and Lower Klamath River under existing conditions (Fetcho 2008; Raymond 2008; Kann and Corum 2009; Kann et al. 2010a; Genzoli and Kann 2016, 2017), but Otten et al. (2015) found no evidence of endemic *Microcystis aeruginosa* populations in the flowing regions of the Klamath River upstream or downstream of Copco No. 1 and Iron Gate reservoirs and concluded that the river itself does not represent favorable cyanobacterial habitat. The longitudinal decrease in *Microcystis aeruginosa* cell density and microcystin concentrations in open-channel and shoreline samples from the Klamath River downstream of Iron Gate Dam to upstream of the Klamath River Estuary suggests that the water velocity and constant mixing in the river are not supportive of blue-green algae reproduction and algal toxin production (Otten et al. 2015; Genzoli and Kann 2017). However, the analysis in Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impact 3.4-2 (pages 3-428 to 3-433) specifically acknowledges that algae growth could occur in slow-moving habitats along the river margins after dam removal, stating: "Some phytoplankton growth may still occur after dam removal in calm, slow-moving habitats along shorelines and protected coves and backwaters during low-flow periods in the Middle and Lower Klamath River, but these habitats already support growth of blue-green algae, including *Microcystis aeruginosa*, that results in occasional exceedances of 2016 CCHAB secondary thresholds and World Health Organization (WHO) guidelines (Falconer et al. 1999; Kann et al. 2010a; State Water Board et al. 2010, updated 2016; Genzoli and Kann 2016, 2017)."

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised in Volume III Attachment 1 to clarify the potential for blue-green algae growth along the shoreline, as well as longitudinal trends in *Microcystis aeruginosa* cell density and microcystin concentrations in the Klamath River. Data from Volume II Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a* (pages C-68 to C-83) have also been brought forward into Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* to clarify microcystin trends in the Klamath River. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Please see Master Response PAP-1 for discussion of upstream sources of algae and associated algal toxins, including Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) monitoring data for the period 2008 to 2017 that characterize the existing conditions for microcystin (algal toxin) concentrations in the Klamath River upstream of J.C. Boyle Reservoir as consistently less than 4 micrograms per liter [ug/L] (i.e., the microcystin threshold of significance).

Please also refer to Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-422) for further discussion of cyanobacteria [blue-green algae] growth dynamics and associated algal toxin production within the Klamath River, especially Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* (pages 3-405 to 3-413) and Volume I Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River* (pages 3-413 to 3-419) for a comparison of the suitability of habitat conditions in the river and reservoir reaches for toxigenic blue-green algae growth, and genetic analyses of *Microcystis aeruginosa* in Copco No. 1 Reservoir, Iron Gate Reservoir, and multiple Klamath River sites downstream of Iron Gate Dam that identify Iron Gate Reservoir as the principal source of *Microcystis aeruginosa* to the Klamath River downstream of Iron Gate Dam (Otten et al. 2015). Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* (pages 3-405 to 3-413) already incorporates information on *Microcystis aeruginosa* growth dynamics in Copco No. 1 and Iron Gate Reservoirs from Otten and Dreher (2017).

Otten (2017) was not cited in the EIR since it is focused on comparing methodologies for estimating algal toxins and cell densities in the Klamath River (i.e., the effectiveness of molecular assays targeting the genes responsible for toxin production versus measurement of algal toxin concentrations or cell counts). However, Otten (2017) does contain algal toxin and *Microcystis aeruginosa* cell count data, and Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins – Chlorophyll-a and Algal Toxins* and Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* have been revised to include data reported in Otten (2017). The algal toxin and cell count data presented in Otten (2017) support the current summary of existing conditions without additional text changes, so this citation has been added, as appropriate, to the references for the summary of existing conditions. Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Volume III Attachment 1 Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Phytoplankton* for the revisions.

Volume I Section 3.4.2.1 *Phytoplankton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403) summarizes the general algal growth dynamics discussed in Paerl et al. (2018), including the influence of habitat suitability and nutrient availability on algal growth and toxin production. While Paerl et al. (2018) provides an overview of the longitudinal algal growth dynamics across a watershed and potential management strategies to influence algal growth dynamics, it does not provide new information on algal growth conditions in the Klamath Basin or specific recommendations for management activities to alter algal growth or algal toxins in the Klamath Basin. Additionally, Paerl et al. (2018) concludes that “it makes little sense to attempt ***nutrient*** [emphasis added] control in the downstream reservoirs without first addressing the predominant source” coming from upstream, but it does not address or make conclusions on the potential for dam removal and elimination of the slow-moving reservoir habitat to reduce blue-green algae growth in a watershed.

Comment ORG46-109

The DEIR states “In contrast, data from 2008 and 2009 did not show microcystin bioaccumulation in the tissue and liver samples from fish collected from Copco No. 1 and Iron Gate reservoirs (CH2M HILL 2009; PacifiCorp 2010).” This discussion is inadequate and incomplete. The DEIR needs to include all the results for fish sampled for microcystin in the Klamath River. In 2008, tissue was collected from a total of 272 resident fish (Yellow Perch, Crappie, and Rainbow Trout) and all laboratory analysis did not detect microcystin in these samples. In 2009, a total of 43 fish tissue and liver samples were collected from Yellow Perch, and again microcystin was not detected. These studies are posted on PacifiCorp's Klamath website (http://www.pacificorp.com/es/hydro/hl/kr.html). The data from the anadromous fish sampling for microcystin that was done in 2007 and 2010 should also be presented and discussed. In 2007, fish and liver samples were collected from 11 adult Chinook Salmon and 8 Steelhead and *microcystin was not detected in any of these samples (CH2M HILL 2009). In 2010, tissue and liver samples were collected from 25 Steelhead, 20 fall Chinook, and 3 Coho in the Klamath River. While microcystin was not detected in any of the fish tissues, four Chinook livers and a Steelhead liver had detectable amounts of microcystin present.*

The DEIR analysis needs to go beyond discussion of simple microcystin presence in these sampled tissues and discuss what the toxin quantities mean in terms of associated levels of potential human health risk. The DEIR also needs to distinguish where microcystin concentrations have been detected in fish tissue versus liver since it is toxin levels in the consumed tissue that pose a human health risk because fish livers are not consumed. To PacifiCorp's knowledge, no microcystin has been found in adult salmonid fish tissue in the Klamath River, yet the DEIR fails to mention this. The DEIR discusses the risk to fish but presents no evidence to show what harm, if any, occurs at the individual or population level from microcystin exposure. Any analysis related to microcystin effects on the fisheries must distinguish between resident and anadromous fish since most of the anadromous salmonids enter the river as adults to spawn and die.

Response to Comment ORG46-109

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to the Affected by the Proposed Project – Algal Toxins* provides further discussion of microcystin bioaccumulation in fish and mussel tissue, including discussion of results from samples collected in 2007, 2008, 2009, and 2010.

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* also provides a comparison of the detected microcystin concentrations relative to public health guidelines. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Section 3.3 *Aquatic Resources*.

Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* has been revised to include the detailed microcystin bioaccumulation results for fish and mussel tissue samples collected in 2007, 2008, 2009, and 2010 and further elaborate on the comparison of detected microcystin concentrations in salmonids and public health guidelines. The additional data do not constitute significant new information (CEQA Guidelines section 15088.5(a)). Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* for the revisions.

Comment ORG46-110

This section of the DEIR concludes that trace metals decline as water flows downstream, with the exception of nickel, magnesium, and calcium. The decline is attributed to binding and precipitation. However, the section does not provide a reason why such a decline was not observed for nickel, magnesium, and calcium. Please provide more detail to support the conclusions.

Response to Comment ORG46-110

The referenced sentence summarizes the conclusions of Flint et al. (2005), which documented that the concentration of trace elements in the Klamath River decreased as water flowed downstream (with the exception of nickel, magnesium, and calcium) during 2002 and 2003 at four United States Geological Survey (USGS) gage stations downstream of Iron Gate Dam. The authors did not provide data, hypothesis, or analysis to explain why there was no decline observed for nickel, magnesium, and calcium. As such, the reason why nickel, magnesium, and calcium concentrations did not decline in the downstream direction during measurements in 2002 and 2003 is unknown.

Comment ORG46-111

The DEIR indicates that acid volatile sulfides (AVS) were measured but does not indicate if simultaneously extracted metals (SEM) were measured. This is important because AVS measurements are meaningless without the companion SEM measurements. If SEM data were collected, a discussion of the potential for metals toxicity should be discussed using the USEPA's Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver and Zinc (USEPA 2005).

Response to Comment ORG46-111

Simultaneously extracted metals (SEM) data associated with the acid volatile sulfides (AVS) measurements are not reported by USBR (2011). However, the AVS measurements collected by United States Bureau of Reclamation (USBR) are not used to assess the potential for metals toxicity in the EIR analysis. Instead, as stated in Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants*, the potential sediment toxicity to benthic organisms, including metals toxicity, was directly assessed by bioassays of sediment and elutriate sediment samples using fish and invertebrate national benchmark toxicity species. Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* and Appendix C, Section C.7.1.1 *Inorganic and Organic Contaminants – Upper Klamath Basin – Hydroelectric Reach – Sediment Toxicity and Bioaccumulation Tests* contain a summary of the bioassay results. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Additionally, the dissolved metal concentrations in interstitial water are correlated with observed biological effects to sediment-dwelling (i.e., benthic) organisms (USEPA 2005), so the dissolved metal concentrations measured in the elutriate sediment samples would also quantify the potential metals toxicity.

Comment ORG46-112

The DEIR uses the term "dioxin" without defining it. The reader is left to assume that when using that term the authors are referring to the 17 dioxin and furan *congeners. The text further uses the term "toxic equivalency concentrations" without defining that for the reader. To fully inform the reader, the text should be rewritten to clarify the terminology.*

Response to Comment ORG46-112

Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* have been revised to clarify what is meant by dioxin and toxic equivalency concentrations. Please refer to Volume III Attachment 1 Section 3.2.2.8 *Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* for the revisions.

Comment ORG46-113

The DEIR compares "dioxin" concentrations to threshold values. We suspect that these are 2,3,7,8 2,3,7,8-tetrachlorodibenzodioxin (TCDD) toxicity equivalent quotients or toxic equivalents but the DEIR fails to indicate specifically what is being evaluated.

Response to Comment ORG46-113

Dioxin threshold values specified in Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* are toxic equivalent concentrations relative to 2,3,7,8-tetrachlorodibenzodioxin (2,3,7,8-TCDD). Toxic equivalent concentrations are equal to toxic equivalent quotients and abbreviated as TEQ.

Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* has been revised to clarify that dioxin threshold values are expressed as TEQs. Please refer to Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* for the revisions.

Comment ORG46-114

The DEIR discusses the results from whole sediment toxicity tests with the amphipod Hyalella azteca. The text states "Toxicity tests generally indicate a low potential for toxicity…." Additional text should be provided that describes the criteria for classifying toxicity as 'low' or 'moderate' potential and what this means for the Proposed Project.

Response to Comment ORG46-114

Section 3.2.2.8 *Inorganic and Organic Contaminants – Sediment Contaminants* has been revised in Volume III to clarify the meaning of "low" and "moderate" potential for sediment toxicity and correct the typo that indicated *Hyalella azteca* had the decreased survival. Please refer to Volume III Attachment 1 Potential Impact 3.2-14 for analysis of the freshwater and marine aquatic species exposure to inorganic and organic contaminants under the Proposed Project due to release of reservoir sediments, including the analysis of what the survival rates of benthic organisms in reservoir sediments means for the Proposed Project and how percent survival of the benchmark benthic indicator species was used in the determination of “low” and “moderate” potential for sediment toxicity. The analysis in Potential Impact 3.2-14 also correctly identifies the benthic midge *Chironomus dilutus* as having the decreased survival in J.C. Boyle Reservoir sediments. Please refer to Volume III Attachment 1 Section 3.2.2.8 *Inorganic and Organic Contaminants – Sediment Contaminants* for the revisions.

Comment ORG46-115

The DEIR presents comparisons of sediment chemical concentrations to risk-based screening values. The paragraph as written is confusing and hard to follow and it is impossible to differentiate between ecological and human health-based screening values. To increase readability, this paragraph should be split into two, with one devoted to ecological and one to human health.

Response to Comment ORG46-115

Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* has been revised to clarify the human health and ecological screening levels exceeded by the total arsenic, total copper, and total lead concentrations measured in reservoir and estuary sediment samples. Please refer to Volume III Attachment 1 Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* for the revisions.

Comment ORG46-116

The definition for “substantial” is not adequate. The DEIR states that “...substantial, as used in the significance criteria, means the effect on water quality and the support of beneficial uses (or human health or environmental receptors, as specified) is of considerable importance.” The connection to the beneficial uses is appropriate, but the term “of considerable importance” is not defined.

Response to Comment ORG46-116

To the extent that identified water quality significance criteria can be expressed quantitatively, Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance* does so explicitly, or the details are provided in Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation*. If it is not possible to identify meaningful quantitative significance criteria, or if such criteria would otherwise be inappropriate for a particular analysis, then qualitative thresholds of significance are presented and discussed instead. The phrase “of considerable importance” does not require definition beyond the ordinary usage of the term. Together, the stated significance criteria and impact analysis approach subsections for water quality provide the necessary context regarding the phrase ‘of considerable importance’ in determining significance for the water quality effects analyzed in the Lower Klamath Project EIR. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

Lastly, lacking any specific identification of a problem with an impact analysis in the EIR due to use of the phrase 'of considerable importance', the assertion that this phrase must be further defined in this section does not constitute substantial evidence regarding the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384).

Please also refer to Master Response CEQ-3.

Comment ORG46-117

The discussion of turbidity references a lack of data but fails to acknowledge that turbidity data has been routinely collected with all KHSA Interim Measure 15 water quality samples since 2009. While this is spot data at a monthly or bimonthly time-step, it is certainly more precise than the approach taken in the DEIR.

The DEIR connects the criterion for turbidity to "natural conditions" but does not characterize or define natural. According to CEQA the comparison should be made for turbidity impacts relative to baseline conditions (those present at the time of the Notice of Preparation (NOP) for the DEIR.

Response to Comment ORG46-117

Please refer to Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* for an explanation for why sufficient turbidity data are not available for the Klamath Basin to use the Basin Plan turbidity water quality objective to analyze potential impacts under the Proposed Project in the manner anticipated by the Basin Plan (i.e., relative to natural conditions), as well as the rationale for using the specified suspended sediment concentration (SSC) threshold of significance (i.e., 100 milligram per liter [mg/L] for a continuous two week period).

Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* has been revised to further clarify what is meant by "natural conditions" in the turbidity water quality objective in the Basin Plan. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* for the revisions.

Turbidity is a measure of the collective optical properties of a water sample that cause light to be scattered and absorbed rather than transmitted in straight lines (Anderson 2004). Turbidity changes as suspended material increases and scatters or absorbs more light in a water sample, but the specific relationship between turbidity and suspended material may vary widely between samples from different monitoring sites and between different watersheds due to variations in the suspended material properties (e.g., the size, shape, and refractive index of particles having different light scattering properties). Flow variations in a river may result in turbidity naturally fluctuating several orders of magnitude, but turbidity has also been observed to fluctuate by an order of magnitude or more when flows are relatively constant due variations in the suspended material properties being transported during different times (Bash et al. 2001).

While monthly to bi-monthly turbidity data have been collected as part of Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) water quality samples, monthly to bi-monthly turbidity data represent the turbidity conditions only during the specific time of the measurements, and the IM15 turbidity data would not characterize the full range of turbidity conditions occurring under existing conditions. Turbidity measurements are infrequently collected during high winter flows (likely due to safety concerns of sampling at high flows), with no January, four February, and six March turbidity measurements downstream of Iron Gate Dam (river mile [RM] 193.1) in turbidity data from 2000 to 2017. As such, it is not possible to quantify the full range of turbidity under existing conditions (i.e., those present at the time of the Notice of Preparation [December 22, 2016]), especially during the main reservoir drawdown period between January and March. IM15 turbidity data would not provide a more precise approach to assessing turbidity under the Proposed Project since there is no turbidity data during one of the primary periods that needs to be analyzed.

The Basin Plan turbidity water quality objective (Basin Plan Section 3.3.17 *Turbidity* [page 3-6]) specifies that turbidity shall not be increased more than 20 percent above naturally occurring background levels. The Basin Plan defines natural conditions as conditions or circumstances affecting the physical, chemical, or biological integrity of water that are not influenced by past or present anthropogenic activities. Thus, naturally occurring background levels of turbidity would be those not influenced by past or present anthropogenic activities. However, there are not sufficient data to determine the turbidity under natural conditions or existing conditions, so the Basin Plan numeric turbidity water quality objective relative to natural conditions are not used as a threshold of significance in the EIR suspended sediment analysis. As explained in Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments*, narrative sediment water quality objectives were interpreted into a numeric SSC threshold of significant to assess potential impacts to the most sensitive beneficial use (COLD). As explained in Section 3.2.4.2 *Water Quality – Impact Analysis Approach – Suspended Sediments* and analyzed in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments*, daily total SSCs were modeled for existing conditions representing WY 1961–2008 (“background”) and changes in SSCs under the Proposed Project are quantitatively compared to the modeled background SSC levels or qualitatively compared relative to existing conditions, as appropriate, to evaluate the potential impacts from suspended sediments.

Comment ORG46-118

The DEIR acknowledges that there are differences between suspended sediment concentrations and total suspended solids but fails to explain what these differences mean in terms of data interpretation and how this difference may affect the impact analysis. The assumption that they are equivalent as made in the DEIR needs to be justified.

Response to Comment ORG46-118

Please refer to Gray et al. (2000) cited in Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Suspended Sediments* for an in-depth comparison of suspended sediment concentration (SSC) and total suspended solids (TSS) data. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Footnote 39 in Section 3.2.3.1 *Thresholds of Significance – Suspended Sediments* also has been revised to clarify the justification for using TSS and SSC interchangeably. Please refer to Volume III Attachment 1 Section 3.2.3.1 *Thresholds of Significance – Suspended Sediments* for the revisions.

As detailed in Gray et al. (2000), an analysis of 3,235 paired SSC and TSS natural-water samples from eight states showed SSC and TSS values generally follow a line of equal value (i.e., 1:1 line), but SSC values tend to exceed their paired TSS values, particularly at larger values of SSC. The SSC values better represent the actual sediments in a sample because the TSS measurement methodology of using a pipette or pouring often results in underestimating the larger particles (i.e., sand-sized particles) that rapidly settle or may plug up the opening of a pipette. Further analysis of 860 paired SSC and TSS natural-water samples with known relative amounts of sand-size and finer material shows that SSC values tend to be larger than their paired TSS values when the percentage of sand-size material exceeds about 25 percent of the mass of sediment in the sample. SSC values are consistently larger than their paired TSS values when the percentage of sand-sized material exceeds a third of the mass of sediment in the sample. SSC and TSS data are more or less evenly distributed around the line of equal value when particle sizes are finer than 0.062 millimeters [mm](i.e.,1 silts or clays) and TSS is greater than approximately 5 milligram per liter (mg/L).

Overall, the implication of the Grey et al. (2000) results is that TSS measurements tend to underestimate overall suspended material concentrations, especially at higher flows that suspend a higher fraction of larger particles. Sediment transport modeling for the Lower Klamath Project analyses utilized SSCs, so the analysis of potential impacts due to the release of reservoir sediments under the Proposed Project (i.e., Potential Impact 3.2-3) would be unaffected by the differences between SSC and TSS measurements. The analyses in Potential Impact 3.2-4 and Potential Impact 3.2-5 did not rely on TSS measurements, so these analyses would be unaffected by the differences between SSC and TSS measurements. The analysis in Potential Impact 3.2-5 may underestimate the algal-derived (organic) suspended material occurring under existing conditions because the algal-derived (organic) suspended material were measured as TSS, but relative fraction of algal-derived (organic) suspended material that would be likely to settle during TSS measurements is unknown and TSS measurements may in fact accurately reflect actual suspended material. The analysis in Potential Impact 3.2-5 evaluated long-term changes in algal-derived (organic) suspended materials relative to existing conditions, so potential underestimates of algal-derived (organic) suspended material under existing conditions would shift the existing conditions and would not alter the overall conclusions of the analysis.

Comment ORG46-119

The discussion in this section indicates that certain aspects of water quality in the DEIR impact analysis relied on models developed for the Klamath River TMDL. The DEIR' s Thresholds of Significance for these aspects of water quality are tied to specific Klamath River TMDL-derived quantities (such as, for water temperature, dissolved oxygen, nutrients, chlorophyll-a, and algal toxins). The DEIR's analysis of long-term water quality impacts explicitly includes the Klamath River TMDLs and incorporates TMDL scenarios and results of modeling performed for development of the TMDLs. By doing so, the DEIR analysis incorporates the assumption that TMDLs will be fully achieved, despite unknowns and uncertainties regarding potential TMDL actions and their implementation.

The TMDL modeling results are not an appropriate basis for comparing alternatives. PacifiCorp has previously documented substantial technical flaws with the assumptions, modeling, and analyses used in development of the TMDLs. PacifiCorp has previously presented the flaws in the compliance scenarios and the technical analysis and modeling supporting the California Klamath River TMDL during the development of the TMDL and is contained in the Petition for Writ of Mandate filed to challenge the same (PacifiCorp v State Water Resources Control Board, 2011 , case 34-2011-80000769). PacifiCorp does not waive, and expressly preserves, its legal challenge to the TMDL and TMDL models, and preserves its rights to challenge TMDL implementation plan measures and conclusions regarding the Klamath Hydroelectric Project's effects on water quality in other proceedings.

PacifiCorp's position remains that the TMDLs will require nutrient loads in the Klamath River that are less than those that would occur naturally (that is, without anthropogenic effects). Independent assessments of conditions for anadromous fish in the Klamath Basin by the National Research Council (NRC 2004 , 2008) and the Klamath River Expert Panels (Dunne et al. 2011; Goodman et al. 2011), although not referring to the TMDLs specifically, indicate that very substantial water quality improvements in the Klamath Basin, such as assumed in the TMDLs, are unrealistic, unlikely, or at best highly uncertain. Therefore, the DEIR makes the flawed assumption of full attainment of TMDLs which in turn results in an analysis that unrealistically assumes dramatic long-term water quality *improvements in the basin. Disclosure and discussion of substantial uncertainties related to TMDL assumptions is absent in the DEIR. This represents a major flaw relative to the DEIR's ultimate accuracy in assessing the effects of the Proposed Project and utility for supporting decisions on the Proposed Project.*

Response to Comment ORG46-119

Please refer to Master Response WQ-5. Additionally, analysis in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* specifically notes that the Klamath River Total Maximum Daily Load (TMDL) model scenarios include as a starting point assumption that there will be full implementation of the TMDLs and considers the implications of this assumption with respect to the use of TMDL model results in the analysis. Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 provides a discussion of the TMDL model results in the water temperature analysis, Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 provides a discussion of the TMDL model results in the nutrients analysis, Section 3.2.5.4 *Water Quality – Potential Impacts and Mitigation – Dissolved Oxygen* Potential Impact 3.2-10 provides a discussion of the TMDL model results in the dissolved oxygen analysis, and Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 provides a discussion of the TMDL model results in the pH analysis. As discussed in Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Impact Analysis Approach – Chlorophyll-a and Algal Toxins*, the Klamath River TMDL model results were not used in the analysis of chlorophyll-a and algal toxins because the model appears to over-predict the chlorophyll-a under the “dams-out” scenario. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to response to comment ORG46-124 for an additional discussion regarding Klamath River TMDL modeling.

Comment ORG46-120

The DEIR relies on the River Basin Model 10 (RBM10) for quantifying the sensitivity of water quality and related impacts to projected climate change. Specifically, the DEIR states that “The RBM10 model was developed as part of the Klamath Dam Removal Secretarial Determination studies and includes the effects of climate change and KBRA hydrology on water temperatures (Perry et al. 2011).” Given the limitations of the climate change projections and methodology used, the DEIR rightfully limits the use of RBM10-related results for significance determinations. “The climate change predictions are used to give additional context to the temperature discussion, but they are not relied on for significance determinations. Future climate changes are not part of the existing condition against which this EIR compares potential impacts under the Proposed Project.” This approach is appropriate because climate change would be expected to compound the errors previously raised regarding the flow modeling. However, in contrast to this statement, the approach used in the DEIR was to *integrate climate change predictions throughout the discussion and finding of impacts in the water quality and aquatic resources sections of the Proposed Project and to a lesser extent the alternatives. More than 20 statements throughout the impacts discussions highlight the climate change adaptation aspects/benefit of the Proposed Project and its benefit over other alternatives. For example, page 3-77 paragraph 4 states "In the long term, the beneficial effects would also help to offset the impacts of climate change on late summer/fall water temperatures." This style of presentation creates confusion in the impacts discussions. A better approach would be to present the climate change adaptation aspects/benefit of the Proposed Project and the other alternatives in a climate change adaptation section.*

Response to Comment ORG46-120

As explained in Section 3.2.4.1 Water *Quality – Impact Analysis Approach – Water Temperature* and quoted in the comment, the climate change projections are used to provide additional context for the water temperature discussion, but they are not relied on for significance determinations. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Referencing this context in the discussion of long-term potential impacts on water quality under the Proposed Project provides relevant information for understanding the potential impacts for particular water quality parameters over the long term, even as the analysis does not rely on climate change projections for the purpose of making significance determinations. Providing information in a separate section, as the commenter prefers, would require the reader to flip back and forth between the Proposed Project impact analysis for a particular parameter and a separate but corresponding climate change discussion elsewhere in the document. As such, the discussion of the long-term influence of climate change is retained in the analysis of long-term potential impacts under the Proposed Project.

Comment ORG46-121

In this paragraph, the DEIR describes the predicted short-term suspended sediment concentrations during Proposed Project reservoir drawdowns. These suspended sediment concentrations predictions are a major factor used in the DEIR's assessment of impacts, particularly on water quality and aquatic biota. However, these suspended sediment concentrations predictions rely on professional judgement and extrapolations of previous modeling work, rather than detailed quantitative analysis of the actual Proposed Project. In addition, the DEIR assessment makes the simplified and unsupported assumption that the predicted suspended sediment concentrations would be within the range of model-uncertainty. However, this type of extrapolation is inappropriate because it compounds the uncertainty that already exists in the model results. The prediction of suspended sediment concentrations during drawdown also neglects the effects from slump failure and sediment jetting, which would likely further increase suspended sediment concentrations. Given the importance of suspended sediment concentrations as a factor in the assessment of impacts, the DEIR needs a more thorough and rigorous analysis and discussion regarding *the factors that would contribute to predicted suspended sediment concentrations.*

Response to Comment ORG46-121

Section 3.2.4.2 *Water Quality – Impact Analysis Approach – Suspended Sediments* summarizes the impact analysis approach and the models used in the analysis of suspended sediments. The discussion referenced by the comment does not describe the predicted short-term suspended sediment concentrations (SSCs) during reservoir drawdown under the Proposed Project. Potential Impact 3.2-3 provides a discussion of the predicted SSCs during reservoir drawdown under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Section 3.2.4.2 *Water Quality – Impact Analysis Approach – Suspended Sediments* and Potential Impact 3.2-3.

Contrary to the assertion in the comment, detailed quantitative analyses from two different sediment transport models (i.e., Sediment and River Hydraulics – One Dimension [SRH-1D] and Dam Removal Express Assessment Model – 1 [DREAM-1]) were utilized to estimate the SSCs that would result from dam removal and the release of reservoir sediments. As explained in Section 3.2.4.2 *Water Quality – Impact Analysis Approach – Suspended Sediments*, the SSCs under the Proposed Project are primarily estimated from the detailed quantitative SRH-1D USBR (2012a) modeling results. The maximum drawdown rate under the Proposed Project (i.e., 5 feet per day) is greater than modeled by USBR (2012a) (i.e., 2.25 to 3 feet per day). As such, the quantitative, peer-reviewed DREAM-1 sediment transport model results (Stillwater Sciences 2008) estimating the potential variation in SSCs when the drawdown rates during dam removal change between 3, 6, or 9 feet per day were used to quantify how the maximum drawdown rate under the Proposed Project would alter estimates of SSCs in USBR (2012a) model results. This provides a sufficient quantification of the potential variations in SSCs due to changes in the maximum drawdown rate between USBR (2012a) model results and the Proposed Project because a) the drawdown rates in the DREAM-1 results span the range of drawdown rates under the Proposed Project, and b) the change in the drawdown rate from 3 to 6 feet per day in the DREAM-1 results is similar to the expected change from 3 to 5 feet per day.

Additionally, potential slump failures are implicitly included in the DREAM-1 Stillwater Sciences (2008) sediment transport model results by limiting the stable bank slope to a relatively low slope (i.e., 1:10 V:H). Thus, the model's estimates of changes in SSCs under various drawdown rates would include any change in SSCs from potential slump failures. The processes and physics governing the production of SSCs from reservoir drawdown are similar in both the Stillwater Sciences (2008) DREAM-1 and USBR (2012a) SRH-1D models and thus it is reasonable to assume that the USBR (2012a) SSC model results would exhibit a similar response to changes in reservoir drawdown rates.

Increases in SSC uncertainty from changes to drawdown rates under the Proposed Project compared to those used in the USBR (2012a) SRH-1D model would not be expected to alter the overall analysis and significance determination for SSC. Model uncertainty cannot be directly evaluated since the modeled condition (i.e., dam removal) has not occurred and there are no measured SSCs available for comparison with modeled SSCs, but model uncertainty can be estimated from a sensitivity analysis of the model (Jung et al. 2018). As part of the USBR (2012a) SSC modeling, a sensitivity analysis was conducted to determine how the modeled SSCs would vary due to changes in multiple sediment transport modeling parameters and equations (see USBR [2012a] Section 9.2.1.3 *Concentrations during Dam Removal – Sensitivity Analysis* [pages 9-18 to 9-32]). Such a sensitivity analysis provides an estimate of the uncertainty associated with the modeled SSCs since it highlights how changes in the values of model parameters and equations would potentially alter the modeled SSCs. Comparison of the variations in SSCs with changes in model parameters and equations shows that SSCs remained similar regardless of changes in these parameters and equations during parts of the drawdown period, but SSCs also varied by up to an order of magnitude during other periods (see USBR [2012a] Figures 9.25 and 9.26 [pages 9-31 to 9-32]). Overall, the modeled SSCs would have the most uncertainty during peak SSCs (i.e., approximately 2 to 5 times the estimated SSCs) and when SSCs are declining following peak SSCs (i.e., approximately an order of magnitude). Thus, the potential increase in peak SSCs due to changes in the drawdown rates (i.e., approximately doubling) is generally within the range of the modeled uncertainty. As demonstrated by the sensitivity analysis, all parameters or representations of physical processes (i.e., equations) in the model have an associated uncertainty. The comment is correct that the uncertainty associated with the changes in drawdown rates would increase the overall uncertainty of the modeled SSCs, but it is not inherently inappropriate for the model uncertainty to increase when a model parameter varies (i.e., drawdown rate). Variations in any model parameter could theoretically introduce uncertainty. Accordingly, Section 3.2.4.2 *Water Quality – Impact Analysis Approach – Suspended Sediments* explains the uncertainty associated with the USBR (2012a) model and the additional uncertainty introduced by variations in the drawdown rates between the USBR (2012a) model results and the Proposed Project. Overall, the expected increase in uncertainty would not be expected to alter the overall analysis and significance determination, so it is appropriate to use the DREAM-1 drawdown results with the SRH-1D model results.

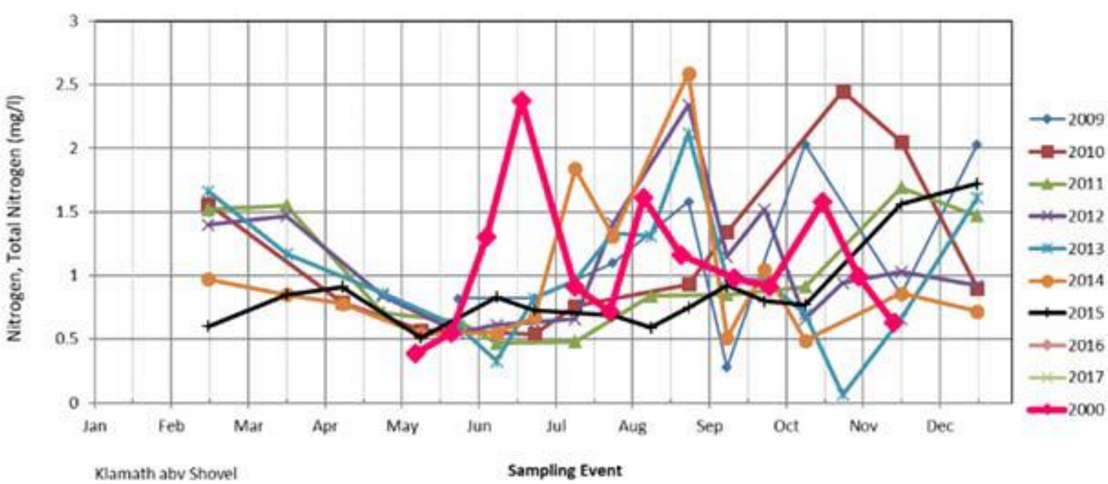
Section 3.2.5 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 provides an estimate of the changes in the USBR (2012a) SSC model results due to sediment jetting during drawdown. Sediment jetting would be limited to the six areas where restoration actions are proposed within the Copco No. 1 Reservoir footprint (see Volume I Section 2.7.4.2 *Proposed Project – Proposed Project – Restoration Within the Reservoir Footprint – River Restoration Features* Figure 2.7-11 [page 2-75]) and three areas where restoration actions are proposed within the Iron Gate Reservoir footprint (see Volume I Figure 2.7-12 [page 2-76]). As further clarification of the discussion of sediment jetting under the Proposed Project in Potential Impact 3.2-3, sediment jetting would likely result in negligible to small increases in the total reservoir sediment estimated to erode by USBR (2012a) and associated increases in SSCs, because sediment jetting would be focused on supporting the natural movement of reservoir sediments in the areas where sediment jetting would occur. Additionally, areas with slopes greater than 0.1 to 0.2 are already anticipated to slump toward the river channel in USBR (2012a), so sediment jetting in these areas would not be anticipated to increase the total reservoir sediment estimated to erode by USBR (2012a) or the associated SSCs. Sediment jetting in areas with generally low slopes (less than 0.1 to 0.2) would potentially result in localized slope or bank failure, but this localized slope or bank failure would not be likely to propagate due to the surrounding low slopes. Thus, the analysis in Potential Impact 3.2-3 does consider the increase in SSCs during drawdown from sediment jetting and associated potential slumping.

Please also specifically refer to Potential Impact 3.2-3 for discussion of the potential changes in SSCs downstream of Copco No. 1 Dam due to sediment jetting within the Copco No. 1 Reservoir footprint, and of the potential changes in SSCs downstream of Iron Gate Dam due to sediment jetting within both the Copco No. 1 and Iron Gate reservoir footprints. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

The best available information and quantitative modeling results are used to analyze the potential impacts from SSCs under the Proposed Project. There are no available data or other evidence to indicate that additional quantitative analysis, improvements in the precision of the modeling, or changes in the model uncertainty would meaningfully alter the sediment analysis provided or alter the conclusion that there would be a significant and unavoidable impact for SSCs under the Proposed Project (see Potential Impact 3.2-3).

Comment ORG46-122

Regarding the TMDL model assumptions for full TMDL implementation the DEIR states that "Despite this assumption, the Klamath River TMDL model results are still informative with respect to the analysis of potential nutrient impacts under the Proposed Project, particularly since nutrient models were not developed for the FERC relicensing process." Nutrient models as part of the Klamath River Water Quality Model (KRWQM) were developed by Watercourse Engineering for the FERC relicensing process (PacifiCorp 2004a). These models were subsequently used with modification by the North Coast Regional Water Board in the developing the Klamath River TMDL in California. The TMDL model included only a single simulation year based on the year 2000. Since the TMDL model was developed, the KRWQM models have incorporated additional years of data that have substantively improved model representation of water quality processes in the Klamath River (see PacifiCorp 2014). The TMDL's use of a *single year yields no information on natural annual variability. As an example of interannual variability, total nitrogen for the Klamath River upstream of Copco Reservoir (Klamath above Shovel Creek site) is plotted below using data from the KHSA Interim Measure 15 monitoring program in comparison to data from 2000 (Watercourse 2003a, 2003b). While the year 2000 may represent a proxy for an "average" condition, the year is not a conservative assumption because there are several years with notably higher total nitrogen concentrations. Similar results are apparent for other constituents, as well. Therefore, relying solely on the TMDL is a serious limitation of the DEIR, not only because a single year is insufficient to capture variability, but also because well over a decade of additional data have been collected since the year 2000 and the modeling upon which the TMDL is based has been substantially improved.*



Response to Comment ORG46-122

Contrary to the comment's assertion, and as discussed in Section 3.2.4.3 *Water Quality – Impact Analysis Approach – Nutrients*, the analysis of potential impacts to nutrients under the Proposed Project does not rely solely on results of Total Maximum Daily Load (TMDL) modeling efforts; rather the EIR uses both Klamath River TMDL model results and existing nutrient budget analysis results that compare existing conditions with those under dam removal conditions. While the comment asserts that more recent versions of the Klamath River Water Quality Model (KRWQM) incorporate additional years of data to improve model representation of water quality processes in the Klamath River, the more recent KRWQM results do not compare nutrients for existing conditions with dam removal conditions (PacifiCorp 2008a, 2014a). PacifiCorp (2014a) Section 4.2 *Current Conditions and Processes Affecting Water Quality* (pages 4-4 to 4-56), Section 4.3 *Project Contributions to Water Quality* (pages 4-56 to 4-57), and Section 5.2.11 *Biostimulatory Substances* (pages 5-125 to 5-134) specifically discuss the present conditions (i.e., existing conditions) and the [Lower Klamath] Project contribution to nutrients, but there is no discussion in PacifiCorp (2014a) of updated modeling results of potential nutrient conditions under dam removal conditions or a comparison of nutrients under existing conditions and under dam removal conditions. PacifiCorp (2014a) is focused on comparing existing conditions with continued operations of the measures to enhance water quality and beneficial uses (i.e., the Proposed Project in PacifiCorp [2014a]). Additionally, analysis of the Lower Klamath Project contributions to nutrient conditions under existing conditions in PacifiCorp (2014a) relies heavily on the nutrient analysis by Kann and Asarian (2005, 2007) and Asarian et al. (2009) that were used in the development of the nutrient budget analysis discussed in Section 3.2.4.3 *Water Quality – Impact Analysis Approach – Nutrients* and used in Potential Impact 3.2-8. PacifiCorp (2019a) documenting the most recent version of the KRWQM also does not compare nutrients under existing conditions and under dam removal conditions. Thus, the Klamath River TMDL model results are the most recent, publicly available nutrient model results comparing existing conditions and dam removal conditions.

The Klamath River TMDL model results are not presented as conservative representations of potential impacts in the EIR. While the Klamath River TMDL model results are only available for one year (i.e., 2000), other models and analysis results are used when available in the EIR to characterize interannual variability and to evaluate potential impacts to water quality parameters. For example, data from 2005 to 2008 were used to develop the nutrient retention rates and nutrient budget for the free-flowing reaches of the Klamath River (Asarian et al. 2010) and the results of this nutrient budget analysis were used in the comparison of nutrients under existing conditions and under dam removal conditions, as explained in Section 3.2.4.3 *Water Quality – Impact Analysis Approach – Nutrients*.

Please refer to Master Response WQ-4 for a discussion of nutrient interannual variability and how nutrient data from 2000 to 2017 were considered in the EIR analysis.

Please also refer to Master Response WQ-5 for further discussion of the appropriateness of using Klamath River TMDL model results in the EIR analysis.

Comment ORG46-123

The challenge with nutrient budgets is that they are generally calculated based on long averaging periods (e.g., annual budgets or monthly budgets) and occur at discrete locations in the reservoir-river system. Thus, they are spatially and temporally coarse. By their very nature, nutrient budgets are not mechanistic models meaning that relationships and processes among constituents are not represented. Overall, they represent a simplification of processes. By using the results of an up-to-date water quality model, a more accurate and effective assessment of potential outcomes associated with the various alternatives could have been conducted in the DEIR.

Response to Comment ORG46-123

Please refer to Section 3.2.4.3 *Water Quality – Impact Analysis Approach – Nutrients* for a summary of the mechanistic Klamath River Total Maximum Daily Load (TMDL) water quality model used in addition to nutrient budgets to analyze the potential impacts to nutrients under the Proposed Project. A nutrient budget approach is a well-accepted and technically appropriate method for estimating the total mass of nitrogen or phosphorus into and out of a river or reservoir reach. Nutrient budgets use a data-driven empirical approach and characterize the net nutrient results of all the processes occurring within the river or reservoir. This approach provides a useful complement to the mechanistic modeling approach used in the Klamath River TMDL model since nutrient budgets do not require numerous assumptions about individual processes (e.g., nutrient uptake rates by periphyton) and interactions between processes (e.g., oxidation of ammonia to nitrate and nutrient uptake by periphyton). Comparison of the results from the two different approaches provide a verification of the accuracy of the nutrient estimate from each approach and an overall more robust analysis of the potential impacts under the Proposed Project. Although the existing nutrient budget for the Klamath River (Asarian et al. 2009, 2010) is relatively spatially coarse as compared with the mechanistic KRWQM, the nutrient budget approach is based on measurements at the boundaries of each reach being modeled and thus is not inherently less accurate than a model that relies on assumptions about nutrient uptake and release mechanisms at a smaller spatial scale.

Please refer to Asarian et al. (2009, 2010) for more details on the nutrient budget approaches summarized in Section 3.2.4.3 *Water Quality – Impact Analysis Approach – Nutrients*, including the technical appropriateness of the nutrient budget approach, refinements to the nutrient budget approach used to address comments from PacifiCorp (2006) and others on an initial nutrient budget analysis, a quantification of the uncertainty associated with the approach, and a comparison of the estimated nutrient budget results with other literature studies. Contrary to the commenter’s assumption of an annual or monthly time-scale, daily nutrient concentrations and loads were estimated in the nutrient budget using multiple regression modeling methods along with the available nutrient and hydrologic measurements (Asarian et al. 2009, 2010). Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

Comment ORG46-124

The TMDL modeling results are not an appropriate basis for comparing alternatives (see comment 3.2-34).

Response to Comment ORG46-124

Aside from the concerns related to the use of the Klamath River Total Maximum Daily Load (TMDL) model in the EIR analysis that are discussed in Master Response WQ-5, the EIR states that both the Klamath River Water Quality Model (KRWQM) and the Klamath River TMDL model include a scenario that is similar to existing conditions (i.e., with the Lower Klamath Project dams in place) and scenarios with one or more dams removed that are similar to the Proposed Project and/or alternatives analyzed in Section 4 *Alternatives*. While the TMDL modeling results do not include scenarios that exactly reflect the Proposed Project and/or the alternatives, the TMDL model results are still informative with respect to the analyses of water quality parameters presented in the EIR. Section 4 *Alternatives* notes in several locations (i.e., pages 4-186, 4-194, 4-198, 4-250, 4-257, 4-261, 4-262) that the TMDL model results are still informative with respect to the analyses, even though the assumptions inherent to the TMDL models are necessarily different than the existing conditions baseline for the CEQA analysis of the Proposed Project and the alternatives.

Please also refer to responses to comments ORG46-422 and ORG46-424 for discussion of how the assumption of TMDL compliance is considered in the alternatives analysis.

Comment ORG46-125

Rather than explain why the State Water Board believes that the Klamath River TMDL model over-predicts chlorophyll-a for a dam removal scenario, the DEIR simply states "Instead, this EIR's chlorophyll-a impact analysis is based on a qualitative assessment of whether the Proposed Project would result in exceedances of the California 10 µg/L [sic] target for the Lower Klamath Project reservoirs and adversely affect beneficial uses with respect to water column concentrations of chlorophyll-a." The numerical endpoints analysis used in the DEIR is inadequate to assess a "without dams" condition because it does not address the conversion of inorganic nutrients to periphyton and macrophyte biomass in the Klamath River from J.C. Boyle Reservoir to Iron Gate Dam. Periphyton and macrophyte growth will be extensive in this reach due to nutrients from upstream reaches (Upper Klamath Lake and Keno reservoir). Senescence, reproductive processes, sloughing, grazing, and scour of the bed community (periphyton and macrophytes), coupled with phytoplankton release from Upper Klamath Lake and Keno reservoir, have not been addressed in the DEIR.

The assumed timeline to achievement of the TMDL is unclear in the DEIR. Upper Klamath Lake is not expected to achieve compliance with the Upper Klamath Lake TMDL for decades (ODEQ 2002, 2018). Further, even under a future TMDL compliance scenario, compliance at Upper Klamath Lake will not occur in every year. Specifically, very large fluxes of organic matter would still be periodically released into the river from Upper Klamath Lake. According to studies upon which the Upper Klamath Lake TMDL analysis was based, very large fluxes would still occur 2 out of every 8 years after the TMDL measures are achieved (OOEQ 2002). These large nutrient and organic matter fluxes from Upper Klamath Lake are not explicitly considered in the DEIR's analysis. Certainly, DEIR long-term impacts (3 years or more into the future) will occur simply as a result of the decades it will take to achieve TMDL compliance. This point is made in the DEIR (pg. 3-80, paragraph 1): "Note that the Klamath River TMDL model for both "dams-in" and "dams-out" scenarios assumes full *implementation of the TMDLs, a condition that is currently highly speculative with respect to the mechanisms and timing required to achieve future compliance."*

The DEIR should clarify the rationale for the use of chlorophyll-a as a surrogate to address toxin producing algae. As stated in the DEIR "chlorophyll-a target of 10 µu/L [sic] (i.e., reduction to) is a conservative estimate of mean summer chlorophyll-a concentrations required to move the system toward support of beneficial uses." These beneficial uses extend beyond toxin-producing algae.

Response to Comment ORG46-125

Comparison of the Klamath River Total Maximum Daily Load (TMDL) modeled and measured chlorophyll-*a* concentrations under existing conditions indicates that the Klamath River TMDL model over-predicts chlorophyll-*a* concentrations, including multiple peaks in modeled chlorophyll-*a* that are not observed in the measured chlorophyll-*a* data (Tetra Tech 2009).

Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins* has been revised to correct a typo for the citation to Tetra Tech (2009) that discusses the comparison of modeled and measured chlorophyll-*a* concentrations and to clarify that the Klamath River TMDL model would be likely to over-predict chlorophyll-*a* under the "dams-out" scenario since it over-predicted chlorophyll-*a* under existing conditions. Please refer to Volume III Attachment 1 Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins* for the revisions.

As discussed in Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance – Chlorophyll-a and Algal Toxins* and Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins*, the California Klamath River TMDL suspended algae (i.e., phytoplankton) chlorophyll-*a* target (10 micrograms per liter [ug/L]) used as the threshold of significance in the EIR is based on a previous nutrient numeric endpoints (NNE) analysis (Creager et al. 2006; Tetra Tech 2008). There is no direct application of the NNE approach in the EIR. The water quality analysis includes the NNE phytoplankton chlorophyll-*a* target because it is a surrogate measure of the phytoplankton biomass that could have a potential impact on water quality (i.e., algal toxins). Chlorophyll-*a* is considered a surrogate for phytoplankton [algal] biomass since phytoplankton cells contain chlorophyll-*a* and a greater amount of phytoplankton biomass would release a greater amount of chlorophyll-*a* when the cells break apart (i.e., lyse) and degrade. Higher phytoplankton biomass would also potentially correspond to higher algal toxin concentrations if the phytoplankton biomass includes a relatively large proportion of toxin-producing blue-green algae [cyanobacteria] cells. As presented in Appendix C, Section C.6 *Algal Toxins and Chlorophyll-a*, *Microcystis aeruginosa* cell density correlates significantly with microcystin concentrations measured in Copco No. 1 and Iron Gate reservoirs and Klamath River locations (Kann et al. 2010a). Thus, as explained in Section 3.2.4.6 *Water Quality – Impact Analysis Approach –*

Chlorophyll-a and Algal Toxins, in addition to chlorophyll-*a* concentrations, algal toxins are analyzed based on trends in the density of toxin-producing blue-green algae, including *Microcystis aeruginosa*, to algal toxin concentrations. Volume III Attachment 1 presents the final Section 3.2 *Water Quality.*

Please refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* (pages 3-426 to 3-440) for analysis of the potential changes in phytoplankton and periphyton abundance and extent in the Hydroelectric Reach, Middle and Lower Klamath River, and Klamath River Estuary under the Proposed Project. Periphyton and macrophyte colonization and growth in the new free-flowing river portions of the Hydroelectric Reach would potentially contribute to chlorophyll-*a* concentrations, but there is not sufficient information or models available at this time to quantitively predict the changes in chlorophyll-*a* concentrations from potential periphyton and macrophyte growth under the Proposed Project. Accordingly, Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* (pages 3-426 to 3-440) analyzes the potential changes in periphyton and macrophyte abundance directly rather than using chlorophyll-*a* as a surrogate for periphyton or macrophyte abundance. Please also refer to responses to comments ORG46-33, ORG46-34, ORG46-36, ORG46-89, ORG46-95, ORG46-97, ORG46-99, ORG46-108, ORG46-136, ORG46-137, ORG46-146, ORG46-147, ORG46-149 for further discussion of potential periphyton and macrophyte growth in the Klamath River under the Proposed Project.

Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins* have been revised to clarify that the chlorophyll-*a* target is based on phytoplankton chlorophyll-*a*. Please refer to Volume III Attachment 1 Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins* for the revisions.

As explained in Section 3.2.4.6 *Water Quality – Impact Analysis Approach – Chlorophyll-a and Algal Toxins*, the Klamath River TMDL model results are not used in the analysis of potential impacts to chlorophyll-*a* and algal toxins under the Proposed Project and the analysis in Potential Impact 3.2-12 does not rely on achieving TMDL compliance. Please refer to Master Response WQ-5 for discussion of the Klamath River TMDL model results for other water quality parameters.

Episodic large fluxes of organic matter and associated chlorophyll-*a* are part of existing conditions, so data from 2002 to 2010 analyzed in the EIR would characterize these large fluxes. Please also refer to response to comment ORG46-107 for additional summary of Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM 15) chlorophyll-*a* data from 2000 to 2017 that would characterize the episodic large fluxes from upstream of the Hydroelectric Reach. Chlorophyll-*a* concentrations measured upstream of J.C. Boyle Reservoir, including episodic large fluxes of chlorophyll-*a* associated with algae, are generally similar or less than chlorophyll-*a* concentrations in Copco No. 1 and Iron Gate reservoirs and downstream of Iron Gate Dam under existing conditions. The Proposed Project does not include any changes to Klamath River conditions upstream of J.C. Boyle Reservoir, so chlorophyll-*a* concentrations measured at the upstream extent of J.C. Boyle Reservoir would represent the maximum chlorophyll-*a* concentrations entering the Hydroelectric Reach under the Proposed Project. Turbulent-mixing conditions in the river are expected to continue to decrease chlorophyll-*a* concentrations in the Hydroelectric Reach between J.C. Boyle Dam and the upstream end of Copco No. 1 Reservoir under the Proposed Project, as is the case under existing conditions. The conversion of the reservoirs to free-flowing, turbulent river reaches would likely result in a slight decrease in chlorophyll-*a* through the Hydroelectric Reach under the Proposed Project compared to under existing conditions. Thus, chlorophyll-*a* concentrations in the Hydroelectric Reach due to transport of chlorophyll-*a* into this reach from upstream sources, including episodic large fluxes, would be similar to or less than existing conditions under the Proposed Project.

Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* Potential Impact 3.2-12 has been revised to clarify that the chlorophyll-*a* concentrations in the Hydroelectric Reach due to transport of chlorophyll-*a* into this reach from upstream sources, including chlorophyll-*a* from Upper Klamath Lake and episodic large fluxes from the Lake Ewauna/Keno Impoundment, would be similar to or less than existing conditions under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2.5.6 *Water Quality – Potential Impacts and Mitigation – Chlorophyll-a and Algal Toxins* for the revisions.

With respect to the comment regarding organic matter and nutrients entering the Hydroelectric Reach from upstream sources, Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-6 provides an analysis of the algal-derived (organic) suspended material, including an explicit consideration of the episodic large fluxes of suspended material (i.e., organic matter) from upstream of the Hydroelectric Reach, including Upper Klamath Lake. Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 provides an analysis of long-term nutrient conditions in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-126

The DEIR states "The KRWQM did not model water temperatures within the Hydroelectric Reach." This statement is incorrect because the KRWQM did model water temperature in this reach. The KRWQM model was developed for the Klamath River system from Link River Dam, near Klamath Falls (RM 254) to

Turwar (RM 6), and includes existing Klamath Hydroelectric Project facilities, as well as a without dam representation (including alternatives with selected dams removed and others retained). However, the TMDL model that was adapted from the original KRWQM by the North Coast Regional Water Quality Control Board, has an error that under-predicts water temperature in riverine reaches.

Response to Comment ORG46-126

Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 – *Hydroelectric Reach* has been revised to clarify that documentation of Klamath River Water Quality Model (KRWQM) water temperature results within the Hydroelectric Reach is not available under conditions similar to the Proposed Project (i.e., removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams). Dam removal scenarios modeled by the PacifiCorp (2004a-1) KRWQM were different from the Proposed Project because the two dam removal scenarios removed Keno Dam in addition to J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. In the PacifiCorp (2004a-1) KRWQM results, there is a difference between the water temperature upstream of J.C. Boyle Reservoir under existing conditions and under removal of Keno, J.C. Boyle, Copco No. 1, Copco No.2, and Iron Gate dams, indicating that removal of Keno Dam would alter the water temperature in the Hydroelectric Reach. There would be no difference in the water temperature upstream of J.C. Boyle Reservoir under existing conditions and under the Proposed Project since the Proposed Project would not alter conditions upstream of J.C. Boyle Reservoir, so the modeled water temperature difference upstream of J.C. Boyle Reservoir between existing conditions and dam removal scenarios demonstrates PacifiCorp (2004a-1) KRWQM results do not characterize water temperature conditions in the entire Hydroelectric Reach under the Proposed Project. PacifiCorp (2005) KRWQM included modeling of conditions similar to the Proposed Project with only the removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams, but no model results for the Hydroelectric Reach were presented and the model results were only presented downstream of Iron Gate Dam. While PacifiCorp (2008, 2014) present California Temperature Objective KRWQM model results for locations in the Hydroelectric Reach (i.e., water temperature in the Klamath River under hypothetical removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams increased by 2.8°C), the California Temperature Objective KRWQM results are 7-day average of the maximum water temperatures and they do not describe the hourly or daily variations in water temperature under the Proposed Project. PacifiCorp (2019a) does not present KRWQM water temperature results in the Hydroelectric Reach under dam removal conditions. Please refer to Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* for the revisions.

With respect to the comment's concern about how the Total Maximum Daily Load (TMDL) model predicts water temperature in riverine reaches, please refer to Response 10a in Appendix 10 of the Klamath River TMDLs (North Coast

Regional Board 2010), where the North Coast Regional Board explains, in response to a related comment by PacifiCorp, that the TMDL model applied a 20 percent reduction to short-wave solar radiation into riverine segments during model calibration because the solar radiation calculated in the model between J.C. Boyle and Copco No. 1 reservoirs from solar radiations equations that use latitude, longitude, and elevation was approximately 20 percent higher than observed solar radiation. This 20 percent reduction in estimated solar radiation into the riverine segments was justified since the modeled solar radiation equation was not measured data and the adjustment achieved consistency with observed data and more accurate water temperature predictions between J.C. Boyle Dam and Copco No. 1 Reservoir.

Comment ORG46-127

The DEIR erroneously states that "The KRWQM indicates that the overall water temperature influence of the Hydroelectric Reach is mostly attenuated by RM 66.3 at the confluence with the Salmon River (see Figure 3.2-10)." Regarding this statement, PacifiCorp model results (see PacifiCorp 2004a, 2008) show that the thermal effects of the Project reservoirs on water temperatures downstream of Iron Gate Dam (RM 190) progressively diminish until reaching a downstream location where effects are absent. From December through July, the effects are quite small or absent by the time the river reaches the confluence with the Scott River (RM 143.9). In August and November, the effects are small or absent by the time the river reaches Seiad Valley (RM 120), and in September and October, by the time the river reaches the confluence with Clear Creek (RM 95). In no cases does modeling indicate that thermal effects extend to the confluence with the Salmon River.

Response to Comment ORG46-127

Contrary to the comment's assertion, *Section 3.2.5.1 Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 correctly characterizes 2004/2005 Klamath River Water Quality Model (KRWQM) water temperature results, whereby the influence of Iron Gate Dam (river mile [RM] 193.1) releases on Klamath River water temperature are mostly attenuated by the confluence with the Salmon River (RM 66.3). As reported in PacifiCorp (2005), shown in Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Figure 3.2-10, and reproduced below, hourly water temperatures simulated by the 2004/2005 KRWQM and based on 2004 data in the Klamath River upstream of the Salmon River for existing conditions (i.e., with the dams) and without J.C. Boyle (JCB), Copco No. 1 and Copco No. 2 (Copco), and Iron Gate (IG) dams (i.e., the Proposed Project) are not identical. While the differences between modeled Klamath River water temperatures upstream of the Salmon River under existing conditions and without the dams are typically less than 1°C, there are visually obvious differences between these two conditions which supports the EIR statement that Iron Gate Dam releases influence Klamath River water temperature upstream of the confluence with the Salmon

River, especially during spring (i.e., March) and summer through fall (i.e., mid-June to early-November).

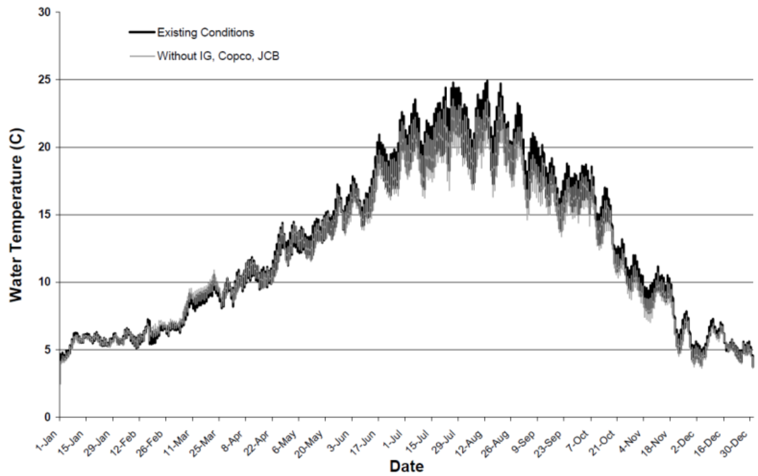


Figure 3.2-10 from Potential Impact 3.2-1. Simulated Hourly Water Temperature in the Klamath River Upstream from the Salmon River (≈RM 66.3) Based on Year 2004 for Existing Conditions Compared to Hypothetical Conditions without J.C. Boyle (JCB), Copco No. 1, Copco No. 2, and Iron Gate (IG) Dams. Source: PacifiCorp 2005.

While not shown in Potential Impact 3.2-1, water temperature results simulated by the 2004/2005 KRWQM in the Klamath River upstream of the Salmon River based on 2000 to 2003 data are also not identical between existing conditions and a dam removal condition (i.e., without Iron Gate, Copco No. 1, and J.C. Boyle dams), further indicating that Iron Gate Dam releases influence water temperature in the Klamath River downstream to the confluence of the Salmon River. For the 2000 to 2003 dataset, the differences between the 2004/2005 KRWQM water temperature results under existing conditions and a without-dams condition are typically less than 1ºC, such that the influence of Iron Gate Dam releases on Klamath River water temperature is mostly attenuated by this location. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

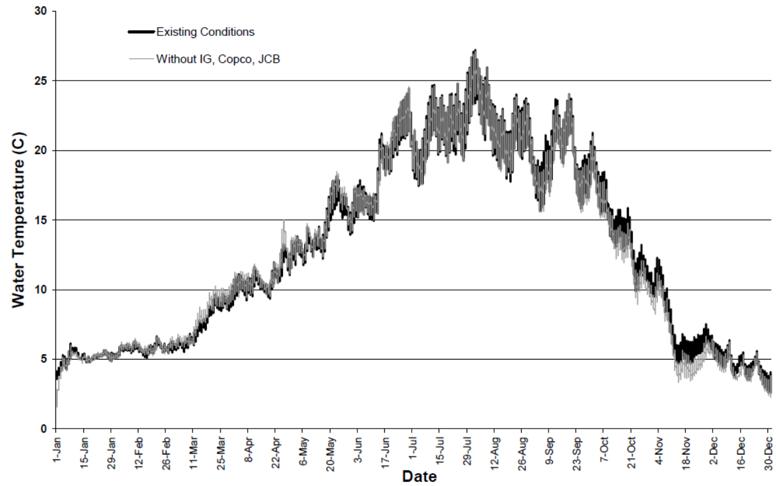


Figure 4-16 from PacifiCorp (2005), Appendix B. Simulated Hourly Water Temperature in the Klamath River Upstream from the Salmon River (≈RM 66.3) Based on Year 2000 for Existing Conditions Compared to Hypothetical Conditions without J.C. Boyle (JCB), Copco No. 1, Copco No. 2, and Iron Gate (IG) Dams.

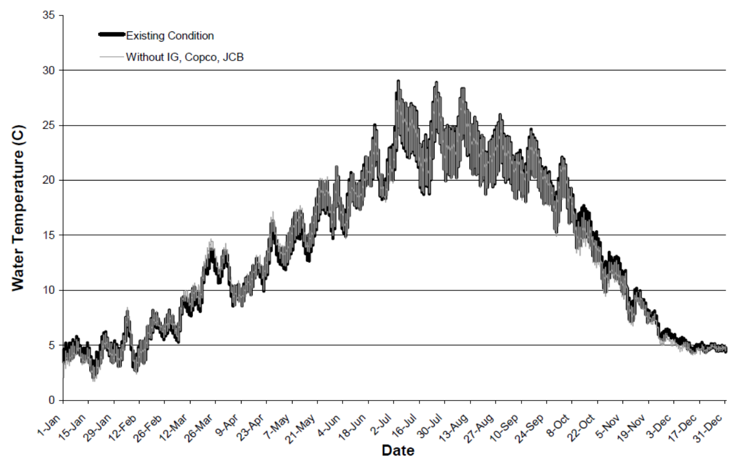


Figure 4-17 from PacifiCorp (2005), Appendix B. Simulated Hourly Water Temperature in the Klamath River Upstream from the Salmon River (≈RM 66.3) Based on Year 2001 for Existing Conditions Compared to Hypothetical Conditions without J.C. Boyle (JCB), Copco No. 1, Copco No. 2, and Iron Gate (IG) Dams.

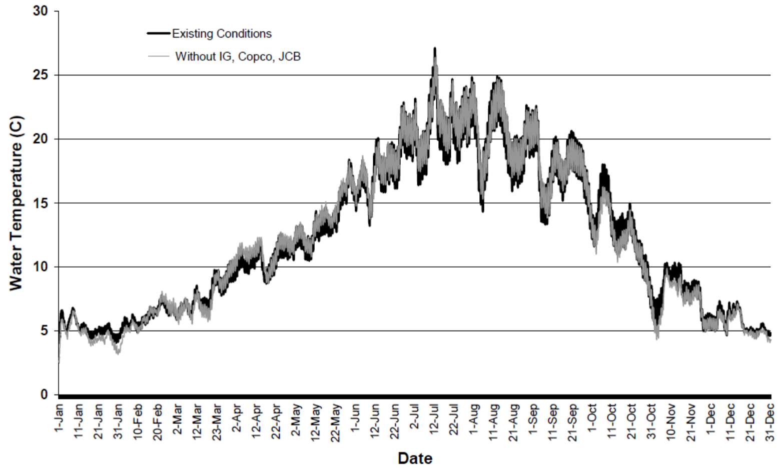


Figure 4-18 from PacifiCorp (2005), Appendix B. Simulated Hourly Water Temperature in the Klamath River Upstream from the Salmon River (≈RM 66.3) Based on Year 2002 for Existing Conditions Compared to Hypothetical Conditions without J.C. Boyle (JCB), Copco No. 1, Copco No. 2, and Iron Gate (IG) Dams.

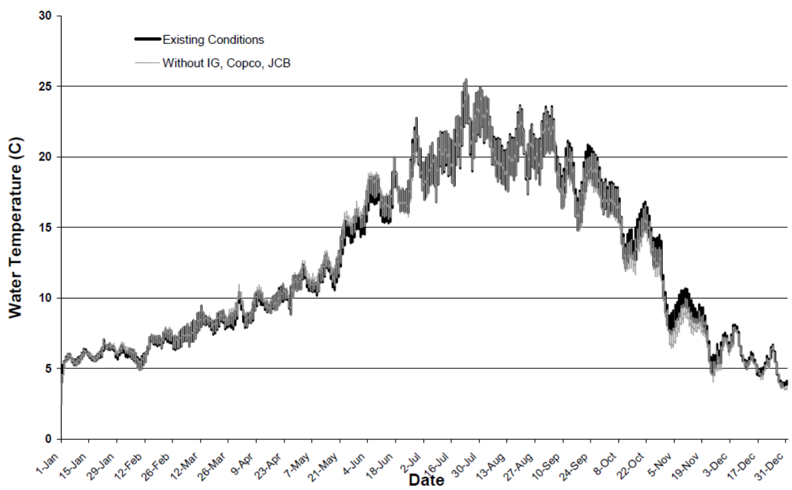


Figure 4-19 from PacifiCorp (2005), Appendix B. Simulated Hourly Water Temperature in the Klamath River Upstream from the Salmon River (≈RM 66.3) Based on Year 2003 for Existing Conditions Compared to Hypothetical Conditions without J.C. Boyle (JCB), Copco No. 1, Copco No. 2, and Iron Gate (IG) Dams.

Additionally, the comment is incorrect to assert “in no cases does modeling [PacifiCorp (2004a-1, 2008a) 2004/2005 KRWQM water temperature results] indicate that thermal effects of Iron Gate Dam releases extend to the confluence with the Salmon River” because KRWQM results from PacifiCorp (2004a-1, 2008a) show Iron Gate Dam releases influencing Klamath River water temperature to the confluence with the Salmon River. In PacifiCorp (2004a-1), the KRWQM was used to model existing conditions (EC), steady flow conditions (i.e., no peaking flows) with the dams remaining in place (Steady Flow [SF]), and without-Project (WOP) conditions that included the removal of Keno Dam in addition to removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. While the WOP conditions modeled by the KRWQM in PacifiCorp (2004a-1) are different from the Proposed Project, the model results still highlight the influence of Iron Gate Dam releases on downstream water temperature in the Klamath River. As stated in PacifiCorp (2004a-1) Section 4.8.8.2 Temperature (pages 4-79 to 4-84), the "thermal lag effect [of Iron Gate Dam releases] is still evident in the Klamath River just above the Shasta River (RM 177.5) (Figure 4.8-64), but is greatly diminished by Seiad Valley (RM 129) (Figure 4.8-65) and generally absent by the Salmon River (RM 67) (Figure 4.8-66)." As shown in PacifiCorp (2004a-1) Figure 4.8-66 (reproduced below), water temperature differences between the without-Project (i.e., defined as removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams in PacifiCorp [2004]) and existing conditions (i.e., WOP-EC) are typically less than 1ºC, but there are still differences between the 2004/2005 KRWQM without-Project and existing conditions water temperatures, especially during spring and fall when the differences approach or exceed 1ºC. These water temperature differences indicate releases from Iron Gate Dam are influencing Klamath River water temperature upstream of the Salmon River, although the influence of Iron Gate Dam releases is mostly attenuated.

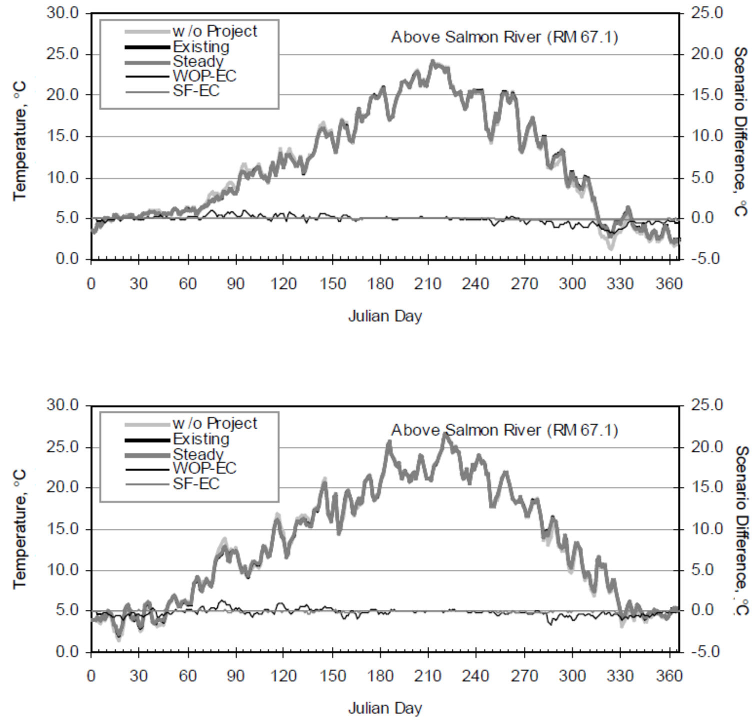


Figure 4.8-66 from PacifiCorp (2004a-1). EC [Existing Conditions] Versus SF [Steady Flow] and WOP [without-Project] Mean Daily Water Temperature in the Klamath River Above the Salmon River for 2000 (top) and 2001 (bottom). Please note that "Without-Project" in PacifiCorp (2004a-1) is defined as removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams.

PacifiCorp (2008a) Section 5.2.3.3 *Project Contributions – Klamath River Farther Downstream of Iron Gate Dam* (pages 5-73 to 5-79) states that the annual maximum water temperature is generally similar at Seiad Valley and at the Salmon River, indicating that the releases from Iron Gate Dam do not significantly influence or control water temperatures in the Lower Klamath River during summer months, compared to the influence on water temperatures of climatological conditions and downstream inflows from various tributary rivers. However, the KRWQM water temperature results plotted in PacifiCorp (2008) Figure 5.2-24 (page 5-77) indicate that the Klamath River water temperatures at the Salmon River are different under existing conditions (i.e., with dams) and under a hypothetical without-Project condition (i.e., without J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and powerhouse developments) during parts of the year (i.e., spring and fall), thus there is an influence of Iron Gate Dam releases on Klamath River water temperatures to the confluence with the Salmon River, as stated in Potential Impact 3.2-1. In PacifiCorp (2008) Figure 5.2-24 (reproduced below), KRWQM water temperature results are presented for the PacifiCorp (2008) Proposed Project (i.e., continued operations of the Lower Klamath Project dams with additional measures to enhance water quality and beneficial uses, whereby the PacifiCorp [2008] Proposed Project is different from the Lower Klamath Project), Existing Conditions, and a California Temperature Objective (i.e., no more than 5ºF [2.8ºC] increase in hypothetical without-Project water temperatures [based on model simulations]; labeled as “Objective” in the figure).

While PacifiCorp (2008) Figure 5.2-24 does not present a direct comparison of Klamath River water temperatures at the Salmon River under existing conditions with the dams in place and under hypothetical without-Project conditions (i.e., removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and powerhouse developments), the “Objective” water temperatures shown in Figure 5.2-24 are the hypothetical without-Project conditions shifted up by 2.8ºC. Thus, a comparison of the PacifiCorp (2008) Figure 5.2-24 Klamath River water temperatures at the Salmon River under existing conditions and the “Objective” water temperatures shifted down by 2.8ºC would ascertain whether there is a difference between KRWQM Klamath River water temperatures at the Salmon River under existing conditions and under dam removal conditions. As shown in Figure ORG46-127-1, the modeled 7-day average of maximum daily water temperatures in the Klamath at the Salmon River under existing conditions, and the “Objective” water temperatures shifted down by 2.8ºC (i.e., the blue lower dashed line) representing the water temperature under dam removal conditions, are not identical, with differences between the water temperatures most evident during spring and fall. While the differences in the 7-day average of maximum daily water temperatures are typically less than 1ºC, there is a visually obvious water temperature difference during portions of the year that indicate Lower Klamath Project (i.e., Iron Gate Dam) releases are influencing Klamath River water temperatures to the confluence with the Salmon River.

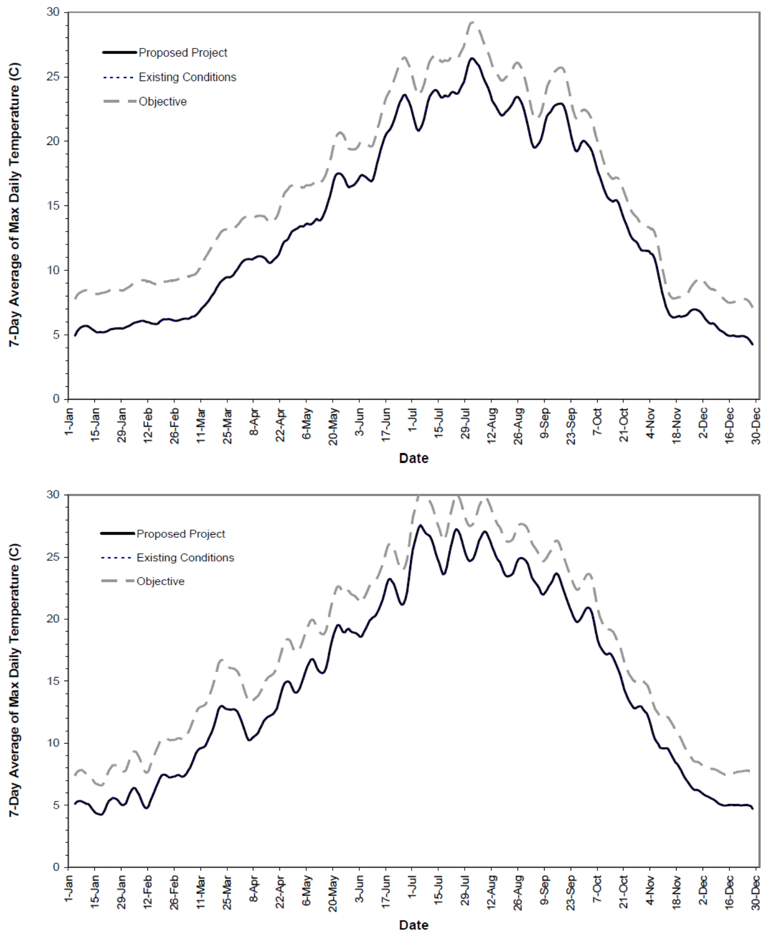


Figure 5.2-24 from PacifiCorp (2008). Time-Series of the 7-Day Average of Maximum Water Temperature (in Degrees C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Salmon River, Compared to the California Temperature Objective (i.e., No More Than 5ºF [2.8ºC] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]).

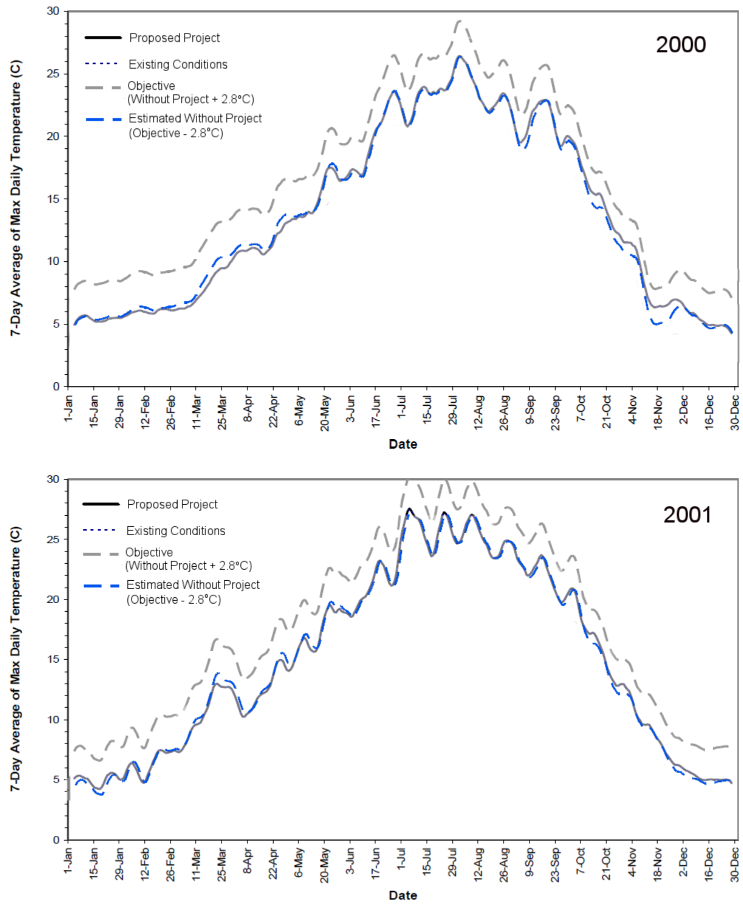


Figure ORG46-127-1 modified Figure 5.2-24 from PacifiCorp (2008). Time-Series of the 7-Day Average of Maximum Water Temperature (˚C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Salmon River, Compared to the California Temperature Objective (i.e., No More Than 5˚F [2.8˚C] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]) (grey upper dashed line) and the California Temperature Objective shifted 2.8˚C Down to Estimate the Hypothetical Without-Project Water Temperatures (blue lower dashed line).

Additionally, PacifiCorp (2014) presents Klamath River water temperature results at the confluence of the Salmon River from an updated version of the KRWQM in Figure 5.2-25 (reproduced below) for the PacifiCorp (2014) Proposed Project (i.e., continued operations of the Lower Klamath Project dams with additional measures to enhance water quality and beneficial uses, whereby the PacifiCorp [2014] Proposed Project is different from the Lower Klamath Project), Existing Conditions, and a California Temperature Objective (i.e., no more than 5˚F [2.8˚C] increase hypothetical without-Project water temperatures [based on model simulations] where the without-Project is defined as without the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and powerhouse developments; labeled as "Objective").

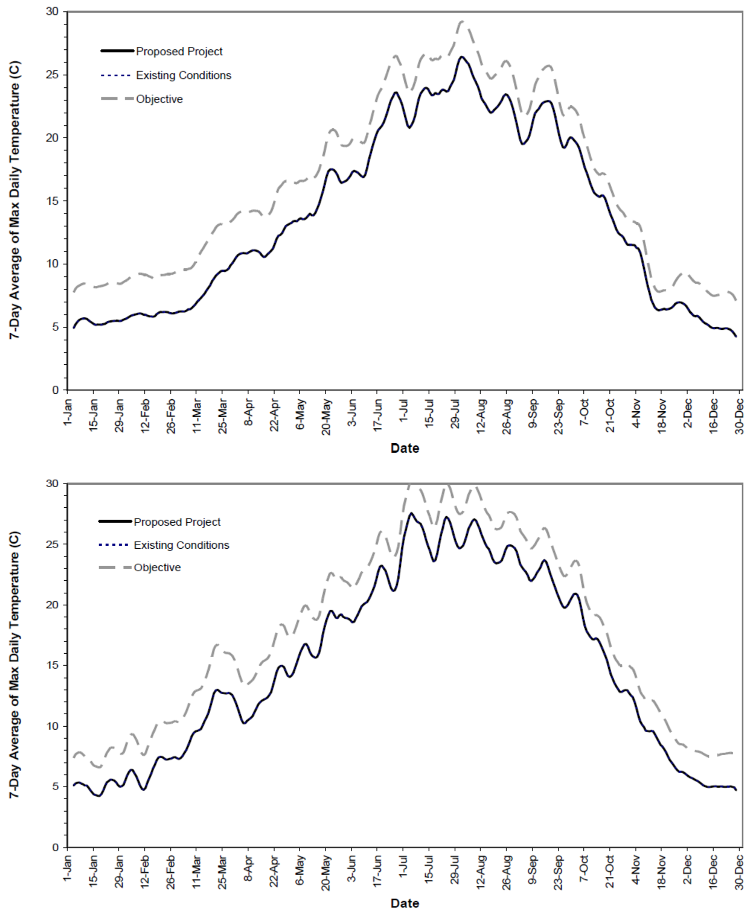


Figure 5.2-25 from PacifiCorp (2014). Time-Series of the 7-Day Average of Maximum Water Temperature (in Degrees C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Salmon River, Compared to the California Temperature Objective (i.e., No More Than 5°F [2.8°C] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]).

Similar to the previous comparison of PacifiCorp (2008) KRWQM results, a comparison of the PacifiCorp (2014) Figure 5.2-25 Klamath River water temperatures at the Salmon River under existing conditions and the "Objective" water temperatures shifted down by 2.8°C would demonstrate whether there is a difference between the updated 2014 KRWQM water temperature results at the Salmon River under existing conditions and under dam removal conditions. As shown in Figure ORG46-127-2, the PacifiCorp updated 2014 KRWQM 7-day average of maximum daily Klamath River water temperatures at the Salmon River under existing conditions and the "Objective" water temperatures shifted down by 2.8°C (i.e., the blue lower dashed line) are not identical, with differences between the water temperatures being most evident during spring and fall. The differences are typically less than 1°C but they do occur during portions of the year, especially November 2000, and these differences indicate that Lower

Klamath Project (i.e., Iron Gate Dam) releases would potentially influence Klamath River water temperatures to the confluence with the Salmon River.

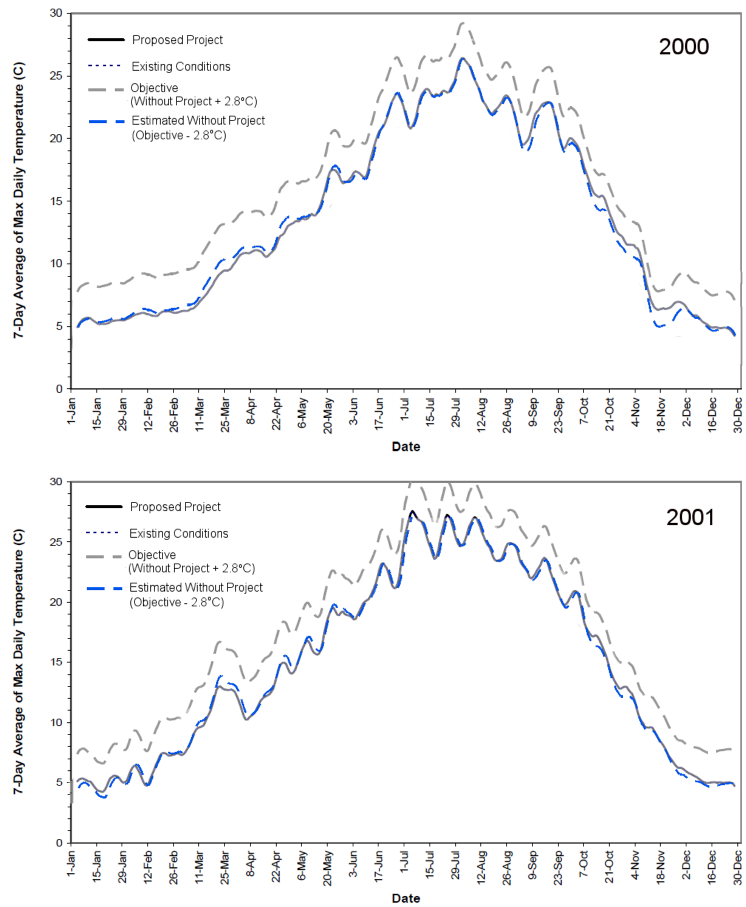


Figure ORG46-127-2 modified Figure 5.2-25 from PacifiCorp (2014). Time-Series of the 7-Day Average of Maximum Water Temperature (°C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Salmon River, Compared to the California Temperature Objective (i.e., No More Than 5°F [2.8°C] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]) (grey upper dashed line) and the California Temperature Objective shifted 2.8°C Down to Estimate the Hypothetical Without-Project Water Temperatures (blue lower dashed line).

Overall, KRWQM water temperature results from PacifiCorp 2004, 2005, 2008, and 2014 exhibit differences of approximately 1°C or less in Klamath River water temperatures at the confluence with the Salmon River under existing conditions and dam removal conditions during portions of the year. Water temperature differences in the Klamath River at the confluence with the Salmon River between existing conditions and dam removal conditions are most consistently evident across all KRWQM simulations during spring (i.e., March) and fall (i.e., October through November), although the specific time period where water temperature differences exist varies between years. While the differences are relatively small (i.e., approximately 1°C or less), they indicate that Iron Gate Dam releases do influence water temperature conditions to the confluence of the Salmon River during portions of the year (typically spring and fall months) and support the EIR statement that the water temperature influence of the Hydroelectric Reach is mostly attenuated by RM 66.3 at the confluence with the Salmon River. Differences of less than 1°C in KRWQM water temperatures typically in winter (i.e., December through February) and late spring to early fall (i.e., May through September) months suggest that the water temperature influence of Iron Gate Dam releases typically attenuates farther upstream in the Klamath River during these time periods, but interannual variations (i.e., PacifiCorp (2005) 2001 versus 2004/2005 KRWQM results) suggest the influence of Iron Gate Dam releases could extend to the confluence of Salmon River even during some summer to early fall months.

While the comment focused on KRWQM water temperature results, River Basin Model-10 (RBM-10) water temperature modeling results for a 50-year simulation period under existing conditions (i.e., “dams in”) and under removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams (i.e., “dams out”) also show a difference in the mean monthly water temperature of greater than 1°C extending downstream of Iron Gate Dam to upstream of the Salmon River during November (Risley et al. 2012).

The consistency of modeled water temperature differences between existing conditions and dam removal scenarios occurring in the Klamath River from Iron Gate Dam to the confluence of the Salmon River during fall conditions across multiple versions of the KRWQM (PacifiCorp 2004, 2005, 2008, 2014) and the RBM-10 model (Risley et al. 2012) provides evidence that the water temperature influence of the Hydroelectric Reach does extend to the confluence with the Salmon River (RM 66.3), and the relatively small magnitude of the water temperature differences (i.e., approximately 1ºC or less) provides evidence that the influence of the Hydroelectric Reach is mostly attenuated by the confluence with the Salmon River.

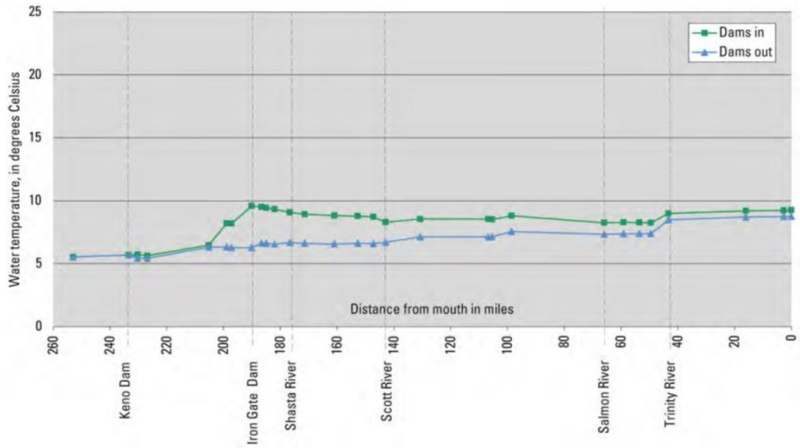


Figure 12 from Risley et al. (2012). Graph Showing Simulated Klamath River Mean November Water Temperatures Using National Marine Fisheries Service 2010 Biological Opinion Flow Requirements as Input Values.

<u>Comment ORG46-128</u>

The DEIR states that water temperatures would be "more favorable for salmonids in the mainstem" under the Proposed Project. This conclusion is not supported by available information either spatially or temporally. PacifiCorp (2008) concludes that the Klamath Hydroelectric Project-related effects on water temperature progressively diminish until reaching a downstream location where effects are absent (see comment 3.2-42). From a temporal perspective, Klamath Hydroelectric Project dams serve to cool water temperatures during the spring months, which may lessen Ceratonova shasta (C. shasta) severity in the reach of the river downstream of Iron Gate Dam. Klamath Hydroelectric Project dams also reduce summer peak water temperatures, which decreases stress on salmonids (see Figure 3.2-8).

The DEIR asserts that "...fall-run Chinook salmon spawning in the mainstem Klamath River during fall would no longer be delayed (reducing pre-spawn mortality), and adult migration would occur in more favorable water temperatures than under existing conditions." This assertion completely ignores the fact that, as discussed above, during fall migration (September-October) the existing Klamath Hydroelectric Project's effects on water temperature are not apparent downstream of the confluence with Clear Creek (RM 95). When fall-run Chinook migration is delayed by water temperatures, the fish are typically downstream of the confluence with the Trinity River (RM 40). Review of water temperature data for locations at Weitchpec and downstream of Iron Gate Dam in September and October illustrates that water temperatures are quite similar. That is, prior to reaching the spawning areas in the vicinity of Iron Gate Dam, fish must first migrate through warm water in the lower Klamath River where water temperature effects from dam removal would not occur (e.g., see "Significance" page 3-82 where it is stated: "No significant impact for the Middle Klamath River downstream from the Salmon River, Lower Klamath River, Klamath"). If *migrating fish are moving past the Trinity River under current conditions without delay, then there would be no additional delay upstream near Iron Gate Dam.*

Response to Comment ORG46-128

Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* provides a comprehensive spatial assessment (i.e., the analysis is specific to locations within the watershed that relate to key aquatic species distribution and life history) and temporal assessment (i.e., the analysis considers specific seasons that relate to key aquatic resource life history events) of aspects of the Proposed Project that are predicted to provide more favorable water temperature conditions for salmonids, as well as those aspects of the Proposed Project that would not improve water temperature conditions for salmonids. As discussed in the section, cooler water temperatures in fall are predicted to result in earlier spawning by fall run Chinook salmon downstream of Iron Gate Dam. This relationship between water temperature and spawning timing is distinct from the relationship between water temperature and migration in the lower Klamath River that the commenter raises. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to response to comment ORG46-127, which affirms that the Lower Klamath Project effects on water temperature in the mainstem river are apparent to the confluence with the Salmon River (river mile [RM] 66.3).

Comment ORG46-129

The DEIR states "The return to a more natural thermal regime compared with existing conditions would align better with the California Thermal Plan's prohibition on increased temperature discharges above natural temperatures and would be beneficial." Natural temperatures in certain reaches could lead to elevated temperatures at critical times of the year. (e.g., spring outmigration). This is also a condition that could be exacerbated by climate change, as noted on page 3-81 (paragraph 2): "...water temperatures in the Upper Klamath Basin are expected to increase on the order of 2°F to 5°F between 2012 and 2061." The DEIR should explain the risk that the future thermal regime, even if more natural, might not support current (and desired) beneficial uses (e.g., salmon populations) under expected climate change conditions.

The DEIR should recognize the limitation of the TMDL assessment in that temperature criteria (as well as other constituents) are based on only a single year (2000). There is no hydrology or meteorology variability assessed in the TMDL. Year 2000 is neither a particularly wet nor a particularly dry hydrologic year. Under more variable dry or wet year conditions, it is unclear if temperature targets can be met. This is a serious limitation of the TMDL that is not addressed in the DEIR.

Response to Comment ORG46-129

Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 has been revised in Volume III Attachment 1 to clarify the Chinook Salmon Expert Panel conclusion that removal of the Lower Klamath Project dams offers greater potential than the existing conditions for Chinook salmon to tolerate climate change even with River Basin Model-10 (RBM-10) modeled warming under the combined effects of the Proposed Project and climate change. Please refer to Volume III Attachment 1 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* for the revisions.

Comment ORG46-130

The DEIR states "Warmer springtime temperatures would result in fry emerging earlier, encountering favorable temperatures for growth sooner than under existing conditions, which could support higher growth rates and encourage earlier outmigration downstream, similar to what likely occurred under historical conditions, and reduce stress and disease." This statement regarding the effects of water temperatures on egg development and fry emergence is incorrect (see comment 3.3-55 and Major Issue 2.9.4). Additionally, elevated temperatures could exacerbate disease effects on fish. The DEIR should clarify the importance of the natural variability of thermal condition in the spring period. Water temperatures respond to meteorological conditions in a highly variable manner with spring period conditions experiencing both cool (e.g., high snowmelt runoff years) and warm (e.g., drought years) spells. Thus, fish may remain upriver later in cool to moderate spring weather conditions, only to be caught far from the ocean when warmer weather conditions occur later in the spring. The DEIR's qualitative assessment is overly simplistic to accurately represent the complexities of water temperature and fish movement.

Response to Comment ORG46-130

Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* provides an analysis of the potential influence of warmer water on salmonids, including egg development and fry emergence under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3. *Aquatic Resources*. Please also refer to response to comments ORG46-19 and ORG46-212 for additional discussion of how the EIR analyzes temperature-related impacts to salmonids.

Comment ORG46-131

The DEIR claims that the predicted suspended sediment concentrations during Proposed Project reservoir drawdowns are conservative, but this claim relies on extrapolation of model results and does not include the effects of bank slumping or sediment jetting. The realized short-term suspended sediment concentrations could be higher and extend for a longer period of time.

Response to Comment ORG46-131

Potential Impact 3.2-3 presents a conservative estimate of the *short-term impacts* of suspended sediment releases rather than a conservative estimate of the suspended sediment concentrations (SSCs) under the Proposed Project. As discussed in Section 3.2.4.2 *Water Quality – Impact Analysis and Approach – Suspended Sediments* and Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, the analysis of the short-term impacts of suspended sediment releases under dam removal are conservative because variations between the drawdown rates and sediment jetting would likely result in a shorter duration of SSCs greater than the magnitude of the SSC threshold of significance (i.e., 100 mg/L) under the Proposed Project than estimated by USBR (2012a) modeling. The higher drawdown rates and sediment jetting proposed by Klamath River Renewal Corporation (KRRC) would result in relatively more erosion of the total reservoir sediment deposit during the drawdown period (i.e., November of dam removal year 1 to March 15 of dam removal year 2), rather after the drawdown period (i.e., after March 15 of drawdown year 2). Although peak SSCs during drawdown would increase compared to USBR (2012a) modeled SSCs given a higher drawdown rate and sediment jetting, the USBR (2012a) modeled SSCs during drawdown already exceed the magnitude of the SSC threshold of significance and the expected increase in SSCs with a higher drawdown rate and sediment jetting would not alter the overall impact from SSCs in the Klamath River. Additionally, the transport of a higher percentage of the total erodible reservoir sediments during drawdown would reduce the amount of reservoir sediments transported and SSCs in the Klamath River after drawdown. Thus, USBR (2012a) model estimates of SSCs with a lower drawdown rate and no sediment jetting are likely to represent an overestimate of the duration of SSCs greater than 100 mg/L and the duration of short-term impacts from SSCs due to dam removal compared to the Proposed Project.

Overall, Potential Impact 3.2-3 considers that a higher reservoir drawdown rate and sediment jetting would increase peak SSCs over those modeled in USBR (2012a), and it also considers that a higher reservoir drawdown rate and sediment jetting would decrease the duration of SSCs greater than the SSC threshold of significance (i.e., 100 milligram per liter [mg/L]) relative to that modeled by USBR (2012a); thus the analysis provides a conservative estimate of the *short-term impacts* due to elevated SSCs in the Klamath River. Additionally, USBR (2012a) model results do not include potential reductions in SSCs due to vegetation growth on reservoir sediments, so USBR (2012a) modeled SSCs potentially overestimate the actual SSCs under the Proposed Project during the winter following dam removal (i.e., late-dam removal year 2 through early post-dam removal year 1). As such, the analysis of USBR (2012a) modeled SSCs during the winter following dam removal also would result in a conservative estimate of short-term impacts from SSCs in the Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-132

The DEIR acknowledges that sediment jetting could potentially increase the amount of sediment discharged from the reservoirs but fails to specifically quantify this or discuss the effects of this in the DEIR. Because sediment jetting would occur during drawdown, reservoir sediments may not yet have dewatered or consolidated sufficiently for the sediments to be stable. Thus, sediment jetting, which the DEIR states could mobilize up to 34 and 41 percent of expected sediment erosion in Copco and Iron Gate reservoirs, respectively, could increase sediment delivery to the river if it induces slope and bank failures in areas of the reservoir that were anticipated by USBR (2011) to be stable following drawdown.

Response to Comment ORG46-132

Please refer to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3 for an estimate of the potential maximum and minimum sediment volume that could be transported by sediment jetting during reservoir drawdown and an estimate of the changes in suspended sediment concentrations (SSCs) due to sediment jetting. Table 3.2-12 in Potential Impact 3.2-3 presents estimates of the potential range of sediment volume that would be transported by sediment jetting during drawdown and compares this sediment volume with the potential range of total 2020 sediment volume anticipated to erode under dam removal. Sediment jetting would be undertaken to support the natural erosion of reservoir sediment during reservoir drawdown, at a time when potential water quality impacts from elevated SSCs would already be occurring under the Proposed Project, and would decrease the potential for erosion to occur after drawdown concludes. Sediment jetting would primarily transport reservoir sediment deposits that are already considered to be erodible during drawdown (USBR 2012a).

Potential increases in the total reservoir sediment estimated to erode under the Proposed Project due to the combination of reservoir drawdown and sediment jetting flows would be likely be small compared to the total reservoir sediment volume estimated to erode by USBR (2012a) due to only drawdown. Sediment jetting would occur in the six areas where restoration actions are proposed within the Copco No. 1 Reservoir footprint (see Volume I Section 2.7 *Proposed Project – Proposed Project* Figure 2.7-11) and three areas where restoration actions are proposed within the Iron Gate Reservoir footprint (see Volume I Section 2.7 *Proposed Project – Proposed Project* Figure 2.7-12). Areas with slopes greater than 0.1 to 0.2 are already anticipated to slump toward the river channel in USBR (2012a), so sediment jetting in these areas would not be anticipated to increase the total reservoir sediment estimated to erode by USBR (2012a). Sediment jetting in areas with generally low slopes (less than 0.1 to 0.2) would potentially result in localized slope or bank failure, but this localized slope or bank failure would not be likely to propagate due to the surrounding low slopes.

Overall, because sediment jetting would be focused on supporting the natural erosion of reservoir sediments, the constrained area where sediment jetting would occur within the reservoir footprints, and the limited, localized potential for sediment jetting-induced slope or bank failure, sediment jetting would be likely to result in negligible to small increases in the total reservoir sediment estimated to erode by USBR (2012a) and associated SSCs. Available sediment transport models or model results for the Klamath River cannot exactly quantify the potential increase in the total reservoir sediment eroded under dam removal due to sediment jetting, but Table 3.2-12 does provide an estimate of the potential range of sediment volumes that would be transported by sediment jetting during drawdown. Additionally, the overall water quality impact of increases in SSCs due to release of reservoir sediments currently trapped behind the Lower Klamath Project dams would not be altered by sediment jetting-induced increases in the total reservoir sediment eroded since any potential increases in SSCs would occur during drawdown when previously modeled SSCs (USBR 2012a) would already exceed the SSCs threshold of significance (i.e., 100 mg/L for a continuous two week period). Sediment jetting also would not increase the duration of elevated SSCs in the Klamath River to be greater than the SSCs duration threshold of significance (i.e., 100 mg/L for a continuous two week period).

Please also specifically refer to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3 for discussion of the potential changes in SSCs downstream of Copco No. 1 Dam due to sediment jetting within the Copco No. 1 Reservoir footprint, and the potential changes in SSCs downstream of Iron Gate Dam due to sediment jetting within both the Copco No. 1 and Iron Gate reservoir footprints. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-133

The DEIR indicates the need to stabilize stranded sediments along banks of the Klamath River that would be formed by the former lake bed sediments. However, bank stabilization would be primarily a function of geomorphology. The DEIR does not clearly discuss how the newly exposed river banks (composed primarily of reservoir sediments) would be formed into stable slopes and landforms that can be further stabilized by planting.

Moreover, as it is likely that the sediments could strongly acidify, the DEIR should describe how it is that plants can be established (see comment 3.2-22 for discussion of acidification). This discussion is necessary to evaluate the feasibility of the Proposed Project's plan for revegetation.

Response to Comment ORG46-133

Please refer to Volume I Section 3.11.5 *Geology, Soils and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) for analysis of how consolidation and strengthening of reservoir sediments as they dry out reduces their erodibility and stabilizes the slopes and landforms. As reservoir sediment is transported and a new river channel forms through the reservoir footprint, sediments along the newly exposed riverbanks would form stable slopes based on the sediment properties (e.g., above water angle of repose, friction slope, shear strength). While the relatively low strength of saturated reservoir sediments makes them erodible during drawdown, the shear strength of the reservoir sediments increases exponentially as the reservoir sediments dry, with the shear strength increasing rapidly once the reservoir sediments reached about 50 percent of the initial saturated weight after several weeks (Volume II Appendix B: *Definite Plan* and USBR [2012]). The reservoir sediment shear strength and critical shear stress needed to erode the reservoir sediments increases by 2 to 3 orders of magnitude between moist and dry reservoir sediments, decreasing the erodibility of these sediments (Volume II Appendix B: *Definite Plan*). Thus, slopes and landforms composed primarily of reservoir sediments would stabilize as the reservoir sediment consolidate and dry out after the new river channel is cut through the reservoir sediments during drawdown. The shear strength of reservoir sediments would decrease during re-wetted conditions (e.g., rainfall), but it would still be two orders of magnitude greater than initial shear strengths measured (please refer to Volume II Appendix B: *Definite Plan – Appendix H, Section 8.1.1 Reservoir Sediment Characteristics [pages 127 to 141]* for more details). However, as analyzed in Potential Impact 3.2-3, repeated wetting (e.g., from rainfall) and drying of reservoir sediment deposits under conditions similar to those expected to occur in the reservoir footprints after drawdown would form easily erodible fine particles, so unvegetated reservoir sediments would potentially produce elevated suspended sediment concentrations (SSCs) during rainfall events (Appendix B: *Definite Plan – Appendix H, Section 8.1.1 Reservoir Sediment Characteristics*). Laboratory "grow tests" indicates vegetation growth on reservoir sediments would reduce the formation of easily erodible fine particles, stabilize the reservoir sediments, and reduce the potential for short-term and long-term elevated SSCs.

As noted in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, laboratory revegetation "grow tests" have been conducted to evaluate the effectiveness of reservoir sediments for growing plants and the resulting vegetation for stabilizing reservoir sediments. As discussed in the Volume II Appendix B: *Definite Plan – Appendix H, Section 8.1.2 Reservoir Revegetation and Grow Tests* (pages 141 to 152), laboratory (i.e., greenhouse) grow tests and plant nutrient availability (PNA) lab analyses were conducted during 2018 to evaluate reservoir sediments as a growth medium and to identify the ideal seed mix for a cover crop and for each planting zone in each unique reservoir setting. Grow tests reported successful germination and plant growth in 71 to 81 percent of the seed locations for the various habitat types (i.e., riparian bank, riparian floodplain, upland, and cover), with healthy plant growth and undetectable plant mortality at four weeks even as the reservoir sediment consolidated. PNA test results were similar for J.C. Boyle, Copco No. 1, and Iron Gate reservoir sediments, with moderate acidity, fine-texture, low calcium, and high magnesium and organic matter. The average pH of reservoir sediment samples ranged from 6.2 to 6.5 s.u., which is slightly more acidic than the optimum range of 6.5 to 7.5 s.u. for plant growth, but the majority of the species planted were successfully able to germinate and grow. Overall, the laboratory grow tests and PNA analysis indicates reservoir sediments would support vegetation growth.

Additionally, preliminary (late August 2019) results of Klamath River Renewal Corporation‘s (KRRC’s) native vegetation test plot experiments for Copco No. 1 and Iron Gate reservoirs indicate that without a straw cover, the sediments’ surface transitions very quickly (within several days) after removing the overlying water column from a soft and moist surface to a very hard, dense and dry surface that precludes abundant seed germination. When seeding was undertaken early (February) followed by placement of a thin layer of native grass straw on the surface of the seeded sediments, germination success increased significantly, achieving up to 95 percent cover of small fescue, and to some degree chick lupine, lacy phacelia, and sterile wheat. The straw mulch made appears to have provided not only frost protection but also maintained the sediment surface moist for extended periods allowing seedlings to grow into the clayey sediment (KRRC 2019c).

Please also refer to response to comment ORG46-105.

Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

Comment ORG46-134

In this paragraph, the DEIR conclude s that there will be no long-term impact to suspended sediment concentrations based on model predictions. However, three factors are not considered in the DEIR that affect this conclusion:

1. The sediment load currently being trapped by the reservoirs would be transported downstream under the Proposed Project (an increase over existing baseline conditions).

2. Any fine sediment released during the drawdowns, that deposits along the channel margins, back waters, pools, or point bars in the 200 miles of river downstream of Iron Gate may become remobilized during future high flow events.

3. Proposed erosion control measures (revegetation) would not be 100 percent effective. There would likely be an increase in long-term fine sediment supply from erosion within the reservoirs.

Response to Comment ORG46-134

The three factors discussed by the comment were included in the EIR analysis of long-term potential impacts of suspended sediment concentrations (SSCs) in the Klamath River.

Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 analyzes the short-term and long-term potential impacts from increases in suspended sediments due to release of sediments currently trapped behind the Lower Klamath Project dams. It specifically analyzes the transport of reservoir sediment deposits during and following drawdown, concluding from USBR (2012a) model results that SSCs in the Klamath River from the erosion of reservoir sediment deposits would resume modeled background SSCs by the end of post-dam removal year 1 regardless of the type of hydrology (i.e., dry, normal, or wet conditions) present during the drawdown period. As such, the SSCs in the Klamath River from the erosion of reservoir sediment deposits would be less than the SSC threshold of significance (i.e., 100 milligram per liter [mg/L] for two or more consecutive weeks) by the end of post-dam removal year 1 and there would be no significant impact due to the release of reservoir sediment deposits currently trapped behind the Lower Klamath Project dams.

As analyzed in Potential Impact 3.2-3, USBR (2012a) model results indicate that SSCs would resume modeled background SSCs by the end of post-dam removal year 1 regardless of the type of hydrology (i.e., dry, normal, or wet conditions) present during the drawdown period, but these USBR (2012a) model results do not include potential reductions in SSCs due to vegetation growth on reservoir sediments. Thus, USBR (2012a) model results indicate that SSCs would resume modeled background SSCs as the reservoir sediments consolidate and harden regardless of the effectiveness of revegetation. Furthermore, please refer to Potential Impact 3.2-3 for a discussion of monitoring and adaptive management to address uncertainties associated with revegetation and sediment stabilization activities (e.g., variations in plant germination success, plant growth rate, seasonal precipitation, reservoir sediment changes). Overall, the monitoring and adaptive management analyzed in Potential Impact 3.2-3 would likely result in revegetation that stabilizes remaining reservoirs sediments, so long-term potential increases in SSCs due to production of erodible sediments from the remaining reservoir sediment deposits would be unlikely to result in elevated SSCs in the Klamath River and there would be a long-term less than significant impact on SSCs in the Klamath River.

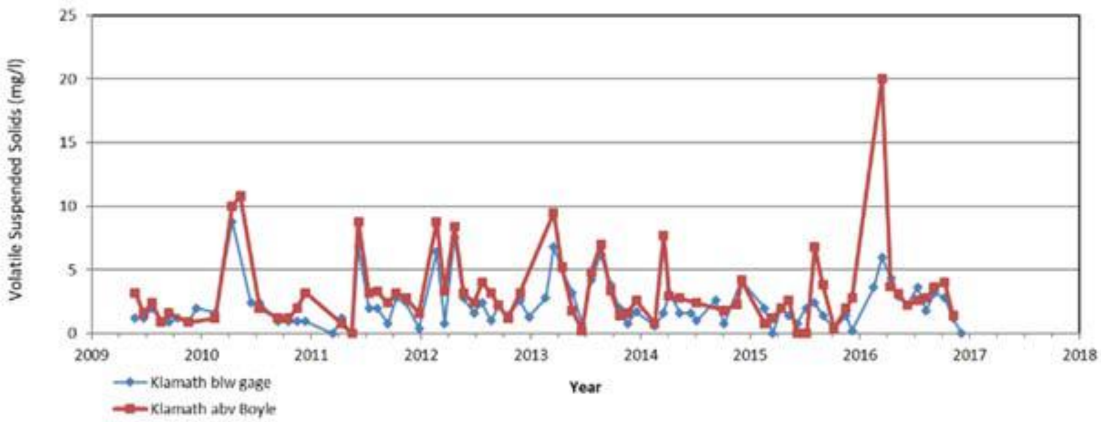
Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impacts 3.2-5 and 3.2-6 analyzes the long-term potential impacts from changes in SSCs in the Klamath River due to the lack of interception and retention of upstream sediment loads by the Lower Klamath Project dams. Potential Impacts 3.2-5 and 3.2-6 analyze the potential long-term increase in SSCs due to the lack of continued interception and retention of inorganic and organic suspended materials by the Lower Klamath dam, but the analysis determines that this potential long-term increase in inorganic or organic suspended material is not expected to exceed levels that would substantially adversely affect the cold freshwater habitat (COLD) beneficial use or any other existing designated beneficial use at the levels currently supported, exacerbate an existing exceedance of water quality standards, or result in a failure to maintain an existing beneficial use. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please refer to Master Response GEO-1 for discussion of potential fine sediment deposition. Although most suspended sediment is expected to move downstream during drawdown (as described above) and Stillwater Sciences (2008) found that the amount of pool filling within the Klamath River bed would be small, there would be some spatially discrete sedimentation effects, such as deposition in slack water areas (e.g., pools, eddies, alcoves) (see Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation,* Potential Impact 3.11-5 [pages 3-772 to 3-773]). As described in Master Response GEO-1, the persistence of any fine sediment deposits along the Klamath River would be dependent on the flow magnitude required to remobilize these sediments, with the flow magnitudes required to mobilize sediments varying between reaches and across surface features (e.g., pools or riffles). Potential depositional areas are spatially limited and remobilization of sediment in the Klamath River reaches and across surface features would occur at different times throughout the flood hydrograph. Given that the median estimate for initiation of mobilization of the existing bed substrate between Bogus Creek and Cottonwood Creek, where most sediment deposition is expected following dam removal, is a flow of approximately 10,250 cubic feet per second (cfs) (return period probability of approximately four years [USBR 2012a]), any SSCs generated by remobilized sediment from dam removal would be expected to occur at the same time as substantial sediment and debris mobilization that would occur in the Klamath River with or without dam removal (i.e., during floods when SSCs are typically highest). Downstream of Cottonwood Creek, spatially discrete fine sediment deposition would be sufficiently small (see Master Response GEO-1) that SSCs associated with any remobilization would also be small and insignificant (i.e., within the range of background SSC conditions).

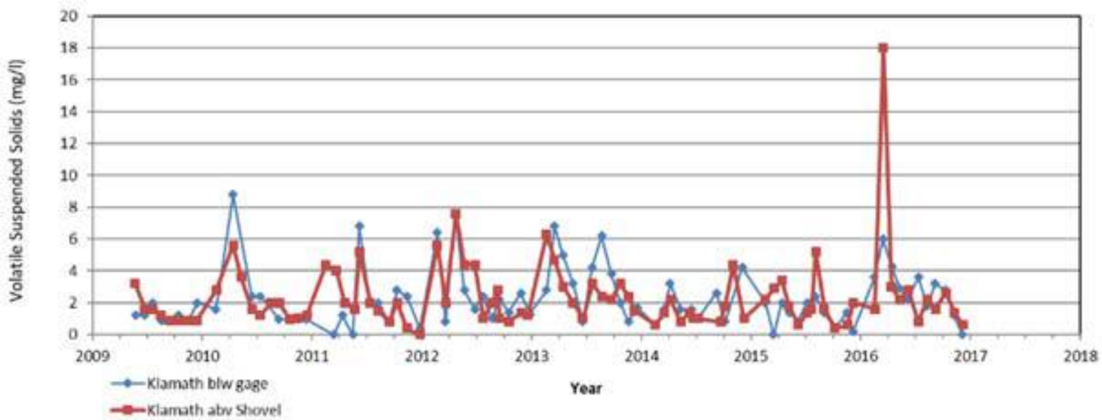
Comment ORG46-135

The DEIR states "Measurements of organic suspended sediment between 2001 and 2003 and median turbidity values over the long-term historical record (1950-2001) both follow a similar pattern, with values decreasing with distance downstream to J.C. Boyle Reservoir, indicating it is likely that the suspended sediment concentrations crossing the Oregon-California state line under the Proposed Project would not increase beyond typical existing conditions concentrations of 10 to 15 mg/L." The DEIR should be updated to present the more recent data that are readily available from the KHSA Interim Measure 15 water quality monitoring program. Shown in the graphs below are volatile suspended solids (organic fraction of total suspended solids) for (a) Klamath River upstream of J.C. Boyle Reservoir (Klamath abv Boyle) and downstream of the J.C. Boyle Powerhouse (labeled "Klamath blw gage"), and (b) J.C. Boyle Powerhouse (Klamath blw gage) and upstream of Copco Reservoir (Klamath abv Shovel). These figures indicate modest decreases through the reach due to *short residence time in J.C. Boyle Reservoir as well as the peaking power operations at J.C. Boyle Powerhouse. These modest reductions are largely a function of dilution from springs input in the bypass reach. Deas (2008) also found that there was little change in total nitrogen, total phosphorous and dissolved organic carbon between Keno Dam and J.C. Boyle Reservoir. This reach is a useful surrogate for possible conditions in a downstream river reach without dam.*

(a)



(b)



Response to Comment ORG46-135

Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) volatile suspended solids (VSS) monitoring data presented in the comment do not agree with the KHSA IM15 VSS monitoring data posted at https://www.pacificorp.com/energy/hydro/klamath-river/water-quality.html under Water Quality Reports & Data (accessed September 2019). The VSS data that are posted online provide a method reporting limit for multiple samples in 2009 and 2017, but the VSS data presented in the comment appear to report VSS values less than the method detection limit (MDL) for these samples, suggesting the VSS data presented in the comment are raw VSS data. Figures ORG46-135-1 and ORG46-135-2 below plot the KHSA IM15 VSS data that are posted online for the locations shown in the comment, with VSS samples below the method reporting limit plotted as 0.5 times the method reporting limit (VSS values below the method reporting limit generally are some value between zero and the method reporting limit).

KHSA IM15 VSS monitoring data from 2003 to 2017 generally support the analysis in Potential Impact 3.2-6 that mechanical breakdown in the Hydroelectric Reach along with dilution from the springs downstream of the J.C. Boyle Dam would be likely to reduce the concentration of algal-derived (organic) suspended material crossing the Oregon-California state line. VSS was not often measured at two or more of the three monitoring locations on the same day or VSS was less than the method reporting limit for one or more monitoring locations on the days it was measured at multiple monitoring locations, so there are a very limited number of days when the difference in VSS between monitoring locations can be estimated in the Klamath River from upstream of J.C. Boyle Dam (river mile [RM] 233.3) to upstream of Copco No. 1 Reservoir/upstream of Shovel Creek (RM 211.2). Frequently, VSS upstream of Copco No. 1 Reservoir/upstream of Shovel Creek (RM 211.2) was measured one to two days later than VSS upstream of J.C. Boyle Dam (RM 233.3), so episodic increases in algal-derived (organic) suspended material from upstream of the Hydroelectric Reach potentially would not be characterized by VSS measurements. However, the limited number of days with KHSA IM15 monitoring data at two or more locations from 2003 to 2017 indicate VSS decreases in the downstream direction in 100 percent of measurements (i.e., 8 of 8) between upstream of J.C. Boyle Reservoir (RM 233.3) and the USGS 11510700 gage downstream of the J.C. Boyle Powerhouse (RM 225.2) and in approximately 70 percent of measurements (i.e., 23 of 34) between upstream of J.C. Boyle Reservoir (RM 233.3) and upstream of Copco No. 1 Reservoir/upstream of Shovel Creek (RM 211.2).

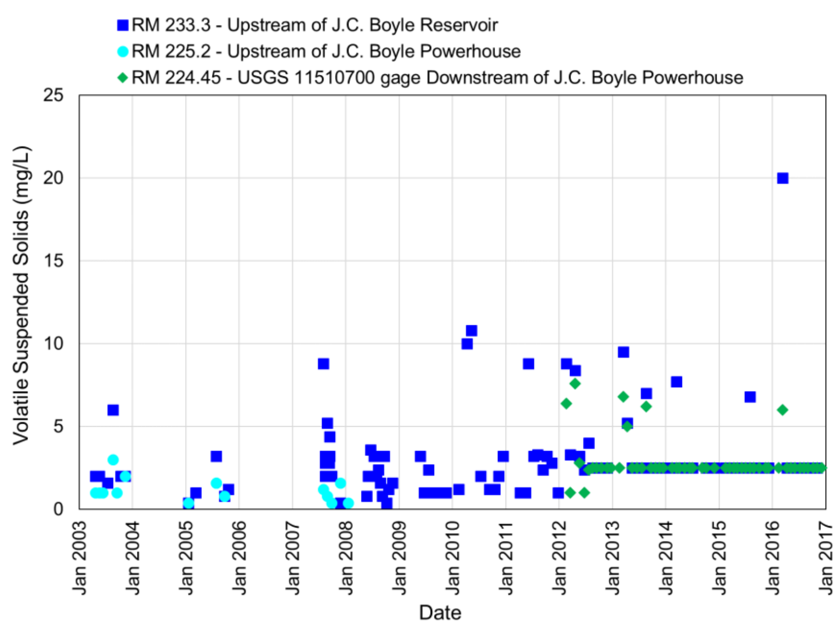


Figure ORG46-135-1. Volatile Suspended Solids (VSS) Concentrations in the Klamath River at RM 233.3—Upstream of J.C. Boyle Reservoir, RM 225.2—Upstream of J.C. Boyle Powerhouse, and RM 224.45—USGS 11510700 Gage Downstream of J.C. Boyle Powerhouse from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

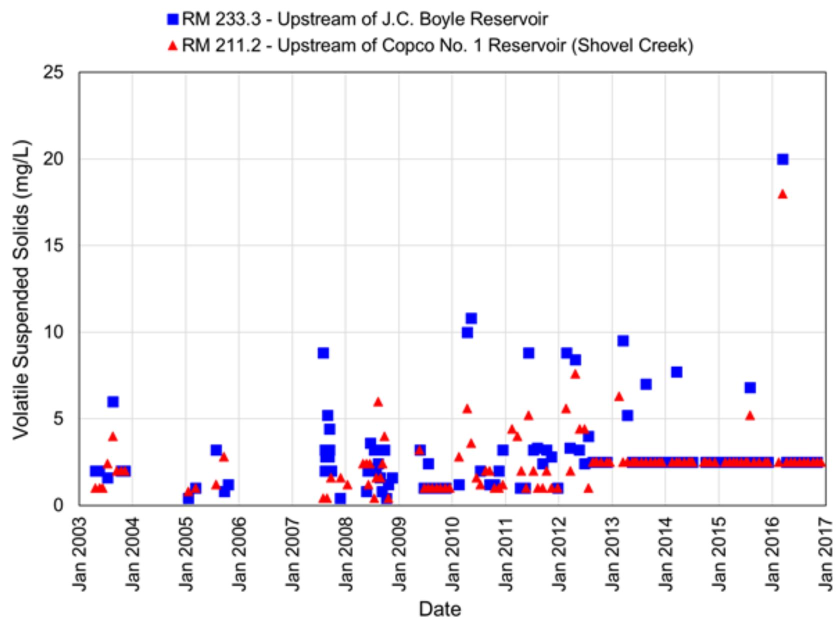


Figure ORG46-135-2. Volatile Suspended Solids (VSS) Concentrations in the Klamath River at RM 233.3—Upstream of J.C. Boyle Reservoir and RM 211.2—Upstream of Copco No. 1 Reservoir/Upstream of Shovel Creek from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

VSS typically decreases in the downstream direction in the Klamath River reach from upstream of J.C. Boyle Reservoir to upstream of Copco No. 1 Reservoir/upstream of Shovel Creek, but VSS would not represent all of the algal-derived (organic) suspended material being transported into the Hydroelectric Reach since volatile organic material would be only a fraction of the total algal-derived (organic) suspended material. While VSS measurements would underestimate the total algal-derived (organic) suspended material, total suspended solids (TSS) measurements would overestimate the algal-derived (organic) suspended material, because TSS measures both the mineral (inorganic) and algal-derived (organic) suspended material. However, TSS would characterize all of the algal-derived (organic) suspended material, so it is primarily used in the EIR analysis as a conservative estimate of the long-term potential changes in algal-derived (organic) suspended material crossing the Oregon-California state line under the Proposed Project. Figures ORG46-135-3 and ORG46-135-4 below plot the KHSA IM15 TSS data that are posted online for the locations shown in the comment, with TSS samples below the method reporting limit plotted as 0.5 times the method reporting limit (since TSS values below the method reporting limit generally are some value between zero and the method reporting limit).

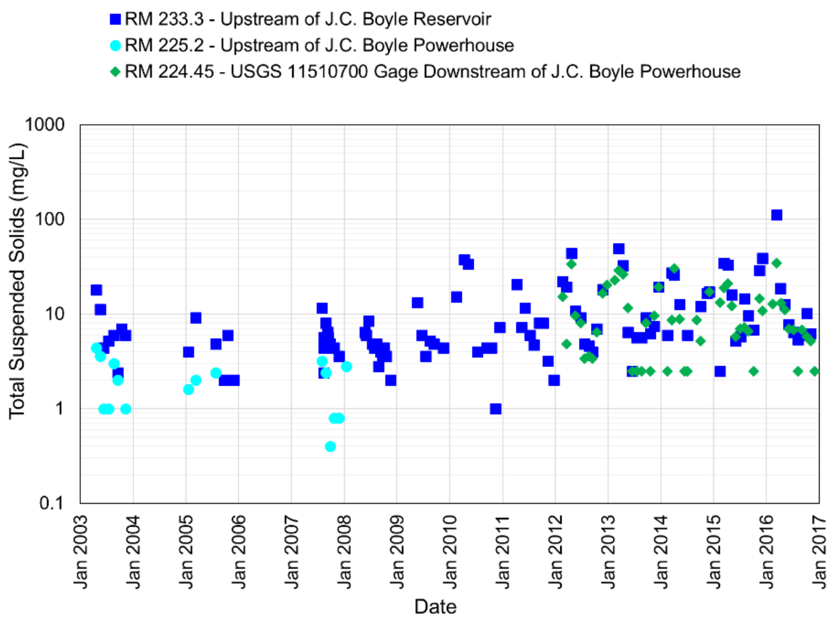


Figure ORG46-135-3. Total Suspended Solids (TSS) Concentrations in the Klamath River at RM 233.3-Upstream of J.C. Boyle Reservoir, RM 225.2—Upstream of J.C. Boyle Powerhouse, and RM 224.45-USGS 11510700 Gage Downstream of J.C. Boyle Powerhouse from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003, 2004, 2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017.

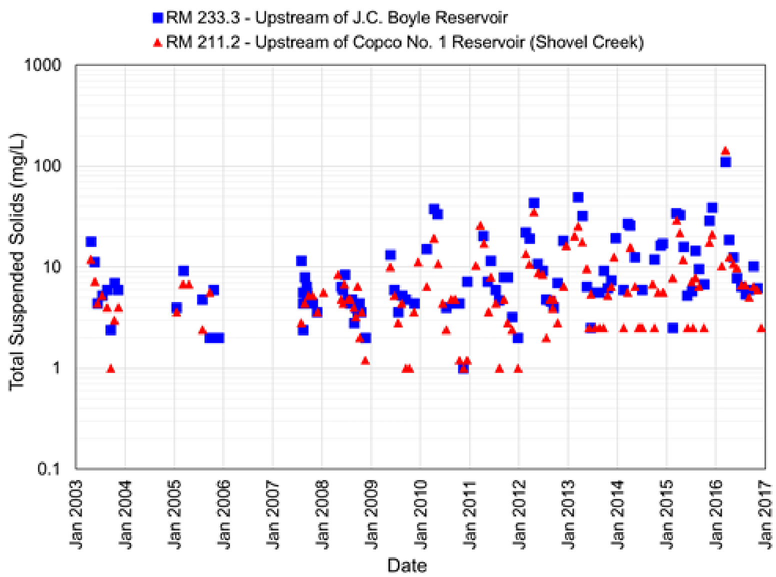


Figure ORG46-135-4. Total Suspended Solids (TSS) Concentrations in the Klamath River at RM 233.3—Upstream of J.C. Boyle Reservoir and RM 211.2—Upstream of Copco No. 1 Reservoir/Upstream of Shovel Creek from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

KHSA IM15 TSS monitoring data from 2003 to 2017 show TSS typically decreasing in the downstream direction, supporting the analysis in Potential Impact 3.2-6 that mechanical breakdown in the Hydroelectric Reach along with dilution from the springs downstream of the J.C. Boyle Dam would be likely to reduce the concentration of algal-derived (organic) suspended material crossing the Oregon-California state line. TSS measurements greater than 20 mg/L are likely to be primarily composed of mineral (inorganic) suspended material because they only occurred between December and April and they usually coincided with high winter flows greater than 3,000 cubic feet per second (cfs). Peak TSS measurements of over 100 milligram per liter (mg/L) on March 15 and 16, 2016, shown in Figures ORG46-135-3 and ORG46-135-4, occurred when high winter flows of approximately 10,000 cfs were recorded at the United States Geological Survey (USGS) 11510700 gage downstream of J.C. Boyle Powerhouse. TSS measurements from May through October typically range from less than the method reporting limit to 12.2 mg/L at the USGS 11510700 gage downstream of J.C. Boyle Powerhouse, or less than the method reporting limit to 11.8 mg/L upstream of Copco No. 1 Reservoir/upstream of Shovel Creek (Figures ORG46-135-5 and ORG46-135-6), consistent with the analysis in Potential Impact 3.2-6 that the typical TSS crossing the Oregon-California state line under existing conditions is in the range of 10 to 15 mg/L.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

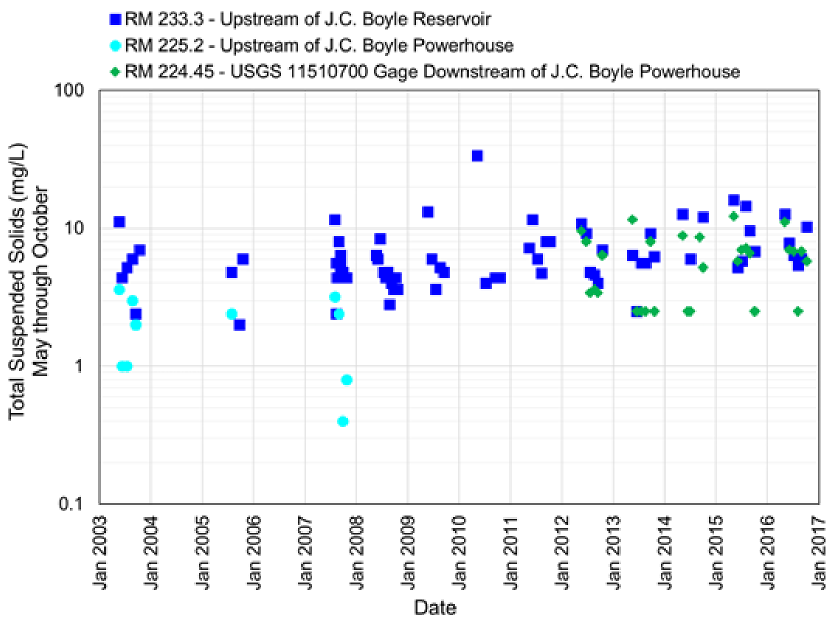


Figure ORG46-135-5. Total Suspended Solids (TSS) Concentrations in the Klamath River from May through October at RM 233.3—Upstream of J.C. Boyle Reservoir, RM 225.2—Upstream of J.C. Boyle Powerhouse, and RM 224.45—USGS 11510700 Gage Downstream of J.C. Boyle Powerhouse from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

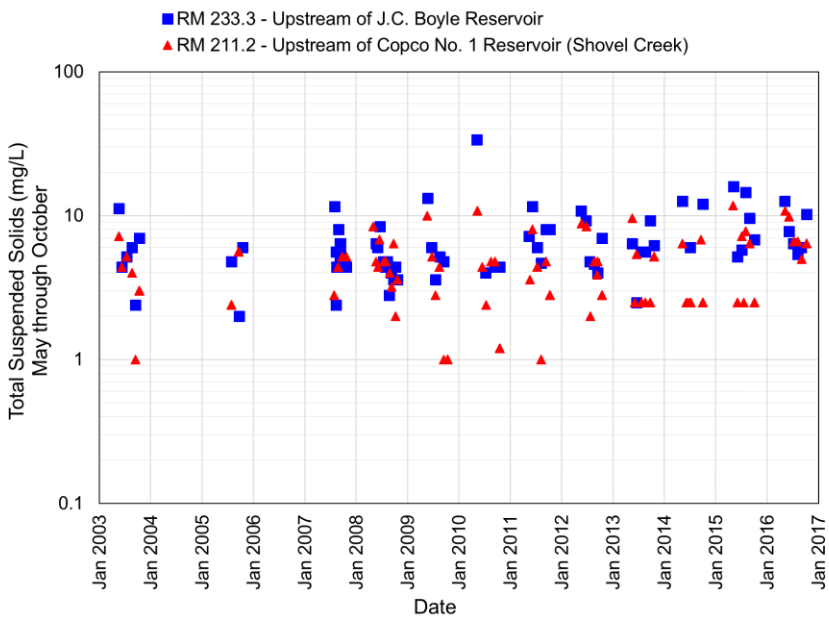


Figure ORG46-135-6. Total Suspended Solids (TSS) Concentrations in the Klamath River from May to October at RM 233.3—Upstream of J.C. Boyle Reservoir and RM 211.2—Upstream of Copco No. 1 Reservoir/Upstream of Shovel Creek from 2003 to 2017. Non-detect Values of VSS (i.e., Less Than the Method Reporting Limit [MRL]) Are Plotted as 0.5 Times the MRL. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

Comment ORG46-136

The DEIR should also include a discussion of periphyton and aquatic macrophytes that will colonize the reaches in question, including J.C. Boyle Reservoir, the Klamath River from J.C. Boyle Dam to Copco Reservoir, and the reach downstream to Iron Gate Dam. This aquatic vegetation will convert nutrients imported from the upper basin (e.g., Upper Klamath Lake) into aquatic vegetation biomass, which will in turn contribute to particulate organic matter, leading to a potential increase in organic suspended materials.

Response to Comment ORG46-136

With respect to the comment's concern regarding periphyton, please refer to Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) for a discussion of periphyton growth in the Hydroelectric Reach due to conversion of the reservoir areas to a free-flowing river and elimination of hydropower peaking operations under the Proposed Project.

Periphyton colonization and growth in the new free-flowing river portions of the Hydroelectric Reach would potentially contribute to organic suspended material, but there is not sufficient information available to quantify the organic suspended material production from potential periphyton growth under the Proposed Project.

As defined in the introduction to Volume I Section 3.4 *Phytoplankton and Periphyton* (page 3-389), periphyton are aquatic organisms that live attached to underwater surfaces such as rocks on a riverbed. While periphyton may contribute organic suspended material when scoured from the streambed or sloughed off the streambed after death, periphyton typically are not associated with ongoing high levels of organic suspended material production since they live attached to the streambed. The magnitude of potential organic suspended material production from periphyton growth in the Klamath River is unknown because there are no data in the Klamath River on the potential organic suspended material production from specifically periphyton. Available volatile suspended solids (VSS) and total suspended solids (TSS) measurements from the Klamath River cannot be used to estimate potential organic suspended sediment production from periphyton growth because these measurements include organic suspended material from phytoplankton in addition to any potential organic suspended material from periphyton growth, especially downstream of the reservoirs on the Klamath River during episodic phytoplankton blooms. Periphyton are typically assumed to not contribute high levels of organic suspended material, except potentially during high flow events that scour the streambed when inorganic suspended sediments would comprise the majority of suspended material. While there would be an increase in periphyton growth in the new free-flowing river portions of the Hydroelectric Reach (see Volume I Potential Impact 3.4-4 [pages 3-435 to 3-436]), periphyton growth is unlikely to result in an increase in suspended sediment concentrations (SSCs) above the suspended sediment threshold (i.e., 100 milligram per liter [mg/L]) based on the best available information on periphyton in the Klamath River. As discussed in Volume I Potential Impact 3.4-5 (pages 3-437 to 3-440), some processes in the Middle and Lower Klamath River and the Klamath River Estuary under the Proposed Project would favor periphyton growth (i.e., increasing nutrient transport and recycling) and some processes would be detrimental to periphyton growth (i.e., increasing uptake and retention of nutrients by periphyton in the Hydroelectric Reach, increasing frequency and intensity of scouring events, eliminating seasonal nutrient releases from reservoir sediments). As such, periphyton growth and biomass in the Middle and Lower Klamath River and the Klamath River Estuary under the Proposed Project would not be expected to significantly increase and it would likely remain within the range of annual variations under existing conditions in parts of these reaches. Thus, the organic suspended material production from periphyton in the Middle and Lower Klamath River and the Klamath River Estuary under the Proposed Project also would not be expected to significantly increase; organic suspended material from periphyton would likely remain within the range of annual variations under existing conditions in parts of these reaches; and periphyton growth is unlikely to result in an increase suspended sediment concentrations above the suspended sediment threshold (i.e., 100 mg/L for a continuous two week period).

With respect to the comment's concern regarding aquatic macrophytes, macrophyte abundance (as grams, dry weight per square meter of [g DW/m^2]

biomass) in the Klamath River upstream of the Hydroelectric Reach (i.e., Link River to Keno Dam) has been quantified by one study (Sullivan et al. 2013), but estimates of macrophyte abundance from that study would not be representative of the potential macrophyte abundance in the Hydroelectric Reach under the Proposed Project due to differences in the aquatic habitats where macrophytes were measured (i.e., between Link River and Keno Dam) and the types of habitats that would occur in the Hydroelectric Reach under the Proposed Project. Water velocity significantly affects the abundance of aquatic macrophytes, with higher velocities resulting in a decrease in abundance (Chambers et al. 1991). Sullivan et al. (2013) primarily sampled macrophytes in the calm, slow-moving reservoir habitat of the Lake Ewuana/Keno Impoundment that dominates conditions between Link River and Keno Dam, with most macrophyte abundance occurring in the slow-moving, shallow water (less than approximately 7 feet) near shore. However, the generally high-gradient river channel in the Hydroelectric Reach (USBR 2012a) would result in primarily turbulent, fast-moving river habitat in this reach under the Proposed Project, so estimates of macrophyte abundance from the slow-moving reservoir habitat between Link River and Keno Dam would likely significantly overestimate macrophyte abundance under the Proposed Project.

Additionally, the types of macrophytes likely to occur in the turbulent, fast-moving Hydroelectric Reach under the Proposed Project would be different from those measured in the slow-moving, lake-like conditions within the Link River to Keno Dam reach of the Klamath River. Coontail (*Ceratophyllum demersum*), common waterweed (*Elodea canadensis*), curlyleaf pondweed (*Potamogeton crispus*), and small pondweed (*Potamogeton pusillus*) comprised the majority of the macrophytes sampled during summer and fall (June to October) of 2011 (Sullivan et al. 2013), but these types of macrophytes are not expected to occur in the faster-moving river conditions in the Hydroelectric Reach under the Proposed Project. The types of macrophytes likely to occur in the Hydroelectric Reach under the Proposed Project would include emergent species such as hardstem bulrush (*Schoenoplectus acutus*) and cattail (*Typha latifolia*) that would be planted during restoration efforts and potentially other species that self-recruit and persist in a riverine environment (e.g., smart weed (*Persicaria* spp.) and spikerush [*Eleocharis* spp.]). Thus, the types of macrophytes that occur in the Klamath River from Link River to Keno Dam likely would be different from those occurring in the Hydroelectric Reach under the Proposed Project. Overall, both the macrophytes types and abundance from Link River to Keno Dam would not be representative of those in the Hydroelectric Reach and the upstream estimates of macrophyte abundance would not be appropriate to apply to the Hydroelectric Reach under the Proposed Project.

As discussed in the introduction of Volume I Section 3.4.2 *Environmental Setting* (page 3-392), there is also no known quantitative (e.g., abundance, percent cover) information on aquatic plant species (i.e., submerged and/or floating macrophytes) in the Hydroelectric Reach or the Middle and Lower Klamath River.

Prior studies (City of Klamath Falls 1986, 1989) documented that macrophytes in the Hydroelectric Reach between J.C. Boyle Dam and Copco No. 1 Reservoir typically were found only along the river margins or pools and low gradient areas of the Klamath River due to the steep gradient, associated high water velocities, and lack of fine sediment substrate within this reach. Observations of aquatic macrophytes are common in the main channel in the Middle Klamath River from Iron Gate Dam to the Scott River (river mile [RM] 145.1), but they are only present in the quiet backwater areas in the Klamath River downstream of the Scott River confluence (PacifiCorp 2005c; Stillwater Sciences 2009). There are no reports of excessive aquatic macrophyte biomass in the available data record, so aquatic macrophytes have typically been assumed to not play a dominant role in primary productivity or nutrient cycling in the Middle or Lower Klamath River (Stillwater Sciences 2009).

Macrophyte colonization and growth in the new free-flowing river portions of the Hydroelectric Reach would potentially contribute to organic suspended material, but there is not sufficient information available to quantify the organic suspended material production from potential macrophyte growth under the Proposed Project. As previously discussed, there is limited data on macrophyte abundance in the Klamath River, so the potential organic suspended material production from macrophytes cannot be directly estimated from data. Available volatile suspended solids (VSS) and total suspended solids (TSS) measurements from the Klamath River cannot be used to estimate potential organic suspended sediment production from macrophyte growth because VSS and TSS measurements in the Klamath River include episodic increases in organic suspended material from phytoplankton blooms in addition to organic suspended material from macrophyte growth, especially within and downstream of the reservoirs on the Klamath River.

Additionally, the potential organic suspended material from macrophytes cannot be quantitatively estimated because the area that macrophytes would colonize under the Proposed Project, the macrophyte growth rate per area in the Klamath River, and the relationship between macrophyte abundance and organic suspended material production are unknown and one or more of these parameters would be necessary to analyze the potential organic suspended material from macrophytes. While the new river channels in the Lower Klamath Project reservoir footprints are expected to re-occupy their historical channels, the specific area of the river channels that would form in the sediment deposits under the Proposed Project is not well defined. Further, the potential area of slow-moving habitat within the new river channels that would be available for macrophyte growth is currently unknown. While estimates of the macrophyte growth rates per area for other rivers are available, growth rates vary widely depending on the conditions in the systems and the macrophytes species in those systems (Kadlec and Knight 1996). More specifically, macrophyte growth rate per area is influenced by variations in water velocity, water depth, light availability, nutrient availability, water temperature, seasonal flow, sediment transport, and competition between periphyton and macrophytes. Thus, a representative macrophyte growth rate per area in the Hydroelectric Reach under the Proposed Project would be speculative. Additionally, a quantitative relationship between macrophyte abundance and organic suspended material production has not been determined for the Klamath River, so the potential range of increases in organic suspended material from macrophytes in the Klamath River under the Proposed Project cannot be estimated with any confidence based on assumptions of the potential range of macrophyte abundance in the Hydroelectric Reach following dam removal.

Overall, the potential increase in organic suspended material from changes in macrophyte growth in the Hydroelectric Reach, Middle and Lower Klamath River, and the Klamath River Estuary under the Proposed Project is unknown due to lack of data on macrophyte conditions in the Klamath River. Additionally, there is not sufficient quantitative information on the potential area of macrophyte growth, macrophyte growth rates, or macrophyte production of organic suspended sediments to estimate the potential increase in organic suspended material from changes in macrophyte growth in the Klamath River. However, as there are no reports of excessive aquatic macrophyte biomass in the existing Hydroelectric Reach (i.e., the J.C. Boyle Bypass and Peaking reaches), the steep gradient of the Hydroelectric Reach would limit the availability of slow-moving habitat for macrophyte growth under the Proposed Project, and there are no studies linking macrophyte growth in the downstream Middle and Lower Klamath River to high suspended sediment concentrations (SSCs), there the potential increase in organic suspended material from macrophytes in the newly-created river channel through the reservoir sediment deposits would be unlikely to increase suspended sediment concentrations above the suspended sediment threshold (i.e., 100 mg/L).

Additionally, the macrophyte conditions and associated organic suspended sediment production in the Middle and Lower Klamath Rivers and the Klamath River Estuary would be similar to existing conditions under the Proposed Project for reasons similar to those discussed for periphyton in Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-5 (pages 3-437 to 3-440) since the processes that influence periphyton abundance in the Middle and Lower Klamath River and the Klamath River Estuary (e.g., light availability, nutrient availability, water temperature, seasonal flow variations, sediment transport) similarly influence macrophyte abundance in these reaches. While some processes would potentially favor macrophyte growth downstream from Iron Gate Dam (i.e., increasing nutrient transport and recycling), other processes would potentially reduce macrophyte growth (i.e., increasing uptake and retention of nutrients in the Hydroelectric Reach due to potential periphyton and macrophyte growth, increasing frequency and intensity of scouring events, eliminating seasonal nutrient releases from reservoir sediments). Short-term deposition of coarse sediment (i.e., sand and larger) between Iron Gate Dam and Cottonwood Creek following drawdown of the reservoirs and transport of these sediments in subsequent years (see Volume I Potential Impact 3.11-5 [pages 3-765 to 3-775] and Master Response GEO-1) may both favor macrophyte growth or reduce macrophyte growth by creating slower-moving and/or faster-moving habitats in the Iron Gate Dam to Cottonwood Creek. Please also refer to response to comment ORG46-34 for a discussion of the potential impacts of sediment transport on macrophytes, ORG46-146 for a discussion of potential impacts from periphyton and macrophyte growth on nutrients, and ORG46-149 for a discussion of the potential impacts of periphyton and macrophytes on pH in the Klamath River. The overall contribution of organic suspended material from macrophytes in the Middle and Lower Klamath Rivers and the Klamath River Estuary under the Proposed Project would be expected to be within the range of organic suspended material from macrophytes under existing conditions and not result in an increase in suspended sediment concentrations above the suspended sediment threshold (i.e., 100 mg/L for a continuous two week period).

Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-6 assumes no decrease in organic suspended material in the Hydroelectric Reach even though it is likely that mechanical breakdown and dilution in this reach would reduce algal-derived (organic) suspended material concentrations to account for potential increases in organic suspended material production within the Hydroelectric Reach that cannot be quantified, including potential organic suspended material production from periphyton and macrophyte growth. As discussed above, the magnitude of organic suspended material production from periphyton and macrophyte growth within the Hydroelectric Reach under the Proposed Project is unknown because there are no data to estimate this potential organic suspended material production. Furthermore, Potential Impact 3.2-6 acknowledges there potentially would be a slight relative long-term increase in organic suspended materials under the Proposed Project, but such increases would be well below the organic suspended material previously produced in Copco No. 1 and Iron Gate reservoirs and would not exceed levels that would substantially adversely affect the cold freshwater habitat (COLD) beneficial use or any other existing designated beneficial use at the levels currently supported, exacerbate an existing exceedance of water quality standards, or result in a failure to maintain an existing beneficial use. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-6.

Potential Impact 3.2-6 has been revised to clarify that periphyton and potential macrophyte growth in the newly created free-flowing river reaches replacing the reservoirs may contribute organic suspended material to the river, but the magnitude of this contribution cannot be quantified with available data and models. Additionally, Potential Impact 3.2-6 has been revised to clarify the conservative assumption that there would be no decrease in organic suspended material through the Hydroelectric Reach under the Proposed Project, after accounting for both the elimination of settling of suspended material in the reservoirs and the potential for increases in organic suspended material from potential periphyton and/or macrophyte growth within this reach. Please refer to Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-6 for the revisions.

Comment ORG46-137

The DEIR states "Following completion of the Proposed Project, it is very unlikely that summertime algal-dominated (organic) suspended material in the Middle and Lower Klamath River would increase beyond a sustained 100 mg/L for two weeks (the water quality criterion adopted for significant adverse impacts on the COLD beneficial use for the Lower Klamath Hydroelectric Project EIR analysis (see Section 3.2.3.1)." The 100 mg/L criteria developed in Section 3.2.3.1 referred to potential impact of increases in suspended sediments due to release of sediments currently trapped behind the dams. This suspended sediment criterion cannot be reasonably applied to long-term alterations in algal-derived (organic) suspended material from the lack of continued interception and retention by the dams. Therefore, the DEIR should be revised to include the appropriate criterion for algal-derived material. A reasonable criterion would be to assess if there will be an increase from current condition to a future condition without dams such as under the Proposed Project.

The DEIR goes on to state "If slight long-term increases in suspended materials did occur, such increases would be well below the algal-derived suspended material previously produced in Copco No. 1 and Iron Gate reservoirs and would not exceed levels that would substantially adversely affect the cold freshwater habitat (COLD) beneficial use or any other existing designated beneficial use at the levels currently supported, exacerbate an existing exceedance of water quality standards, or result in a failure to maintain an existing beneficial use." This statement acknowledges that slight increases could occur (although the magnitude is unquantified). While the statement focuses on the reach downstream of Copco Reservoir, the DEIR does not address such potential impacts upstream of Copco Reservoir, where the implications of a cessation of peaking and removal of J.C. Boyle Reservoir would potentially lead to higher pH excursions and production of organic matter generated by colonization of this reach by periphyton and macrophytes. Without such an assessment, the level of effect the Proposed Project may have on organic suspended material cannot be determined.

Response to Comment ORG46-137

Section 3.2.3.1 *Water Quality – Significance Criteria – Thresholds of Significance - Suspended Sediments* provides an explanation of how the narrative Basin Plan water quality objectives for suspended material, settleable material, and sediment were interpreted to develop a numeric threshold of significance for suspended sediment (i.e., 100 milligram per liter [mg/L] for two consecutive weeks) based on the suspended sediment concentration (SSC) and duration that would cause nuisance or adversely affect the most sensitive beneficial use

(COLD). The long-term threshold of significance recommended by the comment (i.e., any increase in algal-derived [organic] suspended material concentrations from existing conditions) does not consider whether the increase would actually cause a nuisance or adversely affect a beneficial use at the levels currently supported, exacerbate an existing exceedance of water quality standards, or result in a failure to maintain an existing beneficial use.

The threshold of significance for suspended sediments (i.e., 100 mg/L for a continuous two week period) is determined in the EIR using a generalized "dose-response" approach based on the Newcombe and Jensen (1996) Severity Index and the Suspended Sediment Dose Index for salmonids listed in the North Coast Regional Board Desired Conditions Report (2006) since the most sensitive beneficial use for water quality is the cold freshwater habitat (COLD) associated with salmonids (North Coast Regional Board 2011). The sustained 100 mg/L for two weeks threshold of significance is the water quality criterion adopted for significant adverse impacts on the COLD beneficial use during reservoir drawdown based on the "dose-response" approach, but theoretically this threshold is a reasonable long-term threshold of significance since it evaluates whether there would be an adverse impact on a beneficial use. However, it is not the only threshold of significance that can be considered for salmonids (i.e., the most sensitive beneficial use [COLD]).

The "dose-response" approach specifically evaluates how exposure to different concentrations over a range of time periods (i.e., hours, days, weeks, months) produces various impacts (i.e., negligible, behavioral, sub-lethal, and lethal) on salmonids. The "dose" in the "dose-response" approach is a combination of the magnitude of suspended sediments over a duration, so a lower magnitude of suspended sediments than 100 mg/L would need to occur for a longer period than two weeks to produce a similar adverse impact. As an example, a suspended sediment concentration of 15 mg/L would need to occur continuously for approximately 90 days to result in the same sublethal effects (i.e., long-term reduction in feeding rate and feeding success, poor condition) on salmonids as the threshold of significance (i.e., 100 mg/L for two continuous weeks). While the future algal-derived suspended material concentrations entering the Hydroelectric Reach are unknown, there is nothing in the available data record or in the comment to suggest that a sustained 15 mg/L suspended sediment concentration for approximately 90 days would occur either upstream of J.C. Boyle Reservoir or immediately downstream of Iron Gate Dam during the algal growth season (i.e., May to October) under a dam removal scenario such that there would be an adverse impact on the most sensitive beneficial use (COLD).

Due to the many different possible combinations of an algal-derived (organic) suspended material concentration over a specified time that could be used as a threshold of significance for an adverse impact on the most sensitive beneficial use (COLD), the analysis in Potential Impact 3.2-6 evaluates whether the slight increase in algal-derived (organic) suspended material under the Proposed

Project would be likely to result in suspended material exceeding either 100 mg/L for a two consecutive weeks or a lower concentration sustained over a longer period, causing an adverse impact on the most sensitive beneficial use (COLD).

Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-6 has been revised to clarify that the slight increase in algal-derived (organic) suspended material under the Proposed Project is analyzed with respect to the potential for an adverse impact on the most sensitive beneficial use (COLD) due to a sustained 100 mg/L for two weeks or a lower concentration sustained over a longer period of time. Please refer to Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* for the revisions.

The discussion of algal-derived (organic) suspended material upstream of Copco No. 1 Reservoir occurs two paragraphs before the statement quoted by the comment about algal-derived (organic) suspended material downstream of Copco No. 1 Reservoir. Please refer to Potential Impact 3.2-6 for the analysis of algal-derived (organic) suspended material in the Hydroelectric Reach upstream of Copco No. 1 Reservoir. Please refer to Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* for the revisions.

Please refer to the response to comment ORG46-136 for an explanation of how the analysis in Potential Impact 3.2-6 accounts for potential increases algal-derived (organic) suspended material from periphyton and macrophyte growth in the Hydroelectric Reach.

Comment ORG46-138

The DEIR states "However, minimal deposition of fine suspended sediments, including associated nutrients, would occur in the river channel and the estuary." Given the importance and potential severity of suspended sediments impacts under the Proposed Project, the DEIR should carefully and thoroughly define "minimal" in this context. The DEIR should also recognize that following events that produce excessive sediment, deposition of fine material can accumulate on the banks and bed of streams, pools, and side channels, and within point bars (see Major Issue 2.4).

Response to Comment ORG46-138

Please refer to Volume 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and modifications in Volume III Attachment 1 for a discussion of the magnitude of short-term sediment deposition in the Klamath River downstream of Iron Gate Dam due to erosion of reservoir sediment deposits and a long-term change in sediment supply and transport due to dam removal, including an evaluation of potential spatial sediment deposition patterns in pools and other slack water areas (e.g., eddies) along the river.

Please also refer to Master Response GEO-1 for additional discussion of the expected deposition of sediments under the Proposed Project.

Comment ORG46-139

The DEIR states "Modeling conducted for development of the California Klamath River TMDLs (North Coast Regional Board 2010) does provide some information applicable to the assessment of long-term impacts of the Proposed Project on nutrients at locations in the Hydroelectric Reach (Kirk et al. 2010)." The DEIR goes on to state "Klamath River TMDL model results indicate that if the Lower Klamath Hydroelectric Project dams were to be removed ("TMDL dams-out, Oregon" [TOD2RN] scenario), TP [total phosphorus] and TN [total nitrogen] in the Hydroelectric Reach immediately downstream from J.C. Boyle Dam would increase slightly (by less than 0.015 mg/L TP and less than 0.05 mg/L TN) during summer months compared to existing conditions." The increase by less than 0.015 mg/L total phosphorus and less than 0.05 mg/L total nitrogen are not necessarily "slight." The DEIR should recognize that the half saturation constant for phosphorous and nitrogen in the TMDL models is on the order of 0.003 mg/L and 0.014 mg/L, respectively (Tetra Tech 2009). Thus, increases of up to 0.015 mg/L total phosphorus is five times the half saturation constant. Similarly, an increase of 0.05 mg/L in total nitrogen is about 3.5 times the half saturation constant. These increases are clearly potentially biostimulatory in magnitude.

Further, increases of up to 0.015 mg/ L total phosphorus are of the same approximate magnitude of the monthly TMDL mean concentration targets in the Copco tailrace (see Table 5.10 below from NCRWQCB [2010]). Given that the TMDL targets will be challenging to meet, essentially doubling the total phosphorus concentrations would seem to be a significant impact. This impact would be further exacerbated by the existing nitrogen-fixing periphyton (e.g., Epithemia sp.) in the river that, given sufficient or even just additional phosphorous will dominate periphyton communities in late summer and fall (Power et al. 2016). The nitrogen-fixing by these organisms will provide another source of nitrogen to the Klamath River and this source of nitrogen is not assessed in the DEIR.

Table 5.10: Nutrient and organic matter monthly mean concentration targets (mg/L) for Copco 2 and Iron Gate tailraces

Copco 2 Tailrace						
	May	**June**	**July**	**August**	**September**	**October**
TP	0.017	0.015	0.016	0.016	0.015	0.015
TN	0.259	0.201	0.174	0.178	0.168	0.211
CBOD^{5}	2	1	1	1	1	1
	November	**December**	**January**	**February**	**March**	**April**
TP	0.017	0.023	0.016	0.019	0.019	0.018
TN	0.264	0.341	0.241	0.315	0.303	0.278
CBOD^{5}	1	1	1	2	2	2
Iron Gate Tailrace						
	May	**June**	**July**	**August**	**September**	**October**
TP	0.255	0.202	0.157	0.149	0.140	0.161
TN	0.016	0.014	0.013	0.013	0.013	0.013
CBOD^{5}	1	1	1	1	1	1
	November	**December**	**January**	**February**	**March**	**April**
TP	0.203	0.276	0.195	0.298	0.299	0.267
TN	0.015	0.017	0.013	0.018	0.019	0.017
CBOD^{5}	1	1	1	2	2	2

Response to Comment ORG46-139

Section 3.2.2.4 *Water Quality – Environmental Setting* – Nutrients and Appendix C, Section C.3 *Nutrients* provide a summary of the concentrations of total nitrogen (TN) and total phosphorus (TP) at locations in the Hydroelectric Reach, the Middle and Lower Klamath River, and the Klamath River Estuary. Nutrient half-saturation constants characterize the upper nutrient concentration at which algal growth is directly proportional to the nutrient concentration (Cole and Wells 2015). Once the nutrient concentrations are greater than the half-saturation constant, additional nutrient inputs would have a diminishing influence on algal growth since nutrients would no longer be limiting algal growth. In other words, doubling the phosphorus and/or nitrogen concentrations would not result in a corresponding doubling of algal growth once phosphorus and nitrogen concentrations are greater than their respective half-saturation constant. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

In the Klamath River Total Maximum Daily Load (TMDL) model, there were separate nitrogen and phosphorus half-saturation constants for phytoplankton and periphyton that could be adjusted during model calibration. While the half-saturation constants for nutrients varies by algal species (Cole and Wells 2015), calibration of the Klamath River TMDL model to most accurately match observed data and maintain consistency among all the waterbodies determined the overall algal community response to nutrients would be best characterized by the half-saturation constant for inorganic phosphorus (i.e., orthophosphate) and inorganic nitrogen (i.e., ammonium/ammonia and nitrate+nitrite) being equal to 0.003 milligrams per liter (mg/L) and 0.014 mg/L, respectively, as noted in the comment (Tetra Tech 2009).

Klamath River water quality monitoring from 2002 to 2017 documents TP concentrations downstream of J.C. Boyle Dam under existing conditions that typically range from 0.044 to 0.370 mg/L (Figure ORG46-139-1). The mean TP concentration for each day of the year based on 2002 to 2017 TP data is shown as a black line, while the 95 percent confidence bands around the mean TP shown in cyan. The 95 percent confidence bands indicate that there is a 95 percent probability that the mean TP concentration would occur within the band. Measurements of TP were infrequently (i.e., twice in 2014, once in 2015, and once in 2016) less than the method reporting limit (i.e., 0.05 mg/L TP), but orthophosphate (PO_4) measurements associated with these TP measurements ranged from 0.054 to 0.097 mg/L PO_4 (the method reporting limit for orthophosphate is lower at 0.01 mg/L PO_4). TP measurements include orthophosphate, so it can be reasonably inferred that TP during these three measurements were at least equal to the measured orthophosphate (i.e., 0.054 to 0.097 mg/L). Measurements of TP were also infrequently greater than 0.370 mg/L TP (i.e., four times in 2004, once in 2015). During the typical May to October algal growth season, TP generally ranges from 0.053 to 0.370 mg/L TP. Orthophosphate concentrations downstream of J.C. Boyle Dam under existing conditions range from 0.011 to 0.320 mg/L PO_4 based on Klamath River water quality monitoring from 2002 to 2017, excluding orthophosphate measurements that are less than the method reporting limit (i.e., 0.01 mg/L) (Figure ORG46-139-2). The mean orthophosphate concentration for each day of the year based on 2002 to 2017 TP data is shown as a black line, while the 95 percent confidence bands around the mean orthophosphate shown in cyan. The 95 percent confidence bands indicate that there is a 95 percent probability that the mean orthophosphate concentration would occur within the band. A negative concentration is impossible, so a negative orthophosphate result indicates there was an error in the laboratory test. Orthophosphate concentrations downstream of J.C. Boyle Dam during the May to October algal growth season ranged from 0.033 to 0.32 mg/L PO_4.

Overall, based on the available data (2002 to 2017), phosphorus does not appear to limit algal growth in the Klamath River downstream of J.C. Boyle Dam since the minimum orthophosphate concentration (i.e., 0.011 mg/L) is approximately 4 times greater that the inorganic phosphorus half-saturation constant (i.e., 0.003 mg/L) and the minimum TP concentration (i.e., 0.044 mg/L) is approximately 15 times greater than the inorganic phosphorus half-saturation constant. As such, an increase of less than 0.015 mg/L TP due to dam removal under the Proposed Project is considered to be slight in the EIR analysis because there is sufficient phosphorus to meet algal growth needs under existing conditions and the estimated increase in TP is not be expected to be biostimulatory.

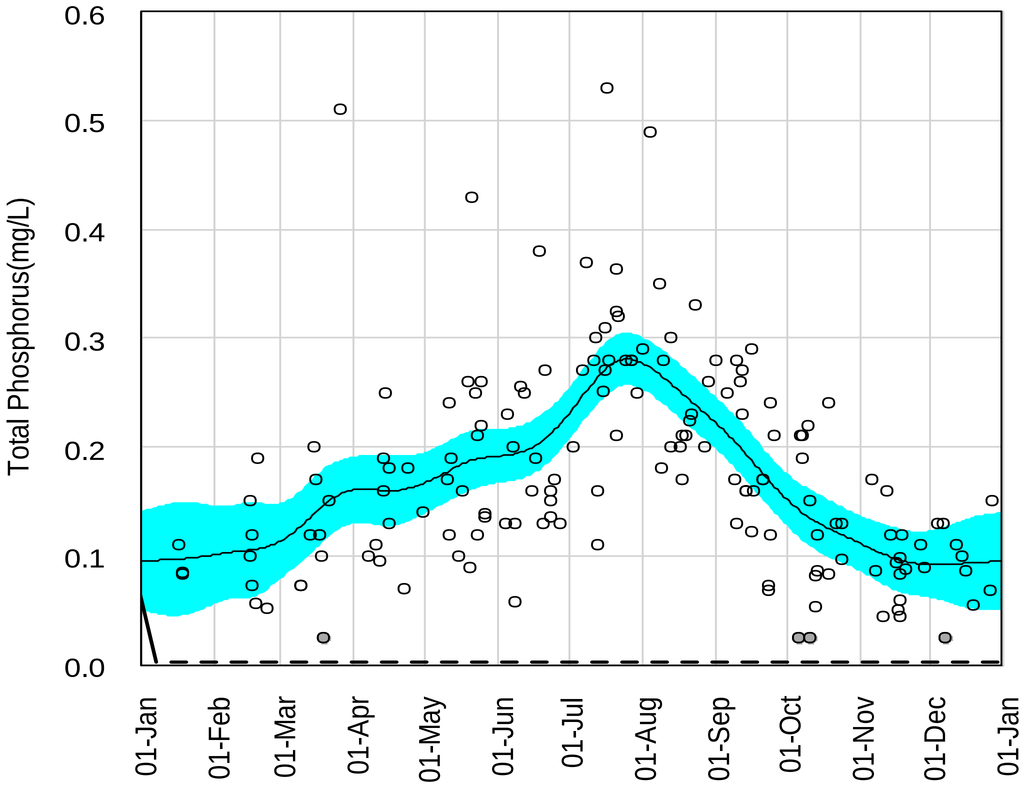


Figure ORG46-139-1. Total Phosphorus Concentrations in the Klamath River Downstream of J.C. Boyle Dam from 2002 to 2017. Mean Total Phosphorus Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Inorganic Phosphorus Half-Saturation Concentration (i.e., 0.003 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Total Phosphorus (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Total Phosphorus Concentrations Discarded. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

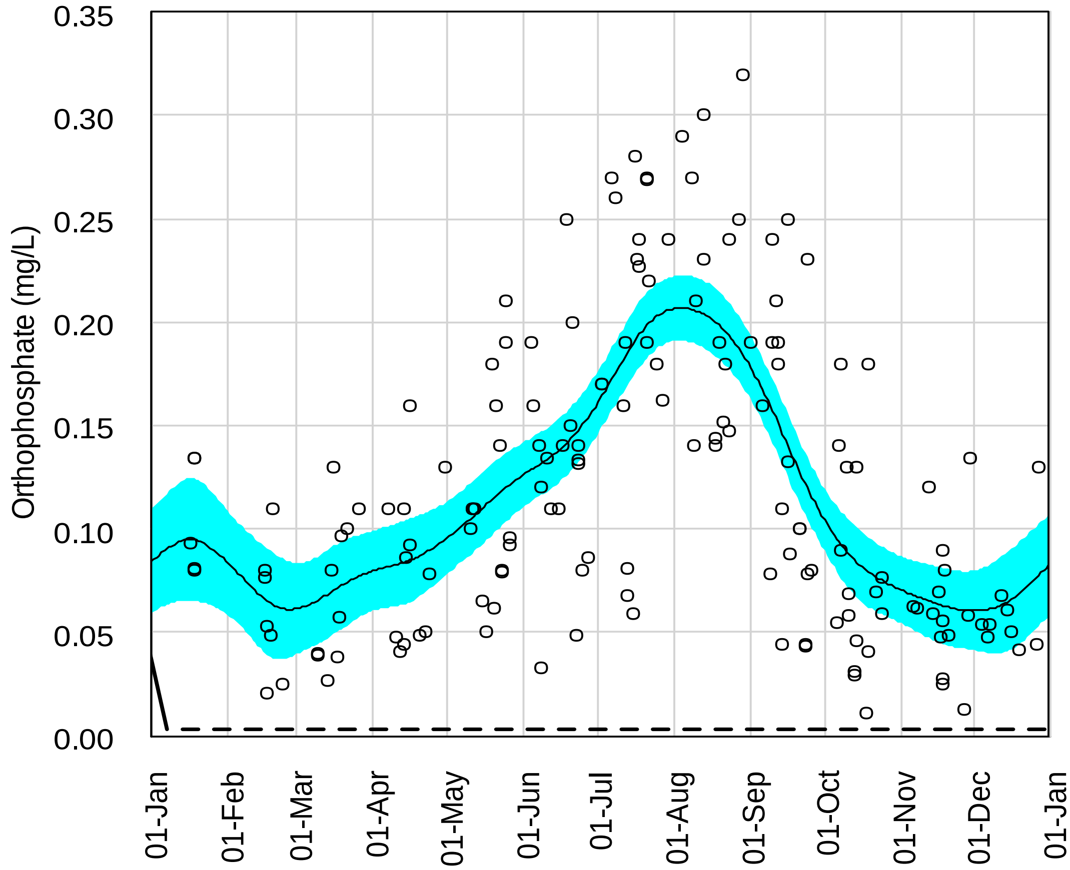


Figure ORG46-139-2. Orthophosphorus (i.e., Inorganic Phosphorus) Concentrations in the Klamath River Downstream of J.C. Boyle Dam from 2002 to 2017. Mean Orthophosphorus Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Inorganic Phosphorus Half-Saturation Concentration (i.e., 0.003 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Orthophosphorus (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Orthophosphorus Concentrations Discarded. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

Klamath River water quality monitoring from 2002 to 2017 documents TN concentrations downstream of J.C. Boyle Dam under existing conditions ranging from 0.46 to 3.15 mg/L, with TN ranging from 0.54 to 2.77 mg/L during the typical May to October algal growth season (Figure ORG46-139-3). The mean TN concentration for each day of the year based on 2002 to 2017 TP data is shown as a black line, while the 95 percent confidence bands around the mean TN shown in cyan. The 95 percent confidence bands indicate that there is a 95 percent probability that the mean TN concentration would occur within the band. Total inorganic nitrogen (i.e., ammonia/ammonium and nitrate+nitrite) concentrations downstream of J.C. Boyle Dam from 2002 to 2017 under existing conditions range from less than the method reporting limits (i.e., 0.05 mg/L ammonia, 0.01 nitrate+nitrite) to 1.65 mg/L, but total inorganic nitrogen concentrations were infrequently less than 0.05 mg/L (i.e., once in 2009 twice in 2010) or greater than 1.4 mg/L (i.e., twice in 2008, once in 2010, once in 2017) (Figure ORG46-139-4). The mean total inorganic nitrogen concentration for each day of the year based on 2002 to 2017 total inorganic nitrogen data is shown as a black line, while the 95 percent confidence bands around the mean total inorganic nitrogen shown in cyan. The 95 percent confidence bands indicate that there is a 95 percent probability that the mean total inorganic nitrogen concentration would occur within the band. During the typical May to October algal growth season, total inorganic nitrogen concentrations downstream of J.C. Boyle Dam generally range from approximately 0.05 to 1.4 mg/L.

Overall, based on the available data (2002 to 2017), nitrogen does not appear to limit algal growth in the Klamath River downstream J.C. Boyle Dam since the typical minimum total inorganic nitrogen concentration (i.e., 0.005 mg/L) is approximately 4 times greater the total inorganic nitrogen half-saturation constant (i.e., 0.014 mg/L) and the minimum TN concentration (i.e., 0.46 mg/L) is approximately 33 times greater than the total inorganic nitrogen half-saturation constant. As such, an increase of less than 0.05 mg/L TN due to dam removal under the Proposed Project is considered to be slight in the EIR analysis because there is sufficient nitrogen to meet algal growth needs under existing conditions and the estimated increase in TN is not be expected to be biostimulatory.

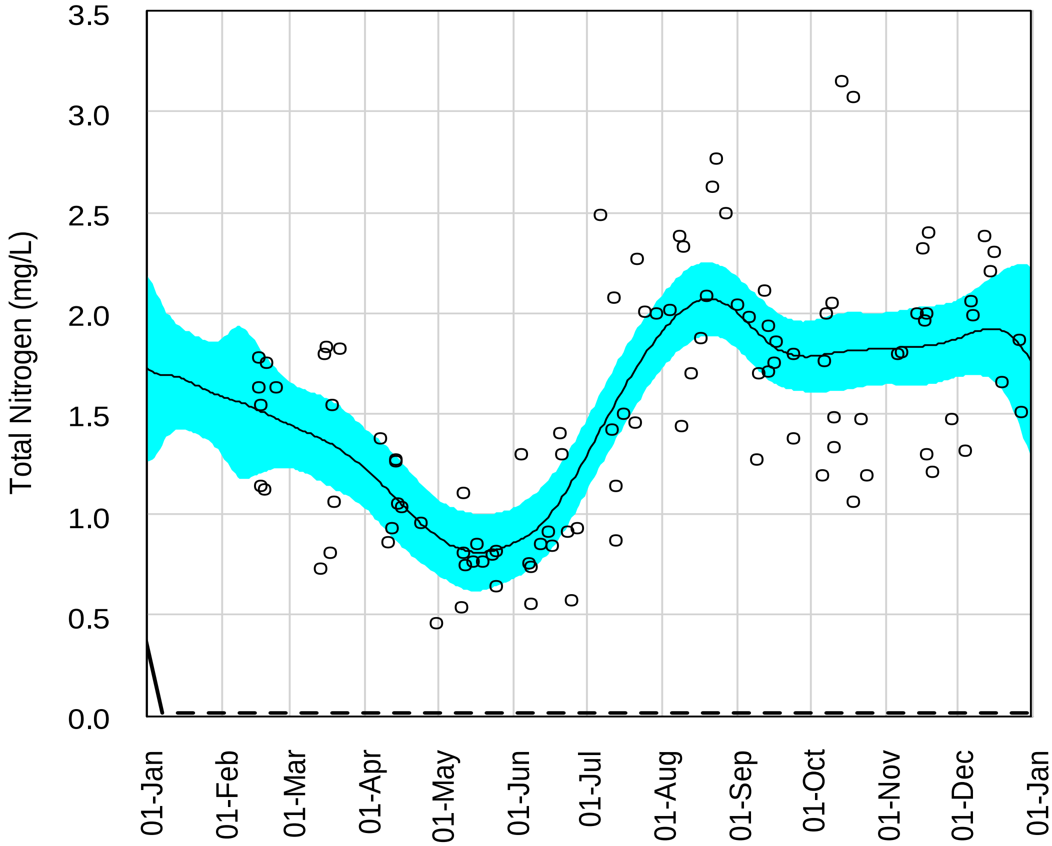


Figure ORG46-139-3. Total Nitrogen Concentrations in the Klamath River Downstream of J.C. Boyle Dam from 2002 to 2017. Mean Total Nitrogen Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Total Inorganic Nitrogen Half-Saturation Concentration (i.e., 0.014 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Total Nitrogen (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Total Nitrogen Concentrations Discarded. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

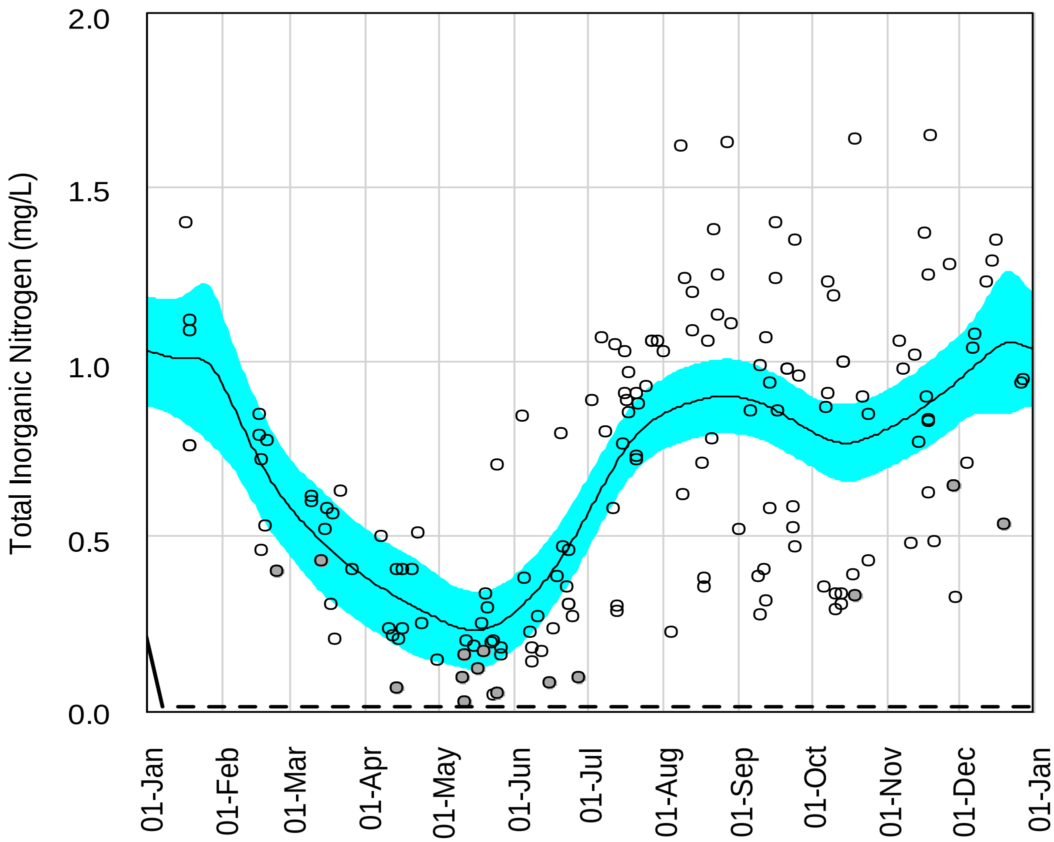


Figure ORG46-139-4. Total Inorganic Nitrogen (i.e., Ammonia/Ammonium and Nitrate+Nitrite) Concentrations in the Klamath River Downstream of J.C. Boyle Dam from 2002 to 2017. Mean Total Nitrogen Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Total Inorganic Nitrogen Half-Saturation Concentration (i.e., 0.014 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Total Inorganic Nitrogen (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Total Inorganic Nitrogen Concentrations Discarded. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

With respect to the commenter's reference to the Copco No. 2 and Iron Gate tailrace TMDL nutrient targets, these targets were established at monthly mean concentrations that coincide with attaining the in-reservoir chlorophyll-*a* summer mean target of 10 micrograms per liter (ug/L), *Microcystis aeruginosa* cell density target of 20,000 cells/mL, and microcystin target of 4 ug/L (North Coast Regional Board 2010). Potential nutrient increases under the Proposed Project that would be equal to or greater than the Copco No. 2 and Iron Gate tailrace TMDL nutrient targets would not be a significant impact because 1) elimination of the slow-moving reservoir habitat that supports algal blooms of *Microcystis aeruginosa* in the Hydroelectric Reach would reduce the *Microcystis aeruginosa* cell density and chlorophyll-*a* and microcystin concentrations and help achieve the goal of the Copco No. 2 and Iron Gate tailrace TMDL nutrient targets; and, 2) **in-reservoir** chlorophyll-*a*, *Microcystis aeruginosa*, and microcystin numeric TMDL targets would be irrelevant after the removal of the reservoirs under the Proposed Project.

As analyzed in Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impacts 3.4-4 (pages 3-435 to 3-427) and 3.4-5 (pages 3-437 to 3-429), nutrients are not likely to be limiting phytoplankton or periphyton growth in the Klamath River from the Hydroelectric Reach to Seiad Valley (river mile [RM] 132.7) since nutrient concentrations are high enough (i.e., greater than the half-saturation constants) that phytoplankton and periphyton growth are nutrient saturated under existing conditions and additional upstream nutrients due to dam removal under the Proposed Project would not have a biostimulatory effect on phytoplankton or periphyton growth in this reach. Instead, the potential increase in periphyton abundance in the Hydroelectric Reach from Copco No. 1 Reservoir to Iron Gate Dam would be due to habitat increases (i.e., conversion of reservoir into river habitat). The additional periphyton growth would uptake some nutrients and decrease the magnitude of the upstream nutrients being transported through the Hydroelectric Reach into the Middle Klamath River, but the Yurok Tribe analysis (Asarian et al. 2010) still estimates a potential nutrient increase in the Middle and Lower Klamath River under dam removal even with this assimilative uptake by periphyton (see Potential Impact 3.2-8 for additional details; please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-8).

In the reaches where sufficient nitrogen is available to meet periphyton growth (i.e., upstream of Seiad Valley), the abundance of nitrogen-fixing algal species is low since nitrogen-fixing algal species primarily have a competitive advantage over other algal species when nitrogen concentrations are low. Downstream of Seiad Valley, the abundance of nitrogen-fixing algal species in the Klamath River increases and they become dominant, suggesting periphyton growth becomes nitrogen-limited in the Klamath River downstream of Seiad Valley under existing conditions. As such, increases in TN due to dam removal may alter the composition of the periphyton community, but the increase in TN would likely shift the location where nitrogen-fixing species begin to dominate farther *downstream* in the Klamath River (Asarian et al. 2010). The downstream shift in the reaches dominated by nitrogen-fixing algal species would likely reduce the nitrogen-fixing algal species abundance in the Klamath River and potentially reduce the nitrogen inputs to the Klamath River from nitrogen-fixing algal species, so the commenter is incorrect to assert that nitrogen-fixing algal species would provide another source of nitrogen to the Klamath River under the Proposed Project.

Additionally, potential increases in TP due to dam removal under the Proposed Project are not expected to increase periphyton abundance or biomass because TP concentrations in the Middle and Lower Klamath River and the Klamath River Estuary suggest there is sufficient phosphorus to meet algal growth needs under existing conditions and additional phosphorus would not have a biostimulatory effect. As summarized in Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Appendix C, Section C.3 *Nutrients*, inorganic phosphorus (i.e., orthophosphate or soluble reactive phosphorus) in the Middle and Lower Klamath River and the Klamath River Estuary is typically 0.003 mg/L or greater, especially during the typical May to October algal growth season. Orthophosphate concentrations measured at Orleans (RM 58.9) for the available period of record (i.e., 2009 to 2017) ranged from 0.003 to 0.22 mg/L PO_4, but orthophosphate was infrequently less than 0.009 mg/L PO_4 (i.e., twice in 2010, once in 2015) or greater than 0.093 mg/L PO_4 (i.e., four times in 2014) (Figure ORG46-139-5). Farther downstream in the Klamath River, orthophosphate concentrations measured at Klamath/Turwar (approximately RM 6) for the available period of record (i.e., 2009 to 2017) ranged from 0.005 to approximately 0.063 mg/L PO_4, but orthophosphate was infrequently less than 0.006 mg/L PO_4 (i.e., once in 2014, once in 2015) or greater than 0.040 mg/L PO_4 (i.e., once in 2009, once in 2014, once in 2015) (Figure ORG46-139-6). Based on the available data, inorganic phosphorus (i.e., orthophosphate) concentrations under existing conditions are typically greater than the inorganic phosphorus half-saturation constant (i.e., 0.003 mg/L), thus there is sufficient inorganic phosphorus to meet algal growth needs such that additional inorganic phosphorus inputs due to dam removal under the Proposed Project would not be expected to be biostimulatory to phytoplankton or periphyton.

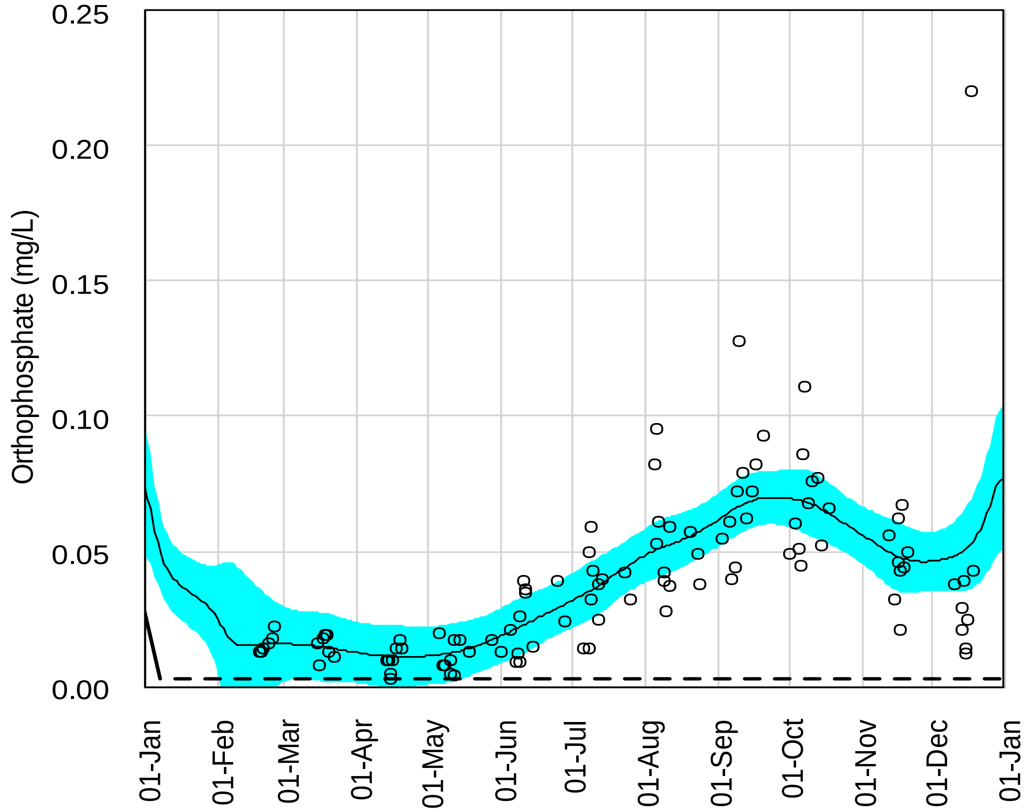


Figure ORG46-139-5. Orthophosphorus (i.e., Inorganic Phosphorus) Concentrations in the Klamath River at Orleans (RM 58.9) from 2009 to 2017. Mean Orthophosphorus Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Inorganic Phosphorus Half-Saturation Concentration (i.e., 0.003 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Orthophosphorus (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Orthophosphorus Concentrations Discarded. Source: PacifiCorp 2009, 2010, 2011, 2012a, 2013b, 2014c, 2015b, 2016b, 2017b.

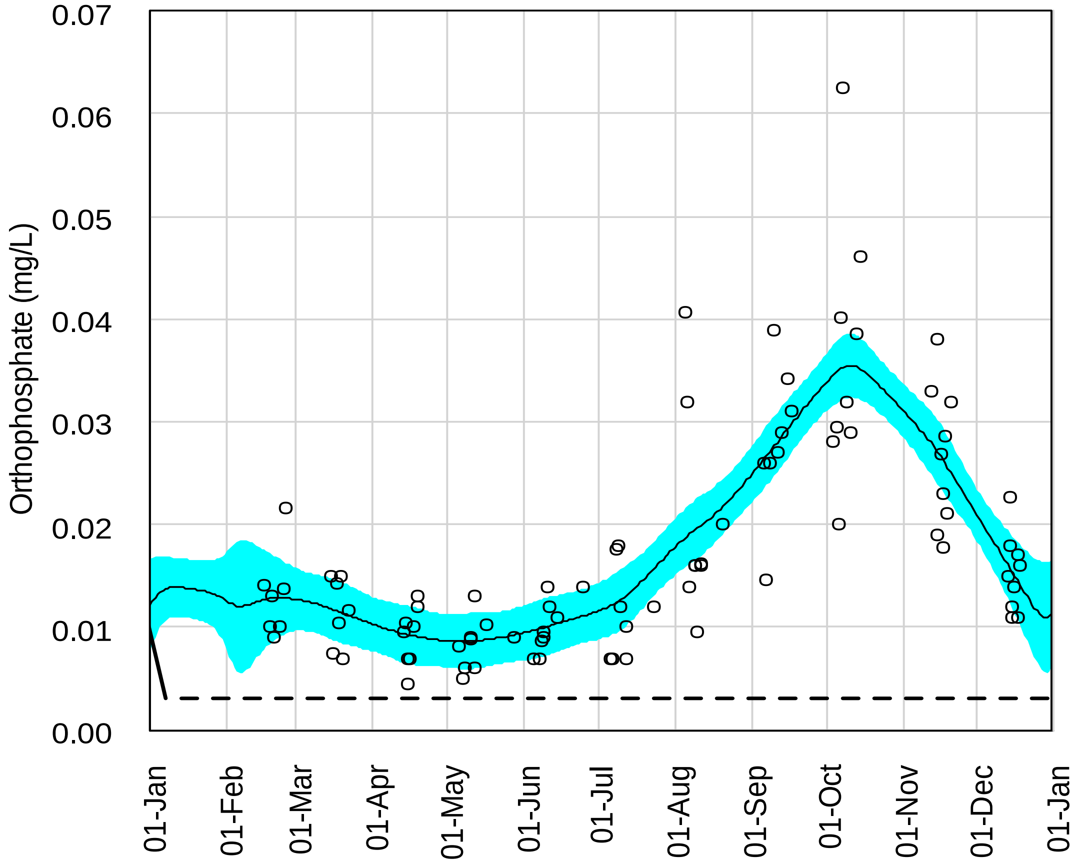


Figure ORG46-139-6. Orthophosphorus (i.e., Inorganic Phosphorus) Concentrations in the Klamath River at Klamath/Turwar (Approximately RM 6) from 2009 to 2017. Mean Orthophosphorus Concentration Plotted as a Solid Black Line, While the 95 percent Confidence Bands Around the Mean Shown in Cyan. Inorganic Phosphorus Half-Saturation Concentration (i.e., 0.003 mg/L) is Shown as a Dashed Horizontal Line. Non-detect Values of Orthophosphorus (i.e., Less Than the Method Detection Limit [MDL] or Between the MDL and the Method Reporting Limit [MRL]) Are Plotted as Gray Circles at Half the MDL/MRL. Negative Orthophosphorus Concentrations Discarded. Source: PacifiCorp 2009, 2010, 2011, 2012a, 2013b, 2014c, 2015b, 2016b, 2017b.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Comment ORG46-140

The DEIR states “As described above in this potential impact analysis, Copco No. 1 and Iron Gate reservoirs currently intercept and retain suspended material behind the dams, including nutrients (TP and TN) associated with suspended material that originates upstream of the Hydroelectric Reach. Results of all the existing evaluations (FERC 2007; North Coast Regional Board 2010; Asarian et *al. 2010) recognize the trapping function of the reservoirs with respect to TP and TN, and they provide results indicating that ending this trapping by converting the reservoirs to free-flowing river reaches would, on an annual basis, result in a slight increase in annual TN and TP in the Middle and Lower Klamath River and the Klamath River Estuary." As explained in previous comments (see, for example, comment 3.2-53), the reservoir retention of nutrients is not "slight" and the discussion in the DEIR should be modified to reflect the actual quantified magnitude of reduction (expressed both in tons and percent of annual load at Iron Gate Dam) under existing conditions and the change under the Proposed Project.*

The increased nutrient delivery to the Klamath River following the Proposed Project has the potential to increase biostimulatory conditions in the river and result in algal impacts in the river and the estuary. The DEIR does not acknowledge or attempt to evaluate these potential impacts from increased nutrient delivery to the Klamath River from upstream sources.

Response to Comment ORG46-140

Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* has been revised using the most recent calculated annual nutrient retention amounts for the Lower Klamath Project reservoirs (Asarian et al. 2009) to clarify what is meant by the use of "slight" when describing nutrient retention and to provide quantification of the reductive effects of retention. Please refer to Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* for the revisions. Please refer to response to comment ORG46-98 for further details on the magnitude of the nutrient retention in the Lower Klamath Project reservoirs.

Please refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation -Nutrients* Potential Impact 3.2-8 and Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impacts 3.4-2, 3.4-4, and 3.4-5 for discussion of the nutrient increases due to dam removal under the Proposed Project and the potential impact on phytoplankton and periphyton growth conditions in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment. The comment incorrectly asserts that the EIR does not acknowledge or attempt to evaluate these potential impacts from increased nutrient delivery to the Klamath River from upstream sources since these four impacts assess the potential biostimulatory effects of increased nutrients from upstream of the Lower Klamath Project dams on phytoplankton and periphyton.

Please also refer to response to comment ORG46-139 for additional details on the potential biostimulatory effects of nutrient increases due to dam removal under the Proposed Project, including explanation of the EIR's characterization of potential increases in Total Phosphorus (TP) and Total Nitrogen (TN) under the Proposed Project.

Comment ORG46-141

The DEIR states "...results of the Klamath River TMDL model are in general agreement with PacifiCorp (FERC 2007) and Yurok Tribe (Asarian et al. 2010) analyses regarding dam removal impacts on nutrients, with very small annual increases in TP (0.01 to 0.015mg/L) and relatively larger annual increases in TN (0.1 to 0.125 mg/L) immediately downstream from Iron Gate Dam due to dam removal." The magnitude of these increases is clearly potentially biostimulatory (see comment 3.2-53). The DEIR needs to be revised to reflect that such increases are not "very small" in terms of supporting seasonal primary production.

Response to Comment ORG46-141

The EIR properly characterizes the magnitude of the nutrient increases downstream of Iron Gate Dam due to dam removal under the Proposed Project both numerically and with respect to the actual anticipated effects of the Proposed Project. The increases are not expected to be biostimulatory since measurements of nutrient concentrations in the Klamath River indicate there are sufficient nutrients to meet algal growth needs under existing conditions and additional nutrient inputs from upstream of the Hydroelectric Reach thus would not have a biostimulatory effect.

Please refer to response to comment ORG46-139 for additional discussion on the nutrient concentrations sufficient to meet algal growth needs, the nutrient concentrations in the Klamath River under existing conditions, and the potential biostimulatory effects of nutrient increases due to dam removal under the Proposed Project.

Comment ORG46-142

The DEIR states that "The Klamath River TMDL model does not include denitrification as a possible nitrogen removal term in river segments (Tetra Tech 2009), meaning that TN concentrations being transported in to the Middle Klamath River under the Proposed Project may be over-predicted." The DEIR describes no mechanism that would justify appreciable denitrification. The key nitrogen removal process would be plant uptake by periphyton and macrophytes. Further, the DEIR neglects nitrogen fixation as a key nitrogen input to the Klamath River. The DEIR must clearly present the potential effects the inaccuracies in the TMDL model have on the assumptions and effects analysis presented in the DEIR and present technically sound reasoning as to why incorporating those known inaccuracies into the DEIR analysis is appropriate.

Response to Comment ORG46-142

The influence of denitrification on nitrogen concentrations in the Klamath River has not been quantified, but because the majority of the riverbed is rocky and there typically are high dissolved oxygen concentrations in the water column, the river is not considered to be a particularly favorable location for high rates of denitrification. Thus, denitrification was expected to have a minimal influence of nitrate/nitrite concentrations in the river and it was not simulated in the Klamath River Total Maximum Daily Load (TMDL) model (Tetra Tech 2009).

The potential for overpredicting total nitrogen concentrations was discussed in Potential Impact 3.2-8 to explain a TMDL model assumption and source of uncertainty that was considered when analyzing the model results.

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been revised to clarify the anticipated relative influence of denitrification on Total Nitrogen (TN) concentrations in the Klamath River. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the revisions.

The assertion that the EIR neglects nitrogen fixation is not accurate. Nitrogen fixation is considered in Potential Impact 3.2-8 and other nutrient analyses in the EIR because the Yurok Tribe nutrient analysis uses measured nitrogen concentrations at multiple locations in the Klamath River to estimate the net nitrogen retention along river reaches, including net losses from the water column resulting from sedimentation, atmospheric fixation and denitrification, net biologic uptake/release by periphyton and macrophytes, and nutrient releases from bottom sediments. All numeric models have some inherent assumptions, limitations, and uncertainties that potentially influence the model results. Multiple numeric models (e.g., Klamath River TMDL, Klamath River Water Quality Model (KRWQM), and Yurok Tribe) are used in the EIR to analyze the potential nutrient conditions under the Proposed Project and the alternatives because no individual existing numeric model captures all of the water quality conditions anticipated for and encompassed by the Proposed Project and the alternatives (see also Volume II Appendix D, Section D.1 [pages D-1 to D-9]). Variations between the Klamath River TMDL model and the Yurok Tribe model results are potentially due to the Klamath River TMDL model not including nitrogen fixation and denitrification and the Yurok Tribe analysis estimating the nitrogen fixation and denitrification in the Klamath River based on measured nitrogen concentrations. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to Master Response WQ-4 for information on the Klamath River TMDL model.

Comment ORG46-143

The DEIR states "While there would be a slight increase in absolute nutrient concentrations entering the Middle Klamath River under the Proposed Project, phytoplankton, especially blue-green algae, would be limited in their ability to use those nutrients for growth and reproduction without calm reservoir habitat." As *explained in previous comments, the estimated increase in nutrients is not "slight" and the DEIR needs to be adjusted to reflect the actual quantified magnitude of nutrient load increase. Further, the Klamath River downstream of Iron Gate Dam contains areas of stagnant water conditions in which blue-green algae can and currently does proliferate. Blue-green algae have also been documented to be present and to bloom in riverine conditions without reservoirs (e.g., Trinity River, Eel River, Willamette River, etc.) and so the elimination of the reservoirs will not result in the elimination of blue-green algae from the lower Klamath River, especially in light of the increase in nutrient delivery to the river following potential dam removal (see comment 3.2-24).*

Response to Comment ORG46-143

Please refer to Potential Impact 3.2-8 for quantification of the nutrient increases estimated by the Klamath River Total Maximum Daily Load (TMDL) model and the Yurok Tribe analysis downstream of Iron Gate Dam due to dam removal under the Proposed Project, especially Figure 3.2-18 and associated discussion. The magnitude of the nutrient increases downstream of Iron Gate Dam due to dam removal under the Proposed Project is described as "slight" because the nutrient increases are not expected to be biostimulatory. Measurements of nutrient concentrations in the Klamath River indicate there are sufficient nutrients to meet algal growth needs under existing conditions and additional nutrient inputs from upstream of the Hydroelectric Reach would not have a biostimulatory effect. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to comment response ORG46-139 for additional discussion on the nutrient concentrations sufficient to meet algal growth needs, the nutrient concentrations in the Klamath River under existing conditions, and the potential biostimulatory effects of nutrient increases due to dam removal under the Proposed Project.

Please refer to Volume I Section 3.4 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impact 3.4-2 (pages 3-428 to 3-433) for analysis of the change in blue-green algae abundance in the Klamath River downstream of Iron Gate Dam under the Proposed Project. As discussed in Potential Impact 3.4-2 (pages 3-428 to 3-433), some blue-green algae growth may still occur after dam removal in calm, slow-moving habitats along the river margins during low-flow periods in the Middle and Lower Klamath River. Please also refer to Volume III Attachment 1 *Section 3.4.5.1 Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 for additional edits to clarify details about blue-green algae growth and reproduction downstream of Iron Gate Dam.

Analysis in the EIR does not state that elimination of the reservoirs would result in elimination of blue-green algae from the Klamath River downstream of Iron Gate Dam. Please also refer to comment responses ORG46-108, ORG46-268, and TR20-29 for further discussion of blue-green algae growth in the Klamath River downstream of Iron Gate Dam.

While total nutrient transport into the Middle and Lower Klamath River after dam removal would increase under the Proposed Project, *Microcystis aeruginosa* cell density and microcystin concentrations in Middle and Lower Klamath River after dam removal are expected to decrease due to reduced transport of *Microcystis aeruginosa* and microcystin from the Hydroelectric Reach into the Middle and Lower Klamath River and nutrient increases are unlikely to produce a biostimulatory effect (see comment response ORG46-139 for additional discussion). Overall, elimination of the reservoirs, elimination of transport of *Microcystis aeruginosa* cells from the reservoirs, and transport of nutrients from upstream of the Hydroelectric Reach into the Middle and Lower Klamath River would not support nuisance phytoplankton growth or blooms that exceed current levels and it would be expected that the abundance of *Microcystis aeruginosa* would decrease in the Klamath River downstream of Iron Gate Dam.

Comment ORG46-144

The DEIR analysis should recognize that the travel time from Keno Dam downstream to Iron Gate Dam will be reduced dramatically under several of the alternatives presented in the DEIR. Currently, few algae survive the high water pressures experienced through J.C. Boyle penstock and powerhouse, which conveys over 90 percent of the Klamath River now from J.C. Boyle Dam through the powerhouse to the river downstream. Without J.C. Boyle and other dams, toxic algae from upstream sources (e.g., Keno reservoir) could readily be transported through the river reaches to downstream locations. Currently, algae released from Iron Gate Dam have been observed flowing into the estuary 185 miles downstream (Otten et al. 2015). This is sufficient evidence to suggest that algae released from Keno Dam would similarly be transported downstream to Klamath River reaches under the Proposed Project. This will be a long-term impact and unavoidable condition because Upper Klamath Lake is a hypereutrophic system that produces high levels of nutrients and algae.

Response to Comment ORG46-144

Please refer to Master Response PAP-1.

Comment ORG46-145

The DEIR states that "Overall, the slight increase in annual nutrient concentrations would not result in significant biostimulatory impacts on phytoplankton growth under the Proposed Project relative to existing conditions, and the elimination of potential seasonal releases of dissolved nutrients from the reservoir bottom waters would be beneficial." However, as explained in previous comments, the analysis included in the DEIR does not support this finding (see comment 3.2-55 and 3.2-57).

Response to Comment ORG46-145

The comment does not provide substantial evidence that analysis in the EIR does not support the finding that increases in annual nutrient concentrations would not result in significant biostimulatory impacts on phytoplankton growth under the Proposed Project relative to existing conditions. The comment also does not provide substantial evidence that the EIR analysis does not support the finding that elimination of potential seasonal releases of dissolved nutrients from the reservoir bottom waters would be beneficial nor does the comment provide evidence that this finding is inaccurate.

Substantial evidence supports the EIR's finding that increases in annual nutrient concentrations would not result in significant biostimulatory impacts on phytoplankton growth under the Proposed Project relative to existing conditions. As analyzed in Potential Impact 3.2-8, specifically Figure 3.2-18 and the associated discussion, measurements of nutrient concentrations in the Klamath River (summarized in Volume III Attachment 1 Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Volume III Attachment 1 Appendix C, Section C.3 *Nutrients*) indicate there are sufficient nutrients to meet algal growth needs under existing conditions, so additional nutrient inputs from upstream of the Hydroelectric Reach would not have a biostimulatory effect. Please refer to response to comment ORG46-139 for a discussion of the nutrient concentrations sufficient to meet algal growth needs, the nutrient concentrations in the Klamath River under existing conditions, and the potential biostimulatory effects of nutrient increases due to dam removal under the Proposed Project.

Additionally, Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* and Appendix C, Section C.3 *Nutrients* summarize the nutrient data documenting seasonal export of dissolved nutrients from reservoir bottom waters. While nutrients in the Klamath River under the Proposed Project would be expected to remain above nutrient concentrations sufficient to meet algal growth needs similar to existing conditions, the elimination of seasonal releases of dissolved nutrients from reservoir bottom sediments during anoxic conditions in summer and fall would reduce the available nutrients for phytoplankton and periphyton growth during this period. This would be a beneficial effect since it would reduce nutrient availability and move the nutrient concentrations closer to attainment of monthly numeric Total Maximum Daily Load (TMDL) targets during summer and fall. The comment's disagreement regarding the beneficial effects of the project is noted but this does not constitute evidence that calls into question the conclusions of the EIR.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Please also refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impacts 3.4-2, 3.4-4, and 3.4-5 for further analysis of the nutrient increases due to dam removal under the Proposed

Project and the potential impact on phytoplankton and periphyton growth conditions in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment.

Comment ORG46-146

The DEIR states "However, concentrations of both nutrients are high enough in the Klamath River from Iron Gate Dam to approximately Seiad Valley (RM 132.7) (and potentially further downstream) that nutrients are not likely to be limiting primary productivity (e.g., periphyton growth) in this more upstream portion of the Middle Klamath River." The DEIR does not adequately acknowledge and account for the fact that periphyton and macrophytes will uptake nutrients in currently inundated reservoir reaches and in the J.C. Boyle peaking reach where periphyton and macrophytes growth is currently limited by hydropower peaking operations. The DEIR fails to acknowledge the extension of macrophyte and periphyton growth into about 30 miles of existing inundated reservoir and riverine habitat and the impacts this could have on water quality.

Response to Comment ORG46-146

Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 provides a discussion of the nutrient uptake (or release) from periphyton and macrophyte growth within the Hydroelectric Reach under the Proposed Project. As summarized in Section 3.2.4.3 *Water Quality – Impact Analysis Approach– Nutrients* and analyzed in Potential Impact 3.2-8, the Yurok Tribe analysis used a nutrient budget approach and measured nutrient data at multiple sites along the Klamath River to estimate the net nutrient retention/release from all the processes occurring within reaches of the Klamath River or Copco No. 1 and Iron Gate reservoirs under existing conditions, including uptake or release of nutrients by periphyton and macrophytes (Asarian et al. 2009, 2010). The Yurok Tribe analysis used the results of this nutrient budget of existing conditions to estimate the potential magnitude of long-term nutrient uptake and release by conversion of the reservoir areas to free-flowing rivers under the Proposed Project by multiplying the length of the reservoir areas by the various estimates of the per-mile relative retention (or release) rates from free-flowing river reaches. As explained in Potential Impact 3.2-8, the Yurok Tribe analysis implicitly includes nutrient recycling processes such as assimilative uptake for seasonal phytoplankton and periphyton growth and subsequent downstream release, as these processes were ongoing and inherently included in the empirical retention estimates determined for existing conditions. Similarly, nutrient uptake (or release) by macrophytes would also be inherently included in this empirical analysis since it would be part of the nutrient recycling processes occurring in the river. Thus, Potential Impact 3.2-8 implicitly considers the potential impact of nutrient uptake (or release) due to periphyton and macrophyte growth within the Hydroelectric Reach under the Proposed Project through the Yurok Tribe analysis results.

The potential impacts to other water quality parameters resulting from periphyton colonization within the Hydroelectric Reach under the Proposed Project are discussed under their respective sub-sections in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation*. Please refer to Section 3.2.5.4 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-10 for a discussion of dissolved oxygen; Potential Impact 3.2-11 for a discussion of pH; and Potential Impact 3.2-12 for a discussion of chlorophyll-*a* and algal toxins, due to periphyton growth in the Hydroelectric Reach under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impact 3.4-4 (pages 3-435 to 3-427) for further discussion of likely seasonal increases in periphyton within the Hydroelectric Reach under the Proposed Project due to the conversion of the reservoir areas to a free-flowing river. Please refer to response to comment ORG46-136 for a discussion of potential macrophyte abundance in the Hydroelectric Reach under the Proposed Project. Please also refer to response to comment ORG46-34 for a discussion of the potential impacts of sediment transport on macrophytes, ORG46-146 for a discussion of potential impacts from periphyton and macrophyte growth on nutrients, and ORG46-149 for a discussion of the potential impacts of periphyton and macrophytes on pH in the Klamath River.

Comment ORG46-147

The DEIR states "However, the KRWQM does not include nutrient retention in the mainstem river downstream from Iron Gate Dam and assumes relatively high nutrient contributions from tributaries (Asarian and Kann 2006b). These input assumptions lead to a likely overestimate of the increase in periphyton growth, and therefore a likely overestimate of modeled predicted daily variations in dissolved oxygen." Regarding this statement, the DEIR should clarify how "nutrient retention" is being defined because contrary to this statement, the current version of KRWQM model does include the two most prevalent forms of seasonal nutrient retention in the Klamath River downstream of Iron Gate Dam: (1) aquatic vegetation growth and the concomitant nutrient uptake; and (2) senescence and contribution to organic matter (and the associated nitrogen and phosphorus fractions). These characterizations have provided key insight into nutrient cycling dynamics in the riverine portions of the Klamath River. Because there appears to be a misunderstanding in the DEIR regarding the mechanisms at work in the Klamath River regarding nutrient retention, the statement that the model over-predicts daily diurnal variation in dissolved oxygen is not adequately supported and fails to recognize that the KRWQM calibration reproduces hourly observed diurnal variation in dissolved oxygen.

Response to Comment ORG46-147

Asarian and Kann (2006b) compared the measured and 2004/2005 Klamath River Water Quality Model (KRWQM) modeled nutrients, total organic carbon, and chlorophyll-*a* to assess the performance and potential bias associated with 2004/2005 KRWQM estimates of these water quality parameters. The cause of differences between the measured and modeled water quality parameters was not determined, but potential sources of differences were identified. The Draft EIR incorrectly attributed the differences between the measured and 2004/2005 KRWQM modeled nutrients to a lack of nutrient retention in the KRWQM. The comment is correct that the 2004/2005 KRWQM does likely include nutrient retention since it has parameters related to uptake of nitrogen and phosphorus and the fraction of biomass composed of nitrogen and phosphorus. The documentation for RMA-11 is not available (i.e., proprietary), so it is not possible to verify the specifics of nutrient retention in the stream reaches.

However, the Draft EIR correctly interpreted the comparison between the measured and 2004/2005 KRWQM modeled nutrient and chlorophyll-*a* concentrations by Asarian and Kann (2006b) that indicated the chlorophyll-*a* concentrations were consistently overpredicted by the 2004/2005 KRWQM, so 2004/2005 KRWQM results likely overestimated algal growth in the Klamath River and associated oxygen production and respiration. Thus, 2004/2005 KRWQM dissolved oxygen results would likely overestimate the daily variations in dissolved oxygen. More recent 2019 KRWQM documentation (PacifiCorp 2019a) suggests that the updated version of the model exhibits better agreement with measured chlorophyll-*a* concentrations than the 2004/2005 KRWQM. However, PacifiCorp (2019a) does not present comparisons of dam removal scenarios, so the previous 2004/2005 KRWQM results cannot be replaced with newer 2019 model results in the EIR analyses.

Section 3.2.5.4 *Water Quality – Potential Impacts and Mitigation – Dissolved Oxygen* Potential Impact 3.2-10 for the Middle and Lower Klamath River, Klamath River Estuary, and Pacific Ocean Nearshore Environment, has been revised to clarify that comparison of modeled and measured water quality parameters indicates that the 2004/2005 KRWQM overpredicts chlorophyll-*a* (i.e., a surrogate for algal growth) in the Klamath River and the additional oxygen production and respiration from an overestimate of algal growth in 2004/2005 KRWQM outputs likely results in an overprediction of daily variations in dissolved oxygen concentrations. The revisions to Potential Impact 3.2-10 do not change the significance determination. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG46-148

The DEIR states "Klamath River TMDL model results indicate that under the "TMDL dams-out" scenario for Oregon reaches (TOD2RN), pH at the Oregon-California state line would exhibit less daily variability during spring (March to May) and fall (October to November) (see Figure 3.2-24) than the "TMDL dams-in" scenario (T4BSRN)." The DEIR analysis should recognize TMDL modeling flaws (see comment 3.2-9 and 3.2-34). Specifically, the nutrient boundary conditions assumed in the Oregon Klamath River TMDL (ODEQ 2002) at Upper

Klamath Lake are infeasibly low and result in almost no primary production in the Klamath River between Keno Dam and J.C. Boyle Reservoir (such a reduction in nutrients and associated primary production, if it were ever able to be achieved, would have detrimental effects on aquatic food webs in the Klamath River). This condition carries on downstream, resulting in low diurnal variation in dissolved oxygen at the California-Oregon state line (see comment 3.2-39). This erroneous TMDL assumption and the subsequent result is apparently the basis for the DEIR statement above. Further, under the Proposed Project the J. C. Boyle Peaking Reach would be colonized by aquatic vegetation (currently absent because of the variable flow regime associated with hydropower peaking operations), which would yield a notably higher diurnal pH in this weakly buffered system.

Response to Comment ORG46-148

Please refer to Master Response WQ-5 for a discussion of the appropriateness of using Klamath River Total Maximum Daily Load (TMDL) model results in the EIR analysis. Please also refer to responses to comment ORG46-119 for further discussion of the parts of the EIR analysis that specifically examine the implications of assuming full implementation of the TMDLs with respect to using the TMDL model results in the analysis. Section 3.2.5.4 *Water Quality – Potential Impacts and Mitigation – Dissolved Oxygen* Potential Impact 3.2-10 discusses long-term dissolved oxygen conditions under the Proposed Project and lower diurnal dissolved oxygen variations at the Oregon-California state line are attributed to elimination of hydropower peaking operations that produce large dissolved oxygen variations under existing conditions. Please refer to ORG46-101 for further discussion of the dissolved oxygen variations under existing conditions and under dam removal conditions. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-10. Please also refer to response to comment ORG46-149 for a discussion of the potential periphyton and macrophyte growth in the Hydroelectric Reach and their influence on pH.

Comment ORG46-149

The DEIR states "The Proposed Project also would be expected to eliminate the occurrence of high pH (greater than 8.5 s.u. [standard units]) and large daily fluctuations (0.5- 1.5 s.u.) that occur in the surface waters of Copco No. 1 and Iron Gate reservoirs under existing conditions during periods of intense phytoplankton blooms (see Section 3.2.2.6 pH)." The DEIR further states "The pH in the free-flowing reaches of the river replacing these reservoirs would not be likely to exhibit such extremes in daily pH and would not result in a failure to meet the existing instantaneous maximum pH objective at the levels currently supported and would be beneficial." The DEIR fails to acknowledge that while pH values may not attain the same magnitude values of reservoir surface waters, colonization of this reach and upstream reaches by periphyton and macropyhtes under the Proposed Project will lead to pH values in excess of 9 s.u. and potentially allow ammonia toxicity to develop. Toxicity concerns are greater at *the more upstream locations because these locations are closer to the source of organic matter (e.g., Keno Reservoir and Upper Klamath Lake) and thus would have a greater propensity to experience higher organic matter concentrations and the associated nitrogen fraction of organic matter that mineralizes to ammonia. Daily maximum pH values in excess of 9 would most likely occur frequently during summer and early fall months.*

Response to Comment ORG46-149

Please refer to Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437) for analysis of changes in periphyton growth in the Hydroelectric Reach from the conversion of the reservoir areas to a free-flowing river and the elimination of hydropower peaking operations under the Proposed Project. Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 provides analysis of the pH under the Proposed Project, including the potential pH variations associated with periphyton colonization and growth in the Hydroelectric Reach. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

As discussed in the introduction of Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (page 3-392), there is also no known quantitative or species-specific information on aquatic plants (i.e., submerged and/or floating macrophytes) in the Hydroelectric Reach or the Middle and Lower Klamath River. Sullivan et al. (2013) sampled macrophytes in the Klamath River between Link River and Keno Dam. However, the primarily calm, slow-moving reservoir habitat of the Lake Ewuana/Keno Impoundment that dominates conditions between Link River and Keno Dam is different from the turbulent, fast-moving river habitat in the Hydroelectric Reach and the Middle and Lower Klamath River under the Proposed Project, so estimates of macrophytes in the slow-moving reservoir habitat between Link River and Keno Dam likely would significantly overestimate macrophytes in downstream reaches. Prior studies (City of Klamath Falls 1986, 1989) documented that macrophytes in the Hydroelectric Reach between J.C. Boyle Dam and Copco No. 1 Reservoir were typically found only along the margins or pools and low gradient areas of the Klamath River due to the steep gradient, associated high water velocities, and lack of fine sediment substrate within this reach. There have been observations of macrophytes in the main channel in the Middle Klamath River from Iron Gate Dam to the Scott River (RM 145.1) and in the quiet backwater areas of the Klamath River downstream of the Scott River confluence, but there are no reports of excessive aquatic macrophyte biomass in the available data record (PacifiCorp 2005; Stillwater Sciences 2009). Thus, macrophytes have typically been assumed to play a minor role in primary productivity or nutrient cycling in the Middle or Lower Klamath River (Stillwater Sciences 2009). The comment does not support its assertion that potential macrophyte and periphyton colonization and growth in the Hydroelectric Reach would result in pH exceeding 9 standard units (s.u.) or potentially allowing ammonia toxicity to develop.

Additionally, the periphyton and macrophyte colonization and growth in the Hydroelectric Reach under the Proposed Project is expected to be similar or slightly less than conditions in the Klamath River reach from Keno Dam to upstream of J.C. Boyle Reservoir under existing conditions since the water quality conditions entering the Hydroelectric Reach under the Proposed Project would be similar to existing conditions, and the Hydroelectric Reach has a similar or steeper slope than the Keno Dam to upstream of J.C. Boyle Reservoir Reach. As such, pH variations in the Hydroelectric Reach under the Proposed Project due to periphyton and macrophyte growth would not be expected to exceed the pH measured upstream of J.C. Boyle Reservoir under existing conditions. Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) monitoring data that includes summer through early fall (i.e., May to October) indicate that pH upstream of J.C. Boyle Reservoir did not exceed 9.0 s.u. from 2002 through 2017, with the exception of four pH measurements in May 2002 that were greater than 9.0 s.u. and approximately 1.0 s.u. greater than the pH measured approximately 30 minutes before or after the elevated pH measurement (Figure ORG46-149-1). The four pH measurements in May 2002 greater than 9.0 s.u. have been excluded from this analysis because a 1.0 s.u. swing within approximately 30 minutes is inconsistent with measured variations in pH during 2002 and is unlikely to occur naturally. Furthermore, pH upstream of J.C. Boyle Reservoir infrequently exceeded 8.5 s.u. from 2002 through 2017, with only approximately eleven days of exceedances in the fifteen years between 2002 and 2017. Thus, the measured pH dataset for the Klamath River upstream of J.C. Boyle Reservoir indicates that periphyton and potential macrophyte growth in the Hydroelectric Reach under the Proposed Project would be extremely unlikely to result in pH greater than 9.0 s.u. and unlikely to result in pH greater than 8.5 s.u. in any individual year. The comment also does not provide any ammonia (i.e., NH_3) data to support the assertion that ammonia toxicity would occur under existing conditions or under the Proposed Project.

The issue raised by the comment does not constitute substantial evidence regarding the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384).

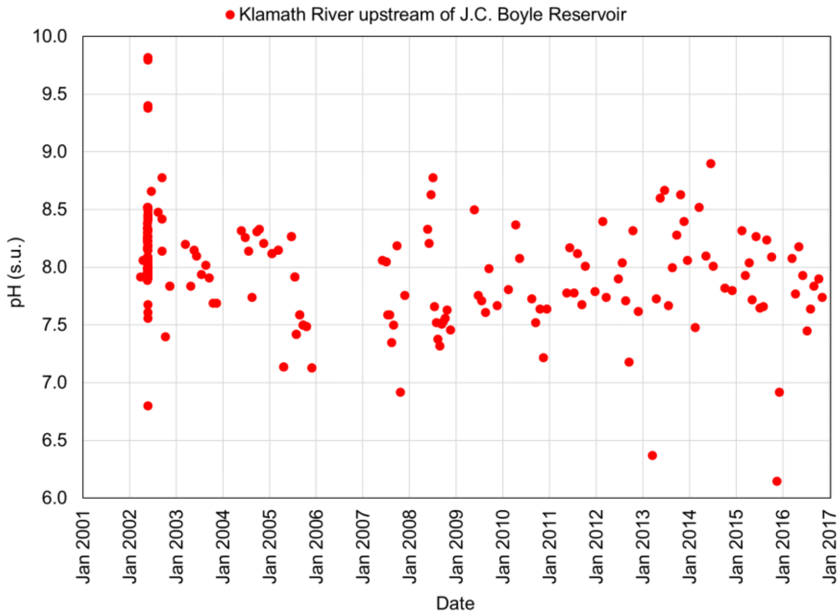


Figure ORG46-149-1. pH in the Klamath River upstream of J.C. Boyle Reservoir from 2002 to 2017. Source: PacifiCorp 2003a, 2004b, 2005b, 2007, 2008b, 2009, 2010, 2011, 2012, 2013, 2014c, 2015b, 2016b, 2017b.

Comment ORG46-150

In this paragraph, the DEIR discusses the use of the Klamath River TMDL model for assessing impacts of the Proposed Project and other alternatives. The DEIR correctly points out that "...the full TMDL compliance modeling assumption does not reflect the existing conditions, and it would be speculative at this point to identify either the mechanisms necessary to implement the TMDLs or the timing required to achieve full compliance." After this acknowledgement of the speculative nature and uncertainty of TMDL-driven nutrient load reductions, the DEIR goes on to state that "However, the nutrient retention mechanism modeled in the Klamath River TMDL would be the same even if model inputs for nutrients were increased to concentrations under existing conditions, such that the general trend indicated by the Klamath River TMDL model output (i.e., dam removal would slightly increase downstream transport of total nutrients) is still informative for conditions where full TMDL compliance has not occurred." In effect, the DEIR rationalizes use of the TMDL model by assuming general trends would be representative of existing "slight" nutrient retention; however, it is quite plausible that this assumption is incorrect. Under the substantial reductions in nutrient loadings in the Klamath River that are assumed in the TMDL, the nutrient retention "mechanisms" could be quite different in kind and quantity. For example, as nutrient loads are systematically reduced, the relative amount of nutrients that move downstream in soluble form through the water could be reduced in comparison to the amount moving via biotic transformations between the periphyton and flocculent detrital components (i.e., nutrient spiraling) (e.g., Gaiser et al. 2005). For this reason, the DEIR's assumption that "nutrient *retention mechanisms" modeled under full TMDL compliance would be applicable to existing conditions may not be valid. In addition, the assumptions made in the TMDL model for the full compliance simulations, including boundary conditions, temperature conditions, and other factors also are questionable (see comment 3.2-34).*

Response to Comment ORG46-150
Regarding the EIR's use of Total Maximum Daily Loads (TMDLs), please refer to Master Response WQ-5.

With respect to nutrient spiraling (i.e., nutrient uptake, retention, and release), this trend would apply to riverine reaches whereas the statement in the EIR was intended to refer to the reservoir reaches. Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 has been revised to clarify that reservoir reaches are the focus of this sentence. Please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* for the revisions.

Comment ORG46-151
The DEIR states "As discussed above, the Proposed Project also would be expected to eliminate the occurrence of high pH (greater than 8.5 s.u.) and large daily fluctuations (0.5- 1.5 s.u.) that occur in the surface waters of Copco No. 1 and Iron Gate reservoirs under existing conditions during periods of intense phytoplankton blooms, where the blooms can be transported downstream into the Middle Klamath River and adversely affect pH (see Section 3.2.2.6 pH)." While seasonal phytoplankton blooms would be less frequent without the Project reservoirs, the DEIR does not acknowledge that colonization by periphyton and macropyhtes into the hydroelectric reach will lead to pH values in excess of 9 during summer and early fall at least down to the Scott River (see comment 3.2-62).

Response to Comment ORG46-151
Regarding colonization and growth of periphyton and macrophytes in the Hydroelectric Reach and their potential seasonal influence on pH in the Klamath River, please refer to response to comment ORG46-149.

Comment ORG46-152
The DEIR states "While algal toxins and chlorophyll-a produced in Upper Klamath Lake may still be transported downstream after dam removal, existing data indicate that microcystin concentrations in the Klamath River decrease to below California water quality objectives (see Section 3.2.3.1 Thresholds of Significance) by the upstream end of J.C. Boyle Reservoir, regardless of the microcystin concentration measured leaving the Upper Klamath Lake (Watercourse Engineering, Inc. 2011, 2012, 2013, 2014, 2015, 2016)." The DEIR analysis does not recognize that the travel time from Keno Dam downstream to Iron Gate Dam will be reduced substantially under the Proposed

Project (and several of the alternatives) and that delivery of algal toxins and chlorophyll-a would continue from Keno Reservoir. Currently, few algae survive the high water pressures generated by the J.C. Boyle Powerhouse, which conveys over 90 percent of the Klamath River flow at J.C. Boyle Dam through the powerhouse and into the river downstream. Without J.C. Boyle Dam and other dams, toxic algae from upstream sources (e.g., Keno reservoir) could readily be transported through the river reaches to downstream locations. In addition, the flow regime would further stabilize flows through much of what is now the Klamath Hydroelectric Project. Meeting USBR' s 2013 Biological Opinion (2013 BiOp) flows that are currently measured downstream of Iron Gate Dam with operations at Keno Dam under the Proposed Project would change the hydrologic regime for the entire river downstream of Keno Dam. Currently, operations at Keno Dam are focused largely on maintaining a stable water surface in Keno Reservoir to support agricultural diversions. Given the fluctuation in inflow that occurs at Keno Dam and the resultant changes in releases from Keno Dam, J.C. Boyle Reservoir can be viewed as a sort of reregulating reservoir that stores this water before it is eventually metered out to the J.C. Boyle Powerhouse and points downstream. Thus, under current conditions, flows in the Keno Reach are quite variable. However, to meet 2013 BiOp flows in the future, Keno Dam releases will likely be far more stable (especially during the summer and fall months) only varying at most on a daily time-step. The analysis in the DEIR should assess potential implications of reduced travel time, the elimination of J.C. Boyle Powerhouse pressure-related destruction of entrained algae, and a more stable flow regime on transport of algae and algae toxins through this upstream reach (as well as the implication on other water quality parameters).

Response to Comment ORG46-152

Regarding the transport of upstream blue-green algae and associated algal toxins into the Hydroelectric Reach and downstream reaches of the Klamath River under the Proposed Project, please refer to Master Response PAP-1.

Comment ORG46-153

The DEIR suggests that, while algal toxins produced in Upper Klamath Lake may still be transported downstream after dam removal, algal toxins produced upstream of J.C. Boyle Dam would not be transported into California and result in concentrations that would cause water quality standards exceedances. This is misleading. Rather, the DEIR should describe that the presence of microcystin can occur throughout the Klamath River system, including where conditions, such as nutrients, light, and slow-moving water environments (i.e., pools, backwater eddies, or the estuary), are present to support Microcystis growth or growth of other toxin-producing species. The DEIR should provide a more balanced discussion that includes acknowledgement that Microcystis is a common cyanobacteria in lakes, rivers, and estuaries around the world, where conditions are suitable to support Microcystis growth. In addition, Microcystis is not the only species found in the Klamath River that is capable of producing *toxins (e.g., Dolichospermum and Phormidium which both produce anatoxin-a). The DEIR needs to provide a complete and accurate discussion of the cyanobacterial species present, their potential to produce toxins, their growth mechanisms (benthic versus planktonic), and how those populations could change as a result of the Proposed Project. It is overly simplistic to portray that Microcystis in the Klamath River is purely the result of delivery from upstream lakes and reservoirs and that Microcystis is the only blue-green algae worth considering.*

Response to Comment ORG46-153
Regarding the transport of upstream blue-green algae and associated algal toxins into the Hydroelectric Reach and downstream reaches of the Klamath River under the Proposed Project, please refer to Master Response PAP-1. Please also refer to response to comment TR20-24 for discussion of revisions to Potential Impact 3.2-12 to clarify localized *Microcystis aeruginosa* growth and elevated algal toxin concentrations in J.C. Boyle Reservoir would be eliminated under the Proposed Project.

Please also refer to Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-422) for discussion of the three main algal toxin producing blue-green algae species present in the Klamath River, the potential algal toxins produced by these species, the suitable habitats for their growth, and their abundance in the various reaches of the Klamath River under existing conditions. Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403) specifically acknowledges that *Aphanizomenon flos-aquae, Anabaena flos-aquae,* and *Microcystis aeruginosa* are a natural part of aquatic systems in California, including the Klamath River, but environmental conditions that favor the growth and bloom of these blue-green algae species have been created by human modifications to the Klamath River (e.g., dams on the Klamath River that form slow-moving or stagnant water that increase the suitable habitat for blue-green algae species and additional inputs of nutrients above natural conditions). Additionally, please refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* –Potential Impacts 3.4-1 through 3.4-5 (pages 3-426 to 3-440) for analysis of how the abundance of these blue-green algae species would change under the Proposed Project, including the potential for phytoplankton growth after dam removal in calm, slow-moving habitats along shorelines and protected coves and backwaters during low-flow periods in the Middle and Lower Klamath River.

Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-12 referred to in the comment analyzes the potential impact of the Proposed Project on “toxin-producing nuisance blue-green algae” and “algal toxins” which would include the three species of toxin-producing nuisance blue-green algae that primarily compose nuisance and/or noxious algal blooms in the Area of Analysis (i.e., *Aphanizomenon flos-aquae, Anabaena flos-aquae,* and *Microcystis* *aeruginosa*) and their associated algal toxins. However, the analysis in Potential Impact 3.2-12 focuses on changes in *Microcystis aeruginosa* abundance and microcystin concentrations under the Proposed Project since a) Klamath River monitoring data indicate that microcystin is the algal toxin that most frequently exceeds algal toxin numeric thresholds; b) exceedances of microcystin numeric thresholds in the Klamath River would decrease relatively more than other algal toxins under the Proposed Project; and c) alterations in algal toxins due to conversion of the reservoir areas to a free-flowing river under the Proposed Project would have similar potential impacts for *Microcystis aeruginosa* abundance and microcystin concentrations and the other two species of toxin-producing blue-green algae that primarily compose nuisance and/or noxious algal blooms in the Area of Analysis and their associated algal toxin concentrations in the Klamath River, since elimination of the slow-moving reservoir conditions would similarly eliminate suitable habitat for all three species of toxin-producing blue-green algae and associated potential algal toxin production. The comment does not provide evidence that the analysis of potential impacts to *Microcystis aeruginosa* abundance and microcystin concentrations due to elimination of suitable slow-moving reservoir habitat would fail to also characterize the potential impacts to other toxin-producing blue-green algae and their associated algal toxins in the Klamath River.

Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-12 has been revised to clarify the occurrence of blue-green algae and associated algal toxins in slow-moving shoreline habitats along the margins of the Middle and Klamath River under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including the revisions to Potential Impact 3.2-12.

Comment ORG46-154

The DEIR states that the screening values for inorganic and organic contaminants are “conservatively protective of human health” but does not explain why these values are considered conservative. Similar explanations should be provided at other places in this section where the term “conservative” is used to describe a screening value for a particular contaminant.

Response to Comment ORG46-154

Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 provides additional details on the United States Environmental Protection Agency (USEPA) and California Environmental Protection Agency (CalEPA) screening levels and why they are considered conservatively protective of human health.

Potential Impact 3.2-13 has been revised to summarize why the USEPA and CalEPA screening levels are conservatively protective of human health. Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* for the revisions.

<u>Comment ORG46-155</u>

The DEIR discusses the 2009 and 2010 sediment sample results and indicates that 19 compounds were not detected in these samples but that the laboratory reporting limits for those compounds were above the human health screening values. While this is not an uncommon situation, the DEIR discussion needs to include the details about which analytes are involved and should also provide the laboratory reporting limits relative to the screening values so the reader understands the differences between these values. Additionally, because the laboratory limits of detection were higher than the human health screening values, there needs to be a cohesive logical process to support the conclusion that these substances would not affect human health, this is currently missing from the DEIR.

Response to Comment ORG46-155

Appendix C, Section C.7.1.1 *Inorganic and Organic Contaminants – Hydroelectric Reach*, specifically Table C-7, provides a list of all the compounds that had laboratory reporting limits greater than applicable human health screening levels, including the range of laboratory method reporting limits (MRLs) for non-detects (i.e., compounds that were not detected in reservoir sediments).

The comment asserts that a cohesive logical process to support the conclusion that compounds with laboratory MRLs greater than the applicable screening levels is missing from the EIR. The comparison of the relative duration of exposure under the U.S. Environmental Protection Agency (USEPA) screening levels and the California Environmental Protection Agency (CalEPA) California Human Health Screening Levels (CHHSLs) with those that would occur in the short term and long term under the Proposed Project in Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation Measures – Inorganic and Organic Contaminants* Potential Impact 3.2-13 does provide cohesive, logical support for the conclusion that compounds with laboratory MRLs greater than the applicable screening levels would be unlikely to result in a substantial adverse impact on human health. As explained in Potential Impact 3.2-13, potential human exposure to reservoir sediment deposits under the Proposed Project, in both the short term and long term, would involve limited, short duration, non-residential exposure patterns that are much less than the residential or commercial exposure patterns assumed by the USEPA and CHHSL screening levels. Construction/restoration worker exposure of 100 days per year for 5 years would result in only 4.8 percent of the CalEPA CHHSL residential exposure and only 4.5 percent of the USEPA residential exposure. Recreational exposure of 10 to 90 days per year, every year for 30 years would result in only 3 to 26 percent of the CalEPA CHHSL residential exposure and only 3 to 25 percent of the USEPA residential exposure. Additionally, the USEPA and CHHSL screening levels are based on ingesting 100 to 200 milligrams (mg) of soil per day for each day of exposure, which is unlikely to occur during typical recreational exposure. Thus, the potential exposure to analytes below levels of laboratory detection would be less than the residential levels of exposure duration and magnitude in both the short-term and long-term.

Twenty compounds had laboratory MRLs that were greater than the applicable screening levels, so it is not possible to directly confirm that these analytes were above or below the applicable human health screening levels in reservoir sediments, as discussed in Potential Impact 3.2-13. However, these compounds would be unlikely to result in substantial adverse impacts on human health since the potential exposure in the short and long-term to these compounds would be limited (e.g., less than the long-term residential levels of exposure considered in the human health screening levels).

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and Appendix C.

Comment ORG46-156

The DEIR states "Elutriate concentration results (characterizing the water between the grains of sediment, which can be referred to as pore water)." This is an inaccurate statement. Elutriate tests measure what may be released from sediment during resuspension. This includes sediment porewater, which would only be a small fraction of what may be released. For this reason, the elutriate test needs to be more accurately defined.

Response to Comment ORG46-156

Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 has been revised to clarify the definition of elutriate concentration results. Please refer to Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* for the revisions.

Comment ORG46-157

The DEIR states "...sample results at concentrations above Basin Plan, national priority, and national non-priority fresh water quality criteria..." but does not define what these criteria are.

Response to Comment ORG46-157

Please refer to Volume II Appendix W *Additional Information Incorporated by Reference*, Table B-6 (pages B-18 to B-23) for a complete list of the Basin Plan, national priority, and national non-priority freshwater quality criteria for human health.

Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 has been revised to clarify that human health water quality criteria are available in Volume II Appendix W *Additional Information Incorporated by Reference*, Table B-6. Please refer to

Volume III Attachment 1 Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* for the revisions.

Comment ORG46-158

The DEIR describes that the analysis area includes most of the Trinity River, but then states that the lower 0.25-0.5 mile of the Trinity River is also included in the analysis. On DEIR page 3-192, only the lower portion of the Trinity River (which is not defined) is included in the definition of the middle and lower Klamath River area of analysis. The DEIR should clearly define the geographic extent of the Trinity River included in the analysis area and that is shown in Figure 3.3-1 of the DEIR.

Response to Comment ORG46-158

Section 3.3.1 *Aquatic Resources – Area of Analysis* has been revised to clarify that the lower 0.5 miles of the Trinity River is included within the Area of Analysis. Figure 3.3-1 has also been clarified to indicate that 0.5 miles of the lower Trinity River are included in the Area of Analysis. Please refer to Volume III Attachment 1 Section 3.3.1 *Aquatic Resources – Area of Analysis* for the revisions.

Comment ORG46-159

This table has a variety of issues, many of which relate to the availability of more recent data not shown in the table or inconsistent use of data presented in the table. The data in the DEIR should be consistently updated to reflect what is actually known about these fish populations. Specifically:

1. Table 3.3-2 of the DEIR should more clearly define the origin of the adult spawners as well as the definition used for wild and hatchery fish. Chinook, Coho, and Steelhead spawning in the wild, and at the hatchery, consist of both hatchery origin and natural origin fish. Although the table notes that Chinook and Steelhead run size includes hatchery fish, the table should also note that this applies to Coho as well. No data are provided for fall-run Steelhead. The footnotes should also be checked for accuracy.

2. Recent run size for Steelhead at Iron Gate Hatchery should be less than 10 not less than 100

3. Coho run size estimates do not take into account that data are available through the 2017/2018 spawning season and spawning surveys of major tributaries downstream of Iron Gate Dam that have been conducted annually since the 2012 spawning season (see MKWC 2016, 2017, 2018).

4. For all salmon on this table, is the subtext (spawners) in the location description supposed to indicate pairs of fish or just females?

5. CDFW publishes annual reports for Iron Gate Hatchery and Bogus Creek Coho returns that are not apparently used in this discussion (e.g., Giudice and Knechtle 2018).

6. It does not appear that the Trinity River Hatchery population is included in the total yet there is no explanation provided for this.

7. Similar comments to the above113 through 115 but as apply to Chinook. There were only 2,587 total Chinook in the 2016-17 adult return year at Iron Gate Hatchery.

8. Counts of spring-run Chinook in the Salmon River should be updated through 2018.

9. Regarding the Green Sturgeon run size estimate, it would seem helpful to at least provide the harvest estimate so the reader can understand how large that segment of the population is.

10. Regarding Cutthroat Trout it is not clear how the population can be listed in the table as "stable to increasing" when there is no data upon which to base this conclusion.

11. Eulachon are anadromous and yet are completely missing from this table.

Response to Comment ORG46-159

With respect to defining the origin of adult spawners, the lack of data for fall-run steelhead, and the accuracy of the footnotes, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been revised to clarify the term "spawners."

Additionally, a new footnote has been added to Table 3.3.2 to define the term "Naturally Produced" and "Hatchery Produced. Table 3.3.2 footnotes have also been checked for accuracy.

With respect to the recent run size for steelhead at Iron Gate Hatchery, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include the comment's data on recent steelhead returns at Iron Gate Hatchery.

With respect to the coho salmon run size estimates from the 2017/2018 spawning season, and annual spawning surveys of major tributaries downstream of Iron Gate Dam which began in 2015, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been revised to include coho salmon data through 2017 for most locations, with the exception of the Scott River which includes data through 2015, and the Shasta River which includes data through 2016.

With respect to the number of fish the subtext “spawners” is referring to (pairs versus individual females), Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified and no longer includes the term “spawners.”

With respect to California Department of Fish and Wildlife (CDFW) annual coho returns for Iron Gate Hatchery and Bogus Creek reports, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include Iron Gate Hatchery and Bogus Creek returns through 2017 including data reported in Giudice and Knechtle (2018).

With respect to inclusion of the Trinity River Hatchery population in the total (Coho Basin Wide), Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include a footnote that the estimate does not include hatchery fish.

With respect to Chinook salmon run-size data, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include Chinook salmon run-size data through 2018. With respect to spring-run Chinook salmon counts through 2018 from the Salmon River, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been updated to include data through 2017. Although data for 2018 are available for the Salmon River, data for other monitoring locations for spring-run Chinook salmon only include the period of record through 2017. To allow for better comparison between spring-run Chinook salmon populations, the table uses the same 2008 through 2017 date range for each location.

With respect to harvest data for green sturgeon, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include harvest data for green sturgeon.

With respect to the typographical error regarding characterization of the recent run-size of cutthroat trout, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been corrected.

With respect to eulachon, Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 has been clarified to include eulachon since they are anadromous.

For all of the above comments please refer to Volume III Attachment 1 Section 3.3.2 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* Table 3.3-2 for the revisions.

Comment ORG46-160

Chinook and Steelhead redds can contain substantially more than 3,000 eggs with the number usually correlated with the size of the fish.

Response to Comment ORG46-160

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* has been revised to clarify the range of eggs deposited by a female anadromous salmonid. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* for the revisions.

Comment ORG46-161

The smolt-to-adult ratio (SAR) for Trinity River Hatchery fall Chinook should be replaced with data from Iron Gate Hatchery. The Iron Gate Hatchery would be affected by the Proposed Project while Trinity River Hatchery would not. Also, the SAR data should be updated through 2017 and separated by smolt/yearling release type to clearly understand how the different ages of released juvenile Chinook affects return rates. The yearling Chinook released from Iron Gate Hatchery usually return at substantially higher rates than those released as smolts.

Response to Comment ORG46-161

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Salmonids* has been revised to provide information regarding the recent smolt-to-adult ratio (SAR) of Iron Gate Hatchery fall Chinook. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* for the revisions.

Comment ORG46-162

This section of the DEIR discusses Chinook abundance information as cited to documents produced in 1998 and 2011. Yet, the DEIR then states that spawner abundance has not declined from 1970 to 2016. Beyond the obvious need to provide the population data for more recent years, this section could be strengthened by clearly separating the proportion of the populations that consist of hatchery origin versus natural origin spawners. This information can be found in the rebuilding plan for the Klamath River fall-run Chinook (Pacific Fishery Management Council 2018).

Response to Comment ORG46-162

EIR Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Salmonids* has been revised to clarify a typographical error. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids* for the revisions.

The comment asserts that the Section 3.3.2.1 1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Salmonids* should include more recent population data for Chinook salmon, and notes that this section could be strengthened by clearly separating the proportion of hatchery origin versus natural origin spawners. Please note that the paragraph referenced in the comment is intended to provide a summary of the 2011 Biological Review Team's assessment based on review of information provided in a petition to list Chinook salmon in the Upper Klamath Trinity River Basin. The data and information included in this paragraph accomplish this intention. More recent population data for Chinook salmon (through 2017 for spring-run and through 2018 for fall-run) are summarized in Table 3.3-2 of the Final EIR. Table 3.3-2 also separates hatchery origin versus natural origin fish. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-163

Microcystis is listed as a stressor to upstream migrating Chinook, yet the DEIR provides no information to support this assertion.

Response to Comment ORG46-163

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species* does not list *Microcystis aeruginosa* as a stressor to upstream migrating fall-run Chinook salmon; rather this section states that "occasional blooms of *Microcystis aeruginosa* (a blue-green algae species that is potentially toxic to fish…)." Please refer to Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Phytoplankton – Microcystis aeruginosa* for further detail on the toxicity of *Microcystis aeruginosa* in the Klamath River. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-164

The statement in the DEIR that "Coho salmon are widely distributed in the Klamath River downstream of Iron Gate Dam..." is not supported with a citation and probably not supportable given recent tributary spawning surveys. Work conducted since 2015 to survey tributaries downstream of Iron Gate Dam to Portuguese Creek has reliably found Coho only in Bogus, Horse, and Seiad creeks (MKWC 2016, 2017, 2018). Other Coho populations exist in the Shasta and Scott rivers.

The statements regarding PacifiCorp's Coho Enhancement Fund (CEF) are significantly out of date. The DEIR presents a myopic view of projects funded under the CEF and needs to be updated to reflect that as of January 2018, PacifiCorp has provided funding of over $4,900,000 into the CEF. Starting in 2009 and running through the 2017 grant cycle, 42 projects have been funded (with a value of about $4.3 million) that benefit Coho downstream of Iron Gate Dam. Selection of projects to fund is made by PacifiCorp with the assistance of a technical advisory team comprised of staff from the National Marine Fisheries Service (NMFS) and CDFW.

PacifiCorp has developed a partnership with the National Fish and Wildlife Foundation to administer the fund. This partnership allows CEF grant recipients to be eligible for additional funding through other grant programs, further enhancing the conservation benefit of the fund. Using this process, grantees have leveraged an additional $7.7 million in matching funds for Coho restoration projects as of 2017.

Funded projects have resulted in a substantial benefit to Coho downstream of Iron Gate Dam. When the projects are considered collectively, the CEF has resulted in:

- *Over 2, 300 linear feet of channel restoration*
- *Creation of over 163,000 square feet of off-channel ponds*
- *Installation of three fish screens*
- *Removal of 73 passage barriers*
- *Improved access to over 71 miles of Coho habitat*
- *Installation of over 7 miles of riparian fencing*
- *Implementation of 29 separate water leases providing improved flows in almost 36 miles of stream*
- *Implementation of 71,000 square feet of other types of habitat enhancement projects.*

Response to Comment ORG46-164

As discussed in Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Coho salmon*, and in Appendix E, Section E.3.1.3 *Coho Salmon*, coho salmon are widely distributed in the Klamath River downstream of Iron Gate Dam. In recent years (2016 and 2017), coho salmon spawning has been observed in at least Bogus Creek, Cottonwood Creek, West Beaver Creek, Horse Creek, Middle Creek, Seiad Creek, Grider Creek, West Grider Creek, Shasta River, Scott River, mainstem Klamath River (in small numbers), and within the Trinity River and its tributaries.

With respect to the comment's assertion that the EIR contains an unsupported statement regarding coho, Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Coho salmon* has been clarified to include a citation supporting the coho salmon distribution in the Klamath River.

With respect to EIR statements regarding PacifiCorp's Coho Enhancement Fund (CEF), Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Coho salmon*, has been clarified to include information from the most recent PacifiCorp Interim Measures report (2018).

Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Coho salmon* for the above revisions.

Comment ORG46-165

The last sentence in this paragraph refers to Chinook when it should refer to Coho; both the species and table reference should be updated.

Response to Comment ORG46-165

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Anadromous Salmonids – Coho Salmon* has been clarified to address a typographical error. Please refer to Volume III Attachment 1 Section 3.3.2.1 Aquatic Resources – *Aquatic Species – Fish – Anadromous Salmonids – Coho Salmon* for the revisions.

Comment ORG46-166

The DEIR states that "The flushing and emergency dilution flows are detailed in Section 4.2.1.1 [Alternative Description] Summary of Available Hydrology Information for the No Project Alternative as part of the No Project Alternative because they would likely only apply if Iron Gate Dam were to remain in place or the disease nidus remains." It is unreasonable and unsupported to assume that flushing flows would not be required after implementation of the Proposed Project. The USBR's current proposed action (USBR 2018a) is supposed to span the period through dam removal and into the post-dam operational period and includes a surface flushing flow (6,030 cfs for 72 hours) as part of the proposed action. The existing disease flushing flows have been prescribed pursuant to a court decision regarding USBR's biological opinion and its operation of its irrigation project. Impacts to Klamath River flows as a result of USBR operations are part of the existing conditions and will persist following the Proposed Project.

Response to Comment ORG46-166

The sentence just prior to the sentence quoted in the comment provides the reasonable explanation for why the 2017 court-ordered flushing flows were not generally included in the analysis of the Proposed Project (i.e., "The court-ordered flushing flows and emergency dilution flows are not part of existing conditions for the Proposed Project, because they went into effect after the Notice of Preparation was filed by the State Water Board in December 2016, and because the data evaluating the effectiveness of the flows and their potential impacts is not yet robust."). Additionally, Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* states, "The flow-related analyses in this EIR acknowledge the re-initiation of consultation on the 2013 BiOp Flows by considering the 2017 court-ordered flushing and emergency dilution flow requirements downstream of Iron Gate Dam as interim flow requirements until formal consultation is completed. The 2017 court-ordered flushing flows were not modeled as part of existing conditions hydrology for the

Proposed Project, because they went into effect in February 2017 after the December 2016 Notice of Preparation was filed. The 2017 court-ordered flushing and emergency dilution flows are analyzed in several locations in this EIR, including, but not limited to, Section 3.24 *Cumulative Effects*…", where the latter includes consideration of the flushing flows during and immediately following dam removal.

Further, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* considers the potential for flushing flows under the Proposed Project, stating the following: "Under the Proposed Project, if a nidus were to remain in the vicinity of Iron Gate Hatchery, or theoretically were to form within newly accessible upstream habitat (however unlikely), flushing and emergency dilution flow releases (as previously required by the 2017 court order) and flushing flows and the potential for dilution flows and/or enhanced spring flows (as currently required by the 2019 BiOp Flows) may be required from a new upstream location to achieve the same ecological benefits (i.e., disruption of nidus)." Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response HYD-1 for further discussion of how the EIR considers Klamath River flows under the 2019 BiOp Operations Criteria for the Klamath Irrigation Project, which do not include the 2017 court-ordered flushing or emergency dilution flows.

Comment ORG46-167

Not all Redband Trout need to migrate to complete their life histories. There is documentation of spawning in the J. C. Boyle Bypass and Peaking reaches (PacifiCorp 2004b; Jacobs et al. 2008)

Response to Comment ORG46-167

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species – Rainbow and Redband Trout*, has been slightly modified as requested. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species – Rainbow and Redband Trout* for the revisions.

Comment ORG46-168

Suckers are also fully protected under the California Fish and Game Code Section 5515 which prohibits any action which can result in take. The reference in the DEIR to Fish and Game Code Section 2081.11 and the allowance of take, does not appear valid, that section does not exist in the Fish and Game Code (https://codes.findlaw.com/ca/fish-and-game-code/#!tid=NFD41684158B4E90941FD12BBC90E6E5).

Response to Comment ORG46-168

Section 3.3.2.1 Aquatic Resources – Environmental Setting – *Aquatic Species Resident Riverine Fish Species – Lost River and Shortnose Suckers*, has been revised to clarify the Fish and Game Code related to the take of Lost River and Shortnose Suckers. Please refer to Volume III Attachment 1 Section 3.3.2.1 Aquatic Resources – Environmental Setting – *Aquatic Species Resident Riverine Fish species – Lost River and Shortnose Suckers* for the revisions.

Comment ORG46-169

Smallscale Suckers spawn in relatively fast-moving water and Moyle (2002) indicates that tributaries to the Klamath River are the primary spawning habitat. Although little is known about their specific spawning ecology, the assertion in the DEIR that Smallscale Suckers are adversely affected by operations of J.C. Boyle Powerhouse is not supported. Smallscale Suckers are fecund broadcast spawners likely releasing 15,000 to 20,000 eggs depending on the size and age of the female (Moyle et al. 2002; Pirrello 2011). Eggs from broadcast spawners are intended to wash downstream into suitable incubation habitat.

Dunsmoor (2006) presents results of fish stranding observations in the J. C. Boyle Peaking Reach on July 5-7, 2006. Dunsmoor (2006) observed considerable stranding of fish, crayfish, and macroinvertebrates on July 5, 2006. However, July 5, 2006, was the first down-ramp event of the season that followed several months of relatively stable flow. This down-ramp was also a two-unit ramp, meaning that flows changed from approximately 3,000 cfs to 350 cfs. Therefore, it is important to recognize that these observations of stranding pertained only to the atypical circumstance s of that day and they do not reflect the potential for stranding under current normal project operations (under which PacifiCorp does not conduct two-unit peaking, or likely future project operations under a new license given prescribed ramp rates that would eliminate two-unit peaking).

Dunsmoor's (2006) stranding observations on July 5, 2006, were made at a site near the downstream end of the relatively wide Frain Ranch part of the J.C. Boyle peaking reach. The next day (July,6 2006), following the second two-unit down-ramp, he observed no fish stranded at sites downstream of Shovel Creek in the California section of the J.C. Boyle Peaking Reach. On the third day (July 7, 2006), Dunsmoor (2006) returned to the Frain Ranch area and observed no fish stranded at the same site where stranding was observed 2 days earlier following the first ramp event. Collectively these observations indicate that the first downramp after an extended period of stable flows is the event that poses the most risk to fish rather than the generic observation that down-ramping strands fish that is presented in the DEIR.

Response to Comment ORG46-169

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species* has been revised to clarify the displacement of smallscale sucker eggs during peaking operations. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species* for the revisions.

<u>Comment ORG46-170</u>

In the benthic macroinvertebrate (BMI) discussion there should be a more complete discussion provided that includes other metrics related to the existing populations. The Index of Biologic Integrity (IBI) values (pg. 3-228, 3rd paragraph) are good information; but similar work related to species richness, taxonomic composition, and Ephemeroptera-Plecoptera-Tricoptera (EPT) metrics should also be presented along with a stronger link to the effects of the BMI population on fish production to inform the reader as to why these are being considered in the analysis.

Response to Comment ORG46-170

Section 3.3.2.1 *Aquatic Species – Environmental Setting – Benthic Macroinvertebrates* describes the link between benthic macroinvertebrates (BMI) production and the health of riverine fish populations, including supporting citations from the scientific literature. This discussion is consistent with CEQA Guidelines section 15125(a), which requires that, “The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the Proposed Project and its alternatives.” Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comment ORG46-171</u>

The last sentence in this paragraph is misleading. While the mainstem Klamath River dams have disrupted sediment transport into the river from Iron Gate Dam upstream to Link River Dam, there are a large number of tributaries of varying sizes which all continue to provide bedload input into the Klamath River downstream of Iron Gate Dam.

Response to Comment ORG46-171

The referenced sentence notes the disruption of the described natural sediment movement since construction of the dams. It is not intended to imply that the dams have disrupted sediment movement on un-dammed tributaries downstream of the hydroelectric reach. The paragraph immediately following clarifies that the effect concerns below Iron Gate Dam.

<u>Comment ORG46-172</u>

A sentence is repeated in the middle of this paragraph that should be deleted: “Per the interim operations of the... (PacifiCorp 2014).” Also, “...interim operations of the Klamath Hydroelectric Project HCP...” is a meaningless statement and is unnecessary. Under the Habitat Conservation Plan (HCP) for Coho salmon, PacifiCorp agreed to place gravel down stream of Iron Gate Dam to augment spawning gravel; however, gravel monitoring was never part of the *proposed placement process. Consequently, the sentence that says "...details on the extent of downstream movement have not been reported," while being technically correct, misses the point that there was never any requirement to monitor or report on gravel movement.*

Response to Comment ORG46-172
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Bed Elevation and Grain Size Distribution* has been revised for clarity. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Bed Elevation and Grain Size Distribution* for the revisions.

Comment ORG46-173
The DEIR states that "Water temperatures in the Klamath River are of special concern as they are elevated with greater frequency and remain elevated for longer periods of time than temperatures in adjacent coastal anadromous streams..." Ignoring the editorial issues (i.e., the fact that water temperatures cannot be elevated - as in higher in relation to something else - but can be warmer, and that the streams are not anadromous, but support anadromous species), the Klamath River is not a coastal stream. It is one of two rivers in the Pacific Northwest (the other being the Columbia River) that actually crosses both the Cascade and Coast Range mountains. The temperature regime in the Klamath River should not be compared to adjacent coastal streams. All of the 'adjacent streams' originate in the Coast Range and are substantially shorter, rainfall driven systems with some snowmelt contributions (e.g., Trinity River which isn't even adjacent). None of those streams originate in the high desert of southern Oregon, let alone have a 121 square-mile hypereutrophic lake as their headwaters. In this case, DEIR needs to recognize the unique nature of the Klamath River and provide an accurate discussion of how these geographical, physical, hydrologic, and anthropomorphic conditions affect water temperature. The comparison to coastal streams is meaningless and yet mistakenly makes the reader think that there is something abnormal in those elevated water temperatures.

Response to Comment ORG46-173
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been clarified to better characterize water temperatures in the Klamath River. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

Comment ORG46-174
The DEIR indicates that warm water temperatures "have been associated with fish kills in the Klamath River downstream from Iron Gate Dam during low flow

periods in late summer." While water temperatures certainly play a role in fish kills, the DEIR is making an inaccurate association between the temperature of water released from Iron Gate Dam and the death of adult salmon in the lower Klamath River. The DEIR should clarify that fish kills have occurred in the Lower Klamath River rather than downstream of Iron Gate Dam because as it is currently written, the DEIR inaccurately port rays fish kills as having occurred disproportionately near Iron Gate Dam, or as a result of Iron Gate Dam operations. For example, the well-reported 2002 fish kill occurred in the lower 36 miles of river, over 150 miles downstream of Iron Gate Dam. Analysis on the 2002 fish kill does not specifically attribute effects from Klamath Hydroelectric Project facilities on the key factors considered to have caused the fish kill (i.e., low flows, warm water temperatures, high fish returns resulting in crowding of available habitat, and proliferation of the pathogens Ich and Columnaris) that far downstream (CDFG 2004).

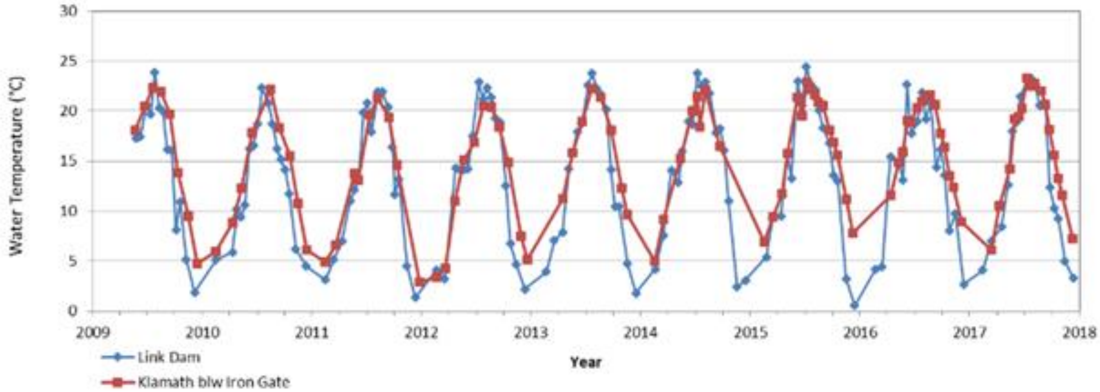
The DEIR needs to be revised to accurately reflect the distance downstream of Iron Gate Dam that modeling has shown water temperatures could be affected by releases from Iron Gate Dam. As was mentioned previously (see comment 3.2-42), this downstream extent of this effect is the confluence with Clear Creek at RM 95, about 50 miles upstream of where the 2002 fish kill was concentrated. Thus, the DEIR' s portrayal of temperature effects of Iron Gate Dam playing a role in the 2002 fish kill is misleading and presents a false portrait to the public that the Proposed Project will ameliorate conditions such as those that led to the 2002 fish kill.

Response to Comment ORG46-174
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been clarified to more accurately characterize the cause of high-water temperatures and their association with fish kills in the Klamath River. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

Comment ORG46-175
The DEIR states that "Temperatures in Upper Klamath Lake are cooler than those in the Klamath River downstream from Iron Gate Dam in the late summer and early fall when fall-run Chinook are migrating." This statement is made without a citation, data, or any other form of support. Upper Klamath Lake is at over 4,140 feet in elevation, is extremely shallow and would be expected to cool off faster in the fall than lower elevation reservoirs and the lower river. While it may be true that Upper Klamath Lake is cooler in the fall, a discussion about the biological significance of the difference in water temperatures is absent in the DEIR. If the temperatures in both locations are all cooler than some threshold that would impair Chinook migration or spawning, as it would appear from the spot KHSA Interim Measure 15 data (see graph below), then it is there may be

no biological significance with water temperatures downstream of Iron Gate Dam being warmer relative to those in Upper Klamath Lake.

To address this, the DEIR should present a set of biologically-based criteria and review the readily available water temperature data for the different locations and present a biologically-based discussion of the differences along with the significance (if any) of those differences.



Response to Comment ORG46-175

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been revised to remove the referenced statement that was not associated with a specific citation. The deletion does not result in changes to the analysis in the EIR. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

With respect to the comment's concern regarding the application of consistent biologically-based temperature criteria in the EIR, please refer to response to comment ORG46-180.

Comment ORG46-176

This paragraph of the DEIR notes that fast growing Redband Trout can take refuge in cool thermal refugia around Pelican Bay when Upper Klamath Lake water temperatures are very warm. It states that juvenile Chinook can use wetlands in these areas for rearing. The DEIR should then describe that juvenile Chinook using these areas would be highly susceptible to predation from trout residing in the same area and present an analysis of this predation on the rearing Chinook as it relates to the success of reintroduction.

Response to Comment ORG46-176

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* is describing the environmental setting and is not intended to provide an analysis of the Proposed Project. Therefore, this section has been clarified to remove reference to juvenile rearing. Please refer to Volume III Attachment 1 Section 3.3 Aquatic Resources Potential Impact 3.3-18 for a discussion of the effects of redband trout on the reintroduction of Chinook salmon upstream of Iron Gate Dam under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

Comment ORG46-177

This paragraph grossly oversimplifies the water quality issues in Lake Ewauna and Keno Reservoir. If the DEIR is going to discuss water quality in Keno Reservoir, it should be revised following a complete review of at the available water quality data for this location as it relates to aquatic resources.

Response to Comment ORG46-177

Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* is intended to provide a brief, overarching summary of water temperature data in Lake Ewauna and Keno Reservoir. It is not intended to provide an overview of water quality in Lake Ewauna and Keno Reservoir, or exhaustive detail.

Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been revised in Volume III Attachment 1 to focus on water temperature. Please refer to Volume III Attachment 1 Section 3.3.2.3 *[Aquatic Resources] – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

Comment ORG46-178

The DEIR should be consistent when describing effects for different reaches. For example, previously in the DEIR, temperatures of 71.6 to 77 degrees Fahrenheit (°F) are defined as still being within the preferred range for warm and some coldwater species. However, this same conclusion is not presented for the upper Klamath River Hydroelectric Reach. The DEIR emphasizes small areas of thermal refugia having great value for fish in Upper Klamath Lake (see pg. 3-236), but there is comparatively little discussion of the thermal refuge benefits to fish of the 220 to 250 cfs of groundwater in the J.C. Boyle bypass reach. The bypass reach is 4.6 miles in length and exhibits stable stream temperatures (51.8° to 53.6°F) ideally suited for resident and anadromous salmonids.

The temperature effects that the Proposed Project and the different alternatives would have on the bypass reach vary substantially but these differences are hardly discussed in the DEIR. For example, the removal of J.C. Boyle Dam results in a large increase in stream temperature and diminished water quality as a result of mixing spring water with Klamath River water that is currently diverted around the J.C. Boyle Bypass Reach (see comment 3.2-8).

Response to Comment ORG46-178

The EIR consistently describes the effects of water temperature on aquatic resources among river reaches, as summarized in Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature*, including a discussion of thermal refuge habitat in the J.C. Boyle Bypass Reach. The potential effects of the Proposed Project on water temperatures in the J.C. Boyle Bypass Reach as related to aquatic resources are discussed in Section 3.3.5.4 *Aquatic Resources Water Temperature*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

The potential different effects of alternatives to the Proposed Project on water temperatures in the J.C. Boyle Bypass Reach as they relate to aquatic resources are discussed in Volume I Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Water Temperature;* Volume I Section 4.4.3.3 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Water Quality;* Volume I Section 4.5.3.3 *Alternatives – Two Dam Removal – Aquatic Resources – Water Quality;* and Volume I Section 4.6.3.3 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Water Quality*.

With respect to the comment's assertion that the EIR is not consistent when describing the effects of water temperature, please refer to response to comment ORG46-180, and also note that Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* has been revised to clarify the water temperature criteria used to evaluate potential impacts of the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* for the revisions.

Regarding existing water temperatures in the J.C. Boyle Bypass Reach, and the potential effects of the Proposed Project on water temperatures in the Bypass Reach, please also refer to responses to comments ORG46-90, ORG46-209, and ORG46-211.

Comment ORG46-179

The DEIR states "In addition, numerous cold-water springs contribute flows to both Copco No. 1 and Iron Gate reservoirs." This statement is unsupported and PacifiCorp is not aware of substantial cold-water springs other than the springs in the J.C. Boyle Bypass Reach that contribute approximately 220 to 250 cfs of inflow. Spring Creek does have a spring water source as its headwaters, but this contribution comes to Iron Gate Reservoir from Jenny Creek and from diversions of Spring Creek into Fall Creek for hydroelectric generation purposes. The DEIR should correct this statement.

Response to Comment ORG46-179

The referenced text from Section 3.3.2.3 *Aquatic Resources – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* makes the general and accurate statement that cold-water springs contribute flows to the reservoirs. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been clarified to specify that there are several springs in the California portion of the Hydroelectric Reach, located along the edges of Copco No. 1 and Iron Gate reservoirs, that contribute an unquantified amount of flow to the reservoirs. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for the revisions.

Comment ORG46-180

The DEIR states that water temperatures within the hydroelectric reach are within the tolerance ranges of the species observed there. However, these temperatures regularly exceed the range of chronic effects temperature thresholds (55 to 68°F) for full salmonid support. This and previous sections in the DEIR should consistently discuss if and when chronic effects thresholds are reached for the Proposed Project. The DEIR does not evaluate the relative change between the existing conditions that are cooler in the spring and presumably delay when chronic effects thresholds are exceeded compared to the Proposed Project under which water temperatures would warm sooner in the spring perhaps exceeding these thresholds earlier in the year and for a longer period of time than under existing conditions. Also, the DEIR should mention that the tributary streams in this reach provide thermal refugia for fish. Overall, the description of stream temperature in the DEIR is unbalanced because the discussion of the hydroelectric reaches emphasizes warm water while coldwater is emphasized in other reaches.

Response to Comment ORG46-180

The comment references a discussion of the existing condition. It would not be appropriate to add additional discussion of temperature impacts of the Proposed Project to a discussion of the existing conditions. Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* has been revised to amplify the discussion on the life-stage chronic effects water temperature thresholds considered in the analysis. Please refer to Volume III Attachment 1 Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* for the revisions.

With respect to the comment's assertion that the EIR does not evaluate the relative change between existing water temperature conditions and the Proposed Project, and the extended length of time that fish may be exposed to elevated water temperatures, please refer to Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* and Potential Impact 3.2-1, for an analysis of the water temperature effects of converting the reservoir areas to a free-flowing river. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

In addition, Section 3.3.5.4 *Water Temperature*, provides an analysis of the effects of the thermal lag caused by water storage in Lower Klamath Project reservoirs and the associated increased thermal mass being eliminated in the Lower Klamath River under the Proposed Project. This analysis includes addressing the effects of elevated water temperatures occurring earlier in the spring than under existing conditions, and the duration of time during which the increased temperatures would occur. The elimination of the thermal lag would result in water temperatures to have natural patterns similar to what would have occurred historically in the Klamath River. Overall, these changes would result in water temperatures more favorable for salmonids in the mainstem Klamath River downstream from Iron Gate Dam.

Please note that Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* provides information on cool-water tributaries and cold-water springs. This section does not explicitly state that these are used for thermal refugia in the Hydroelectric Reach, since there is no specific evidence that this occurs. Please refer to Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for a description of fish use of thermal refugia in the Hydroelectric Reach. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the comment's assertion that the EIR discussion of stream temperature is unbalanced because the Hydroelectric Reach discussion emphasizes warm water while cold water is emphasized in the discussion of other reaches, note that Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* provides information on generally cooler tributaries, cold water springs, and the contribution of 200-250 cubic feet per second (cfs) of cool groundwater addition to the Klamath River in the upstream portion of the Hydroelectric Reach. Hot springs located in the Peaking Reach were found to inconsistently affect water temperature. A description of warm water from Iron Gate and Copco 1 is warranted because these reservoirs are point sources of increased water temperature. Please refer to Potential Impact 3.2-1 for further description of water temperature in the Hydroelectric Reach under the Proposed Project. Volume III Attachment 1 presents the final Section 3.2 *Water Quality* and the final Section 3.3 *Aquatic Resources*.

Comment ORG46-181

There are a few areas where the DEIR analysis related to water temperatures downstream of Iron Gate Dam with respect to the thermal lag. and how that may affect salmonids that should be clarified in the DEIR:

1. The DEIR uses monthly average temperatures which are not a good indicator of actual conditions experienced by fish. Fish exhibit complex behavioral *mechanisms to allow them to persist in areas where a monthly average temperature would characterize the habitat as unsuitable.*

2. The DEIR analysis does not use data more recent than 2007 when there's over 10 years of specific temperature data available downstream of Iron Gate Dam and in the Klamath River in general.

3. Temperature effects of the Klamath Hydroelectric Project do not propagate all the way downstream to the Salmon River (see comment 3.2-42).

The DEIR should improve this analysis by using the 7-day average of the daily maximum (7DADMax) water temperature metric as is done by USEPA (2003).

Response to Comment ORG46-181
With respect to the comment's assertion regarding the EIR's use of monthly average water temperature to characterize salmonid habitat use, note that Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* uses historical monthly water temperatures to indicate when low or high-water temperatures are present in the Klamath River. No effects analysis is performed using monthly average water temperatures.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* has been revised to include the monthly average daily maximum water temperature. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With respect to the comment's assertion regarding a need for more recent data, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* directs readers to Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* for a more detailed discussion of water temperature under the Proposed Project, including data through 2017. Please also refer to Master Response WQ-4.

With respect to the comment's assertion that water temperature effects of the Lower Klamath Project do not propagate all the way downstream to the Salmon River, please refer to response to comment ORG46-127.

With respect to the comment's assertion that the EIR should use a 7-day average of the daily maximum water temperature as a metric, Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* has been revised to include a table of water temperature thresholds for salmonids using the maximum weekly maximum temperatures (MWMT), an equivalent metric to the 7-day average of the daily maximum, as well as an explanation of how average daily water temperature values are compared to MWMT. Please refer to the detailed response to comment ORG46-180 for additional information.

Comment ORG46-182

The DEIR discusses actinospore temperature viability range, viability length of time (3 to 7 days), and distribution. However, the DEIR does not incorporate this information into the effects analysis for the Proposed Project and each alternative. The DEIR should describe the distance downstream an actinospore can travel under various flow regimes before it cannot infect susceptible salmonids. Similar information should be provided on myxospores because it is this C. shasta stage that infects the polychaete host and it is polychaete abundance that determines actinospore abundance.

The DEIR should incorporate the following information from Som et al. (2016) into the analysis: 1) There is no evidence to suggest that myxospore detection is associated with fish size (age), sex, spawning timing (death), or carcass site; and 2) Carcass removal is not a viable method for reducing myxospore levels, in addition to being contrary to ecological processes (see Foott et al. 2017). This second point is of special interest because it implies that reducing carcasses (spawners) has little effect on myxospore abundance. This is because billions of myxospores are released by a small percentage of the infected adults. Given this, the claims made later in the DEIR regarding the benefits of the Proposed Project through a reduction in spawner densities that in turn leads to decreased disease, is not correct and should be reconsidered. This impacts the DEIR conclusions that the Proposed Project will reduce fish disease in the Klamath River and that flushing flows will be unnecessary following the Proposed Project.

The DEIR states that spore concentration and water temperature are more important determinants of the infectious rate than river flow. However, as noted in the DEIR, spore concentration is measured as spores per liter of water sampled. Thus, given the same number of spores, spore concentration would be higher at lower flows and lower at higher flows so it is unclear how spore concentration is not directly linked to flow. Given this conflict, the DEIR needs to be revised to clearly present the logic relating to spore concentrations and infectious rates.

Additionally, the DEIR does not evaluate the impacts of modifying the existing temperature regime, in which the thermal lag produced by the hydroelectric reservoirs results in locally reduced river temperatures downstream of Iron Gate Dam during the spring. Removal of the hydroelectric reservoir s could increase disease infection as a result of higher river temperatures. This is not evaluated in the DEIR.

Response to Comment ORG46-182

Please refer to Master Response AQF-6, with additional clarifications below.

With respect to the comment's concern that the EIR does not incorporate actinospore and myxospore viability information (e.g., viability distance downstream) into the effects analyses for the Proposed Project and the alternatives, please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation Fish Disease and Parasites*, which includes a discussion of the effects of the Proposed Project on viability of actinospores and myxospores, as well as implications for infections of salmonids. Similar discussions are included for each alternative, including the following sections in Volume I: Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* (page 4-40), Section 4.4.3.4 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Disease and Parasites* (page 4-128), Section 4.5.3.4 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Disease and Parasites* (pages 4-206 to 4-207), Section 4.6.3.4 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Fish Disease and Parasites* (pages 4-268 to 4-270), and Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* (pages 4-304 to 4-305). The effects of the Partial Removal Alternative on fish disease and parasites would be indistinguishable from those analyzed for the Proposed Project. State Water Board is not aware of additional data to precisely assess actinospore or myxospore survival and dispersal in relation to minor differences in flow regimes under the Proposed Project or alternatives beyond the general relationships between flow and actinospore and myxospore viability discussed in the EIR. This information is not required to develop determinations on the effects of the Proposed Project or the alternatives.

The comment asserts that the EIR should incorporate data from Som and Hetrick (2016) into the analysis in the referenced paragraph, including the idea that reducing carcass density under the Proposed Project would not reduce disease risk, the results of Som and Hetrick (2016) are included in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Responses AQF-5 and 6 for a discussion of the effects of reducing carcass density on disease risk.

With respect to the EIR conclusions that the Proposed Project would reduce fish disease in the Klamath River and that flushing flows would likely be less necessary following the Proposed Project, please refer to Master Response AQF-6 for additional discussion of the potential effects of the Proposed Project on disease risk, including the potential for flushing flows to continue under the Proposed Project.

With respect to spore concentration, flow, and infectious rates noted in the comment, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and*

Parasites cites the work of Ray et al. (2014), who found that spore concentration and water temperature were more important determinants of exposure and mortality of juvenile Chinook and coho salmon, than was river flow as an independent variable. The commenter notes that flow can affect spore concentration – the EIR discloses that it is the concentration of spores that matters more than the flow itself. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been clarified to include a minor addition of text noting that Ray and Bartholomew (2013) found that increased flow and velocity does affect transmission rates. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

Please also refer to Master Responses AQF-5 and 6 for a discussion of the potential effects of the Proposed Project on spore concentration and disease risk.

In response to evaluating the impacts of modifying the existing temperature regime on disease infection, please refer to Master Response AQF-6 for a discussion of the potential effects of water temperature on disease risk under the Proposed Project.

Comment ORG46-183

The word "atypically" should be deleted from "abundant polychaete populations that are found in atypically stable habitats." Polychaetes are found in stable and unstable stream habitat. If polychaete abundance is higher in "atypical" stable habitat, then the DEIR should provide the level of increase over stable habitat and provide definitions for each. This paragraph also states that parasite densities are as high in the Williamson River as downstream of Iron Gate Dam. Since the C. shasta relies on polychaetes to complete its life cycle, if follows that large numbers of polychaetes must be present in this river. The DEIR should provide examples of "atypical" habitat in the Williamson River.

The sources supporting the conclusion that the movement of anadromous fish upstream of Iron Gate Dam would present a low risk of introducing C. shasta is out of date. While the resident fish might not suffer increased rates of infection following the Proposed Project, there is no reason to assume the same would be true of anadromous fish recolonizing the area. Because the work of Foott et al. (2016) indicates that most myxospore loading comes from relatively few adults and polychaetes are abundant in the Williamson, Sprague, and Klamath rivers as discussed in the DEIR, then asserting that disease would not spread upstream is unfounded.

Response to Comment ORG46-183

With respect to polychaete abundance, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the*

Proposed Project – Disease and Parasites has been clarified to remove reference to atypical. With respect to providing examples of high parasite densities, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to include reference to polychaete densities and habitat in the lower Williamson River. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

<u>Comment ORG46-184</u>
The DEIR cites an incomplete set of prevalence of infection (POI) rate data that only extends to 2012. POI data are readily available for every year since 2013 because the data were required monitoring for USBR as part of their 2013 BiOp compliance (see reports available here: https://microbiology.science.oregonstate.edu/content/monitoring-studies).

Response to Comment ORG46-184
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to incorporate the following more recent studies: True et al. (2017), Voss et al. (2018), and USFWS(2019b). The addition of the more recent data does not change any significance determinations. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions.

Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions. Please also refer to Master Response AQF-6.

<u>Comment ORG46-185</u>
The DEIR does not accurately portray the complexities surrounding infection of Coho and Chinook in the Klamath River for the following reasons.

1. The paragraph links high disease infection rates to high mortality of outmigrating juvenile Coho and uses the results of Coho survival studies conducted by Beeman et al. (2008) to support the claim. However, Beeman et al. (2008) does not reach any conclusions as to the effect disease may have played in Coho juvenile migration survival rates in the Klamath River. Beeman et al. (2008) stated that overall survival from Iron Gate Hatchery to river kilometer (km) 33 was similar to survival in other rivers. The survival rate over this 276 km distance was 0.857 per 100 km. They note that survival rates for Coho in the Yakima River for example ranged from 0.79 to 0.913 per 100 km.

2. The DEIR does not use the most current and best available information in this discussion that shows the shifts in the infectious zone through the years. The DEIR should be use the results of the fish exposure studies conducted by Oregon State University with funding provided by USBR and available for 2008 through 2017 online at:
https://microbiology.science.oregonstate.edu/content/monitoring-studies.

3. Even though release of myxospores by upstream spawning salmon drives infection of polychaete hosts, this more recent information indicates that the disease infectious zone has moved downstream from Iron Gate Dam in recent years to locations much further downstream (e.g., Orleans) (see True et al 2017; Voss et al. 2018). This conflicts with the DEIR conclusions that the Proposed Project will ameliorate disease effects in the Klamath River.

4. All adult Chinook that enter Iron Gate Hatchery are removed from the river. The only way the hatchery contributes to the density of infected carcasses is by producing fish that spawn naturally in the Klamath River.

5.Some of the data regarding the highest rates of infection as presented in the DEIR are out of date and it is unclear if the authors are discussing the infection rate of fish or polychaetes.

Response to Comment ORG46-185
Section 3.3.2.3 *Aquatic Resources – Environmental Setting –Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* provides a summary of the mortality rates reported by Beeman et al. (2008) and does not claim that the mortality reported by Beeman is attributable only to disease. However, based on the work of Bartholomew and Foott (2010) and others cited in the same section, infection rates among juvenile salmonids (including coho salmon) in the mainstem Klamath River are very high (greater than 50 percent). The commenter notes that portions of the Klamath River have similar mortality rates to portions of other rivers (e.g., Yakima River). This information is added to the record and illustrates that high rates of mortality for juvenile salmonids are not unique to the Klamath River, but does not otherwise affect the analysis presented in the EIR. As discussed, fish disease is documented to result in mortality of juvenile salmonids in the Klamath River. For example, Fujiwara et al. (2011) found that *C. shasta* reduces the survival of the fall-run Chinook salmon juveniles that migrate through the location where parasite densities are highest and that the mortality effect is also detectable in spawning abundance estimates. Bartholomew and Foott (2010) report that mortality of both coho and Chinook salmon juveniles varies between years as a result of differences in water temperature and infectious dose, with three-day exposures resulting in mortality in both species as high as 98 percent. Therefore, it is reasonable to link the mortality rates of juvenile coho salmon reported by Beeman et al. (2008) with disease as a potential source of mortality. In addition, in seeking to explain the higher mortality rates of juvenile coho

salmon released at Tree of Life Campground, Beeman et al. (2008) suggest that the high prevalence of parasites at that location could explain the higher mortality observed among fish released at that location. As a clarification, Section 3.3.2.3 *Aquatic Resources – Environmental Setting –Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been modified to incorporate the Bartholomew and Foott reference. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revision.

As noted above in response to ORG46-184, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to incorporate the following more recent studies: True et al. (2017), Voss et al. (2018), and USFWS (2019b). The addition of the more recent data is consistent with the analysis in the EIR and does not change any significance determinations. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for these revisions.

Please also refer to Master Response AQF-6 for a discussion of the analysis of the locations and shifts in infectious zone, and implications for disease risk under the Proposed Project. With respect to the concentration of myxospores near Iron Gate Dam, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to clarify parasite concentrations. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions.

Adult Chinook salmon returns from Iron Gate Hatchery are a substantial portion of fall-run Chinook salmon spawners in Bogus Creek. California Department of Fish and Wildlife (CDFW) has estimated the contribution of hatchery-origin fall-Chinook salmon in Bogus Creek ranges from 7.5 to 61.6 percent (Knechtle and Chesney 2011, 2016a, 2017). In addition, it appears that PacifiCorp is not considering adult fall-run Chinook salmon that perish prior to reaching Iron Gate Hatchery (pre-spawn mortality), which has been estimated to range from 4 to 10 percent in the Klamath River (Gough and Som 2017).

Please note that the infection rates in the paragraphs cited refer to fish.

<u>Comment ORG46-186</u>

The DEIR does not provide any information that defines spawning densities that result in increased disease levels. This information is needed to determine if the expected increase in adult fall-run Chinook production upstream of Iron Gate Dam is likely to exceed this same density level. As written, this paragraph in the DEIR is in conflict with Som et al. (2016) a as cited in DEIR stating that reducing carcasses (i.e., spawners) from the stream has little effect on spore load.

Response to Comment ORG46-186

Please refer to Master Responses AQF-5 and 6. Please also refer to response to comment ORG46-185 and Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for revisions to incorporate Som and Hetrick (2016). The addition of the Som and Hetrick (2016) data is consistent with the analysis in the EIR and does not change any significance determinations.

Comment ORG46-187

There has been a great deal of fluctuation in adult return numbers and fish production at Iron Gate Hatchery over the years. This paragraph does not consistently present the information that is readily available for this facility. Specifically, the DEIR should consider that:

- *There are annual reports available from CDFW through the 2017 return year that document returns and releases (e.g., CDFW 2018). The DEIR obviously did not include any of this information.*
- *There is data on Coho returns to Iron Gate Hatchery since the facility was completed in 1962. Choosing to describe the declines in Coho since a 'peak return year' in 2001-2002 is misleading. If one reviews the entire data set it is obvious that the actual peak was in the 1996/97 year when 4,097 Coho returned. The lowest year(s) were not 2015/16, but 1964-65, 1965-66, and 1966-67 when 0, 2, and 4 Coho were trapped respectively. These years are the flood of record in 1964 and the following 2 years which likely explains the low numbers of fish trapped.*
- *The long-term average release of yearling Coho is almost 95,000 fish.*

The DEIR presents a similarly fragmented data set for Chinook to that discussed above for Coho. It is not clear why there are only Chinook data presented starting in 2005 or 1978, for adult returns and juvenile releases, respectively, with adult return data possibly extending through 2017.

Response to Comment ORG46-187

The EIR uses best available data to report recent trends in coho salmon returns and production (e.g., last 10 years). Using older data in averages or highlighting the data from the 1960’s in the section describing the environmental setting would not improve the understanding of the current baseline. With respect to coho salmon return and production data, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* has been revised to include recent California Department of Fish and Wildlife (CDFW) data noted by the commenter. These slight revisions to incorporate more recent data do not change the analysis in the EIR, or the significance determinations.

As noted above for the coho salmon, the EIR uses the best available data to report recent trends in Chinook salmon returns and production (e.g., last 10 years). With respect to Chinook Salmon return and production data, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* has been revised to include recent CDFW data noted by the commenter. These slight revisions to incorporate more recent data do not change the analysis in the EIR, or the significance determinations.

Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for the revisions.

Comment ORG46-188

Similar to the data issues presented in the previous comment for Coho and Chinook (see comment 3.3-30), there are adult return data for Steelhead since 1963/64. The real break in the number of returning adults appears to have happened in the 1989-90 year when only 759 adults returned compared to over 3,000 the year before. The long-term average return to Iron Gate Hatchery is 1,105 fish (range 0-4,411).

In the last sentence of this paragraph, the DEIR needs to clarify the last release year for Steelhead. The last brood year released was 2012, which was released in 2013.

Response to Comment ORG46-188

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* has been revised in Volume III to include a minor modification to CDFW cited steelhead data. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for the revision.

Comment ORG46-189

This paragraph should be clarified to reflect implications for Chinook compared to those for Coho. For example, the sentence referencing CDFW (2014) relating adverse hatchery-related effects from hatchery-origin adults mixing with the natural populations and straying (Ackerman et al. 2006) is not true for Coho found in most tributaries downstream of Iron Gate Dam except Bogus Creek and the Shasta River. In 4 years of Coho spawning surveys (through January 2019) only one hatchery Coho carcass has been found in tributaries downstream of Iron Gate (not including the Scott and Shasta rivers) (MKWC 2016, 2017, 2018, unpublished 2019 data).

Response to Comment ORG46-189

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project* emphasizes that the influence of fall-run Chinook salmon is of particular concern in Middle and Lower Klamath

River tributaries and identifies that straying of hatchery-origin fish is most pronounced in tributaries closest to Iron Gate Hatchery (i.e., Bogus Creek, Shasta River, Scott River) and decreases with increasing distance from the hatchery. The citation to CDFW and PacifiCorp (2014) is accurate, and no unsupported statements are made regarding hatchery returns of coho salmon. Detail is provided in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* to identify that hatchery-origin fall-run Chinook salmon have a greater influence on aquatic resources, including on naturally occurring stocks, as compared with coho salmon. The information cited from MKWC 2016, 2017, 2018, unpublished 2019, has been added to the record, and is consistent with the analysis in the EIR. Please note that the comment does not include stray rate data from the primary coho spawning tributaries downstream of Iron Gate Dam (Bogus Creek, Shasta River and Scott River). In addition, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* has been revised with minor text modifications to clarify the relative effect of Chinook salmon straying as compared with coho salmon. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Aquatic Species – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for the revisions.

<u>Comment ORG46-190</u>

The Hatchery Genetics Management Plan (HGMP) referenced in this sentence was prepared by CDFW and PacifiCorp and is typically referenced as such (e.g., CDFW and PacifiCorp 2014). The DEIR mentions in passing many of the topics covered in the HGMP, but does not explain how the HGMP is specifically designed to increase the genetic fitness of Coho used in the hatchery Coho program, evaluate the predation and competition aspects of these hatchery fish on the naturally-occurring Coho, or monitor spawning populations in tributaries downstream of Iron Gate Dam. All of this information feeds back into the HGMP and the Iron Gate Hatchery Coho program with the overall goal of increasing the genetic fitness of Coho in the upper Klamath River.

Response to Comment ORG46-190

The typographical error has been fixed in Section 3.3 *Aquatic Resources* to clarify the citation of the Hatchery Genetic Management Plan (HGMP) as “CDFW and PacifiCorp 2014” in all locations where the citation occurs. Please refer to Volume III Attachment 1 Section 3.3 *Aquatic Resources* for the revisions.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* summarizes the goals, objectives, and monitoring and evaluation activities included in the HGMP in sufficient detail for the purposes of the analysis in the EIR.

Comment ORG46-191

The DEIR should evaluate the transport distance for a spore freshly released from a Chinook carcass that moves downstream for 3 days on standard 1,000 cfs flow. The DEIR statement that "Heavily infected...that congregate downstream of Iron Gate Dam and IGH [Iron Gate Hatchery]" misleads the reader to think that a high number of spawners is necessary to fully infect the polychaete population downstream. This is counter to the current scientific understanding that it only takes a few infected carcasses to fully load the system with spores (Foott et al. 2016); a situation that would happen regardless of the presence of Iron Gate Dam and Iron Gate Hatchery.

Response to Comment ORG46-191

The comment does not explain why conclusions in the EIR require evaluation of the transport distance for a spore freshly released from a Chinook carcass that moves downstream for 3 days on 1,000 cubic feet per second (cfs) of flow, and the State Water Board is not aware of available scientific data with which to conduct this evaluation. Please refer to Master Response AQF-6.

Comment ORG46-192

While PacifiCorp does not disagree that there can be negative effects of hatchery releases on natural salmonid populations, it is not clear that such a thing is happening in the Klamath River and the DEIR presents no information to indicate this competition is an issue. The hatchery releases are typically later than the outmigration timing for natural-origin fish which limits the overlap in space and time during which fish compete for the same resources. The Predation, Competition, and Disease (PCD) Risk modeling of hatchery releases conducted annually by PacifiCorp has not indicated a substantial effect on natural origin fish from hatchery releases, even using the most conservative spatial and temporal overlap and competition conclusions (PacifiCorp 2018a).

The two citations used as supporting information for the density-dependent impacts of hatchery operations (Kostow et al. 2003; Kostow and Zhou 2006) relate to a hatchery summer Steelhead program on the Clackamas River in northern Oregon. While the cited sources do indicate that the presence of hatchery summer Steelhead depressed the production of winter-run Steelhead, caution needs to be used when extrapolating this finding to the Klamath River. For example, Courter et al. (2018) concluded that hatchery summer Steelhead did not affect winter-run Steelhead abundance in the Clackamas River.

There is no discussion in either of these sources or the DEIR about the relative availability of habitat and food supplies between these two rivers. These differences would influence the ability to accurately relate the conclusions of work on the Clackamas River to fish interactions on the Klamath River. The DEIR does not include the information necessary to understand if the comparison of these two streams is accurate.

Response to Comment ORG46-192

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project* uses the best available scientific data to describe the potential for Chinook salmon hatchery releases to adversely affect natural spawning populations through competitive pressures and limited space and resources, which are well documented (Flagg et al. 2000, McMichael et al. 1997). Little scientific data have been collected directly in the Klamath River to assess the potential impacts of Chinook salmon releases on the wild population. Available data on outmigration timing, including data cited by CDFW and PacifiCorp (2014), demonstrate overlap in both time and space between naturally produced and hatchery released coho salmon and Chinook salmon; the degree to which varies among years. We did not find Predation, Competition, and Disease (PCD) Risk modeling results in PacifiCorp 2018b, as referenced in the comment. PCD modeling results for coho are included in the Hatchery Genetics Management Plan (HGMP) for the Iron Gate Hatchery (CDFW and PacifiCorp 2014); however, the effects of Chinook salmon hatchery releases are not considered. Due to a lack of available data from the Klamath River, the EIR cites studies on the Clackamas River (i.e., Kostow et al. 2003 and Kostow and Zhou 2006) as examples to demonstrate that hatchery releases have the potential to adversely affect natural populations through density-dependent mechanisms.

Comment ORG46-193

The DEIR notes that algae are produced in Upper Klamath Lake but fails to note that algal toxins are also produced by Microcystis from Upper Klamath Lake and Keno Reservoir and that these sources would remain if the Proposed Project is implemented and Copco and Iron Gate reservoirs are removed.

Response to Comment ORG46-193

The text directly following the referenced statement reads: “While the Proposed Project would not affect the occurrence of algal toxins in Upper Klamath Lake,” Further, Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* describes phytoplankton patterns from the Link River downstream to Keno Dam, which are driven by blooms that originate in Upper Klamath Lake and are transported into this reach (see also Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* Figure 3.4-10 [page 3-406]), with the phytoplankton community varying seasonally and reflecting the community present in the Upper Klamath Lake. Please also refer to Master Response PAP-1.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* has been clarified to note that algal toxins produced by *Microcystis aeruginosa* are prevalent in Upper Klamath Lake and the Keno Reservoir and these sources would remain under the Proposed Project. Please refer to Volume III Attachment

1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* for the revisions.

Comment ORG46-194

The DEIR needs to be revised to clarify this paragraph:

1. This paragraph is out of place. There has been no discussion of suckers up to this point in Section 3.3 and mixing them into the middle of the salmonid discussion only confuses the reader and leads to false analogies between sucker health and salmon health.

2. There has been a substantial amount of work on sucker disease and survival issues since the one study by VanderKooi et al. (2010) that is cited in this paragraph. The DEIR needs provide an up to date discussion that reflects the best available information relating to the effects of algal toxins on suckers in Upper Klamath Lake.

3. Once the DEIR has presented a comprehensive review of this more recent research, it will be apparent that the link between algal toxins and sucker survival has not been demonstrated.

Response to Comment ORG46-194

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* has been revised to clarify the relationship between algal toxins and fish health, including suckers Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* for the revisions.

In the Hydroelectric Reach and the Klamath River downstream from Iron Gate Dam, the occurrence of microcystin toxin in fish and mussel tissue has been reported in multiple studies with variable results depending on season, location, and fish species (Fetcho 2006, Kann 2008, CH2M Hill 2009a,b; Prendergast and Foster 2010, Kann et al. 2010a,b; Kann et al. 2013, Fetcho 2011)."

Comment ORG46-195

It is to be expected that fish living in waters with high levels of microcystin would in turn have high levels of microcystin in their tissues. Variations in toxin loading are likely related to the time of year, life-stage collected, and algal bloom conditions in any given year. While the DEIR acknowledges most of these limitations, it does nothing to help the reader understand what may be influencing the results. It is also unclear in the DEIR, what effect toxin loading in fish tissue may have on those fish. The DEIR indicates that the link between toxin accumulation and fish health is unclear, but goes on for multiple paragraphs expounding on the amount of toxin loading. If this were a public health section, then the discussion would be pertinent, but since the scientific evidence *supporting an effect on fish health from microcystin is lacking, the discussion is extraneous and simply confuses the reader.*

Response to Comment ORG46-195

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* has been revised to improve clarity regarding microcystin in fish tissue. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Algal Toxins* for the revisions.

Comment ORG46-196

The DEIR states that "These fluctuations in this reach can also result in rapid temperature changes between 5 and 59°F during the summer months (ODEQ 2010)." The ODEQ (2010) source is the Klamath River TMDL that ODEQ developed but which has since been withdrawn, in part because of issues with the modeling (see comment 3.2-34).

See also comment #3.3-12.

The last sentence in this paragraph states that "…in the trial-type hearing...it was found that this reach had lower macroinvertebrate drift rates...suggesting a reduced food base for fish." While the trail type hearing may in fact have reached this conclusion, this is contrary to the fish populations observed in the peaking reach. This area supports spawning Redband Trout and a high-quality recreational fishery (PacifiCorp 2004b). It is managed by ODFW for the production of wild fish and is a designated conservation population (IRCT2016). It is not plausible for this area to support a robust trout population along with documented spawning and migration in the mainstem Klamath River and into nearby tributaries if food were limiting. Condition factor data collected by PacifiCorp (2004b) did not indicate that Redband Trout in the bypass and peaking reaches were in poor condition, in fact, they were generally in better condition than fish from the reach downstream of Keno Dam (see table below). Condition factors over 1 are generally considered to be indicative of fish in good condition.

Reach-specific Seasonal Condition Factors of Redband Trout caught in 2002
Number of Fish Used in Calculations in Parentheses.

Season	Reach		
	Keno (#)	Bypass (#)	Peaking (#)
Spring	1.16 (25)	1.43 (28)	1.19 (39)
Summer	1.13 (27)	1.18 (48)	1.26 (31)
Fall	1.24 (105)	1.24 (225)	1.15 (101)
Average	1.18 (157)	1.28 (301)	1.20 (171)

Note: Only fish larger than 50 millimeters.
Source: PacifiCorp 2004b

Response to Comment ORG46-196
With respect to the comment regarding the Oregon Total Maximum Daily Load (TMDL), please see response to comment ORG46-119 and Master Response WQ-5.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Aquatic Habitat and Instream Flows* has been revised to remove the reference to a reduced food base for fish. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Aquatic Habitat and Instream Flows* for the revisions.

Comment ORG46-197
The historic loss of fish from power peaking operations in the Klamath River resulting from the operations of Copco 1 and Copco 2 was the reason that Iron Gate Dam was built. Iron Gate Dam reregulates the peaking operations of the two Copco powerhouses and releases a stable flow into the Klamath River. This entire paragraph has nothing to do with the Proposed Project and should be removed.

Response to Comment ORG46-197
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Aquatic Habitat and Instream Flows* has been clarified as requested. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.* Please also refer to Section 3.3 *Aquatic Resources* for additional revisions.

Comment ORG46-198
There is no critical habitat for Green Sturgeon in the Klamath River and this entire discussion should be removed.

Response to Comment ORG46-198

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project* provides a brief description of critical habitat for green sturgeon to clarify where the critical habitat boundary is in relation to the aquatic resources Area of Analysis, and to acknowledge that National Marine Fisheries Service (NMFS) specifically excluded the estuary portion of the Klamath/Trinity River from the critical habitat designation (NMFS 2009b). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Comment ORG46-199

PacifiCorp appreciates the effort to attach a quantitative change value to each of the significance criterion; however, the approach presented in the DEIR is fatally flawed and does not describe a criterion that allows for an accurate evaluation of impacts of the Proposed Project on salmonids, especially Coho and Chinook salmon for the following reasons.

1. Because fish use of the river is affected by water quality (including sediment transport analysis) there is a substantial amount of references with in the Section 3.3 Aquatic Resources imp act analysis to the analysis in Section 3.2 Water Quality. In general, this approach is appropriate; however, "short-term" is inconsistently defined which makes this cross-referenced inaccurate at best and completely wrong at worst. For example, for analyses of water quality, dam-released sediment, and sediment resupply, short-term is defined as 2 years following dam removal (e.g., DEIR pgs. ES-6, 3-44, 3-760, 3-775). For aquatic resources impact analysis, short-term is defined as less than 5 years following dam removal (e.g., DEIR pg. 3-258). Correspondingly, long-term is defined as occurring more than 2 years after dam removal for water quality and sediment resources (DEIR pg. 3-44) and more than 5 years after dam removal for aquatic resources (DEIR pg. 3-258). These variable definitions create a dilemma where long-term water quality and sediment impacts overlap with short-term impacts to fish and other aquatic biota. In the case of water quality and sediment impacts on fish, this overlap creates a situation where the DEIR grossly underestimates the potential severity of short-term impacts as they pertain to fish. The DEIR does not account for this disparity when evaluating the severity and significance of short-term impacts.

2. Regarding the aquatic resources impact analysis, the DEIR states that "A period of five years was selected as short-term, because for most aquatic resources this represents one to two generations." The DEIR fails to provide a rationale for why "one to two generations" is used and how this particular definition was determined.

3. The DEIR notes that there are nine population units of Coho in the Klamath River and that the analysis considers the impacts and benefits for each of the populations separately. However, the DEIR makes significance determinations *for all populations in the Klamath Basin combined. This approach to significance determination is inappropriate for Coho because more than 50 percent of the Coho produced in the basin come from the Trinity River hatchery and natural spawning areas in the Trinity River basin (Naman and Perkins 2016; Kier et al. 2018). Because the Trinity River would be unaffected by the Proposed Project, it would be impossible for any element of the Proposed Project to reach the level of significance for Coho as assumed in the DEIR. Given the small numbers of Coho present in the Upper Klamath subpopulation (see #5 below and Major Issue 2.1) the loss of 50 percent of a year-class of the upper Klamath River Coho population could be biologically devastating and yet not be considered a significant impact.*

4. The DEIR fails to provide a biologically-based justification for the selection of the 50 percent criterion for the population as a whole versus the individual subpopulations. The DEIR states that resiliency of the population was considered when evaluating potential impacts, yet the use of a single value for all aquatic species would lead the reader to mistakenly believe that all species were equally resilient. For example, the DEIR assumes that a 50 percent loss of a single-year class of federally-threatened Coho is the same as the loss of 50 percent of a year class of unlisted Chinook. Complicating this, Coho have a 3-year life cycle which exposes more of the population to adverse effects of the Proposed Project at one time when compared to Chinook with a variable 4- to 5-year life cycle. Ignoring the fact that the Coho population is extremely small when compared to the Chinook population, using the DEIR's logic, the 50 percent loss of a year class would seem to have a proportionately higher impact to Coho than Chinook.

5. The DEIR analysis of Proposed Project potential impacts to Coho must reflect the relative abundance of this federally-threatened species in the upper Klamath River. There are very few Coho in the upper Klamath River geographic area (Iron Gate Dam downstream to Portuguese Creek) with most populations at or below depensation thresholds (see Major Issue 2.1). Given the extremely small number of fish in these populations, loss of half of the population alone would be an impact that this population could not sustain, possibly leading to extirpation of Coho in the upper Klamath River. Use of a threshold like the one proposed in the DEIR would allow a reduction in fish, without it being characterized as a significant impact, to the extent that Coho would not be abundant enough to colonize areas upstream of Iron Gate Dam following implementation of the Proposed Project.

6. Recent case law supports the need to define this impact as significant even if it technically may not align with the State Water Board's significance criteria Specifically, "[A] threshold of significance cannot be applied in a way that would foreclose the consideration of other substantial evidence tending to show the environmental effect to which the threshold relates might be significant"

(Communities for a Better Environment v. California Resources Agency (supra, 103 Cal. App. 4th 98).

7. Given the challenges to basin agriculture and water supplies related of avoiding jeopardy under the Endangered Species Act with respect to operation of USBR's Klamath Project, a 50 percent loss of a year-class of Coho salmon could impact the listing status of Coho and result in additional impacts to agricultural water supply if further irrigations restrictions are required to support flow conditions necessary to avoid jeopardy to a reduced abundance of threatened Coho. Given the minimal benefits to Coho described by the Klamath Expert Panel (Dunne et al. 2011) with respect to the Proposed Project, recovery from this impact could be challenging if not impossible.

8. Similar to the issues discussed above for Coho, loss of 50 percent of a year class of Chinook could dramatically impact the adult return, subsequent generations, commercial and tribal fisheries, success of reintroduction, recreational fishing, etc.

9. Regardless of the threshold issues, the analysis in the DEIR fails to establish an accurate baseline population to clearly establish a value against which losses attributable to the Proposed Project are compared. Related to this, the DEIR needs to discuss how the shot-term effects which can happen within a 5-yeartime span line-up with the 50 percent threshold for a year-class.

Response to Comment ORG46-199

Regarding Item 1 of the comment, as noted in the comment, the EIR defines short-term impacts to aquatic resources using a different time period than short-term impacts to water quality. Rather than representing an inconsistency in the analyses, the difference in the assessment period for short-term and long-term impacts is appropriate under CEQA, which requires due consideration of short-term and long-term impacts, and these can vary by resource. As described in Section 3.2.3 *Water Quality – Significance Criteria*, the water quality assessment is based on exceedances of water quality standards that are tied to specific designated beneficial uses. For water quality parameters, exceedances that occur for days or weeks would be significant in relation to thresholds that are set to protect the most sensitive designated beneficial use, or for thresholds that are developed with broader consideration of multiple beneficial uses, even if the water quality exceedances would not result in significant impacts for a particular aquatic resource. Water quality parameters are expected to be different in dam removal year 1 and dam removal year 2 because of impacts due to elevated suspended sediments, and so it is appropriate to use this timeframe to separately consider short-term and long-term water quality impacts of the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

For aquatic resources, on the other hand, the impact on the species as a whole is of primary concern. Therefore, the life-history of several focal fish species considered for the Lower Klamath Project EIR aquatic resource impacts assessment necessitate the consideration of short-term impacts that extend for longer than two years. A period of five years following dam removal was selected as the short term for aquatic resources, because for most focal species present in the Klamath River this time period represents one to two - at least one complete – generation. Long term for aquatic resources is defined in the EIR as occurring more than five years following dam removal (unless otherwise indicated), which in most cases is more than two generations for the focal species Predicting the long-term effects after more than one generation is appropriate to assess the combined population effect from the sediment impact, other water quality changes (after these parameters adjust to their long-term condition), and habitat availability changes, and therefore long-term is more appropriate at least five years following dam removal. For water quality parameters, however, the long-term effects of the Proposed Project would be evident after only three years, and thus the selected duration is appropriate. The different duration of impacts analysis among water quality and biological parameters is explicitly referenced in the aquatics impacts analysis. Please note that a short-term impact can be found to be significant based on an occurrence lasting for a time period shorter than the short-term timeframe itself. (See e.g. Potential Impact 3.3-1 *Effects on coho salmon critical habitat quality and quantity due to short-term sediment releases and long-term changes in habitat quality and quantity due to dam removal*.

Regarding Item 3 of the comment, CEQA Guidelines section 15126.2 requires due consideration of short-term and long-term impacts, which are defined for aquatic resources in Section 3.3.3 *Aquatic Resources – Significance Criteria*. As noted, the rationale for selecting a period of time (five years) that, for most of the selected focal species, is a long enough period to capture one to two generation – and at least one full generation. Generations are relevant because the results of environmental changes which could occur during or immediately following dam removal – and then cease – may not be evident for some species until later in their life history, which could be several years later. For example, short-term suspended sediment impacts on spawning fall-run Chinook salmon within days of dam removal in dam removal year 1 could result in an observed reduction in adult returns four years later (dam removal year 5). The impact resulting in reduced adult returns four years after dam removal would therefore be a short-term impact. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Regarding Item 3, 4, 5, and 6 of the comment, please refer to Master Response AQF-9 for a discussion of the appropriateness of establishing a 50 percent reduction in abundance of a year-class of coho salmon as a significant impact. As described in Master Response AQF-9 and response to ORG46-04, the significance criteria used in the EIR are protective of coho salmon. The EIR's analysis includes consideration of the various population size and life-histories of the various focal species in the Klamath River. Please note clarifications to the significance criteria in Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria.*

The commenter suggests assessing impacts on coho salmon based on the nine “historical” populations within the Klamath River Basin described by Williams et al. (2006), and, in particular, on the historic Upper Klamath River Population that spawns upstream of Portuguese Creek. Please refer to response to comment ORG46-04 for a discussion of the use of the nine historical population units. As described, the EIR appropriately discusses the relevant population dynamics in making a determination of significance.

Regarding Item 4 and 7 of the comment, please refer to Master Response AQF-9 for a discussion of how the EIR addresses significance at levels of impact below 50 percent loss of a year-class of coho salmon.

Analysis of coho salmon and other focal species in the EIR considers any impact that substantially reduces the abundance of a year class to be a significant impact. This analysis includes consideration of the various population size and life-histories of the various focal species in the Klamath River to the extent possible based on available data. There is not a requirement under CEQA guidelines to establish a quantitative threshold for “substantial.” However, in the EIR a numeric threshold of 50 percent was adopted as the upper limit of what might be considered an acceptable impact for aquatic species.

The EIR does not find a 50% loss of a year class of coho salmon. Potential Impact 3.3-9 concludes that the anticipated short-term negative effects of implementing the Proposed Project do not rise to the level of significance, that coho salmon would recover from such effects, and that the species would benefit in the long-term from increased habitat access and suitability. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Regarding Item 8 of the comment, the issues discussed for coho salmon regarding signficance criteria in Master Response AQF-9 for coho salmon apply for Chinook salmon as well. Analysis of Chinook salmon in the EIR considers any impact that substantially reduces the abundance of a year class to be a significant impact. There is not a requirement under CEQA guidelines to establish a quantitative threshold for “substantial.” However, in the EIR a numeric threshold of 50 percent was adopted as the upper limit of what might be considered an acceptable impact for Chinook salmon. Potential Impact 3.3-7 considers all available data and predicted impacts to adult returns, subsequent generations, and success of reintroduction to historical habitat upstream of Iron Gate Dam in finding no significant impact for fall-run Chinook salmon in the short term, and a beneficial effect in the long term. Potential Impact 3.12-9 considers the predicted impacts to fall-run Chinook salmon adult returns on tribal harvest, and concludes no significant impact in the short term, and a beneficial in the long term. Potential Impact 3.20-6 considers the predicted impacts to fall-run Chinook salmon adult returns on the recreational fishery and finds no significant impact for the Middle Klamath River between Iron Gate Dam (river mile [RM] 193.1) and Humbug Creek (RM 174.3) and a beneficial effect for the Hydroelectric Reach, the Middle Klamath River downstream of Humbug Creek (RM 174.3), and the Lower Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*, Section 3.12 *Historical Resources and Tribal Cultural Resources*, and Section 3.20 *Recreation*.

Volume I Section 5.4.1.1 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Commercial Fishing* (pages 5-5 to 5-7) considers available data on predicted adult salmon returns and finds that economic studies concluded that commercial troll fishery harvests of Southern Oregon/Northern California Coast (SONCC) coho and Klamath River fall- and spring-run Chinook salmon would increase over existing conditions due to an increased abundance of salmon resulting from dam removal.

Regarding Item 9 of the comment, as described in Section 3.3.3 *Aquatic Resources – Significance Criteria*, a substantial reduction in any single year class during the short-term (five years) would be considered significant. The baseline populations of all focal species evaluated in the EIR are described in Section 3.3.2.1 *Aquatic Species*, based on best available information. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-9. Regarding short-term effects, please see above response to this comment, particularly items 1 and 2.

Comment ORG46-200

The DEIR classifies effects as significant if habitat (quality/quantity) of a native species is reduced by more than 50 percent. If this logic is consistently applied to the Proposed Project and the alternatives, then because reservoirs provide more juvenile salmonid rearing habitat per mile than a free-flowing river and water quality in the reservoirs is suitable for rearing through the spring months, the DEIR should conclude that the removal of dams results in a significant reduction in seasonal rearing habitat for Coho and Chinook (especially for the Existing Conditions with Fish Passage alternative).

Response to Comment ORG46-200

Anadromous salmonids do not currently have access to habitat usptream of Iron Gate Dam, since no fish passage is provided. Therefore, critical habitat is not designated for the Klamath River upstream of Iron Gate Dam and removal of the reservoirs would not reduce habitat for native anadromous salmonids.

Comment ORG46-201

The DEIR defines a long-term effect as the period starting 5 years after removal of all dams. Because no end date is set for the definition of long term, it is unclear when benefits would be realized or impacts cease. Because duration is *an import ant factor considered in determining effects, the DEIR should provide more information on what was assumed and used for establishing the end point for long-term effects. In doing this, the DEIR needs to acknowledge that the endpoint of construction or restoration may not be the actual end of the effects. For example, PacifiCorp and Portland General Electric continue to work on issues associated with Condit Dam and Marmot Dam removal 5 and 12 years respectively after the actual removal.*

Response to Comment ORG46-201

CEQA Guidelines section 15126.2 requires due consideration of short-term and long-term impacts, which can vary by resource. The life-history of several focal species considered in the aquatic resource impacts assessment necessitate consideration of short-term impacts longer than two years. Long term for aquatic resources is defined as more than five years following dam removal (unless otherwise indicated), which in most cases is more than two generations. The extent of long-term impacts is relative to the source of potential impact and is evaluated separately, as appropriate. For example, the cessation of hatchery operations after eight years under the Proposed Project could result in effects to the abundance of adults up to 10 years after dam removal, while impacts resulting from elevated suspended sediment concentrations (SSCs) during reservoir drawdown would be much more limited in duration. The EIR appropriately evaluates impacts separately based on the predicted duration of the impact and does not apply an arbitrary end-date.

Comment ORG46-202

The DEIR references "...taking into account when the species and what percent of the population is likely to be present in the Klamath River mainstem..." Yet the DEIR fails to provide any information about how the percentage of the population present at any given point in time is known or predicted.

Response to Comment ORG46-202

Section 3.3.4.1 *Aquatic Resources – Impact Analaysis Approach – Suspended Sediment* indicates that details of the suspended sediment impact analysis, including details characterizing the percentage of the focal species population present at any given point in time, are presented in Appendix E. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Comment ORG46-203

The DEIR should explain how it was determined that the use of historic hydrology in evaluating the fate of bedload was appropriate. There was a substantial shift in high-flow events in about 2000 (first graph A below from Shea et al. 2016) when USBR's operations changed as a result of the biological opinion under which they were operating which included a shift in the flood control curve in Upper Klamath Lake (second graph B below).

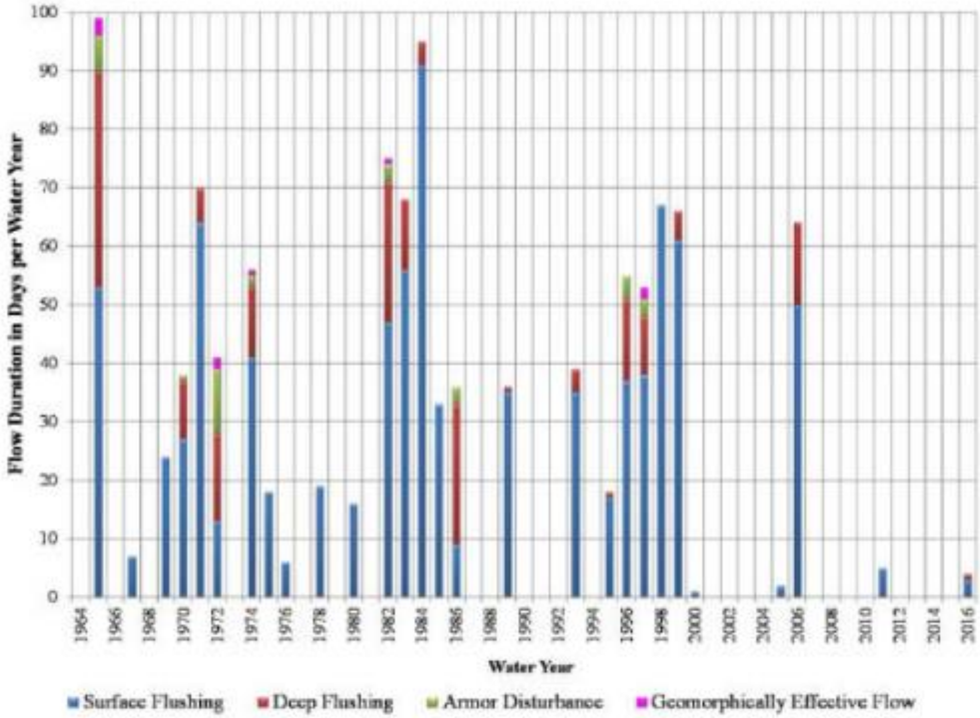
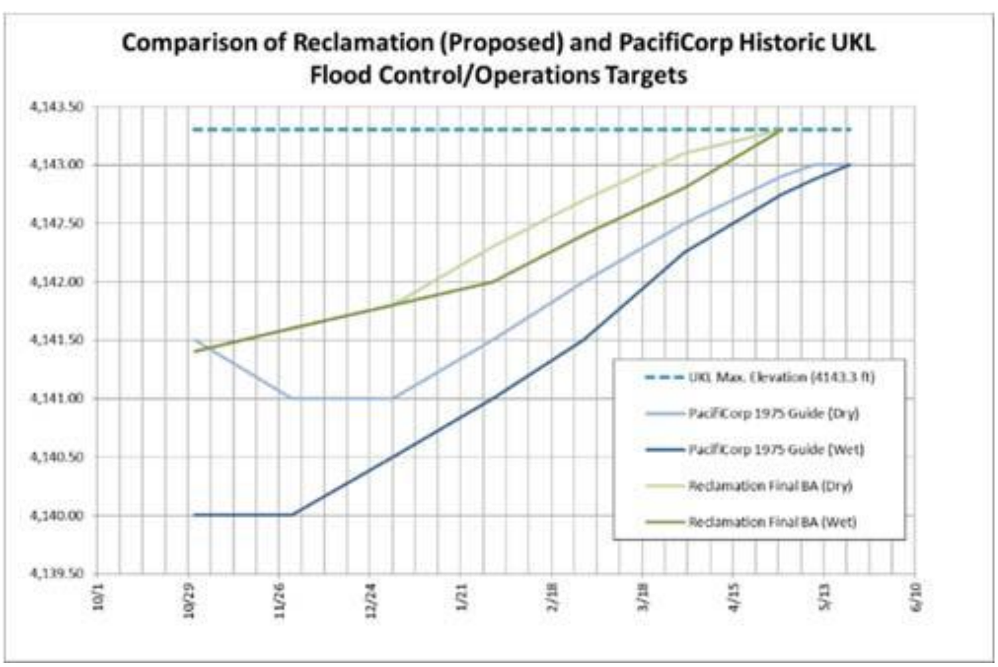


Figure 5: Duration of sediment mobilization flows in days per Water Year in the Klamath River below Iron Gate Dam Water for Water Years 1964-2016.

Graph A: Figure 5 from Shea et al. (2016)



Graph B: Comparison of Reclamation and PacifiCorp Upper Klamath Lake Flood Control Lake Elevations

Response to Comment ORG46-203

Detailed information regarding flow conditions for the 1961–2009 period, which was used as the basis for United States Bureau of Reclamation's (USBR's) coarse sediment (bedload) modeling effort (USBR 2012a) and the EIR impact analyses, is presented in Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* (pages 3-590 to 3-621). USBR ran the SRH-1D sediment model using nearly five decades of hydrologic record that inherently accounts for flow variability within and between years; numerous instances of dry, medium, and wet water year types; and varying sequences of water year types (e.g., more than one wet year in a row, more than one dry year in a row, dry years followed by wet years, wet years followed by dry years, etc.). In general, allowance for a wide range of flow conditions that could reasonably occur in the future is appropriate for a model that is designed to predict the long-term evolution of the riverbed in response to a change such as dam removal. Furthermore, representing a broad range of flows that could reasonably occur in the future as part of model input inherently reduces uncertainty in the model output because it avoids constraining the model output to a narrow and potentially biased representation of future conditions.

USBR's sediment modeling assumed that future flow releases associated with the Klamath Irrigation Project would occur in accordance with either the Klamath Basin Restoration Agreement (KBRA) (dam removal scenario) or the 2010 BiOp Flows (dams in place scenario), and superimposed these minimum flow release criteria upon the forty-nine year historical hydrologic record for each scenario. As discussed in Volume III Attachment 1 Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project*, flow conditions under the KBRA Flows (USBR 2012a) are sufficiently similar to the 2013 BiOp Flows, where the latter served as the operational flow requirements for the Klamath River at the time of the Notice of Preparation for the Lower Klamath Project EIR (i.e., December 22, 2016), and the 2019 BiOp Flows, which are the current operational flow requirement for the Klamath River. In particular, the range of 2019 BiOp Flows is within the range of modeled KBRA Flows approximately 99.9 percent of the time at Iron Gate Dam, indicating that the previously modeled USBR results are sufficiently representative of the range of flow conditions under 2019 BiOp Flows. Accordingly, USBR's sediment transport model would be likely to produce nearly identical results if it were run using either the 2013 BiOp Flows or the 2019 BiOp Flows as the basis for Klamath River flows.

Furthermore, USBR's riverbed evolution modeling incorporated the flow conditions described above across three fifty-year simulations, incorporating both natural sediment resupply and sediment supply from dam removal, with drawdown modeled for dry, median, and wet water year types (USBR 2012a), to represent a broad range of potential future conditions. Given that future hydrological conditions are difficult to forecast, including this broad range of potential hydrological conditions in the analysis means that the sediment erosion, transport, and deposition predictions in the EIR are more likely to reflect the actual future sediment conditions when the dams are removed than if a single water year or narrow window of hydrological conditions were modeled and analyzed.

The 2000–2009 period is included in the EIR's expansive data set, and this data does indicate a downward trend in the magnitude, frequency, and duration of high flow events post-2000. However, this does not change the aforementioned statements that application of a broad historical record as the basis for future hydrology, combined with operational flow requirements for the Klamath Irrigation Project that include consideration of both the 2013 BiOp and the 2019 BiOp, appropriately accounts for likely flows under a future dam removal scenario and reduces uncertainty in the model output for sediment transport in the Klamath River. Please note that Volume I Potential Impact 3.11-5 (pages 3-765 to 3-775) considers both the minimum and maximum mass of potential sand erosion, depending on water year type, and it includes erosion estimates for the dry water year that occurred in 2001 (see Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Table 3.11-7 and Figure 3.11-11 [page 3-768]).

Comment ORG46-204

The 59°F water temperature criterion according to Bartholomew and Foott (2010 as cited in the DEIR) applies when infectious dose of C. shasta is small. Bartholomew and Foott (2010) state (on pg. 38) that when infectious dose is high, temperature is not a strong predictor of survival. The data in Table 6.1 in Bartholomew and Foott (2010) show substantial effects on salmonids at temperatures ranging from about 55°F to almost 70°F (13 degrees Celsius (°C) to 21°C). The DEIR does not accurately reflect the information available in the cited source. The DEIR needs to evaluate potential impacts that could occur over this wider range of temperatures and discuss the relative effects of C. shasta on salmonid populations at high dose levels.

Response to Comment ORG46-204

As discussed in Section 3.3.4.5 *Aquatic Resources – Impact Analysis Approach – Fish Disease and Parasites*, the use of 59ºF was one of several factors used to evaluate potential infection risk. Suitable (warm water) temperatures were selected as a factor based on the summaries of disease risk found in Bartholomew and Foott (2010). Thus, warm water temperatures are an appropriate consideration for the EIR analysis, and, more specifically, they are useful for considering disease infection risk in conjunction with the other factors considered, including physical habitat components that support the invertebrate host species (pools, eddies, sediment, mats of filamentous green algae [periphyton]), microhabitats with low velocity and stable flows, and proximity to salmon spawning areas.

Further, Section 3.3.5.5 *Aquatic Resources – Impact Analysis Approach – Fish Disease and Parasites* includes a complete discussion of the potential effects of the Proposed Project on water temperature dynamics and the other factors that affect disease infection risk (including spore density). Please refer to Volume III Attachment 1 for the final Section 3.3.4.5 *Aquatic Resources – Impact Analysis Approach – Fish Disease and Parasites.*

Comment ORG46-205

To evaluate the impact of the Proposed Project on Aquatic Habitat, the DEIR uses a qualitative evaluation but applies that evaluation to the 50 percent change criterion, a quantitative threshold, to determine significance. It is unclear how this qualitative comparison to a quantitative threshold is done in any way that results in a support able conclusion in the DEIR.

Response to Comment ORG46-205

Section 3.3.3 *Aquatic Resources – Significance Criteria* has been revised to clarify that any reduction in habitat area of 50 percent or greater would necessarily be a substantial reduction, otherwise the reduction in habitat area would be evaluated based upon a qualitative analysis. This clarification does not constitute a change in the approach to the analysis requiring further revision to the EIR. Please refer to Volume III Attachment 1 Section 3.3.3 *Aquatic Resources – Significance Criteria* for the revisions. Please also refer to Master Response AQF-9 for additional response to significance criteria comments.

Comment ORG46-206

Since they are not a sensitive resource or species, it is unclear why benthic macroinvertebrates are included in the analysis.

Response to Comment ORG46-206

Section 3.3.4.10 *Aquatic Resources – Impact Analysis Approach – Benthic Macroinvertebrates* has been revised to clarify why benthic macroinvertebrates are included in the Impact Analysis Approach section of the aquatic resources analysis. Please refer to Volume III Attachment 1 Section 3.3.4.10 *Aquatic Resources – Impact Analysis Approach – Benthic Macroinvertebrates* for the revisions.

Comment ORG46-207

The DEIR states that "Tributaries between the hydroelectric Reach and the estuary contribute a significant amount of both water and suspended sediments to the Klamath River mainstem." This statement should be supported with a citation and statistically supported in terms of the significance claim.

Response to Comment ORG46-207

Section 3.3.5.1 *Aquatic Resources – Potential Impacts and Mitigation – Suspended Sediment – Middle and Lower Klamath River* has been revised to provide a citation to USBR (2012) (note that this reference is cited as "USBR

2012a" in Volume III Section 3) that statistically supports that tributaries between the Hydroelectric Reach and the Klamath River Estuary contribute a significant amount of both water and suspended sediments to the Klamath River mainstem. Please refer to Volume III Attachment 1 Section 3.3.5.1 *Aquatic Resources – Potential Impacts and Mitigation – Suspended Sediment – Middle and Lower Klamath River* for the revisions.

Comment ORG46-208

This analysis does nothing to evaluate the effect of bedload movement on fish. Simply saying that natural processes would be restored, while true, does not explain the possible impacts to fish. Impacts to salmonids could occur though changes in channel morphology, conversion of habitat from pool to run or riffle habitat (or the other way around), burying or scour of redds, and so on. None of those appear to be discussed.

Response to Comment ORG46-208

The potential effects of increased bedload supply and transport on channel bed elevations and grain size under the Proposed Project are described in detail in *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and Volume II Appendix F, including an explanation of the potential effects to fish. The potential impacts of sediment deposition are considered for aquatic resources within the entire area of analysis specified in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. Impacts of sediment deposition were not found to result in short- or long-term significant impacts when considered on a reach-specific basis in Potential Impacts 3.3-1, 3.3-3, 3.3-4, 3.3-7, 3.3-8, 3.3-9, 3.3-10, 3.3-11, 3.3-12, 3.3-14, 3.3-15, and 3.3-20. Significant and unavoidable impacts for *Anodonta spp*. in the short and long term are predicted to occur from sediment deposition and are addressed in Potential Impact 3.3-19. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Impacts of sediment deposition were also considered for terrestrial resources in Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* in Potential Impacts 3.5-3, 3.5-4 (with no significant impacts identified), and in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* in Potential Impacts 3.5-17 and 3.5-18 with no significant impacts identified.

Comment ORG46-209

Residence time in Copco and Iron Gate reservoirs is specifically known to be about 19 days in Copco and 26 days in Iron Gate under typical summer flow conditions. Perhaps these values were added together to get the several weeks' as indicated, but not supported, in the DEIR.

Response to Comment ORG46-209
Section 3.3.5.4 Aquatic Resources – Potential Impacts and Mitigation – *Water Temperature – Upper Klamath River – Hydroelectric Reach* has been slightly modified as requested. Please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Upper Klamath River – Hydroelectric Reach* for the revisions.

Comment ORG46-210
The DEIR states that spring water temperatures are cooler with dam removal. However, in other sections of the DEIR states that spring water temperatures are warmer. The DEIR should correct this or indicate if cooling is specific to the reach (see comment 3.3-70 regarding water temperatures in the reach). Generally, previous water quality modeling results from PacifiCorp (2004, 2014) indicate that river temperatures downstream of Iron Gate Dam would increase in the spring in the absence of Project facilities (i.e., with dam removal).

Response to Comment ORG46-210
Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Upper Klamath River – Hydroelectric Reach* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Upper Klamath River – Hydroelectric Reach* for the revisions.

Comment ORG46-211
Two elements of this paragraph need to be addressed:

1. The discussion about how more water would be available is confusing and should be rewritten. An increase of 6,200 acre-feet/year sounds impressive, but even if this all occurs during the May-Sept period, that is only about an increase of 20 cfs per day. The DEIR asserts that because of evaporation losses from Copco and Iron Gate reservoirs would be removed, this extra 6,200 acre-feet water may be available to USBR for diversion. The loss of hydroelectric reservoir storage and the ability to manage flows from Iron Gate Dam through fairly precise releases from the hydropower complex will also mean that flow deliveries that are currently required of USBR, and that are likely to continue following proposed dam removal (such as flow releases for Tribal Cultural Ceremonies), will need to occur from Keno Dam, approximately 40 miles upstream of Iron Gate Dam. To achieve peak flows at locations downstream of Iron Gate Dam will require correspondingly larger peak flows and higher release volumes. The DEIR does not assess this impact, or the impact of the Proposed Project on USBR's operations (including Upper Klamath Lake elevations, water supply, or releases to the Klamath River). All of these could result in flow demands greater than the 6,200 acre-feet reduction in evaporative losses.

2. The statement about tributaries providing refuge habitat or warmer winter habitat should be supported by some actual water temperature data. The *assertion that Hamilton et al. (2011) indicates that these areas would be conducive to growth of salmonids is not correct. Hamilton et al. (2011) discusses the input of cooler water from the tributaries and speculates that these would create areas of thermal refuge and that this thermal diversity would "benefit a variety of aquatic biota..." (Hamilton et al. 2011 at p 32) but does not specifically discuss salmonids or growth rates.*

Response to Comment ORG46-211

With respect to item no. 1, please refer to Volume I Section 3.8.4 *Water Supply/Water Rights – Impacts Analysis Approach* (pages 3-674 to 3-676) for a detailed discussion on how the 6,200 acre-feet/year increase under the Proposed Project would affect United States Bureau of Reclamation's (USBR's) operations. Please also refer to Volume I Section 3.8.4 *Water Supply/Water Rights – Impacts Analysis Approach* Potential Impact 3.8-1 (pages 3-676 to 3-678) for a discussion of the potential impacts of the Proposed Project on surface water flows available for diversion within the Hydroelectric Reach and downstream from Iron Gate Dam. Please also refer to Volume I Section 3.8.4 *Water Supply/Water Rights – Impacts Analysis Approach* Potential Impact 3.8-2 (pages 3-679 to 3-680) for a discussion of the potential impacts of the Proposed Project on USBR's current operations. Please also refer to response to comment ORG46-12. Lastly, please refer to Master Response HYD-1 for a discussion of the 2019 BiOp Flows for USBR's Klamath Irrigation Project.

With respect to item no. 2 in the comment, Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* was written using the best available and most current information. Fall, Shovel, and Spencer Creeks and Big Springs have all been identified as providing thermal refugia and suitable spawning and rearing habitat for resident salmonids by both Hamilton et. al (2011) and Dunsmoor and Huntington (2006). Though data specifically predicting post-project fish growth rates in the tributaries are not available, the provision of additional suitable macroinvertebrate (i.e., food) and salmonid rearing habitat (where such habitat currently does not exist), would be conducive to the growth of individual salmonids.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*, including minor modifications to address attribution of the relationship between winter water temperatures and salmonids growth rates.

Comment ORG46-212

The DEIR puts forth a hypothesis regarding the effect that changes in river temperature from the Proposed Project would have on mainstem origin fall-run Chinook fry emergence timing and implications for juvenile growth, migration timing, and stress and disease. The DEIR does not present an accurate conclusion regarding the effects of water temperatures on fall-run Chinook egg development, emergence, or growth. A detailed comment on this hypothesis is provided in Major Issue 2.9.4, along with additional information. Given that the

DEIR presents some incorrect conclusions, the analysis in the DEIR is incorrect and needs to be reevaluated. In summary, a more "natural" temperature regime in which spring time flows would have higher temperatures, may not be as beneficial to salmonids as the existing temperature regime (PacifiCorp 2014).

Response to Comment ORG46-212
Please refer to Volume III Attachment 1 Potential Impact 3.2-1 for a discussion of the potential impacts of the Proposed Project on water temperature in the Klamath River. The EIR does not simply assume that a more natural temperature regime would be better for salmonids than existing conditions, but provides a thorough, evidence-based analysis of water temperature dynamics and effects on aquatic resources under existing conditions. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature*. Please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* for an analysis of the potential influence of warmer water on salmonids, including the potential for adverse impacts to aquatic resources due to increased water temperatures during spring under the Proposed Project. Please also refer to response to comment ORG46-19 for additional discussion of the EIR's analysis of temperature-related impacts to salmonids.

Please refer to Master Responses WQ-2 for a discussion of the Proposed Projects potential to cool Klamath River water during the summer and fall. Please also refer to Master Responses AQF-5 and AQF-6 for a discussion on disease risk (including risks related to temperature conditions) upstream and downstream of Iron Gate Dam.

Comment ORG46-213
The DEIR provides little support for, or connection between the water temperature regimes discussed in this paragraph and the effects on fish. Water temperatures in the absence of the Klamath Hydroelectric Project will still exceed the Basin Plan thermal targets for salmonids (see comment 3.3-61).

Similarly, the paragraph asserts that nutrient cycling and aeration process of a natural channel would be created by the Proposed Project but does not support this point. The paragraph goes on to assert that these changes moderate effects of climate-change-generated stream water temperature increases but does not explain the degree of moderation or what this means for aquatic resources. These conclusions are mostly speculation.

Response to Comment ORG46-213
With respect to the comment's assertion that Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* provides little support for, or connection between, the water temperature regimes under the Proposed Project and the effects on fish, please refer to Volume III Attachment 1 Section

3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* for a thorough analysis of water temperature dynamics and effects on aquatic resources under existing conditions. Please also refer to responses to ORG46-17, ORG46-19, ORG46-127, ORG46-128, ORG46-129, ORG46-180 and ORG46-218. The EIR asserts that conditions under the Proposed Project would better align with the California Thermal Plan's prohibitions and move waters within the hydroelectric reach towards Total Maximum Daily Load (TMDL) compliance (see discussion under Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1), but does not rely on a conclusion that implementation of the Proposed Project will result in temperatures that meet the Basin Plan's thermal targets for salmonids. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

With respect to the comment's assertion that Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* does not support the statement that the Proposed Project would create nutrient cycling and aeration processes of a natural channel, and that EIR does not explain the degree of water temperature moderation or potential effects for aquatic resources, please refer to Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 and Section 3.2.5.4 *Water Quality – Impact Analysis Approach – Dissolved Oxygen* and Potential Impact 3.2-10, which provide a detailed analysis of nutrient cycles and aeration under the Proposed Project. Please also refer to Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 for a discussion of the potential impacts of the Proposed Project on water temperature in the Klamath River. This section details water temperature decreases during summer and fall to more natural levels under the Proposed Project, producing a moderating effect for aquatic resources under climate change scenarios of increased summer and fall water temperatures. Use of phrase 'likely moderate' in Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* is generally consistent with use of the phrase 'help to offset' in Potential Impact 3.2-1. However, Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* has been clarified by replacing 'likely moderate' with 'help to offset' and by including specific reference to late summer/fall stream water temperature increases resulting from climate change. Please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* for the revisions.

Comment ORG46-214

The DEIR concludes that fall-run Chinook spawning in the mainstem will no longer be delayed with the Proposed Project, which would reduce prespawn mortality. The information in the DEIR does not support this nor is there any indication that prespawn mortality is an issue in most years. The DEIR states that water temperature downstream of the Salmon River (RM 66) would not be *altered with the Proposed Project. Because adult fall-run Chinook run timing is heavily influenced by water temperature (Strange 2010, 2012), the Proposed Project will have no effect on their migration timing.*

Prespawn mortality data for fall-run Chinook in the main stem Klamath River show similar rates as those for the Trinity River. The Pacific Fisheries Management Council (2018) reported that prespawn mortality for mainstem Klamath River spawning fall-run Chinook averaged 8.3 percent from 2001-2016, while in the Trinity River prespawn mortality averaged 6.9 percent (Rupert et al. 2017). These percentages suggest that there would be little room for improvement in prespawn survival rates as a result of the Proposed Project. This is especially the case if Klamath River fall-run Chinook are more tolerant of warmer water as claimed in the DEIR. The fact that Bogus Creek, immediately downstream of Iron Gate Dam, is one of the most productive salmon streams in the Klamath Basin, and has a high prespawn survival rate, illustrates that temperature effects from Iron Gate Dam are not detrimental to fall-run Chinook.

Adult fall-run Chinook salmon migrate upstream within the Klamath River from August through October. During this period, Klamath Hydroelectric Project-related effects on water temperatures diminish as a function of distance downstream from Iron Gate Dam, with effects essentially absent for the lower reaches of the river downstream of the Scott River (RM 144). Thus, under current conditions, Project operations have no thermally-related effect on adult fall-run Chinook salmon migrating in the lower reaches of the Klamath River (PacifiCorp 2014).

Response to Comment ORG46-214

Please see response to comment ORG46-19, which summarizes the revisions that have been made to Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* to clarify the analysis. This includes minor modifications to the text to clarify that a reduced risk of delay in spawning timing would *potentially* result in reduced pre-spawn mortality. The comment's claim that high pre-spawn survival in Bogus Creek illustrates that there is no water temperature effect of Iron Gate Dam on the mainstem river is an over-simplification of the dynamic between water temperatures in the mainstem Klamath River, migration timing, spawning timing, and emergence timing, which are discussed and analyzed in detail in the EIR. In addition, the EIR analysis is clear that the water temperature effect is most pronounced downstream from Iron Gate Dam, declines with distance downstream, and by the confluence with the Salmon River (river mile [RM] 66) results in no difference between water temperatures under the Proposed Project and existing conditions. Please also refer to responses to comments ORG46-84 and ORG46-91 through ORG46-93. The EIR analysis is focused on fall-run Chinook salmon migration and spawning within the mainstem reach affected by documented alterations to water temperature resulting from Iron Gate Dam. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-215

The DEIR needs to explain the applicability of Perry et al, (2011 as cited in the DEIR) in terms of how applicable this modeling is to the Proposed Project. The Perry et al. (2011) work appears to have included the Klamath Basin Restoration Agreement as part of the modeled management alternative that included dam removal. The Klamath Basin Restoration Agreement expired at the end of 2015 and therefore, rest oration and water quality management measures contained in the Klamath Basin Restoration Agreement are no longer applicable to the Proposed Project. Because of this, it is not clear how applicable the Perry et al, (2011) results might be to the Proposed Project and the DEIR does not explain this.

Related to this, the Perry et al. (2011 as cited in the DEIR) report does not present any discussion of emergence timing as presented in DEIR Figure 3.3-4.

Response to Comment ORG46-215

Water temperature modeling conducted by Perry et al. (2011) uses the 2010 National Marine Fisheries Service (NMFS) Biological Opinion Flows (2010 BiOp Flows) to represent the Klamath River flows under existing conditions (i.e., “dams in”) and the Klamath Basin Restoration Agreement (KBRA) flows (KBRA Flows) to represent the Klamath River flows under dam removal conditions (i.e., “dams out”). Separate and independent of the Proposed Project, flow requirements in the Klamath River have changed since the water temperature modeling was performed by Perry et al. (2011), including issuance of new operational flow requirements for USBR’s Klamath Irrigation Project in 2013 (i.e., 2013 BiOp Flows) and 2019 (i.e., 2019 BiOp Flows). In contrast to the conditions modeled by Perry et al. (2011), the Proposed Project does not include any changes to the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s), so the flow conditions under the Proposed Project would be similar under both a “dams in” and “dams out” scenario.

Variations in Klamath River flows between the 2010 BiOp Flows and the KBRA flows used in the modeling by Perry et al. (2011), would likely result in variations in the magnitude of water temperature changes between existing conditions and Proposed Project conditions, but these flow and associated water temperature variations would not alter the general water temperature trend estimated by Perry et al. (2011). Iron Gate Reservoir releases under existing conditions are consistently shown in modeling by Perry et al. (2011), PacifiCorp (2004a-1, 2005a, 2008a, 2014a), and the North Coast Regional Board (2010) to result in warmer Klamath River water temperatures during fall and cooler water temperatures during spring downstream of Iron Gate Dam (river mile [RM] 193.1) than would occur under dam removal conditions, regardless of the water year type and flow releases from Iron Gate Dam. However, the specific magnitude of water temperature changes due to changes in flow conditions from 2010 BiOp and KBRA flows and 2013 BiOp Flows or 2019 BiOp flows cannot be quantified in the EIR analyses because to date there is no publicly available water temperature modeling results that use the 2013 BiOp flows or 2019 BiOp flows as the underlying hydrologic regime for existing conditions and dam removal scenarios. However, Klamath River water temperatures downstream of Iron Gate Dam (RM 193.1) are dominated by the water temperature of the releases from the reservoirs upstream and the heat exchange processes controlling water temperature in the reservoir (e.g., surface area of the reservoir, the amount of solar radiation warming the reservoir surface) would be unlikely to vary significantly with changes in Klamath River flows. Thus, conditions under the Proposed Project are expected to be similar to those modeled by Perry (2011).

With respect to the comment regarding Figure 3.3-4, please refer to response to comment ORG46-19, which summarizes the minor modifications made to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* to clarify the analysis.

Comment ORG46-216

There is much more up to date information available on water temperatures both with and without the Klamath Hydroelectric Project than that presented in this figure. Nor does the DEIR indicate why this one figure out of the five available in the source was selected. PacifiCorp's installation of the Iron Gate Intake Barrier Curtain in 2015 has reduced the temperature of flow releases from Iron Gate Dam while also reducing algae entrainment in those releases as a result of drawing from deeper in the reservoir water column. The figure shown in the DEIR does not include these improvements and does not reflect current operations of the Klamath Hydroelectric Project.

Response to Comment ORG46-216

With respect to the comment's assertion that Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* Figure 3.3-5 does not use current data, please refer to Master Response WQ-4 for a detailed description of how water temperature data from 2001-2012 are comparable to 2013−2015. Note that Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* Figure 3.3-5 uses the 2002 data to illustrate diel temperature fluctuations.

With respect to the comment's assertion that Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* Figure 3.3-5 does not include data after installation of the Iron Gate Intake Barrier Curtain (2015), and therefore does not reflect current operations, note that the State Water Board is not aware of any available model simulations for existing conditions post-2015. Please also refer to response to comment ORG46-91 for additional discussion of the Iron Gate Intake Barrier Curtain on water temperature. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-217

This paragraph asserts that larger diel fluctuations in water temperature would benefit salmonids rearing in thermal refuges. While PacifiCorp doesn't disagree with the cited sources or benefits of cooler temperatures, the DEIR has not supported the assertion that the Proposed Project would result in cooler temperatures or larger diel swings beyond the one year's worth of modeled data presented in DEIR Figure 3.3-5. There is no comparison of the modeled data to existing conditions, discussion of conditions under different flow regimes, or presentation of any metrics that would help the reader gauge the magnitude of change that could result from the Proposed Project or whether those changes would increase the amount of time that different salmonid life stages are exposed to temperatures that are viewed as suitable based on established criteria.

The reference in this paragraph of the DEIR to Figure 3.3-3 is incorrect.

Response to Comment ORG46-217

With respect to the comment's assertion that the EIR Figure 3.3-5 discussion does not compare modeled results to existing conditions or to multiple flow regimes, please refer to response to comments ORG46-19 and ORG46-219. Additionally, while Klamath River water temperatures vary between years due to meteorological (i.e., weather) variations that influence surface waters, data from 2016 and 2017 (after the installation of the intake barrier/thermal curtain in Iron Gate Reservoir) (Figure ORG46-217-1) are generally similar to data from 2002, which are presented in Volume III Attachment I Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* Figure 3.3-5.

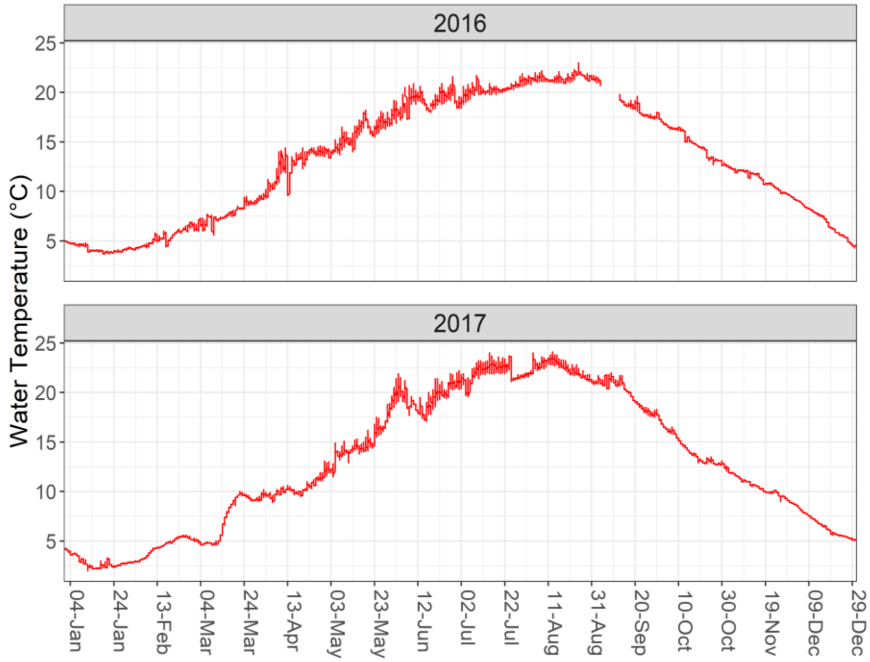


Figure ORG46-217-1. Observed water temperature below Iron Gate Dam in 2016 and 2017, as reported by PacifiCorp in 2019 (https://www.pacificorp.com/energy/hydro/klamath-river/water-quality.html)

With respect to the comment's assertion regarding Figure 3.3-5 and metrics to help the reader gauge the magnitude of change under the Proposed Project, please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.2-1 for a discussion of the potential impacts of the Proposed Project on water temperature in the Klamath River. Please also refer to response to comment ORG46-180. Please refer to the Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* for chronic effects thresholds. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the mislabeled reference to Figure 3.3-3, Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* has been revised to correct the mistake. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Comment ORG46-218

General comment on water temperature analysis as it relates to fish:

1. The discussion is incomplete. Although the DEIR cites Hamilton et al. (2011), Bartholow et al. (2005), and others, it does not appear that these source materials were adequately reviewed. For example, Hamilton et al. (2011) does indicate that removal of Iron Gate Dam would eliminate the thermal lag and improve timing of water temperatures in relation to historical migration periods.

However, Hamilton et al. (2011, pg. 73-74) goes on to cite Bartholow et al. (2005) and state that "...maximum recommended temperatures for juvenile rearing fall Chinook salmon between February 1 and July 1, 1962-2001 were exceeded 49 days with dams and 60 days without dams..." This indicates that water temperatures without the dams could be warmer more frequently than with the dams in place, a possible outcome that is not presented in the DEIR.

2. The DEIR analysis does not present a clear connection between water temperatures and fish health.

3. Use of one year (WY 2002 in Figure 3.3-5) presents an overly simplified view of the system and its variability, and is not representative of average conditions given that 2002 was a drought year. By choosing a drought year, the DEIR analysis makes it appear that effects of the Klamath Hydroelectric Project are worse than if a balanced set of representative years were chosen and a more complete and balanced discussion presented. PacifiCorp does not disagree with using example years in the analysis, but years used need to be chosen for specific reasons based on specific water-year criteria that illustrate the range of potential environmental conditions faced by the resource being considered. Please consider using a range of water year types (wet, average, dry) in the analysis.

Response to Comment ORG46-218

With respect to the comment regarding the EIR citation of Hamilton et al. (2011), please refer to Volume III Attachment 1 Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* for a discussion of increased water temperatures during spring under the Proposed Project. An increase in spring water temperatures would increase the number of days that juvenile fall Chinook salmon would be exposed to temperatures above their thermal tolerances. However, a difference of 11 days between "with dams" and "without dams" scenarios over a period of 4,810 days (February 1 through July 1, 1962–2001) would be negligible, with 1.2 percent of days exceeding the thermal tolerance with the dams in place, and 1.0 percent of days without the dams in place. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the comment regarding the connection between water temperatures and fish health, please refer to Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* for a discussion of water temperature effects on fish growth and migration. Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for a detailed discussion regarding water temperature effects on fish health.

With respect to the comment regarding water temperature variability in different water year types, Section 3.3.5.4 *Aquatic Resources – Potential Impacts and*

Mitigation – Water Temperature – Middle and Lower Klamath River Figure 3.3-5 uses the data from 2002 to present diel temperature fluctuations. See Master Response WQ-4 for a detailed description of how water temperatures reported for the period 2001–2012 are comparable to those reported for the period 2013–2015. Only three different water year types occurred for the period 2000–2004: dry (D), below normal (BN), and above normal (AN) (Figure ORG46-218-1). No effect is apparent between water year types in this period, apart from diel water temperature swings that may be tempered in the dry year compared to the above normal and below normal years.

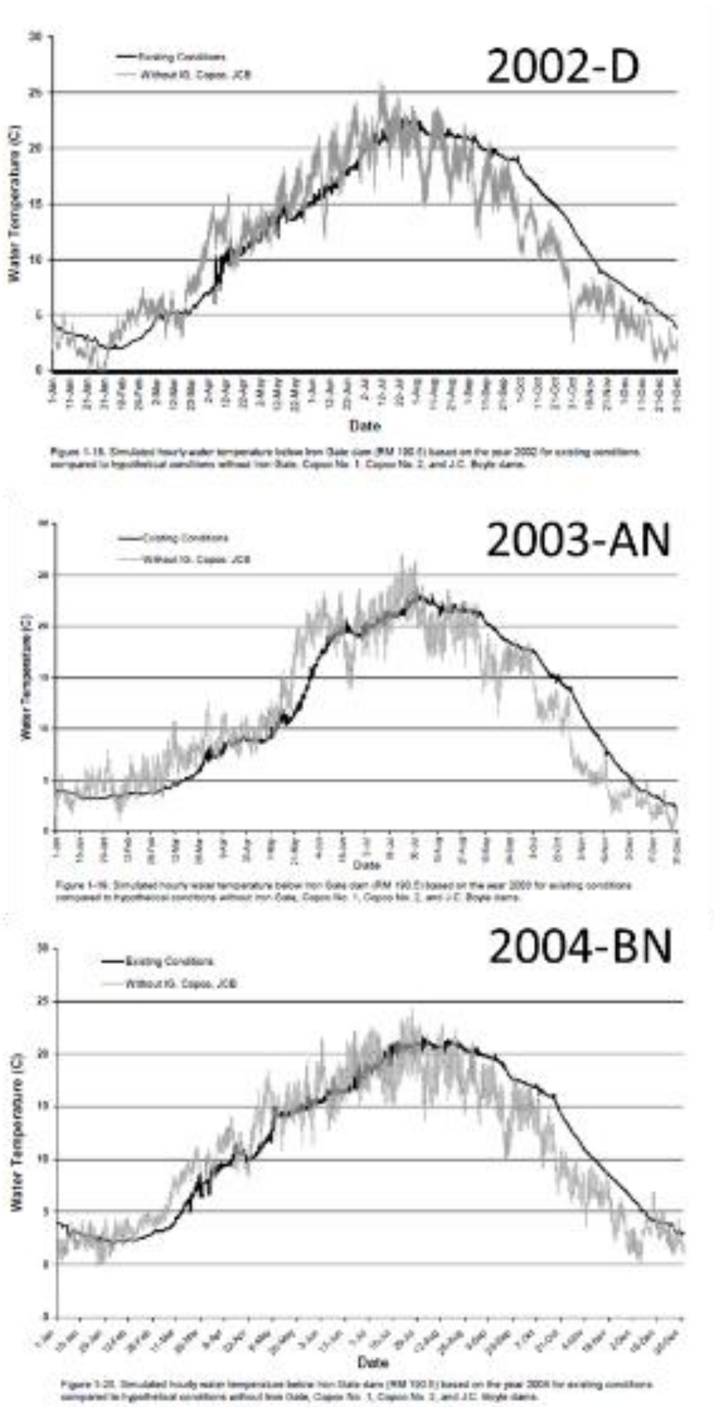


Figure ORG46-218-1. Simulated water temperature below Iron Gate with water year type included for 2002 (dry-D), 2003 (above normal-AN), and 2004 (below normal-BN).

Comment ORG46-219

Figure 3.3-5 in the DEIR provides simulated hourly water temperatures downstream of Iron Gate Dam for the Proposed Project with ranges of optimal temperature criteria for salmonid growth and migration. These criteria come from the U5EPA (2003). Instead of hourly water temperature data, the DEIR should plot and present the 7DADMax water temperature values because this is the metric that the U5EPA criteria presented in the DEIR are based on. It is misleading to present hourly water temperature data in relation to a metric that is based on the rolling 7-day average of maximum water temperatures. For example, the USEPA (2003) maximum 7DADMax value for salmonid migration is 20°C and for juvenile growth the criterion is a 7DADMax of 16°C. The 13°C to 20°C range for growth presented in the DEIR is based on an assumption of unlimited food availability; if food is limiting then the 7DADMax temperature range for optimal growth is reduced to 10°C to 16°C (USEPA 2003).

USEPA (2003) indicates that results from laboratory studies under food limited conditions is more reflective of environmental conditions that fish experience. Thus, the food assumption drives conclusions about which alternatives provide better growth conditions and should be explained as such in the DEIR. The DEIR should also note that if food is unlimited then competition for food between hatchery releases and natural-origin salmonids would be minimal.

The data in Figure 3.3-5 for July indicate s that river temperature for the Proposed Project does not drop below 23°C for about 10 days and existing conditions with dams in place moderate river temperature extremes. USEPA (2003) indicates that a 7-day exposure to water temperatures ranging from 23 to 26°C is lethal for salmonids; such conditions would persist following implementation of the Proposed Project.

The DEIR analysis indicates that variability in mainstem temperatures benefits feeding salmonids. Fish are expected to leave thermal refugia, migrate to the main river channel, feed, and return to the thermal refugia. Regarding fish movement and feeding, the DEIR speculates that the increase in maximum water temperatures for Proposed Project may be compensated for by lower temperatures at night. But this fish behavior already occurs under Existing Conditions as stated in the DEIR. Because the DEIR assumes that fish would reside in thermal refugia under both Existing Conditions and the Proposed Project, the amount of thermal refugia present under each is the more important factor than fish behavior. In reaches downstream of Iron Gate Dam, thermal refugia area would not increase under the Proposed Project. The DEIR should note that if thermal refugia is a limiting factor for successful rearing, then the elimination of hatchery juveniles may allow these refugia to support more natural-origin fish.

The DEIR does not acknowledge that whether fish growth is improved with higher water temperature, combined with more natural variation, depends upon *the assumption regarding food effects discussed previously. The DEIR states that "Foott et al. (2012) observed positive growth and no apparent effect of elevated temperature on immune function or fitness in Klamath River juvenile Chinook salmon held over a 23-day period under conditions in the laboratory that simulated fluctuating water temperature profiles similar to what would be observed in the Klamath River under the Proposed Project." (DEIR pg. 3-275). While this is basically correct, the details are important as they relate to late spring and summer water temperatures in the Klamath River. Review of Foott et al. (2012) as cited in the DEIR, shows significant differences in fork length (longer), sodium-potassium-ATPase (higher), and condition factor (higher) at the end of the 3-week study for a test group reared at average temperatures of 18°C compared to a group at 23°C (both groups held with variable daily temperature). Foott et al. (2012) fed fish at 2 percent of body weight per day, which is typical of hatchery-reared fish, so food was not limiting.*

The DEIR is not consistent in describing the effects of decreased water temperatures on fish. In this section of the DEIR, the 1 to 2 degrees of variability in daily temperature is considered to have substantial benefits to fish, but these benefits are based on speculation, not the best available information. This is contrasted to elsewhere in the DEIR, where a 1- to 2-°C change in temperature of water released from Iron Gate Dam because of operations of the Iron Gate intake barrier curtain is considered modest at best.

In discussing water temperature effects, the DEIR should include information available in Appendix 5: Effects of Temperature, Dissolved Oxygen/Total Dissolved Gas, Ammonia and pH on salmonids (Carter and Kirk 2008), prepared for the California North Coast Regional Water Quality Control Board. Table 9 from Carter and Kirk (2008) illustrates the effects of water temperature on juvenile Chinook rearing and growth, and is provided below for convenience.

Table 9: Effects of Temperature in Considering Juvenile Chinook Rearing and Growth

°C	Rearing and Growth				
24	22-24 Temperature range which totally eliminates salmonids from area, limiting their distribution (7)			21-24 Decreased growth, impaired smoltification, increased predation compared to juveniles reared at 13-16 (6)	
23					
22			18-22 Temperature range at which transition in dominance from salmonids to other species occurs (7)		
21					
20				17-20 Decreased growth, impaired smoltification, increased predation compared to juveniles reared at 13-16 (6)	
19	19 Temperatures above this do not support maximum growth, lab studies at varying temperatures (3)	15.6-19 Maximum growth expected according to lab studies conducted at constant temperature and satiated rations. Under natural feeding conditions maximum growth may occur at temperatures as much as 4.2C lower (3)			4.5-19 Temperature range at which positive growth takes place (5)
18	15-18 Average temperature where maximum growth occurs, lab studies conducted at varying temperatures (3)				
17					
16			16 Chinook grew faster in a stream where temperatures peaked at 16 than when they peaked at 19C (3) 16 MWMT should not exceed this value to be protective of core rearing locations (2)	13-16 Increased growth, unimpaired smoltification, lower predation compared to juveniles reared at 21-24, or 17-20 (6)	
15	10-15.6 Temperature range for optimal growth. Anything over this threshold increases the risk of mortality from warm water disease (1)		10-15.6 Optimal temperature range for rearing (5)		
14					
13				12-13 Juvenile Chinook acclimated to 20 selectively aggregate to these water temperatures (4)	
12					
11					

Response to Comment ORG46-219

With respect to the comment regarding Figure 3.3-5, this figure includes simulated hourly data with U.S. Environmental Protection Agency (USEPA) temperature criteria to generally assess the patterns in water temperature predicted under the Proposed Project in relation to these criteria. The Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* Figure 3.3-5 caption has been revised to clarify the metric associated with the USEPA criterion. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

With respect to the comment regarding food availability and how it relates to water temperature, USEPA (2003) states "Generally, EPA believes that laboratory studies under limited food availability are most reflective of environmental conditions fish typically experience. However, there are likely situations where food is abundant, with the result that optimal growth temperatures would be higher. Thus, a particular [7-day average daily maximum] 7DADM numeric criteria will be more protective in situations where there is high diurnal variation and/or abundant food and will be less protective in situations where there is low diurnal variation and limited food." The 7DADM is equivalent to the mean weekly maximum temperature (MWMT) used in the EIR. Figure 3.3-5 reflects a prediction of high diurnal water temperature variation during the late spring and summer under the Proposed Project.

Additionally, Volume I Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-20 (page 4-58) discusses the potential effects on fish species from alterations to benthic macroinvertebrates due to continued operations of the Lower Klamath Project, and this section considers evidence of decreased macroinvertebrate drift within the Hydroelectric Reach due to current peaking operations. The comment notes that food may be unlimited (without citing any data), and thus competition among hatchery and native fish may be less acute. Based on existing information it is speculative as to whether or not food is limiting fish species under existing conditions. No detailed information on food availability, juvenile rearing densities, and fish bioenergetics have been collected for the Klamath River. Therefore, the analysis of the Proposed Project in the EIR does not rely on speculation regarding whether food is limiting or not, and instead relies on available information to support the impact analyses.

Competition between natural-origin and hatchery salmonids given unlimited food resources may be decreased compared to a condition of limited food availability; however, the assertion that competition would be minimal is unfounded. Please refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* (page 4-305) for a discussion of competition for thermal refugia between hatchery-derived and natural-origin rearing juvenile salmonids.

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* describes the analysis of reduced hatchery production on the growth and survival of natural origin smolts. As explained above, based on existing information this analysis considers ecological impacts regardless of assumed food limitations. Rearing salmonids compete for resources of food and space, and the available information (e.g., McMichael et al. 1997) indicates that reduced competition with hatchery produced fish would support potential increased growth rates of naturally produced fish. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the comment regarding Figure 3.3-5 and lethal water temperatures, note that Figure 3.3-5 is not presented as a comprehensive analysis of water temperatures under the Proposed Project. Please refer to Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 for a more detailed discussion of water temperature under the Proposed Project. In addition, Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* discusses the occurrence of cold-water tributaries and springs that act as thermal refugia when temperatures reach levels stressful to salmonids. Volume III Attachment 1 presents the final Section 3.2 *Water Quality* and the final Section 3.3 *Aquatic Resources*.

Please refer to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish*

Hatcheries for a discussion of competition for thermal refugia between hatchery-derived and natural-origin rearing juvenile salmonids. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the comment's assertion that higher water temperatures under the Proposed Project may decrease growth, condition factor, and potassium-ATPase if food is limited, Foott et al. 2012 states "Elevated water temperature did not exert an obvious effect on the immune functions or general health of juvenile Klamath R. Chinook salmon. Basal levels of plasma cortisol values in 23º mean daily temperatures (MDT) salmon sampled at week 2 and 3 suggest that they had acclimated to the elevated temperature. Additionally, 23ºMDT salmon had a positive (albeit slight) growth rate over the experiment." Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-20 discusses decreased macroinvertebrate drift within the hydroelectric reach due to current peaking operations, which would be eliminated under the Proposed Project. It is unknown if food is limiting or unlimited under current operations. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

With respect to the comment's assertion that the EIR is not consistent when describing the effects of decreased water temperature, as described in response to comment ORG46-180, Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* has been revised to clarify the water temperature criteria used to evaluate potential impacts of the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With respect to the comment's assertion that the EIR should include Table 9 from Carter and Kirk (2008), while this table provides a detailed summary of temperature criteria collected from various studies on juvenile chinook rearing and growth, the EIR presents a summary of the USEPA (2003) criteria that were appropriately applied to evaluate water temperature under the Proposed Project in Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature*. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Comment ORG46-220

The DEIR claims that there are lower minimum water temperatures in the spring under the Proposed Project; a statement that is difficult to reconcile with the data presented in Figure 3.3-5. Depending on the definition of spring, this claim is not supported by the data in Figure 3.3-5, which indicates temperatures with dams in place are generally cooler from February through June than would be experienced under the Proposed Project.

Response to Comment ORG46-220

Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature – Middle and Lower Klamath River* Figure 3.3-5 (shown below) depicts increased variability in daily water temperatures during spring and early- to mid- summer (April through July). The figure clearly shows that during the latter half of spring to mid-summer (June through July) daily minimums are predicted to be less than occurs under existing conditions, and therefore may provide increased thermal refugia at night. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Comment ORG46-221

The DEIR relies upon a high degree of speculation and outdated analysis to conclude that the Proposed Project will reduce fish disease infection rates of salmonids in the Klamath River. The DEIR cites the conclusion of FERC (2007) that a greater distribution of salmonids would presumably reduce crowding and the concentration of disease pathogens released from adult carcasses. However, while removal of the dams may allow Chinook (and Coho) to migrate through a larger reach of the Klamath River (an outcome also achievable through the fish passage alternative), polychaetes are found throughout the river, not just downstream of Iron Gate Dam. Infection or polychaetes will continue to occur as adult Chinook and Coho become infected migrating upstream through the Klamath River. Once these infected salmon pass the current location of Iron Gate Dam, presumably to spawn and eventually die, those spores will be released into the water to be ingested by existing polychaetes. C. shasta will not somehow be limited to the river downstream of Iron Gate. Research by CDFW (Foott et al. 2016) has shown that relatively few very highly infected adult Chinook carcasses are capably of fully seeding the polychaete population.

Further, researchers from Oregon State University have routinely harvested polychaetes from the J.C. Boyle Bypass Reach (upstream of the large Copco and Iron Gate reservoirs, which are supposed to be an important planktonic food resource contributing to polychaete density downstream of Iron Gate Dam) because these populations are some of the densest anywhere in the river (Alexander et al. 2016b). This recent information contradicts the hypothesis advanced in the DEIR that planktonic food sources from the large Klamath Hydroelectric Project reservoirs contribute to higher polychaete densities downstream of Iron Gate Dam, and reducing or eliminating spawner density may play a determinant role in reducing fish disease transmission. To indicate that spreading out the Chinook population would reduce their proximity to polychaete populations and therefore somehow reduce disease rates is not supported in the DEIR and contrary to the most recent understanding of fish disease dynamics in the Klamath.

Related, while FERC's (2007) conclusion may have been valid based on the state of knowledge at that time, a great deal has been learned about C. shasta since then. The DEIR should assess the current state of the knowledge *regarding infectious zones, infection rates, polychaete dynamics, etc. before reaching conclusions because more recent scientific work does not support the conclusions reached by FERC (2007) with respect to the effect of the Klamath Hydroelectric Project dams on fish disease.*

Response to Comment ORG46-221

The EIR's analysis of disease risk upstream of Iron Gate Dam considers available information, including FERC (2007) as well as more recently available publications and reports. Some conclusions of FERC (2007) continue to be affirmed by more recent information, whereas other conclusions have been revised based on more recent information that is cited and discussed in the EIR. Please also refer to Master Responses AQF-5 and AQF-6, which include descriptions of clarifications and minor modifications to the EIR analysis related to fisheries disease risk upstream and downstream of Iron Gate Dam. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources.*

Please further note that the presence of dense periphyton growth upstream of Iron Gate and Copco reservoirs does not indicate that the reservoirs do not contribute nutrients to downstream periphyton concentrations, as indicated in the comment. As described in the EIR, a host of factors (e.g. flows, stability of substrate, and available nutrients) influence the density of periphyton growth in the Klamath River. See, e.g. Volume I Section 3.4.2.2 *Phytoplankton and Periphyton – Environmental Setting – Periphyton* (pages 403-404).

Comment ORG46-222

The DEIR states "For adult salmon, lch and columnaris have occasionally resulted in substantial mortality, particularly when habitat conditions include exceptionally low flows, high water temperatures, and high densities of fish (such as adult Chinook salmon migrating upstream in the fall and holding at high densities in pools)." The DEIR does not acknowledge that the most severe documented outbreaks of these diseases, such as occurred during the 2002 fish kill, were not influenced by the Klamath Hydroelectric Project, which does not significantly impact river flows and which did not have temperature effects as far downriver as the location where fish succumbed to these diseases.

The DEIR should also note that because the Proposed Project is expected to increase fall-run Chinook abundance, but not alter river temperature downstream of the Salmon River, mortality to adult Chinook from disease could be higher under the Proposed Project if this increase in abundance actually occurs.

Response to Comment ORG46-222

Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* states that, "For adult salmon, Ich and columnaris have occasionally resulted in substantial mortality, particularly when habitat conditions include exceptionally low flows, high water temperatures, and high densities of fish (such as adult Chinook salmon migrating upstream in the fall and holding at high densities in pools)." The EIR does not indicate that the most severe documented disease outbreaks were caused by the Klamath Hydroelectric Project (KHP). In addition, please see response to comment ORG46-174 for a description of minor modifications made to the EIR that further clarify the generally understood causes of the 2002 fish kill.

The suggestion that increased fall-run Chinook salmon abundance could lead to increased mortality from disease outbreaks over-simplifies the causes of the 2002 fish kill that is not based on evidence provided by the comment or available in the scientific literature. Contrary to this suggestion, during the years with highest fall-run Chinook salmon returns, no fish kills have occurred. Environmental conditions in the Klamath River at the time of the 2002 fall-run Chinook salmon run were characterized by low flow rates and volume, and an apparent lack of migration cues to proceed upriver. The resultant migration delay, crowded conditions, and warm water temperatures provided an ideal environment for the proliferation of Ich and columnaris resulting in the observed high mortality. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-223

The DEIR refers to abnormally large concentrations of spawners and carcasses downstream of Iron Gate Dam but never defines what is meant by 'large concentrations.' The DEIR needs to provide a specific numerical definition because it is important for determining whether expected fall-run Chinook spawning density in newly opened habitat would be substantially different. The DEIR uses the modeling results from Hendrix (2011), which indicate that without harvest occurring in ocean and freshwater fisheries an average of 23,000 adult fall-run Chinook would be produced in the river reach from Iron Gate Dam to Keno Dam (about 45 river miles) or roughly 511 fish per mile However, this fish per mile value would change depending on harvest rate, although the Hendrix (2011) modeling assumes no harvest. This fish per mile value would also change depending on the proportion of fish spawning in tributaries and tributary location in the reach. Adult returns can be two to three times higher in good survival years. Additionally, the fish per mile value in the Hendrix (2011) model assumes that fish are evenly distributed over the 45 river miles, which will not be the case given that fall-run Chinook spawning habitat is generally limited to a percentage of the riverine habitat and not all 45 river miles is suitable spawning habitat.

The DEIR should further present data reported by Romberger et al. (2017) and Gough and Som (2017), which show that spawner carcasses for the reach extending from the Shasta River (RM 177) to Indian Creek (RM 107) and Iron Gate (RM 190) to Carson Creek (RM 180) average from about 66 to 493 fish per mile, respectively. If the normal concentration of adults per mile is closer to 66 fish per mile, then this has consequences for the expected decrease in fish abundance from Iron Gate to Carson Creek and the expected production from

Iron Gate Dam to Keno Dam under the Proposed Project as well as other alternatives. These variations reflect on the uncertainty associated with the Proposed Project that is not discussed in the DEIR.

The DEIR does not acknowledge the complexities of the relationship between the numbers of adult fall-run Chinook and disease rates. Specifically, the DEIR should consider that Bartholomew and Foott (2010) reported that there does not appear to be a direct relationship between numbers of returning adults and disease severity in juvenile fish in the infectious zone during the following spring. This observation and further work by Foott et al. (2016) indicate that a low number of infected adult salmon, just over 7 percent in this study, were responsible for 76-95 percent of the total spore count in a given season; a spore load sufficient to maintain high infection prevalence in polychaetes. Thus, high spawner density does not appear to be a factor that, if reduced, would be likely to reduce the high infection prevalence.

Overall, the DEIR does not acknowledge that there is considerable uncertainty in future outcomes of each analysis alternative related to fish production and disease effects. The DEIR does not use consistent logic and assumptions in the analysis. If disease effects are expected to be reduced because of a decrease in spawners in one reach, then the expected increase in spawners to other reaches should not exceed the definition of an abnormally large spawner concentration. Because no criterion is established for abnormally large, the DEIR analysis may improperly claim benefits from both decreasing disease and increasing Chinook abundance while not clearly presenting the logic supporting such a counterintuitive conclusion and not recognizing that these factors may act against each other.

Response to Comment ORG46-223
With respect to the relationship between carcass density and disease risk, and as discussed in the EIR and in Master Responses AQF-5 and AQF-6, the current infectious zone and high parasite loads downstream of Iron Gate Dam are the result of a synergistic effect of numerous disease factors, of which carcass density is one. The set of factors is discussed in detail in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, within the context of not only fluctuating carcass density and the implications for reduced carcasses downstream of Iron Gate Dam, but also with consideration for the numerous other risk factors. In light of the synergistic interaction of these factors, it would not be appropriate to develop a separate threshold for “large concentration.” Please note that increased run size abundance alone, unlike carcass concentration, is not a risk factor in development of a nidus.

In addition, please note that the carcass data cited in the comment are averaged for reach lengths of greater than 10 miles, which masks the carcass densities directly downstream of Iron Gate Dam in the vicinity of Iron Gate Hatchery. If a longer period of record (2000 through 2018) and more precise reach lengths are considered, under current conditions adult salmon carcasses in the 5.6-mile (9.0-kilometer) reach downstream of Iron Gate Dam to the Shasta River average 5,127 carcasses per year, with an estimated average density of 916 carcasses per mile (mi) (570 carcasses per kilometer [km]) (S. Gough, USFWS, pers. comm., June 2019). Within the area directly downstream of Iron Gate Dam (within 0.3 miles [0.5 km]), carcass estimates have averaged 396 (ranging from a low of 17 to a high of 1,592); corresponding to a density averaging 1,321 carcasses/mile [3,183 carcasses/km], and ranging from 57 carcasses/mile (99 carcasses/km) to 5,307 carcasses/mile (3,184 carcasses/km). By considering a more precise reach length in the immediate vicinity of Iron Gate Dam and Iron Gate Hatchery, it is apparent that average carcass densities in this reach are much higher than the 66 to 493 fish per mile estimates cited in the comment from Romberger and Bell (2017) and Gough and Som (2017). These increases in density are relevant to the multi-factored consideration of disease risk. Therefore, the recent observations of lower carcass densities in the 10-mile reach downstream of Iron Gate Dam, and the fluctuations in carcass densities, do not result in a revision to the conclusions or significance calls in the EIR. As discussed in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, access to a substantial amount of additional habitat within Klamath River tributaries and mainstem reaches upstream of Iron Gate Dam is anticipated to support greater dispersal of returning adult Chinook salmon, resulting in fewer congregations of carcasses than under existing conditions. With respect to the comment’s citation of Hendrix (2011) predictions to express the concern that increased fall-run Chinook salmon abundance would increase disease risk upstream of Iron Gate Dam following dam removal, please note that the EIR analysis does not assume that there would be no harvest for fall-run Chinook salmon. As discussed in detail in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, under the Proposed Project estimated Chinook salmon abundance in the reach upstream of Iron Gate Dam to Keno Dam is predicted to increase by a median of 10,000 Chinook salmon (Hendrix 2011) within an estimated 80 miles of suitable spawning habitat in Klamath River tributaries and the mainstem (DOI 2007, Cunanan 2009). Although Chinook salmon spawning is not expected to be evenly distributed, if it were, this could result in carcass density upstream of Iron Gate Dam of around 125 carcasses per mile (78 carcasses per km). Even if, as expected, spawning is unevenly distributed, a much lower carcass density than currently observed downstream of Iron Gate Dam is anticipated owing to access to substantial amounts of additional habitat, and environmental factors supporting large congregations of adult migrants. The addition of data describing carcass densities under current conditions is consistent with the analysis and conclusions in the EIR. Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised accordingly. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions. Please also refer to Master Responses AQF-5, AQF-6, and AQF-8.

Comment ORG46-224

The infectious zone has changed in the 8 plus years since the source cited in the DEIR and changes almost annually. In 2016, the infectious zone extended from the I-5 Bridge over the Klamath River to Orleans (about 120 river miles), in 2017 it contracted upstream from the I-5 Bridge to Seiad Valley (about 50 river miles) (Bartholomew et al. 2018).

Response to Comment ORG46-224

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to clarify the description of the infectious zone. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions. The EIR states that the precise location of the nidus downstream of Iron Gate Dam is related to numerous factors and therefore the zone of highest infectivity can vary on an annual basis. The revisions to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* to further discuss the specific locations of the nidus in recent years are consistent with the analysis in the Draft EIR and do not change any significance determinations. Please also refer to Master Response AQF-6.

Comment ORG46-225

The DEIR states (in reference to bedload movement downstream of Iron Gate Dam) that "This increased movement and transport of sediment (sand, silt, and clay) is anticipated to disrupt polychaete habitat from the current location of Iron Gate Dam to downstream from Shasta River, resulting in reduced actinospore releases." Presumably this disruption would come in the form of scour of polychaetes, but the DEIR does not support this assertion. The DEIR tails to make use of recent studies relating polychaete reactions in response to flow changes including the observation that while polychaetes were removed from substrates by increasing flows (with specific dislodgment flows that varied depending on the substrate), polychaetes also exhibited a variety of behavioral reactions to flow changes and proved to have relatively high survival rates (Malakauskas et al. 2013).

Additionally, the DEIR fails to acknowledge that recent research indicates that the magnitude of high flows that may be necessary to induce scour that could disrupt polychaete habitat (see Shea et al. 2016) are above the thresholds of flows that are expected to be achieved from the Proposed Project. That is, removal of the Klamath Hydroelectric Project is not anticipated to increase peak flows above baseline conditions with the hydroelectric dams in place to result in significant scour effects. Thus, recent research indicates that scour may be ineffective at combating polychaete densities that contribute to high infectious rates in the Klamath River, and recent research also indicates that the expected *hydrologic changes from the Proposed Project are unlikely to result in flows that could accomplish scour anyway.*

Response to Comment ORG46-225
PacifiCorp asserts that the Draft EIR fails to make use of the recent studies discussing polychaete reactions to river flow changes. Please refer to Master Response AQF-6 for a discussion of minor revisions to the EIR to include the recent research of Malakauskas et al. (2013) and for a discussion of the recent research on the magnitude of high flows that may be necessary to induce scour that could disrupt polychaete habitat.

Comment ORG46-226
General comments on the disease discussion:

- *This section of the DEIR is full of presumptions and lacking up-to-date data and information. Oregon State University has been monitoring infection rates, spore loading, fish mortality rates, and other factors on an annual basis for USBR and none of this information is used in the document.*
- *The connections between what could happen post-dam removal is speculation and is not supported in the DEIR with a reasonable analysis. There are an abundance of terms like "may disrupt," "is presumed to," "presumably," etc., all of which point to the uncertainty associated with the effects of dam removal on fish disease.*

The assertion that the removal of the Klamath Hydroelectric Project would disrupt microhabitats for polychaetes is not supported with current two- and three-dimensional modeling that is available (see Alexander et al. 2016a) to actually evaluate the changes in microhabitat resulting from flow changes.

Response to Comment ORG46-226
With respect to up-to-date data and information included in the fish disease discussion, please refer to response to comment ORG46 -184 and ORG46-185 for a summary of minor modifications to the EIR to incorporate recent data. The modifications do not change any significance determinations.

With respect to the EIR discussion of post-dam removal conditions, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* incorporates appropriate and available science to predict the potential effect of the Proposed Project on the risk of fish disease. The section discloses the scientific basis and areas of uncertainty associated with predictions.

With respect to the potential for polychaete microhabitat disruption by flow changes, Section 3.3.2.3 *Aquatic Resources – Environmental Settings – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* describes existing data supporting the prediction that increased flow variability, including increased water velocities, are likely to reduce habitat suitability for polychaetes under the Proposed Project. While the comment asserts that the research of Alexander et al. (2016) does not support the EIR discussion regarding dam removal and reduced habitat for polychaetes, the research of Alexander et al. (2016) found that *M. speciosa* distribution is influenced by hydraulic and substrate suitability, and the factors identified in Alexander et al. (2016) that reduce polychaete populations (e.g., increased water velocities, decreased substrate size, and increased bedload mobility) are all related to dam removal. Alexander et al. (2016) conclude that investigating the potential utility of flow modification to reduce Klamath River *M. speciosa* populations has significant merit, and overall their findings are consistent with the analysis and conclusions in the EIR. Please also refer to Master Response AQF-6.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-227

The DEIR states "Warm water temperatures increase risk of disease transmission. Dam removal would mean cooler temperatures in the late summer and fall, but slightly warmer temperatures during spring and early summer." The DEIR does not clearly describe the location of fish losses downstream of Iron Gate Dam, or the life-stage affected, and the disease causing the losses. The DEIR states that the Proposed Project affects stream temperatures downstream as far as the Salmon River (RM 66). As previously noted in these comments, PacifiCorp model results (see PacifiCorp 2004a, 2008) show that the "thermal lag" effects of the Klamath Hydroelectric Project reservoirs on water temperatures downstream of Iron Gate Dam (RM 190) progressively diminish until reaching a downstream location where effects are absent. From December through July, the effects are within model error or absent by the time the river reaches the confluence with the Scott River (RM 143.9). In August and November, the effects are absent by the time the river reaches Seiad Valley (RM 120), and in September and October, by the time the river reaches the confluence with Clear Creek (RM 95). In no cases does modeling indicate that effects of the thermal lag extend to the confluence with the Salmon River (RM 66). The DEIR fails to accurately reflect existing conditions and the impacts of the Proposed Project.

The DEIR states, and PacifiCorp' s prior water quality modeling (PacifiCorp 2006, 2014) confirms, that the spring water temperatures are higher under the Proposed Project which could increase C. shasta disease rates because polychaete hosts develop spores more quickly under warmer water conditions. The DEIR spends a great deal of time noting the severity of C. shasta for Klamath River salmonid populations, but fails to acknowledge that dam removal has the potential to exacerbate C. shasta infection prevalence and does not discuss this effect of the Proposed Project in any detail. The DEIR is required to present both positive and negative effects of the Proposed Project.

Response to Comment ORG46-227

Section 3.3.2.3 *Aquatic Resources – Environmental Settings – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* summarizes the location of fish losses downstream of Iron Gate Dam, life stages affected, and the diseases causing the losses under existing conditions. Please also refer to response to comments ORG46-222, ORG46-224, and AQF-6.

Regarding the thermal lag comment, please refer to responses to comments ORG46-84 and ORG46-91 through ORG46-93.

Please refer to Section 3.3.5.5 *Aquatic Resources – Environmental Settings – Potential Impacts and Mitigation – Fish Disease and Parasites* for a discussion of the effects of warmer water during spring on risk of disease transmission. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-6.

Comment ORG46-228

The DEIR should clarify how the 2017 United States District Court ordered flow requirements are included the analysis presented in the DEIR. The DEIR acknowledges that "the Proposed Project would not result in major flow alterations," and yet this paragraph goes into detail about the 2017 United States District Court ordered flow requirements, which are related to USBR's operation of its Klamath Irrigation Project, and not the operation of the Klamath Hydroelectric Project (see Hoopa Volley Tribe v. National Marine Fisheries Service et al., 230 F.Supp.3d 1106 (2017)). This paragraph then continues, "Because polychaete populations are located outside of the main flow along the margins of the river (Bartholomew and Foott 2010), variable flows disrupt this habitat. Therefore, removal of the Lower Klamath Hydroelectric Project dams would disrupt microhabitat conditions and is expected to reduce polychaete populations (Stocking and Bartholomew 2007, Bartholomew and Foott 2010) and presumably, reduce infection rates within polychaete populations both in the short and long term (Hetrick et al. 2009)." The DEIR fails to acknowledge that current operations of the Klamath Hydroelectric Project, consistent with Endangered Species Act requirements, include provisions for variable now delivery. As previously acknowledged earlier in the paragraph in the DEIR, removal of the Klamath Hydroelectric Project dams is not expected to result in major now changes. Thus, it is unclear how flow variability that could result from the Proposed Project would produce conditions that could disrupt microhabitat conditions and reduce polychaete populations and therefore infection rates. The DEIR here fails to acknowledge that now variability can be achieved, and is currently being achieved, through modified operations of the Klamath Hydroelectric Project. Indeed, the available reservoir storage of the Klamath Hydroelectric Project and ability to manipulate flows through relatively precise modifications of Iron Gate Powerhouse releases, and, at higher flows, releases from the upstream Copco No. 1 and No. 2 developments, create opportunities for managed now variability in the Klamath River that will be more difficult to achieve *under the Proposed Project. The DEIR should acknowledge that the Proposed Project has the potential to reduce management tools to address fish disease by constraining the ability to deliver flushing and variable flows without impacting upstream irrigation operations or causing impacts to other aquatic resources, such as through reduced Upper Klamath Lake levels as a result of flushing now operations that can currently be delivered primarily from Klamath Hydroelectric Project reservoir storage.*

Response to Comment ORG46-228

With respect to how 2017 court-ordered flows are included in the EIR analysis, please see Volume III Attachment 1 Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project*, Master Response HYD-1 for a discussion of the 2019 BiOp flows (i.e., the current flow requirements), and the response to comment ORG46-166.

With respect to the comment regarding flow variability under the Proposed Project and conditions that could disrupt microhabitat conditions and reduce polychaete populations, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* accurately describes the effects of the Proposed Project on flow variability by stating, "…elimination of the Lower Klamath Project would create more flow variability due to peak flows from storm events no longer being retained in Lower Klamath Project reservoirs," while noting that flows would continue to be controlled by Keno Dam and the 2019 BiOp, and would be within the range of historical conditions. For additional detail, please also refer to Master Response FLD-1. As discussed in Section 3.11.4.3 *Geology, Soils, and Mineral Resource – Impacts Analysis Approach – Bedload Sediment*, the Proposed Project would have the effect of increasing sediment supply and transport and creating a more dynamic and mobile bed downstream of Iron Gate Dam, which as predicted by Bartholomew and Foott (2010), would disrupt microhabitat conditions from the increased frequency of sediment mobilization due to the decrease in median particle size. Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to clarify causes of flow variability. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With respect to the potential for the Proposed Project to reduce management tools to address fish disease, flow releases, including flushing flows, are determined by the United States Bureau of Reclamation (USBR) Klamath Irrigation Project, which is currently required to operate flows in accordance with the 2019 BiOp (USBR 2018a; NMFS 2019; USFWS 2019a), and is independent of the Proposed Project. Implementation of the Proposed Project, including removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams, does not impact flows required for the USBR Klamath Irrigation Project, including flows for management of *C. shasta*. For information on the flow releases under the 2019 BiOp, please refer to Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* and Volume III

Attachment 1 Section 3.11.4.1 *Geology, Soils, and Mineral Resource – Impacts Analysis Approach – Flows*. Note that the 2019 BiOp does not require flows equivalent to the 2017 court-ordered flushing and emergency dilution flows, which included flow releases averaging 11,250 cubic feet per second (cfs) for 24-hours downstream of Iron Gate Dam, that were in effect in the interim prior to the 2019 BiOp.

Comment ORG46-229

The current infectious zone is further downstream from Iron Gate Dam than is indicated in this paragraph. The DEIR should consider the information available from Oregon State University through 2018. (https://microbiology.science.oregonstate.edu/content/monitoring-studies).

Surface flushing flows are released from Link River Dam and ultimately Iron Gate Dam at USBR's direction to enhance sediment transport throughout the upper Klamath River, not just downstream of Iron Gate Dam. The DEIR asserts that this action has contributed to reduction in disease rates, but there is no real evidence provided to support that and as the DEIR notes, "...the flow regime has not, in isolation, been successful in avoiding high disease concentrations." There is no evidence presented to support the assertion that a new infectious zone would not develop elsewhere.

Response to Comment ORG46-229

With respect to the comment regarding the location of the current infectious zone downstream of Iron Gate Dam, please refer to response to comment ORG46-224.

Regarding the concern that a new infectious zone could develop elsewhere in the Klamath River under the Proposed Project, Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* does not express certainty regarding whether a new nidus would form under the Proposed Project, but rather this section assesses the *risk* of the formation of a new nidus elsewhere. The EIR concludes that such formation would be unlikely.

Comment ORG46-230

This paragraph is rife with assumptions and qualitative statements that influence the reader in the absence of supporting information (e.g., 'however unlikely'). The DEIR seems to allow for the possibility that the Proposed Project may result in infection of Chinook occurring upstream of Iron Gate Dam - an event incorrectly attributed to continued hatchery operations - and the necessity of surface flushing flows "from a new upstream location" to disrupt C. shasta life cycles even though those surface flushing flows have not been shown to be effective. To achieve a surface flushing flow, USBR would have to release water from Keno Dam; USBR is proposing such an action, but from Iron Gate Dam, in its current biological assessment (USBR 2018a). The lack of specifics in the

DEIR (e .g., Keno Dam as a release location) illustrates the lack of understanding of the Klamath River and operations of water management by the authors of the DEIR.

Response to Comment ORG46-230
Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to clarify how the 2019 BiOp Flows would be likely to affect the potential for fish disease in the reach from Keno Dam to Iron Gate Dam under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.* Please also see Master Response AQF-5 for additional discussion of the potential for fish disease upstream of Iron Gate Dam.

Comment ORG46-231
While the DOI did in fact recommend trap and haul of Chinook around Keno Reservoir, that was in the context of a relicensed Klamath Hydroelectric Project. It is unclear what authority DOI would have to impose such conditions on USBR; recall that USBR who will own Keno Dam if the KHSA is fully implemented.

The DEIR indicates that high rates of infection downstream of Iron Gate Dam are a function of the dam and the hatchery concentrating adult salmon. If conditions in Keno Reservoir constitute a water quality barrier and salmon would not be able to pass through the reservoir, they would congregate downstream of Keno Dam. Using the DEIR's logic, a concentration of Chinook in this area would form a new C. shasta infectious hot-spot.

The next paragraph in the DEIR goes on to say that Chinook historically concentrated their spawning in the Sprague River, but the previous paragraph said that they probably would not be to successfully pass Keno Reservoir. These apparent contradictions in the DEIR makes it difficult to understand the effects of the Proposed Project.

Response to Comment ORG46-231
Please note that the section the comment references refers the reader to a discussion of Department of the Interior's (DOI's) fish passage recommendations in Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Quality.* Please note that Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* has been revised to make minor modifications to the analysis of the risk of a nidus forming upstream of Iron Gate Dam under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for the revisions. Please also refer to Master Response AQF-5.

Comment ORG46-232

There has been a great deal of copying from previous work with little effort to actually assimilate the information in those documents, update it, and prepare a concise discussion of the current status of fish disease on the Klamath River. For example, the beginning of the second paragraph in the DEIR is strikingly similar to that in the 2012 KHSA EIS/ EIR (DOI and CDFW 2012). Specifically, in this sentence in the DEIR:

"The current infectious zone and high parasite loads below Iron Gate Dam are the result of a synergistic effect of numerous factors that occur within the current disease zone in the Klamath River from the reach from Shasta River downstream to Seiad Valley (FERC 2007, Hamilton et al. 2011, Bartholomew and Foott 2010." The italicized part is a direct quote from the 2012 KHSA EIS/EIR (DOI and CDFW 2012 see Volume 1, pg. 3.3-42).

Similarly, the following sentence that discusses the factor associated with the infectious zone is only different by a few minor editorial changes from that in the 2012 KHSA EIS/EIR.

From the DEIR (at 3-279): "These factors include: (1) close proximity of myxospore-shedding carcasses (concentration of carcasses); (2) abundant polychaete populations that are found in atypically stable habitats; (3) suitable water temperatures (greater than 59°F) during periods when juvenile salmonids are present; and 4) low flow variability (Bartholomew and Foott 2010). This synergy would be unlikely in the Upper Klamath River (Hamilton et al. 2011)."

From the FEIS (DOI and CDFW 2012 Volume 1 at 3-3-42): "Factors associated with the current infectious zone and high parasite loads include: 1) close proximity of myxospores-shedding [sic] carcasses (concentration of carcasses), 2) abundant polychaete populations that are found in atypically stable habitats, 3) permissible temperatures (>15 C) during periods when juvenile salmonids are present and 4) low flow variability (Bartholomew and Foott 2010). This synergy would be unlikely in the Upper Klamath River."

Because the DEIR fails to take into account more recent scientific information, it provides an outdated analysis that portrays undue certainty that the Proposed Project will result in improved fish disease conditions for salmonids. The "synergistic effects" that are purportedly responsible for the high prevalence of fish disease in the Klamath River is attributed to: 1) high concentration of infected spawners; 2) abundant polychaete habitats from stable flow conditions; 3) suitable water temperatures (warmer than 59°F) when juvenile salmonids are present; and 4) low flow variability. As previously noted, this analysis is flawed (see comment 3.2-34).

Regarding factor 1, high concentration of infected spawner, recent work undertaken by Foott et al. (2016) indicates that a low number of infected adult *salmon, just over 7 percent, were responsible for 76-95 percent of the total spore count in a given season; a spore load sufficient to maintain high infection prevalence in polychaetes. Thus, high spawner density does not appear to be a factor that, if reduced, would be likely to reduce the high infection prevalence.*

Regarding factor 2, abundant polychaete habitats from stable flow conditions, the DEIR does not consider its own conclusion that "the Proposed Project would not result in major flow alterations" (DEIR pg. 3- 277), which means that flows sufficient to achieve bedload movement and scour (Shea et al. 2016) are unlikely to be provided by the Proposed Project, and that scour may not be very effective at reducing polychaete concentrations due to the relatively high survival rates of polychaetes in response to flow alterations (Malakauskas et al. 2013).

Regarding factor 3, suitable temperatures, the DEIR does not acknowledge that the Proposed Project will result in increased water temperatures downstream of Iron Gate Dam in the late winter and spring when juvenile salmon are present, resulting in a more rapid development of C. shasta and a greater chance of disease infection than current conditions.

Regarding factor 4, low flow variability, the DEIR does not consider that flow variability is currently being provided under current operations of the Klamath Hydroelectric Project to mitigate the effects of current operations (PacifiCorp 2012), that flow variability may actually be reduced under the Proposed Project as hydroelectric reservoir storage and variable powerhouse releases are no longer possible, and that flow management under USBR's biological opinion is likely to result in Klamath River flows similar to those experienced under current conditions (see USBR 2018a for the proposed flow conditions presently being considered by USBR).

Further, the DEIR does not consider that polychaete habitat could increase under the Proposed Project as upstream river segments currently within the Klamath Hydroelectric Project experience increased periphyton and macrophyte growth and as downstream river segments are exposed to more fine sediments that can contribute to polychaete habitat formation.

Response to Comment ORG46-232

Please refer to Master Response AQF-6 regarding comments related to disease conditions factors and analysis of changes under the Proposed Project downstream of Iron Gate Dam. Master Response AQF-5 includes additional information on disease factors and analysis in the context of changes upstream of Iron Gate Dam.

Regarding the spawner density assertion please refer to response to comment ORG46-185.

Regarding flow stability and polychaete habitat assertions refer to response to comment ORG46-228.

Regarding increased temperatures downstream of Iron Gate Dam and chance of disease, please refer to response to comment ORG46-218.

Regarding consideration of polychaete habitat under the Proposed Project, and in particular the concern regarding habitat changes due to increased exposure to periphyton and macrophyte growth and increased exposure to fine sediments, please refer to Volume II Appendix F Section F.5.1.2 *Changes in Bed Substrate* (pages F-11 and F-12) and Section F.5.2.3 *Changes in Bed Substrate* (page F-20) for an analysis of bed substrate changes in the Hydroelectric Reach and the reach downstream of Iron Gate Dam under the Proposed Project. Note that these sections predict no long-term increase in fine sediments that would support increased polychaete habitat. Please also refer to Master Response AQF-5.

Comment ORG46-233

Regarding the formation of a disease zone, Hendrix (2011) estimated that upper Klamath River habitat may produce between 17,000 and 53,000 Chinook depending on whether fish express an ocean type or stream type life history. The majority of this production is expected from the Sprague River and Williamson River. This number of fish seems sufficient to create the possibility of large concentrations of spawning adults dependent upon the distribution and total amount of spawning habitat. According to Bartholomew and Foott (2010), the 59°F water temperature criterion (cited in the DEIR) applies when infectious dose is small. Bartholomew and Foott (2010) state (on pg. 38) that when infectious dose is high, temperature is not a strong predictor of survival. The data presented by Bartholomew and Foott (2010) in their Table 6.1 show substantial effects on salmonids at temperatures ranging from 13°C to 21°C (55.4-69.8°F). Hurst et al. (2012) concluded that initially reintroduction of fish will not be adversely affected by the high parasite densities. However, after dam removal, adult salmon would transport parasite genotypes present from downstream of Iron Gate Dam to the upper basin. The polychaete host for C. shasta is present throughout the Klamath River, including in high densities in the Williamson and Sprague rivers. Because of this, reintroduction of Chinook and Coho infected with C. shasta would likely infect the polychaete hosts when the adults die. The result would be that C. shasta would become established and reach spore densities that result in infection of juvenile Chinook and Coho.

The DEIR incorrectly concludes that the nidus of C. shasta infection is unlikely to occur or will be smaller than that under Existing Conditions. These statements are not adequately supported and need to be updated to indicate that there is a risk such a nidus may develop, but the probability of its occurrence is unknown as are the location, size, and effect on the population of salmonids.

Response to Comment ORG46-233
Regarding the risk of infection following dam removal in the Williamson and Sprague rivers, please refer to Master Response AQF-5.

With respect to the comment's citation of Hendrix (2011) predictions to express the concern that increased fall-run Chinook salmon abundance would increase disease risk upstream of Iron Gate Dam following dam removal, please refer to response to comment ORG46-223.

Regarding the risk of disease increasing at water temperatures greater than 59ºF, the EIR does not refer to 59ºF as a "criterion" as suggested by the comment; instead the EIR consistently discuses disease risk as related to a multitude of factors (of which water temperatures is one). Please also refer to Master Response AQF-5 and ORG46-223.

With respect to the potential for introduction of parasite genotypes upstream of Iron Gate Dam under the Proposed Project, anticipated parasite population dynamics are discussed in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites.* This discussion is consistent with the comment's claim that *C. shasta* genotypes currently observed downstream would be introduced upstream of Iron Gate Dam.

Comment ORG46-234
The DEIR states that flushing and emergency dilution flows may be required under the Proposed Project. The DEIR does not clearly present the analysis for these flows for the Proposed Project or the alternatives.

Response to Comment ORG46-234
Please see response to comment ORG46-166 and Master Response HYD-1.

Comment ORG46-235
Refer to previous comments regarding the potential for introduction of C. shasta to the polychaete population in the Williamson River (see comment 3.3-76). There is no discussion in the DEIR to support the assertion that Chinook would not congregate in these locations and the DEIR does not recognize that relatively few infected adults salmon can fully seed the polycheate populations (Foott et al. 2016)

Response to Comment ORG46-235
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* has been revised to clarify available data on potential holding habitat. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for the revisions. With respect to disease potential upstream of Iron Gate Dam, including a discussion of the asserted potential for a

relatively small number of infected adult salmon to seed polycheate populations, please refer to Master Response AQF-5.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-236

The NMFS and CDFW have jointly proposed reduced production goals at Iron Gate Hatchery and Fall Creek Hatchery. While the DEIR partially recognizes this, the production target for yearling Chinook should be 115,000 not the 1 million fish presented in the DEIR (see NMFS and CDFW 2017 for details). The DEIR needs to be updated to reflect the actual production targets and the impact of these reductions would have on the fisheries of the Klamath River (see Major Issue 2.6).

Response to Comment ORG46-236

Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* has been revised to correct the typographical error. Please refer to Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* for these revisions.

Comment ORG46-237

The DEIR states that during the first 8 years after dam removal, hatchery production effects on aquatic resources would be similar to Existing Conditions. While production targets for Coho remain the same as under existing conditions, Iron Gate Hatchery will be producing fewer Chinook. Therefore, the DEIR needs to accurately characterize the effects on aquatic resources and the fisheries that this reduction in hatchery production would have (see Major Issue 2.6).

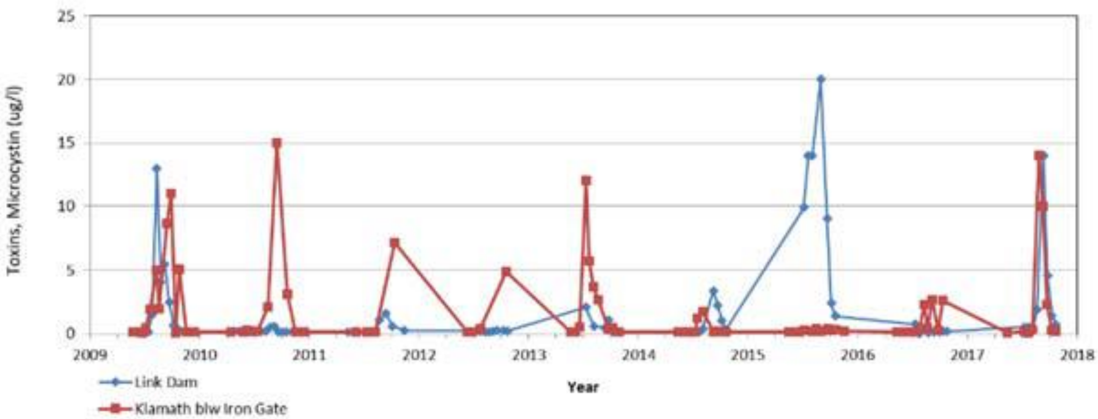
Response to Comment ORG46-237

Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* describes the potential effects of hatchery releases on natural stocks. While goals for hatchery releases of Chinook salmon smolts and yearlings would be reduced, large releases of hatchery origin Chinook would continue during the 8-year period following dam removal. In addition, actual hatchery production varies annually based on adult returns and hatchery performance, and for Chinook salmon smolts has typically been about 1 million less than production goals. Therefore, the effects of continued releases of hatchery origin Chinook salmon smolts on aquatic resources during the 8-year period following dam removal is expected to be similar to existing conditions. There are no substantial difference anticipated in effects on aquatic resources between existing conditions and the 8-year period following dam removal.

Please note that this assessment is distinct from the assessment of total number of fish available for harvest, as is discussed in Master Response AQF-3. Please also refer to Master Responses AQF-2 for additional discussion of hatchery operations.

Comment ORG46-238

The DEIR states "While some microcystin may be transported to downstream reaches of the Klamath River from large blooms occurring in Upper Klamath Lake, the levels would not be nearly as high as those experienced under existing conditions, because seasonal blooms in Copco No. 1 and Iron Gate reservoirs are the primary source of Microcystis aeruginosa to the Middle and Lower Klamath River (see Section 3.4.2 Phytoplankton)." It is unclear from the data (see below) what the actual effects of microcystin release from Keno Dam could be on the Klamath River. While in some years releases from Iron Gate Dam are higher in microcystin than those from Keno Dam, this is not the case in all situations. Following implementation of the Proposed Project, Upper Klamath Lake and Keno Reservoir will become the primary source of microcystin in the Klamath River.



Response to Comment ORG46-238

Data in the graph provided in the comment show microcystin concentrations in the Klamath River at Link Dam and downstream of Iron Gate Dam. Microcystin concentrations measured at Link Dam cannot be used to represent microcystin concentrations downstream of Keno Dam since microcystin concentrations at Link Dam would not include changes in microcystin concentrations from the Keno Reservoir. The comment does not provide data on microcystin concentrations downstream of Keno Dam, so it is not possible to draw conclusions about the relative microcystin concentrations downstream of Keno Dam compared to downstream of Iron Gate Dam.

Please refer to Master Response PAP-1 for discussion of the potential transport of algal toxins from upstream sources (i.e., Upper Klamath Lake and Keno Reservoir) into the Hydroelectric Reach and the Middle and Lower Klamath River, including a comparison of microcystin concentrations in the Klamath River downstream of Keno Dam and downstream of Iron Gate Dam.

Comment ORG46-239

The DEIR mistakenly characterizes the miles of stream as salmonid habitat without providing supporting evidence from specific habitat evaluations of the streams in question. A more accurate discussion would present the miles of stream potentially accessible to salmonids and not attempt to characterize them as habitat. There is a large difference between a migratory corridor through which fish simply pass and spawning or rearing habitat. Presenting data as miles of 'habitat' misleads the reader into believing that this area is all useful when in fact it may not be. Most of Fall Creek, for example, is relatively high gradient, has a boulder and large cobble substrate, and is not suitable salmonid spawning habitat.

Response to Comment ORG46-239

The EIR's characterization of suitable habitat that potentially occurs upstream of Iron Gate Dam is based on the best available and most current scientific and factual data, including Huntington (2006), DOI (2007), FERC (2007), and NMFS (2007b). Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitgation – Aquatic Habitat* has been revised to clarify the extent of suitable habitat upstream of Iron Gate Dam. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-240

Although cited on page 3-228 as a personal communication, PacifiCorp is not aware of any ongoing work related to improving fish passage at Keno Dam following transfer to the federal government. The last sentence of this paragraph is incorrect. While USBR would take ownership of Keno Dam under the KHSA, and USBR has assessed passage improvements that may be desirable at Keno Dam should the Proposed Project occur, PacifiCorp is not aware of any plans that USBR has to improve fish passage, and such work is certainly not "in the process" of being completed as represented in the DEIR.

Response to Comment ORG46-240

The EIR accurately cites Terri Reaves Gilmore (United States Bureau of Reclamation [USBR]) based on a personal communication in the form of an email, which stated:

"Reclamation, along with our partners, have been meeting to discuss the current fish passage facility and any potenrial upgrades. As mentioned, Keno is generally understood to be inadequate for passing sucker, etc. As such, Reclamation is studying alternatives and interm measures that may be needed at the Keno Dam fish passage facility for post dam removal conditions. At this time, we haven't settled on a perferred alternative" (T. Reaves Gilmore, USBR, pers. comm., October 2018)."

Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitgation – Aquatic Habitat – Upper Klamath River and Connected Waterbodies* has been clarified in

Volume III of the EIR to indicate that fish passage improvements at Keno Dam are currently being discussed by USBR. Please refer to Volume III Section 3.3 *Aquatic Resources* for the revisions.

<u>Comment ORG46-241</u>

The DEIR's reference to conclusions from the Maule et al. (2015) study on C. shasta effects to fall-run Chinook needs to be updated in light of new information. Chinook salmon are only susceptible to the Type I C. shasta genotype, which was not present in the upper Klamath River Basin at the time of the study. Hurst et al. (2012) concluded that after dam removal, adult salmon would transport parasite genotypes (i.e., Type I) from areas down stream of Iron Gate Dam to the upper basin. Thus, in the future, juvenile Chinook will be susceptible to infection from this parasite, which will likely lead to increased mortality.

Response to Comment ORG46-241

Table 3.3-10 of Volume III Attachment 1 Section 3.3.2.3 Aquatic Resources – *Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* includes a summary of the *C. shasta* genotypes in the Klamath Basin, distribution, affected species, and other relevant information. Volume III Attachment 1 Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitgation – Aquatic Habitat* includes a discussion of the suitability of conditions for Chinook salmon upstream of Iron Gate Dam, and the susceptibiliy of Chinook salmon juveniles to Type I *C. shasta* as described by Maule et al. (2009). The comment refers to research by Maule et al. (2015), which appears to be an incorrect citation. Volume III Attachment 1 Section 3.3.5.5 *Fish Disease and Parasites* addresses the results of Hurst et al. (2012), including the implications of concentrations of *C. shasta* in areas upstream of Iron Gate Dam. Please also refer to Master Response AQF-5 for a discussion of the potential for disease risk upstream of Iron Gate Dam under the Proposed Project.

Additionally, Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitgation – Aquatic Habitat* has been revised to clarify Maule et al. (2009) statements regarding reintroduction of spring-run Chinook salmon. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comment ORG46-242</u>

The DEIR recognizes that seasonally poor water quality conditions in Keno Reservoir/Lake Ewauna have the potential to create a barrier to safe, effective, and timely fish passage through this waterbody, as has been recognized by the DOI and the NMFS. Given that the ability of salmonids to migrate to habitat that will be made accessible from the Proposed Project is fundamental to the entire success of the Proposed Project and the logic behind the Proposed Project, the DEIR should assess the effects to the Proposed Project outcome should passage through Keno Reservoir/Lake Ewauna continue to be challenged by water quality conditions. The DEIR should assess what those poor water quality conditions are, how frequently the currently occur, and whether a fish passage *barrier at Keno Dam created by poor water quality conditions would result in crowding of fish downstream of the dam that could result in a disease nidus such as is hypothesized to exist downstream of Iron Gate Dam due to high spawner density. This is especially important in light of the fact that the trap and haul fish passage program to address poor water quality conditions in Keno Reservoir is not an element of the Proposed Project and is not, to PacifiCorp's knowledge, planned to be implemented by USBR or other agencies.*

Response to Comment ORG46-242

Master Response AQF-5 includes a detailed discussion of disease risk upstream of Iron Gate Dam and the risk of a nidus developing downstream of Keno Impoundment/Lake Ewuana related to water quality and fish passage issues.

Comment ORG46-243

The DEIR states that the Proposed Project will increase Chinook salmon abundance based on Hendrix (2011) modeling analysis, among others, which is viewed to be the most robust assessment. To be precise, the Hendrix (2011) analysis forecasts that natural Chinook salmon production will increase. The analysis does not present data for hatchery fish returning to Iron Gate Hatchery or Trinity River Hatchery. This distinction is important because as the DEIR states, Iron Gate Hatchery produces about 50,000 adults (see DEIR pg. 3- 248). Hendrix (2011) estimates that the Iron Gate Dam to Keno Dam reach would produce 23,000 adult natural origin fall-run Chinook if there was no harvest of those adults. This number is approximately 50 percent less than the corresponding number of adult Chinook currently produced by Iron Gate Hatchery.

The DEIR notes that one of the reasons that Hendrix (2011) model results are used in the analysis is that it provided variance estimates of uncertainty, yet the results of this uncertainty analysis are not presented in the DEIR. This uncertainly analysis should be described in the DEIR especially since other analyses estimated substantially less Chinook production for the same reach. For example, Lindley and Davis (2011) estimated that adult escapement (after harvest) for the reach extending from Iron Gate Dam to Keno Dam would be less than 1,000 spring Chinook and 1,000 fall Chinook, respectively. Additionally, the results from habitat modeling conducted during FERC relicensing (Oosterhout 2005; PacifiCorp 2005) and the opinion of the Chinook Expert Panel (Goodman et al. 2011) as to potential production compared to current hatchery production of adults should be described in the DEIR. All three of these analyses showed that Chinook production would be similar to, or less than, the number of adults produced by Iron Gate Hatchery. For example, model results for Oosterhout (2005) and PacifiCorp (2005) indicated that if average harvest rates are applied, adult escapement in the Iron Gate to Keno reach is less than 5,000 adult fall-run Chinook.

At a minimum, the analyses by PacifiCorp (2005) and Oosterhout (2005) should be described, particularly because these two analyses are thorough, specific to the Klamath River, and provide adult production estimates for every dam removal alternative in the DEIR. These two analyses incorporated actual measurements of stream habitat and water quality for virtually every river mile from Iron Gate Dam to upstream of Upper Klamath Lake. The data for the two analyses were collected by agencies and PacifiCorp staff as part of the FERC relicensing process and data inputs to the models used were reviewed and agreed to by the involved fisheries agencies. In contrast, the Hendrix (2011) model used the much more simplified assumption that habitat quality in the Upper Klamath Watershed is similar to other streams up and down the West Coast that support wild populations of Chinook (even though the Klamath River is like no other stream on the West Coast and has water quality challenges unlike most other watersheds). Thus, the analyses of PacifiCorp (2005) and Oosterhout (2005) are based on basin-specific scientific information in contrast to Hendrix (2011) that uses generic data from the Pacific Northwest, Canada, and Alaska.

Overall, the lack of objectivity and balanced presentation of model types, assumptions, applicability, and results creates a biased perspective on the potential salmon production following implementation of the Proposed Project. The DEIR should clearly state that the although the Proposed Project could lead to increase natural production it is highly uncertain that total Chinook production will increase over current conditions. The level of uncertainty surrounding the Hendrix (2011) modeling can be found in tables in that report and the subsequent Hendrix (2012) report. The uncertainty information from these sources should be described in the DEIR.

Response to Comment ORG46-243
The comments regarding the observation that the EIR focuses on predictions of natural versus hatchery fish under the Proposed Project are noted. Please refer to Master Response AQF-3 for a discussion of the implications (including harvest) of increasing natural production of Chinook salmon under the Proposed Project, as a replacement for hatchery production. Uncertainty in the analysis of fall-run Chinook salmon production modeling, and the analyses of PacifiCorp (2005) and Oosterhout (2005), are addressed in Master Response AQF-8. Note that PacifiCorp (2005) is not a separate analysis, and rather is a response to a Federal Energy Regulatory Commission (FERC) Additional Information Request regarding the Oosterhout (2005) Ecosystem and Diagnosis Treatment Model (EDT).

Comment ORG46-244
The DEIR mistakenly reports that the Hendrix (2011) analysis provides forecasts of Type I and Type II life history strategies, when in fact, Hendrix (2011) modeled Type III, not Type II. Specifically, the analysis looked at possible adult production for ocean-type and stream-type Chinook with the latter being considered a spring-run Chinook. Thus, the Hendrix analysis is an estimate of total Chinook

production for the Proposed Project area. For the Iron Gate Dam to Keno Dam reach, Hendrix (2011) modeled an ocean-type Chinook that is assumed to be a fall-run Chinook.

Response to Comment ORG46-244

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 has been revised to fix a typographic error regarding the Chinook salmon type included in the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) model. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for the revisions.

Comment ORG46-245

The DEIR states that the Hendrix (2011) model assumes that Iron Gate Hatchery production does not occur under the Proposed Project. This statement is an oversimplification of what Hendrix (2011) modeled. Specifically, the model results from Hendrix (2011) are for natural origin fish only and that hatchery returns to the hatchery are not provided. Further complicating the issue however, is the fact that the production function used in the model to determine harvest levels includes hatchery fish that spawned naturally. Hatchery fish that spawn naturally count toward the 40,700-adult natural escapement goal. Therefore, reduction or elimination of hatchery production in the short term would affect the ability of the resource agency managers to achieve the 40,700-adult natural escapement target since achieving that target relies upon fish production from hatchery fish that spawn naturally. Eliminating hatchery fish from the spawning grounds could increase the productivity of the natural population over time, but this will take many decades to occur.

Response to Comment ORG46-245

A fundamental concept of Chinook salmon population dynamics included in the Hendrix (2011) model is that the primary density-dependent limitation to fall-run Chinook population production is available spawning habitat (whereas other limitations such as disease and water temperature, are considered as density independent functions). Increased access to spawning habitat under the Proposed Project is therefore predicted to result in an increase in production, and any spawning habitat not used by hatchery-produced adults would be used by naturally-produced adults. This transition would occur over time. Under the Proposed Project, production of hatchery fall-run Chinook salmon would continue for eight years following dam removal and would support the gradual transition to complete natural production. Predictions of the response of the fall-run Chinook salmon population to the Proposed Project are described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 and include eight years of hatchery production following dam removal, after which hatchery production would cease. Restored access to hundreds of miles of historical habitat is predicted to result in an increase in natural production of fall-run Chinook salmon under the Proposed

Project. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-8.

Comment ORG46-246

The DEIR indicates that a 43 percent decrease in hatchery juvenile production equates to a 43 percent decrease in adult production. However, this statement is only accurate if the ratio of subyearlings and yearlings released from the hatchery is the same for both Existing Conditions and the Proposed Project which is clearly not the case. Currently the ratio of yearlings to subyearlings is 0.18, over 5 times higher than the ratio of 0.03 in the Proposed Project. Because yearlings have two to three times the survival rate of subyearlings, the resulting adult production is expected to be less under the Proposed Project with the larger reduction in hatchery production of yearling Chinook. The reduction in yearling production is substantially larger (87%) than for subyearlings (33%).

Response to Comment ORG46-246

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 has been revised to clarify anticipated survival rates for smolt and yearling release under the Proposed Project. Revisions include re-calculations within all appropriate analyses. Although a few numeric predictions have been slightly revised, no revisions resulted in changes to significance determinations. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for the revisions.

In addition, Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts to Tribal Cultural Resources,* Potential Impact 3.12-9 has been revised to clarify anticipated survival rates for smolt and yearling release under the Proposed Project. Revisions include re-calculations within all appropriate analyses. Although a few numeric predictions have been slightly revised, no revisions resulted in changes to significance determinations. Please refer to Volume III Attachment 1 Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts to Tribal Cultural Resources* Potential Impact 3.12-9 for the revisions

Comment ORG46-247

This paragraph in the DEIR does not accurately reflect the Proposed Project. Please consider the following:

1. As it is written, the reader is unclear if the discussion is focused on outcomes for the Iron Gate Dam to Keno Dam reach or for all habitat upstream of Iron Gate Dam.

2. The assumption that there would be a 43 percent reduction in smolt production and a corresponding and equal decrease in adults is incorrect (see comment 3.3-89 directly above). Because this incorrect assumption is used throughout this analysis, the entire analysis needs to be revised.

3. The DEIR erroneously states that "The elimination of the goal of releasing around six million Chinook salmon smolts and yearlings annually after 8 years..." is incorrect. Please refer to the correct hatchery production targets from NMFS and CDFW 2017 (see comment 3.3-79). According to NMFS and CDFW (2017) the total annual Chinook production target is about 3,515,000 juvenile Chinook, not 6 million as stated in the DEIR. This error affects the entire analysis.

4. Hendrix (2011) analysis results assume active reintroduction starting in 2019 with fry being planted into suitable habitats at levels that that habitat can support them. Because there is no fry stage in the model, Hendrix (2011) predicted stocking to habitat capacity by assuming that the number of adult returns were at or above the unfished equilibrium population size (about 17, 000 to 53,691) from 2019 to 2029. For the Iron Gate Dam to Keno Dam reach, Hendrix (2011) simply added in habitat capacity to the lower river population. Thus, the Hendrix (2011) modeling assumes that reintroduction would be immediate, and no other approach would result in quicker reintroduction. The model was not designed to forecast how quickly adult production would increase under a natural recolonization process as assumed for the Proposed Project.

The DEIR asserts that a combination of hatchery adult returns and returns from newly accessible habitat upstream of Iron Gate Dam would equate to the active reintroduction stocking levels assumed in Hendrix (2011) yet the DEIR provides no evidence or reasoning to support this conclusion.

Response to Comment ORG46-247

With respect to item no. 1 in the comment, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 states that that natural spawning would occur in "newly accessible habitat," which is all habitat upstream of Iron Gate Dam. Directly following dam removal most fall-run Chinook salmon natural spawning is anticipated occur in the Iron Gate to Keno reach of the Klamath River, with a broader distribution over time.

With respect to item no. 2 in the comment, please refer to response to comment ORG46-246.

With respect to item no. 3, the typographical error in Potential Impact 3.3-7 has been corrected from "releasing around six million Chinook salmon smolts and yearlings," to correct state "releasing around 3.5 million Chinook salmon smolts and yearlings." Because this was a typographical and not analytical error, no further changes to the EIR are required. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With respect to item no. 4 in the comment, Potential Impact 3.3-7 states, “between post-dam removal years 3 and 10, both hatchery returns and returns from newly accessible habitat would occur, potentially increasing the rate of reintroduction *comparable* to the effect of active reintroduction assumed in the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) model.” An assessment that the rates are “comparable to” the EDRRA rates assumed in Hendrix (2011) does not mean that the combination of hatchery adult returns and returns from newly accessible habitat upstream of Iron Gate Dam “would equate to” the active reintroduction assumptions in Hendrix. The rates are comparable in that the rate of recolonization would be increased due to hatchery production (i.e., increased straying rates), as it would under active reintroduction, but that does not assume that the rate of increase is the same. Potential Impact 3.3-7 also provides a discussion of the likely rate of re-colonization based on Chinook salmon straying rates, and observations following removal of barriers in other watersheds. Therefore, the EIR indicates that immediate optimization of the newly accessible habitat is not anticipated. The details of the Hendrix (2011) model described in the comment are also provided in the EIR, and they are incorporated to the extent relevant to the analysis. In addition, as described in revised Potential Impact 3.3-8, it is anticipated that Oregon Department of Fish and Wildlife (ODFW) will undertake active reintroduction of spring-run Chinook salmon (T. Wise, ODFW, pers. comm., 2019). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-248

The DEIR cites the Hendrix (2011) analysis to claim that fishery closures are less likely under the Proposed Project (dam removal) than Existing Conditions. However, this outcome of less likely fish closures is not described in Hendrix (2011) and it is not clear how the DEIR can support this assertion. Fishery closure information was presented in an earlier draft report but not in the final Hendrix (2011) report and drafts are typically not cited specifically because they can change before becoming final as appears to have been the case here. Regardless, in the draft Hendrix report, a 2.5 percent abundance exceedance value between the two alternatives was used to support the conclusion that fishery closures were less likely with a dams-out scenario. The draft analysis also assumed that the 40,700-adult escapement target would still apply even though spawners were assumed to colonize an additional 59 to 80 miles of habitat between Iron Gate Dam and Keno Dam.

For the first few generations during and after dam removal, the DEIR's analysis should more accurately state that the risk of a fishery closure may increase. This conclusion is based on the following assumptions presented in the DEIR:

1. Substantial reduction in hatchery Chinook production at Iron Gate Hatchery. Iron Gate Hatchery fish contribute a substantial number of adults to the Klamath

River natural escapement target and about 28,000 fish on average to harvest (CAHSRG 2012).

2. Loss of at least 1-year class of mainstem spawning fall-run Chinook because of dam removal impacts.

3. Unknown/uncertain speed and effectiveness of recolonization, yearly environmental conditions (flow and temperature during and after dam removal), and uncertainty around modeling predictions of adult production.

4. The current relatively low abundance of fall-run Chinook salmon throughout the upper Klamath River which limits production and therefore fishery escapement and harvest goals.

Response to Comment ORG46-248

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 has been revised to remove attribution to Hendrix (2011) for describing the probability of fishery closures under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for the revisions.

The comment's speculation that there will be an increased risk of ocean fishery closures following dam removal is not supported by the referenced assumptions. First, with regard to cited "substantial" reduction in hatchery production, analysis in the EIR finds a decrease of approximately 3,552 adults on average resulting from reduced hatchery production, which is within the existing degree of annual variability in hatchery-origin Chinook salmon returns (2,558 to 72,474 for the period 1980 to 2001 [CDFW 2016b]) and natural Chinook salmon returns (6,957 to 91,757 for the period 1980 to 2001 [CDFW 2016a]). Second, with regard to cited "loss of at least 1-year class of mainstem spawning because of dam removal impacts," analysis in the EIR finds that mainstem spawning contribues only a small proportion of the overall production. Based on redd surveys from 1999 through 2009 (Magneson and Wright 2010), an average of approximately 2,100 redds could be affected in the mainstem. As described in detail in Volume II Appendix E.3.2.1, based on escapement estimates in the Klamath Basin from 2001 through 2009 (CDFG 2010, unpublished data) on average this would be approximately eight percent of all anticipated fall-run Chinook salmon redds in the Klamath River Basin in the fall spawning of dam removal year 1. In addition, reduced hatchery production would not begin until the year after impacts to mainstem spawning have occurred, so these would not represent cumulative reductions in production. Third, with regard to cited "unknown/uncertain" speed of recolonization, the EIR uses predictions that consider this uncertainty, and environmental variablity exists under current conditions as well, contributing to a risk of fishery closure regardless of dam removal. Finally, regarding the current low abundance of fall-run Chinook salmon, annual returns fluctuate based on environmental and other factors unrelated to dam removal. The predicted insubstantial short-term reductions in abundance resulting from dam removal would be within the existing degree of annual variability in Chinook salmon returns.

Comment ORG46-249

The DEIR should acknowledge the possibility that the Proposed Project might essentially simply result in the replacement of hatchery Chinook production with natural origin production. The Chinook Expert Panel (Goodman et al. 2011) concluded that natural fall Chinook from the Iron Gate to Keno reach (following dam removal and including implementation of restoration actions associated with the now expired Klamath Basin Restoration Agreement) had the potential to match current adult production from the Iron Gate Hatchery. Additionally, this was the conclusion of detailed fish production modeling undertaken during the FERC relicensing process (PacifiCorp 2005; Oosterhout 2005). See Major Issue 2.6.

Response to Comment ORG46-249

The EIR is consistent with the comment noting the predicted increase in fall-run Chinook salmon abundance with increased habitat access under the Proposed Project, and reduced hatchery production. Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 discusses the available analysis and predictions of fall-run Chinook salmon production, including summarizing the results of the Chinook Expert Panel (Goodman et al. 2011), Hendrix (2011), and Oosterhout (2005). PacifiCorp (2005) is an additional information request response to Federal Energy Regulatory Commission (FERC) and is consistent with Oosterhout (2005). Potential Impact 3.3-7 also discusses the effects of eliminating hatchery production after eight years on predicted abundance under the Proposed Project.

Comment ORG46-250

The DEIR fails to note that the action that the Expert Panels considered and discussed in their reports is dam removal AND implementation of the Klamath Basin Restoration Agreement. The Klamath Basin Restoration Agreement included an abundance of funding for restoration and long-term management actions that would benefit fish; these are not part of the Proposed Project. Because of this, extrapolating the Expert Panel' s determinations to the Proposed Project is not valid. While the DEIR acknowledges the uncertainty reported in the Expert Panel Report on spring-run Chinook recolonization it inaccurately constrains the limitations expressed in Goodman et al. (2011) to just low abundance and productivity of spring-run Chinook. In fact, the other main concern expressed in Goodman et al. (2011) relating specifically to spring-run Chinook was the projected increase in spring (February to July) water temperatures in the Klamath River that could limit upstream movement of adult spring-run Chinook.

The DEIR makes an inappropriate comparison between the removal of Condit Dam on the White Salmon River and the Proposed Project as it relates to the recolonization by salmon. Specifically:

1. Condit Dam was located only about 3.3 miles upstream from the confluence of the White Salmon River and the Columbia River, not 190 miles from the Pacific Ocean like on the Klamath River.

2. There is not 120 square-miles of hypereutrophic lake feeding poor quality water into the White Salmon River. According to Allen et al. (2016) the mainstem White Salmon has relatively cold water throughout the year provided by snowmelt and springs.

3. While spring-run Chinook were considered extirpated from the White Salmon River and have since recolonized the river in low numbers as indicated in the DEIR, it is important to have the full context for this statement and understand the differences between this river and the Klamath River. Spring-run Chinook migrate up the Columbia River in substantial numbers; the 10-year average count at Bonneville Dam is over 148,000 spring-run Chinook (FPC 2019) With populations at this size, even minor straying into the White Salmon River could be reasonably expected to occur. This is very different from conditions on the Klamath River where the nearest spring-run Chinook population is a very small one (only 166 spring-run Chinook were counted in 2017; SRRC 2017) on the Salmon River over 123 river miles downstream of Iron Gate Dam.

4. Adult fall-run Chinook salmon were trapped and moved to the river upstream of Condit Dam before removal occurred. This created a population of juveniles that were not directly impacted by removal and ready to migrate downstream and then return from the ocean in a 2-5 years. Upon return, they would home to the areas where they were spawned. This situation is more akin to the conditions assumed in Hendrix (2011).

Response to Comment ORG46-250

With respect to KBRA, Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 and 2-25) clearly states that the Klamath Basin Restoration Agreement (KBRA) is not part of the Proposed Project. Accordingly, actions associated with the KBRA were not considered in the analysis of potential effects due to the Proposed Project (or the alternatives). The analysis of potential effects carefully considered findings by the Chinook Salmon Expert Panel with regard to KBRA actions. Inclusion of the KBRA by the Chinook Salmon Expert Panel was noted under the discussion for fall-run Chinook salmon Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7. Discussion in Potential Impact 3.3-7 is consistent with the comment that the Expert Panel considered increased in Chinoook salmon abundance predicated upon KBRA actions, which are not included in the Proposed Project, and the EIR's analysis puts references to the Expert Panel in appropriate context. The Expert Panel results are one source of information that is considered in the EIR, in addition to other critical sources of data that are evaluated to reach the conclusions stated in the Potential Impact 3.3-7.

Please also refer to Master Response AQF-12 for a discussion of the incorporation of expert panel reports in the analysis of effects in the EIR.

Regarding the assertion that the EIR does not include mention of the Expert Panel's additional concern about water temperatures, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8 has been revised to clarify that water temperatures would be slightly warmer in the spring under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8 for the revisions.

Regarding the differing conditions for spring-run Chinook populations in the White River and the Klamath River, the EIR identified the White Salmon River as a recent example of recolonization after dam removal that is specific to spring-run Chinook salmon. As discussed in the EIR, such comparisons are intended to provide examples to inform the analysis of effects for the Proposed Project. However, this example (or other examples of Chinook salmon recolonization after dam removals) are not relied upon for precise predictions and therefore detailed comparison is unnecessary. The section appropriately discusses impediments to recolonization on the Klamath River, especially for spring-run Chinook salmon, and the EIR's analysis places information regarding prior recolonization efforts in other watersheds into the appropriate context.

Comment ORG46-251

The DEIR states that Upper Klamath Lake may have considerable production potential for Chinook. If so, the DEIR should then make similar statements for the reservoirs under all the alternatives where reservoirs remain in place. Reservoir environmental conditions in the early spring (to June) and fall/winter (October – February) have water quality conditions that would be supportive of Chinook, Coho, and Steelhead rearing (as assumed in the DEIR for Upper Klamath Lake). Thus, the DEIR should assume the reservoirs would have similar rearing value as Upper Klamath Lake.

The DEIR also states that most or all spring-run Chinook upstream migrants would be able to pass upstream through the Keno Reservoir/Lake Ewauna area before seasonal water quality reductions would restrict passage. However, the DEIR concludes in Section 4 that spring-run Chinook passage with reservoirs in place would be more restrictive even though environmental conditions are as good or better in the reservoirs than Lake Ewauna and Keno Reservoir. It is *unclear how better conditions for passage through IronGate and Copco reservoirs equates to poorer passage of fish. The DEIR should correct this analysis and conclusions accordingly.*

Response to Comment ORG46-251

The referenced statement in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8 concerns *historic* Chinook production potential in Upper Klamath Lake. The statement in the EIR does not refer to existing or potential future conditions, as alluded to by the commenter. Further, the referenced sources are specific to Upper Klamath Lake.

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* – Potential Impact 3.3-8 states that most or all spring-run Chinook salmon would be able to pass upstream through Keno Reservoir/Lake Ewauna area before water quality would restrict passage. This statement is reiterated in Volume I Section 4.4.3.7 *Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-8 (page 4-141).

The text directly following the referenced section addresses the anticipated improvements to migration potential through the Hydroelectric Reach under the Proposed Project, including access to thermal refugia, improved thermal conditions for growth, more natural flow and water quality regimes, and reductions in disease. Further, Volume I Section 4.4.3 *Continued Operations with Fish Passage Alternative – Aquatic Resources* (page 4-99) and Volume I Section 4.4.3.7 *Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-8 (page 4-140) describes the potential impacts of maintaining the reservoirs with upstream and downstream fish passage on spring-run chinook with reservoirs in place.

The presence of dams and reservoirs under the Continued Operations with Fish Passage Alternative would continue to cause seasonally poor water quality, and high late summer and early fall water temperatures, allowing some conditions favorable for the transmission of fish disease to persist. These reservoir-related conditions would continue to have negative effects on spring-run Chinook salmon populations, as compared to a without-dams scenario under the Proposed Project (Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-8).

Comment ORG46-252

The CDFW (2014) source cited to support the smolt-to-adult survival rate of 0.99 presented in the DEIR is a decent start but the smolt-to-adult ratio should have been updated to reflect the more recent years of data and increase the accuracy of this prediction.

Response to Comment ORG46-252

With respect to the coho salmon smolt-to-adult survival rate cited from CDFW (2014), 0.99 percent is the most recently published value for smolt-to-adult survival, and thus it is the best available and most current scientific and factual data. Personal communications with California Department of Fish and Wildlife (CDFW) (M. Knechtle, biologist, CDFW, pers. comm., April 2019) suggest that recent years have exhibited slightly lower survival, with an estimated smolt-to-adult survival rate for the period 1994 to 2016 of 0.9258. However, the rate of 0.99 is considered by CDFW to be accurate based on their data and observations. A slightly lower survival assumption would potentially lessen the effect of ceasing hatchery operations after eight years; however, the reported coho salmon hatchery release smolt-to-adult value of 0.99, as affirmed by CDFW, is used for the EIR analysis.

Comment ORG46-253

The DEIR makes the unsupported assertion that when the hatcheries stop releasing fish, disease rates and resulting mortality would be reduced in outmigrating fish. The DEIR does not explain how this reduction in disease rates would occur since infection is based on spore density in the river and not really abundance of juvenile fish; also, returns of infected adults would continue to infect the polychaete populations.

The DEIR also proposes that the reduction in hatchery releases would reduce competition for food and space in the river. There is no evidence to support the claim that competition for space or food is in any way limiting the population of Chinook and Coho.

Response to Comment ORG46-253

Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for a more in-depth discussion of the potential effects of the Proposed Project on coho and Chinook salmon populations in relation to disease factors. Please also refer to Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* for a more in-depth discussion of the potential effects of changes to hatchery production and dispersing hatchery operations (to Fall Creek Hatchery [FCH]) including potential impacts to aquatic resources due to fish disease and parasites. The referenced sections provide several citations to support the assertions regarding hatchery effects. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-6, which describes key factors and resources used in the analysis of disease dynamics and the effects assessment, and response to comment ORG46-254, below, for information regarding competition.

Comment ORG46-254

The DEIR suggests that a reduction in hatchery production would result in significantly reduced competition for space and food with natural origin fish. According to the DEIR, this would in turn result in higher growth rates for natural origin smolts, large fish size, and higher survival and adult returns by a rate that would be "...more than the loss of hatchery progeny." There are two main issues with this conclusion:

1. The DEIR implies that food is limiting in the Lower Klamath River, but yet water temperature effects in previous sections of the DEIR are based on criteria where food is not limiting. The DEIR should resolve this apparent contradiction.

2. The discussion regarding reintroduction of fall-run Chinook, the DEIR concludes "... that the Proposed Project would increase the abundance, productivity, population spatial structure, and genetic diversity of fall- run Chinook salmon in the Klamath Basin (Hendrix 2011)." The conclusion that fall-run Chinook productivity would increase was based on the implementation of KBRA actions, which are not included in the Proposed Project. Despite this issue and other issues already raised in these comments with the Hendrix model, the DEIR should explain how this increased natural production does not result in a higher level of competition for food and space than is present with the hatchery releases. If all fall-run Chinook are of natural origin, then spawning and emergence timing would be similar in reaches downstream of Keno Dam, effectively increasing the duration competitive interactions for food and space compared to the existing conditions where hatchery juveniles do not interact with natural origin fish until they are released and that release timing is typically towards the end of the natural-origin fish movement period (late May/early June).

Response to Comment ORG46-254

With respect to whether food is treated as limiting or not, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* describes the analysis of reduced hatchery production on the growth and survival of natural origin smolts. This analysis is not reliant on an assumption of food limitation. Rearing salmonids compete for resources of food and space, and the available information (e.g., McMichael et al. 1997) indicates that reduced competition with hatchery produced fish would support potential increased growth rates of naturally produced fish.

The water temperature criteria used in the EIR analysis were based on USEPA (2003) guidelines for salmonids, which were developed based on an assumption of limited food supply. Please also refer to response to comment ORG46-219 for detailed response to issue of food limitation assumptions and water temperature effects.

With respect to the potential for an increase in natural Chinook Salmon production, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation*

– *Aquatic Resource Impacts* Potential Impact 3.3-7 predicts an increase in natural Chinook salmon production. However, the overall density of rearing Chinook salmon would not increase over existing conditions, since the restored access to areas upstream of Iron Gate Dam would substantially increase the availability of rearing habitat. In addition, in the long term, the river would eventually exhibit enhanced habitat complexity due to increased fine and coarse sediment supply, a more natural flow regime, greater sediment transport rates, and more frequent bed mobilization that would increase spawning habitat availability and quality and improve early rearing habitat downstream from Iron Gate Dam, as well.

Comment ORG46-255

The DEIR should clarify if the predicted colder fall and winter water temperatures under the Proposed Project would have any effect on salmonid egg incubation survival. For example, Carter and Kirk (2008) concluded that stream temperatures of less than 3°C result in higher egg mortality for Chinook and Steelhead. Carter and Kirk (2008) also reported that the optimal temperature for salmonid egg survival ranges from 6 to 10°C. The DEIR indicates that the Proposed Project would produce mainstem temperatures near or below the 3°C value from December through January in contrast to Existing Conditions where similar conditions occur for a about 10 days in early February (see Figure 3.3-5).

Response to Comment ORG46-255

With respect to the comment's concern regarding the effects of cold water on incubating coho salmon eggs under the Proposed Project, please note that water temperature effects are discussed in Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature.* Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

In addition, to emphasize the effects of changes in water temperature on coho salmon spawning in the mainstem Klamath River under the Proposed Project would be misleading. Coho salmon are distributed throughout the Klamath River downstream from Iron Gate Dam, and they spawn primarily in tributaries (Trihey and Associates 1996, NRC 2004, NMFS 2010a); therefore, temperature effects on mainstem spawning would not be a substantial effect of the Proposed Project. During their upstream migration, adult coho salmon from the Upper Klamath River Population Unit currently may travel as far as Iron Gate Dam (river mile [RM] 193.1), and they were formerly known to occupy mainstem Klamath River and tributary habitat at least as far upstream as Spencer Creek at RM 232.6 (NRC 2004, as cited in NMFS 2007a). Thus, the mainstem Klamath River functions primarily as a migration corridor for coho salmon. Based on Magneson and Gough (2006) spawning surveys from 2001 to 2005, only from 6 to 13 redds are typically observed in the mainstem. In 2015, no redds were observed in the mainstem Klamath River between Portuguese Creek (RM 128) and Bogus Creek (RM 192.6) (Hentz and Wickman 2016), and seven were observed in 2017 in the same reach (Dennis et al. 2017).

Comment ORG46-256

It is not clear in the DEIR if the earlier outmigration that is discussed only pertains to mainstem spawning Coho or a minor segment of the overall population. The vast majority of the Coho smolts will come from tributaries not affected by mainstem water temperatures, and their migration timing will therefore not be based on mainstem water temperatures.

Response to Comment ORG46-256

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* Potential Impact 3.3-9 cites the Hoar (1988) summary of temperature effects on smolt timing and discusses anticipated effects on coho smolts in the Area of Analysis for aquatic resources. As described in Potential Impact 3.3-9, coho salmon juveniles in the mainstem Klamath River upstream of the confluence with the Salmon River, (whether produced within the mainstem *or* the tributaries) are expected to undergo the physiological transition to the smolt life-stage and migrate downstream earlier under the Proposed Project than under existing conditions due to the water temperature shifts that are predicted to occur following dam removal. Please refer to Volume III Attachment 1 for the final Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts*.

Comment ORG46-257

Reference is made to aquatic resource measure AR-6 (Suckers) being included in this alternative. Given that this impact is not considered significant, it is unclear why this measure is included, perhaps 11 is required for Fish and Game Code 2081.11 under CEQA although CDFW has not made a final determination as to whether this measure meets the standards for take authorization under Fish and Game Code, Section 2081.11. The DEIR is not clear as to what happens if CDFW does not agree that AR-6 meets the conditions for take authorization in the future.

Response to Comment ORG46-257

As discussed in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-13, although the EIR finds no significant impact of the Proposed Project on Lost River and shortnose suckers in the short or long term, the Proposed Project itself includes Aquatic Resource Measure AR-6 (Suckers) to reduce the short- and long-term effects of reservoir removal. Section 2081.11 was added to the Fish and Game Code to authorize take of Lost River and shortnose suckers, subject to certain conditions. Aquatic Resource Measure AR-6 was developed in coordination with California Department of Fish and Wildlife (CDFW) (and other agencies) and is conditioned on approval from CDFW. CDFW (2018b) has reviewed Aquatic Resource Measure AR-6 and preliminarily agreed that the Proposed Project with implementation of Aquatic Resource Measure AR-6 potentially meets the standards for take authorization under Fish and Game Code, section 2081.11.

The EIR is not required to speculate as to what changes to Aquatic Resource Measure AR-6 might be proposed if CDFW's final decision differs from the preliminary agreement. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-258

The DEIR does not provide the rationale (other than a citation) as to why "Facilitating the movement of anadromous fish presents a relatively low risk of introducing pathogens to resident fish upstream of Iron Gate Dam." The DEIR should explain why this would present a low risk given the previous comments raised about disease (e.g., Major Issue 2.8).

Response to Comment ORG46-258

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* includes an assessment of risk of introducing pathogens to resident fish upstream of Iron Gate Dam under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-5, particularly the section titled *Risk of Nidus Forming Upstream of Iron Gate Dam*.

Comment ORG46-259

The DEIR should be edited to read "However, SSCs [suspended sediment concentrations] would be the result of sediment stored in J.C. Boyle and Copco reservoirs, which is relatively small potential impact (USBR 2012) because a large proportion of the adult redband trout population should be already spawning in Spencer or Shovel creeks during the dam removal." Impacts should be characterized in relation to the significance criteria and not described as 'small potential' as is presented in this text. Even a small impact can be significant.

Response to Comment ORG46-259

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* – Potential Impact 3.3-14 has been clarified with respect to how mobilization of sediment deposits in J.C. Boyle, Copco No. 1, and Iron Gate Dam would affect the adult redband trout population. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* – Potential Impact 3.3-14 for the revisions.

Comment ORG46-260

The DEIR does not analyze and describe the effects to fish communities in the Klamath River of releasing the entire population of Yellow Perch (Perca flavescens) from Copco and Iron Gate reservoirs (likely numbering into the hundreds of thousands) into the lower river during and after drawdown of the reservoirs. Yellow Perch will utilize side channels and off-channel habitat for rearing. These habitat types are also used by Chinook, federally-threatened

Coho, and Steelhead as well as native resident fish. If the Yellow Perch are not expected to survive the drawdown, then the DEIR should present the facts supporting this and discuss the likely disposition of carcasses that remain in the reservoir or are released downstream.

Response to Comment ORG46-260
Please refer to response to comment ORG46-14 for a detailed discussion regarding the release of yellow perch into the Middle and Lower Klamath River reaches.

Regarding the potential for yellow perch to survive initial reservoir drawdown, please refer to the Klamath River Expert Panel findings (Buchanan et al. 2011a), where the panel was convened to assess Lower Klamath Project dam removal effects on resident fish and concluded that dam removal, "…would change reservoir habitat to free-flowing river, which would adversely affect non-native fishes in the lower Klamath basin between Keno Dam and Iron Gate Dam. Abundances of largemouth bass, yellow perch, bluegill, and brown bullhead would significantly decline or be eliminated because their preferred reservoir habitat would be gone."

With respect to the comment's request for additional details regarding the disposition of yellow perch carcasses that remain in the reservoir or are released downstream following drawdown, as discussed in response to comment ORG46-14, yellow perch and other exotic fish species well adapted to lotic environments would be unlikely to survive dam removal under the Proposed Project. Therefore, yellow perch carcasses would be likely to be transported downstream of Iron Gate Dam during reservoir drawdown. While carcasses may be temporarily trapped in small wetted depressions in the reservoir footprints or deposited along channel margins downstream of the dams, they are not expected to accumulate in large numbers during and following dam removal due to continuous flushing by high river flows and ongoing predation by terrestrial biota, including raptors.

Comment ORG46-261
The DEIR states that "The areas downstream of the Trinity River confluence do not currently support Anodonta spp. and are unlikely to in the future (Davis et al. 2013)." The DEIR should further explain why the salvage and relocation plan considers these sites.

Response to Comment ORG46-261
As described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-19, Aquatic Resource Measure AR-7 includes development of a salvage and relocation plan prior to Lower Klamath Project dam removal, completion of reconnaissance surveys for existing freshwater mussels in the Klamath River from Iron Gate Dam to Cottonwood Creek, and potential relocation of mussels to habitat between the

upstream extent of J.C. Boyle Reservoir and Keno Dam. Translocation efforts described in proposed Aquatic Resource Measure AR-7 are expected to be successful for *G. angulata* and *M. falcata* (based on suitable habitat in translocation sites), but these efforts are unlikely to be successful for *Anodonta spp.* The EIR is clear that the translocation sites would be selected to benefit all freshwater mussels, while noting that these locations are not expected to benefit *Anodonta spp*.

Potential Impact 3.3-19 has been revised to clarify that Aquatic Resource Measure AR-7 refers to freshwater mussels in general and which species would be relocated. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-19 for the revisions.

Comment ORG46-262

The DEIR states that "the total potential production from redds in Bogus Creek is a low proportion of all the production from the Klamath River Basin for Chinook salmon, Coho salmon, and steelhead." However, the DEIR should note that Bogus Creek production makes up a substantial portion of the natural escapement target for the Klamath River (that target is 40,700 Chinook). Both hatchery and natural origin fish that spawn naturally are counted in the target. Achieving the adult escapement target is important because it affects ocean fisheries that may be closed if the escapement target is not met (Cejnar 2018).

Related to this is the extremely small population of Coho presently found in the Klamath River. Applying the same threshold for a significant impact to Coho as Chinook would seem to underestimate the actual potential impact to the Coho population. The status of this population and the potential effects of the Proposed Project are discussed in detail elsewhere (see Major Issue 2.1).

Response to Comment ORG46-262

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-23 has been slightly modified to more clearly state the importance of production of all salmonid species from Bogus Creek. The discussion has been revised to clarify that the impact being discussed is not the risk of losing all production from Bogus Creek; rather it is a small probability of the potential for a reduction in production. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-23 for the revisions.

Comment ORG46-263

The DEIR muddles the seasonal nature of the information in this long paragraph confusing the reader and leading to inaccurate conclusions. For example, toward the end of this paragraph, the DEIR concludes: "Thus, blue-green algae are able to outcompete diatoms and/or green algae under lower mixing *conditions in reservoirs." However, this is only accurate during summer and early fall when water temperatures are warmer. At other times, diatoms and green algae are able to outcompete blue-green algae. The DEIR needs to present a clear discussion of the seasonal succession and relative dominance of the diatoms, green algae, and blue-green algae, and all the factors that determine succession and relative dominance in addition to mixing conditions (such as, temperatures, light levels, nutrient availability/ratios, growth rates).*

Response to Comment ORG46-263

Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403) discusses the general environmental conditions that influence phytoplankton, including an explanation that the composition of the phytoplankton communities shifts seasonally in response to changing temperature, light, and nutrient levels (page 3-392, paragraph 2). Please refer to Volume III Attachment 1 Section 3.2.2.7 *Water Quality – Environmental Setting – Chlorophyll-a and Algal Toxins* and Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* (pages 3-405 to 3-413) for discussions of the phytoplankton seasonal patterns in the Klamath River Basin.

While the seasonal pattern of changing dominance of diatom, green algae, and blue-green algae [cyanobacteria] in lakes and reservoirs is associated with changing water temperature, light, and nutrient levels, multiple studies have shown that changes in turbulent mixing also result in shifts in the competitive balance between phytoplankton species that can control their buoyancy (i.e., cyanobacteria) and species that cannot control their buoyancy (i.e., diatoms and green algae) (Huisman et al. 2004; McDonald and Lehman 2013; Visser et al. 2016). Artificial mixing devices (e.g., aeration systems) have been shown to be an effective measure to shift the phytoplankton dominance from cyanobacteria to diatoms and green algae (Visser et al. 2016). Thus, changes in turbulent mixing due lower inflows and increased thermal stratification during the summer and fall are a significant influence on seasonal phytoplankton patterns observed in the Lower Klamath Project reservoirs.

Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403) has been revised to clarify the seasonal succession of diatoms, green algae, and blue-green algae. Please refer to Volume III Attachment 1 Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* for the revisions.

Comment ORG46-264

The DEIR refers to PacifiCorp-funded research by Oregon State University to determine the causes of the changes in the presence and amounts of microcystin in Copco and Iron Gate reservoirs (Otten et al. 2015; Otten and Dreher 2015; Otten and Dreher 2017). However, the discussion of this research is overly simplified and incomplete. For example, sequencing of a particular genetic *marker (i.e., the cpcBA) indicated that four or five different allotypes (clustered into operational taxonomic units; OTUs) comprised the Klamath River Microcystis population (Otten et al. 2015). The dominance in certain years by the only Microcystis strain correlated with microcystin production (i.e., OTU 1) raises the possibility that toxin biosynthesis confers some sort of competitive advantage over the other nontoxigenic Microcystis strains. It has been suggested that microcystin production provides cells with a competitive advantage during periods of high light or oxidative stress (Paerl and Otten 2013). Otten et al. (2015) speculated that a noticeable reduction in optically active components (i.e., total chlorophyll-a and dissolved organic carbon) within the reservoirs in 2010, 2012, and 2013 resulted in higher ultraviolet light exposures in the photic zone, and therefore caused potentially higher amounts of reactive oxygen species (and, hence, microcystin) to be generated.*

Although the OTU 1 Microcystis strain correlated with microcystin production often dominates in Copco and Iron Gate reservoirs, there have been documented periods when the OTU 1 strain was replaced by other Microcystis strains that are believed to not generate microcystin (Otten and Dreher 2017). To further address the matter, Otten and Dreher (2017) completed a multiyear assessment using analysis of variance and change point statistics to determine if changes in Microcystis population structure (i.e., strain composition) and toxigenicity coincided with specific environmental conditions. Regarding water quality variables that might influence toxicity via altered bloom composition, a number were found to significantly vary seasonally from year-to-year, but none did so in a temporally coherent manner coincident with the Microcystis strain succession patterns observed in the reservoirs (Otten and Dreher 2017). However, the assessment suggested that a reduction in light intensity and/or a shift in photosynthetically available radiation toward the red end of the visible light spectrum due to episodic wildfire smoke was a plausible explanation for observed strain turnover events. Because wildfires exert their influence regionally, differences in water chemistry between the reservoirs is largely irrelevant, which may explain why strain succession patterns between reservoirs tend to exhibit similar patterns even though the reservoirs can differ with regard to their physicochemical makeup.

Response to Comment ORG46-264

Section 3.4.2.3 *Phytoplankton and Periphyton Environmental Setting – Hydroelectric Reach – Phytoplankton* has been revised to clarify the genetic variations in *Microcystis aeruginosa* and microcystin production along with the environmental conditions that correspond to changes in the *Microcystis aeruginosa* populations. While the comment was about Section 3.4.2.3, page 3-410, paragraph 2, the clarification was made on page 3-412 after paragraph 1 to group the new discussion of *Microcystis aeruginosa* genetic markers and microcystin with the existing discussion of *Microcystis aeruginosa* genetic variations and the transition to a discussion of microcystin concentrations in the Klamath River. Please refer to Volume III Attachment 1 Section 3.4.2.3

Phytoplankton and Periphyton– Environmental Setting – Hydroelectric Reach – Phytoplankton for the revisions.

Comment ORG46-265

The DEIR states that "Nuisance blooms of periphyton have not been documented in the riverine portions of the Hydroelectric Reach. In the J.C. Boyle Peaking Reach, it has been noted that periphyton tends to be absent from the margins of the river that are alternately dried and wetted during peaking operations (E. Asarian, pers. comm., 2011)." The DEIR should clarify the reasons that nuisance blooms of periphyton during summer have not been documented in the riverine portions of the hydroelectric reach. For example, in Keno and J.C. Boyle reservoirs, light limitation is prevalent as highly impaired water released from Keno Dam are turbid, colored, and have notable suspended material limiting periphyton growth, a condition that will persist under the Proposed Project and all alternatives. Downstream of the J.C. Boyle Powerhouse, peaking operations alternatively produce high flows and low flows in the downstream river reach, ranging from about 3,000 cfs to 300 cfs and this environment limits colonization by periphyton. Under the Proposed Project, stable flows will be the norm and the J.C. Boyle Peaking Reach will be colonized with periphyton growth. During summer periods, this will likely cause pH excursions above 9 s.u. throughout the reach and may cause local dissolved oxygen conditions to vary notably through the 24-hour period.

Response to Comment ORG46-265

Please refer to response to comment TR20-28 for clarification regarding the reasons that periphyton tend to be absent from the margins of the J.C. Boyle Peaking Reach. As acknowledged in Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437), there are multiple processes that influence periphyton establishment and growth (e.g., light availability, nutrient availability, water temperature, flow variations, sediment transport). Light availability, high water velocities, and the alternatively high and low flows downstream of the J.C. Boyle Powerhouse (due to hydropower peaking operations) contribute to limited periphyton growth in the J.C. Boyle Peaking Reach under existing conditions (PacifiCorp 2005a), so Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* has been revised to clarify that these processes are influencing the periphyton establishment and growth in the J.C. Boyle Peaking Reach. Please refer to Volume III Attachment 1 Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Periphyton* for the revisions.

Please refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437) for the analysis of changes in periphyton growth in the Hydroelectric Reach from the conversion of the reservoir areas to a free-flowing river and the elimination of hydropower peaking operations under the Proposed Project.

Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – pH* Potential Impact 3.2-11 provides an analysis of the pH under the Proposed Project and Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – Dissolved Oxygen* Potential Impact 3.2-10 provides an analysis of the dissolved oxygen concentrations under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The comment does not provide any data to support its assertions that the J.C. Boyle Peaking Reach periphyton growth under the Proposed Project would result in pH exceeding 9 standard units (s.u.) throughout the reach during summer periods and dissolved oxygen concentrations varying notably over a 24-hour period. Please also refer to ORG46-149 for further discussion of the pH in the Hydroelectric Reach with respect to periphyton and macrophyte growth under the Proposed Project. Additionally, the comment's assertion that periphyton would colonize the J.C. Boyle Peaking Reach under the Proposed Project conflicts with the comment's previous assertion that light limitation from turbid, colored water released from Keno Dam limits periphyton growth. Potential light limitations in the Hydroelectric Reach would persist under the Proposed Project and all alternatives since the Proposed Project would not alter light limitation conditions in the Klamath River upstream of J.C. Boyle Reservoir and the short residence time of J.C. Boyle Reservoir likely results in relatively limited settling of suspended particles that influence light limitation in the Klamath River.

Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437) determines that the generally high gradient and velocity in the J.C. Boyle Peaking Reach does not currently support excessive periphyton mats, so the J.C. Boyle Peaking Reach would not be anticipated to support excessive periphyton mats if J.C. Boyle Dam were to be removed and hydropower peaking flows were to cease. Potential light limitations based on light extinction measurements between Keno Dam and the Oregon-California state line (see response to comment ORG46-36) would further support the analysis in Volume I Potential Impact 3.4-4 (pages 3-435 to 3-437) that there would not be excessive periphyton growth in the J.C. Boyle Peaking Reach under the Proposed Project.

Comment ORG46-266

The DEIR includes no discussion of the existing, extensive macrophyte growth in the Klamath River reach downstream of Iron Gate Dam. Macrophyte densities are considerable between Iron Gate Dam and the Shasta River, and continue to be present in high densities downstream to the Scott River. These plants have a dominant impact on water quality in terms of pH, dissolved oxygen, nutrient uptake, as well as an autochthonous production of particulate and dissolved organic matter to the Klamath River.

Response to Comment ORG46-266

As discussed in the introduction of Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (page 3-392), there is no known quantitative or species-specific information characterizing aquatic plants (i.e., submerged and/or floating macrophytes) in the Hydroelectric Reach or the Middle and Lower Klamath River. Sullivan et al. (2013) sampled macrophytes in the Klamath River between Link River and Keno Dam, but the primarily calm, slow-moving reservoir habitat of the Lake Ewuana/Keno Impoundment that dominates conditions between Link River and Keno Dam is different from the turbulent, fast-moving river habitat in the Hydroelectric Reach and the Middle and Lower Klamath River under the Proposed Project, and estimates of macrophyte abundance from the slow-moving reservoir habitat between Link River and Keno Dam would likely significantly overestimate macrophyte abundance in these reaches. Prior studies (City of Klamath Falls 1986,1989) documented that macrophytes in the Hydroelectric Reach between J.C. Boyle Dam and Copco No. 1 Reservoir were typically found only along the margins or pools and low gradient areas of the Klamath River due to the steep gradient, associated high water velocities, and lack of fine sediment substrate within this reach. Observations of aquatic macrophytes are common in the main channel in the Middle Klamath River from Iron Gate Dam to the Scott River (river mile [RM] 145.1), but they are only present in the quiet backwater areas in the Klamath River downstream of the Scott River confluence (PacifiCorp 2005; Stillwater Sciences 2009). There are no reports of excessive aquatic macrophyte biomass in the available data record, so aquatic macrophytes have typically been assumed to play a minor role in primary productivity and nutrient cycling in the Middle or Lower Klamath River (Stillwater Sciences 2009). The comment does not provide any new data or information to support its assertion that macrophytes have a dominant impact on water quality parameters.

Additionally, the net influence of potential macrophytes on water quality parameters in the Klamath River under existing conditions would be implicitly included in available water quality empirical data since these data express the net influence of all processes on water quality parameters. For example, measured nutrient data used in the Yurok Tribe nutrient budget (Asarian et al. 2010) quantifies the net influence of all nutrient recycling processes occurring in the river, including nutrient uptake (or release) by macrophytes. Please refer to the responses to comments ORG46-34, ORG46-136, ORG46-146, and ORG46-149 for further clarification of the potential influence of macrophytes in the Klamath River on water quality parameters.

Comment ORG46-267

Under the Proposed Project, the entire periphyton community will shift. The nitrogen-fixing diatoms noted in the DEIR (Epithemia sorex, Epithemia turgida, and Rhopalodia gibba, including the blue-green algae Calothrix sp.), which currently dominate the lower river in late summer and early fall will probably shift upstream in response to nutrient limitation as a result of nutrient uptake by *predominately macrophytes, but also periphyton. Aquatic vegetation, currently absent under the reservoirs and in the J.C. Boyle Peaking Reach will seasonally colonize the stream reaches and convert available nutrients from upstream sources (e.g., Upper Klamath Lake) to aquatic vegetation biomass. As current extent of nitrogen-fixing periphyton shifts upstream, the amount of nitrogen fixation occurring in the river would increase. This would further increase the nutrient loading in the river during summer and early fall periods, impacting water quality in the river as well as the downstream estuary. This critical effect of the Proposed Project on the aquatic system response is absent from the DEIR's analysis and discussion.*

Response to Comment ORG46-267

Volume I Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River – Periphyton* (pages 3-418 to 3-420) is summarizing the periphyton community under existing conditions, so it would not discuss changes in the periphyton community under the Proposed Project. Please refer to Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impact 3.4-4 (pages 3-435 to 3-437) and Potential Impact 3.4-5 (pages 3-437 to 3-440) for analysis of periphyton community variations under the Proposed Project due to increased nutrients from upstream dam removal and conversion of the reservoir areas to a free-flowing river.

While the comment claims nutrient uptake by macrophytes and periphyton would result in nutrient limitations in the Klamath River and the location where nitrogen-fixing periphyton species dominate would shift upstream from its current location under the Proposed Project, this assertion is speculative. As analyzed in Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8, model results from a Yurok Tribe nutrient budget analysis and the Klamath River Total Maximum Daily Load (TMDL) analysis indicate nutrient concentrations would increase in the Klamath River downstream of Iron Gate Dam under the Proposed Project. The Yurok Tribe nutrient budget analysis estimated nutrient variations in the Klamath River under the Proposed Project by multiplying the length of the reservoir areas by data-driven estimates of the per-mile relative nutrient retention (or release) rates from free-flowing Klamath River reaches under existing conditions. Estimates of nutrient concentrations under the Proposed Project using the Yurok Tribe nutrient budget analysis implicitly included nutrient processes such as uptake of nutrients for seasonal phytoplankton, periphyton, and macrophyte growth and subsequent downstream release, as these processes were ongoing and inherently included in the nutrient retention rate estimates. Accordingly, the influence of macrophyte growth is included in the analysis of nutrient conditions in the Klamath River under the Proposed Project.

Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

As analyzed in Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impacts and Mitigation* Potential Impact 3.4-5 (pages 3-437 to 3-440), the location where nitrogen-fixing periphyton species begin to dominate would shift farther downstream in the Lower Klamath River because nutrients (e.g., nitrogen) in the Klamath River downstream of Iron Gate Dam are estimated to increase under the Proposed Project (Asarian et al. 2010), contrary to the unsupported claims in the comment.

Comment ORG46-268

The DEIR states "Overall, under the Proposed Project, long-term reductions in nuisance and/or noxious phytoplankton blooms in the reservoirs in the Hydroelectric Reach would reduce or eliminate the transport of nuisance and/or noxious phytoplankton species, blooms of these phytoplankton species, and concentrations of algal toxins (e.g., microcystin) into the Middle and Lower Klamath River and would be beneficial." While the reservoirs would no longer support cyanobacteria, there are other suitable habitats in the Klamath River for these and other toxin-producing species that the DEIR does not acknowledge. For example, under existing conditions, backwater areas on the river (e.g., Brown Bear) have had some of the highest microcystin concentrations on the Klamath River (outside of Copco and Iron Gate reservoirs). If these areas still contain backwater habitats and have a supply of nutrients and warm temperatures, there is no reason why high microcystin concentrations will not continue to occur in these areas. The back eddy and slack water habitats of the Klamath River have conditions (water temperature, light levels, flow rates, and nutrient availability/ ratios) that make them suitable habitat for cyanobacteria growth and production of associated toxins. Potentially toxigenic cyanobacteria (like Microcystis) are common in the Klamath River and other rivers and estuaries around the world where conditions are suitable to support their growth. Some species, like Phormidium, are benthic mat-forming species capable of producing toxins, thriving in relatively dynamic river systems (e.g., see work on the unregulated South Fork Eel River by Bouma-Gregson et al. 2017), and have been detected in the Klamath River (Otten 2017a).

Response to Comment ORG46-268

Please refer to the previous paragraph on page 3-431 in Volume I Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 (pages 3-428 to 3-433) that acknowledges that some cyanobacteria growth may still occur after dam removal in the Middle and Lower Klamath River due to calm, slow-moving habitats along shorelines and protected coves and backwaters in the Middle and Lower Klamath River, especially during low-flow periods. Volume I Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential 3.4-2 (pages 3-428 to 3-433) does not conclude that these calm, slow-moving habitats would be free of phytoplankton, microcystin, or other algal toxins.

High concentrations of phytoplankton cells and algal toxins have been measured in calm, slow-moving habitats along shorelines, protected coves, and backwaters along the Klamath River (Kann et al. 2010a; Genzoli and Kann 2017). However, the growth and/or reproduction of phytoplankton cells within these habitats have not been documented, with high concentrations of blue-green algae cells and associated algal toxins generally attributed to entrapment and accumulation of cells and toxins transported downstream from the reservoirs rather than growth and/or reproduction within these slow-moving shoreline habitats (Falconer et al. 1999; Kann et al. 2010a; State Water Board et al. 2010, updated 2016; Genzoli and Kann 2016, 2017). Benthic mat-forming periphyton may produce algal toxin concentrations in the Klamath River, but the relative contribution of benthic mat-forming periphyton species to algal toxin concentrations in the Klamath River compared to phytoplankton species has not been quantified and there is no data indicating elevated microcystin concentrations are due to benthic mat-forming periphyton. Analysis of algal toxins from benthic mat-forming periphyton in the Klamath River by Otten (2017) are specifically about anatoxin-*a* rather than microcystin. Genetic analysis of anatoxin-*a* measured in the Klamath River indicated *Oscillatoria* sp., *Phormidium* sp., or *Tychonema* sp. were likely sources of the anatoxin-a in the river rather than *Dolichospermum* sp. (i.e., *Anabaena flos-aquae* in the EIR) or *Aphanizomenon* sp., but *Oscillatoria* sp., *Phormidium* sp., or *Tychonema* sp. were not observed during 2016 at any sites where the anatoxin-*a* or its associated genes were detected (Otten 2017). While Otten (2017) did not observe *Oscillatoria* sp. during 2016 where anatoxin-*a* or its associated genes were detected, there were multiple detections of *Oscillatoria* sp. in sampling of periphyton communities in the Klamath River from 2004 to 2013 (Asarian et al. 2014, 2015). *Phormidium* sp., or *Tychonema* sp. were not observed in sampling of periphyton communities in the Klamath River from 2004 to 2013 (Asarian et al. 2014, 2015). While data suggests benthic mat-forming periphyton may be contributing to anatoxin-a concentrations in the Klamath River and some periphyton species are capable of producing microcystin under certain conditions, there is no evidence that benthic mat-forming periphyton are contributing detectable amounts of microcystin to the Klamath River and genetic analysis has directly linked the measured microcystin in the Klamath River to *Microcystis aeruginosa*.

The potential for benthic mat-forming periphyton species to produce algal toxins under the Proposed Project would be similar to existing conditions since the overall growth and abundance of periphyton downstream of Iron Gate Dam under the Proposed Project would be similar to existing conditions. As analyzed in Volume I Potential Impact 3.4-5 (pages 3-437 to 3-439), there would be a less than significant change in the overall growth and abundance of periphyton downstream of Iron Gate Dam under the Proposed Project because potential increases in periphyton growth from increases in nutrient transport and recycling would be counteracted by potential decreases in periphyton growth from increases in nutrient uptake and retention by periphyton growth in the

Hydroelectric Reach, increases in frequency and intensity of scouring events, and elimination of seasonal nutrient releases from reservoir sediments.

Comment ORG46-269

Some vegetation type descriptions are missing alliances in Table 3.5-1. Standardize the vegetation type titles and include forest for forest vegetation.

Response to Comment ORG46-269

Volume I Section 3.5 *Terrestrial Resources* Table 3.5-1 (page 3-458) summarizes the vegetation cover types documented in the Primary Area of Analysis for terrestrial resources based on the California Wildlife Habitat Relationships (CWHR) system. The vegetation type titles are standardized according to the CWHR classification scheme; forest types do not include "forest" in the title. Corresponding alliances, as defined in the Manual of California Vegetation classification scheme, that were documented during Klamath River Renewal Corporation 's (KRRC's) 2018 surveys are provided in the description for each CWHR vegetation to the extent that data are available.

Comment ORG46-270

A chart listing positive and negative impacts resulting from the conversion from reservoir to stream habitat would clarify the Proposed Project effects on wildlife species. A description of the existing ecosystem in the reservoir and how it is used by wildlife should be included.

Response to Comment ORG46-270

Volume I Section 3.5.2.4 *Terrestrial Resources – Existing Setting – Non-special-status Wildlife* (page 3-475) and Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* (page 3-500) have been revised to provide additional detail clarifying wildlife species use within the existing ecosystem in the reservoir. Please refer to Volume III Attachment 1 Section 3.5.2.4 *Terrestrial Resources – Existing Setting – Non-special-status Wildlife* and Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* for the revisions.

The commenter indicates that a chart listing positive and negative impacts resulting from the conversion from reservoir to stream habitat would clarify the effects on wildlife species. The chart approach is not how the EIR is organized and would not provide additional detail to the effects on wildlife species. The EIR terrestrial wildlife analysis was organized by species or species groups that have the potential to be affected by an action associated with the Proposed Project (e.g., suspended sediment effects on amphibians that have the potential to be in downstream aquatic habitats [see Volume I Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach*, page 3-516], modification of reservoir habitat to river or upland habitat that may reduce habitat for western pond turtle or increase deer winter range habitat [see Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural*

Communities, pages 3-524 to 3-575]). The existing information on environmental setting for special-status wildlife species is provided by species (pages 3-500 to 3-513). As part of the EIR analysis, information is provided about use of existing habitats (e.g., structures providing habitat for bat maternity colonies, seasonal water bird use of the reservoirs during migration and/or for overwintering, aquatic habitat for swifts and bats that feed on flying insects, turtle use along reservoirs for basking and nesting). The following impact analyses in Volume I consider changes in habitat and the relationship to special-status species following completion of the Proposed Project (and the alternatives, as applicable): 3.5-12 (pages 3-540 to 3-543), 3.5-16 (pages 3-555 to 3-559), 3.5-17 (pages 3-559 to 3-560), 3.5-18 (pages 3-560 to 3-561), 3.5-19 (page 3-561), 3.5-20 (pages 3-561 to 3-562), 3.5-21 (pages 3-562 to 3-563), 3.5-22 (pages 3-563 to 3-570), 3.5-23 (page 3-570), 3.5-25 (pages 3-572 to 3-573), and 3.5-29 (pages 3-575 to 3-576).

Please also refer to Master Response TER-1.

Comment ORG46-271

There is no definition provided in the DEIR for the term "substantial." The DEIR should provide such a definition to ensure that a) the reader understands exactly what the significance criteria are, and b) the analysis in the DEIR is then clear in terms of how the Proposed Project and alternatives actually effect these resources.

Response to Comment ORG46-271

Regarding the use of the term substantial, please refer to Master Response CEQ-3.

Comment ORG46-272

Effects on the Secondary Area of Analysis are expected to be indirect. This may be the main difference between the Primary and Secondary areas, but the DEIR does not state this clearly.

Response to Comment ORG46-272

For the Terrestrial Resources Secondary Area of Analysis, Volume I Section 3.5.1 *Terrestrial Resources – Area of Analysis* briefly reviews potential future actions related to the transfer of Parcel B lands following dam removal to the respective states (i.e., California or Oregon), or to a designated third-party transferee following dam removal (see also Section 2.7.10 *Proposed Project – Land Disposition and Transfer*, pages 2-108 to 2-109). The Secondary Area of Analysis was not defined based on an expectation that effects in this area would be indirect. Rather, as stated in Volume I Section 3.5.1 *Terrestrial Resources – Area of Analysis* on pages 3-453 to 3-515, because of uncertainty regarding what future activities may occur on Parcel B lands, their extent, and their precise location, the analysis of impacts in the Secondary Area of Analysis is necessarily less detailed. Given that potential impacts would vary depending on future land uses, potential impacts in the Secondary Area of Analysis were analyzed with respect to likely future construction activities given the range of expected land uses (open space, active wetland and riverine restoration, river-based recreation, grazing, and potentially others). Additional information is provided in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-28 (pages 3-574 and 3-575).

Comment ORG46-273

The document lacks steps typically found in a revegetation plan such as a planting plan and plant pallet and therefore does not adequately assess impacts to vegetation communities. Mitigation should include a concept of vegetation types after the dams are removed, acres of habitat to be revegetated, and wildlife associations with those habitat types to fully evaluate the effectiveness of the mitigation measures. Without specifics, it is not possible to determine if the mitigation is adequate to offset for the impacts of the Proposed Project.

Response to Comment ORG46-273

The Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan – Appendix H*), which is part of the Proposed Project, includes a planting plan and palette; seeded species and pole cutting species proposed for collection and propagation are presented in Tables 5-2 and 5-3, and species proposed per vegetation zones are presented in Tables 5-5 through 5-10 of the Reservoir Area Management Plan. The Reservoir Area Management Plan also includes measures to characterize vegetation and delineate wetlands which would inform the vegetation types targeted for restoration. Finally, the Reservoir Area Management Plan includes performance criteria for the established habitats; these habitats would be monitored for five years or until the performance criteria have been met.

Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 has been clarified to indicate that the amount of wetland and riparian habitat created through revegetation efforts would far exceed the acreage of any wetlands and/or riparian vegetation that cannot be avoided during construction activities. Moreover, Potential Impact 3.5-2 has been clarified to indicate that since the proposed acreage to be restored (182 acres) is greater than the total acreage that would be potentially impacted by reservoir drawdown (approximately 15 acres of riparian vegetation and 19 acres of wetlands), there would be no net loss of wetlands under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 and Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-2 for the revisions.

Additionally, please refer to ORG46-270 and ORG46-283 for a discussion of changes to the EIR regarding non-special status and special-status species' habitat associations. Please also refer to Volume I Section 3.5.2.4 *Terrestrial Resources – Environmental Setting – Non-special-status Wildlife* (pages 3-474 to 3-477) and Section 3.4.2.5 *Terrestrial Resources – Environmental Setting – Special-status Species – Special-status Wildlife* (3-500 to 3-513) for both special-status and non-special status wildlife use within existing habitat types that would be similar to those that would be revegetated (including riparian, wetland, and upland areas); portions of these sections have been updated in Volume III Attachment 1 Section 3.5.2.4 *Terrestrial Resources – Environmental Setting – Non-special-status Wildlife* and Section 3.4.2.5 *Terrestrial Resources – Environmental Setting – Special-status Species – Special-status Wildlife*.

Comment ORG46-274

The DEIR does not address direct disturbance to wetlands where the dam will be physically removed or where construction would place structures into a water of the U.S. (e.g., Fall Creek Hatchery modifications; see comment 3.5-8). There will be no buffer at the dam and accidents such as hazardous spills could take place in a wetland.

Response to Comment ORG46-274

Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 considers general construction-related impacts on wetland and riparian vegetation communities, including potential impacts from modification of structures such as the Fall Creek Hatchery (FCH), and has been revised to clarify that removal of the dams themselves is also considered part of the proposed construction activities. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

As discussed in Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1, the Proposed Project identifies a number of pre-construction measures to reduce impacts on wetland habitats including the following: a wetland delineation, which would be incorporated into the Proposed Project design to avoid and minimize direct impacts on wetlands to the maximum extent feasible; fencing of wetland areas adjacent to the construction Limits of Work to prevent inadvertent entry; and establishment of a buffer per Mitigation Measure TER-1. The wetland delineation was conducted in 2019 and results indicate that some portions of the Fall Creek Hatchery retrofit are adjacent to riparian or wetland vegetation (i.e., riparian at the primary location of Fall Creek Hatchery and wetlands at the lower settling pond location); however, there are no wetlands adjacent to the dams (KRRC 2019c). Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

As discussed in Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1, the

Proposed Project includes a Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan – Appendix H*). Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 has been clarified to indicate that the amount of wetland and riparian habitat created through revegetation efforts would far exceed the acreage of any wetlands and/or riparian vegetation that cannot be avoided during construction activities. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

The Proposed Project also includes construction best management practices (BMPs) (Volume II Appendix B: *Definite Plan – Appendix J*) to reduce potential impacts on water quality in waters during construction; these BMPs would apply during removal of the dam itself. Furthermore, Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.2-4 (pages 3-106 to 3-108) indicates that because the proposed BMPs are not sufficiently comprehensive to avoid all potential violations of water quality standards or other degradation of water quality in affected portions of wetlands within the Limits of Work, implementation of mitigation measures WQ-1 and TER-1 would be necessary to reduce any potential impacts not already addressed by the BMPs to less than significant. Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-1 has been revised to clarify that Mitigation Measure HZ-1 would also be implemented. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions. These measures would ensure that there are no significant impacts on waters adjacent to the dams or where hatchery modifications would be made.

Comment ORG46-275

This analysis in the DEIR is contradictory and does not address the impacts to these resources. For example, the DEIR states that "Degradation or removal of wetland and riparian habitat in the areas listed above would be a significant short-term and long-term impact" (DEIR pg. 3-520). The DEIR goes on to analyze the potential effects of revegetation and wetland creation within the reservoir footprints. Ultimately, if all of this work is successful, then perhaps the long-term impact is less than significant, but the short-term impact would appear to remain significant.

Response to Comment ORG46-275

Comment noted. Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* has been revised to clarify the definition of short-term effects. Please refer to Volume III Attachment 1 Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* for the revisions.

Potential Impact 3.5-2 in Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* (pages 3-519 through 3-521) addresses potential short- and long-term impacts due to reservoir drawdown; this potential impact analysis has been clarified to indicate that the proposed acreage to be restored is greater than the total acreage that would be potentially impacted; therefore, there would be no net loss of wetlands under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* EIR Potential Impact 3.5-2 for the revisions.

Comment ORG46-276

The analysis of impacts to wetland habitats downstream of Iron Gate Dam is inadequate for the following reasons:

1. Implementation of the Proposed Project would result in the release of sediment into the Klamath River downstream of Iron Gate Dam. Not all sediment will be transported all the way to the Pacific Ocean (see Major Issue 2.4). Some of this material will deposit in slack water, eddies, backwaters, and side channels in the 190 miles of river between Iron Gate Dam and the ocean.

2. The Klamath River is a jurisdictional water of the U.S. subject to permitting for placement of fill by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act and, because it is navigable, under Section 10 of the Rivers and Harbors Act. The DEIR Significance Criteria requires a significant impact when the Proposed Project would "Result in substantial modifications of federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means." (DEIR pg. 3-515). The DEIR fails to define the term "substantial."

3. The DEIR does not quantify the amount of sediment that will be deposited into the river, the duration of that fill, or the flows necessary to continue transporting it downstream. This is in contradiction to Appendix F of the DEIR which discusses bedload modeling and presents a range of channel elevation changes expected for the Klamath River downstream of Iron Gate Dam (for example see DEIR Figure F-11).

4. Impacts need to consider that sediment would now from the dam site to the ocean and could cause long-term impacts. The analysis does not evaluate or even attempt to quantify the amount of wetland fill that would occur downstream of Iron Gate Dam as a result of the Proposed Project. It is hard to understand how the deposition of some fraction of the millions of cubic-yards of material that will be released is not a substantial modification of federally-protected wetlands. The conclusion that this impact is less than significant is not support ed by the information in the DEIR.

The discussion of impacts needs to consider sedimentation resulting from large-scale changes such as wildfires that remove stabilizing vegetation. The DEIR fails to describe the impacts that will occur, what the flood cycle would be like following implementation of the Proposed Project, how USBR would operate Upper Klamath Lake for flood control, and the effects that would have on sediment transport and jurisdictional wetlands. The DEIR does not describe how the present vegetation and wildlife would be impacted by short and long-term changes resulting from this high amount of sedimentation and that it may take more than 1 year for the sediment to be washed out of the system.

Response to Comment ORG46-276

Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3 (pages 3-521 and 3-522) analyzes potential impacts on wetland habitat downstream of the Lower Klamath Project dams due to sediment deposition resulting from dam removal and concludes that there would be a less than significant impact on wetland habitat with the Proposed Project.

Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3 has been revised to clarify the predicted mobility of sediment deposits in the Klamath River downstream of Iron Gate Dam following dam removal, the extent of wetlands in the reaches between Iron Gate Dam and Cottonwood Creek where significant short-term sedimentation is predicted, and the potential for recolonization of wetland vegetation. These clarifications have not affected the conclusion that there would be no net loss of wetland habitat and there would be a less than significant impact. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3 for the revisions.

Regarding the first concern that some sediment may deposit in slack water, eddies, backwaters, and side channels between Iron Gate Dam and the ocean, please refer to Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which is partially modified in Volume III Attachment 1, and to Master Response GEO-1.

Regarding the second claim that the Draft EIR fails to define the term "substantial" in the significance criteria, Klamath River Renewal Corporation (KRRC) is coordinating with the U.S. Army Corps of Engineers regarding the Section 404 individual permit for the Proposed Project (Volume II Appendix B: *Definite Plan* [pages 36 to 37 of the *Definite Plan*]). The CEQA analysis is independent of the Section 404 application and process. For the purposes of the CEQA EIR, 'substantial' is defined generally and the general definition applies to the CEQA EIR analysis of modifications to protected wetlands (see Master Response CEQ-3). 'Substantial' is also defined in specific resource contexts and this applies to sediment deposition. Section 3.11.3 *Geology, Soils, and Mineral*

Resources – Significance Criteria has been clarified to define ‘substantial’ in the context of sediment deposition. Please refer to Volume III Attachment 1 Section 3.11.3 *Geology, Soils, and Mineral Resources – Significance Criteria* for the revisions.

Regarding the third concern that the Draft EIR does not quantify the amount of sediment that will be deposited into the river, the duration of that fill, or the flows necessary to continue transporting it downstream, please refer to ORG46-13 and Master Response GEO-1. Additionally, note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 and Appendix F have both been revised to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both SRH-1D simulations (i.e., the 48 2-year simulations and three 50-year simulations) (USBR 2012a). Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* – Potential Impact 3.11-5 and to Volume III Attachment 1 Appendix F for the revisions.

Regarding the fourth assertion that sediment could flow from the dam site to the ocean and cause long-term impacts, both short- and long-term sedimentation impacts are analyzed in Volume 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which is partially modified in Volume III Attachment 1. For the reasons discussed in Potential Impact 3.11-5, the long-term change in sediment supply and transport due to dam removal would be beneficial from the Hydroelectric Reach to the Klamath River Estuary, and there would be no significant impact in the Pacific Ocean nearshore environment. Please also refer to Master Response GEO-1. The potential impacts of sedimentation on wetlands specifically are analyzed in Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3, which as discussed above in this comment response, has been revised in Volume III Attachment 1.

The last paragraph of the comment covers multiple topics which are covered in the EIR and master responses. Volume I Section 3.24.11 *Cumulative Effects – Geology, Soils and Mineral Resources* Potential Cumulative Impact 3.24-41, which is partially modified in Volume III Attachment 1, considers the sedimentation effects from the Proposed Project in combination with wildfire and concludes that the impact would not be cumulatively considerable. Volume I Section 3.24.27 *Cumulative Effects – Terrestrial Resources* Potential Cumulative Impact 3.24-26 considers the effects on terrestrial resources from the Proposed Project in combination with wildfire and concludes that the impact would not be cumulatively considerable. Volume I Section 3.6 *Flood Hydrology* Potential Impacts 3.6-3 through 3.6-5 and Master Response FLD-1 cover flood hydrology effects. Volume 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which is partially modified in Volume III Attachment 1, and Master Response GEO-1, discuss the temporal component of sediment transport and remobilization of deposits following dam removal. Please refer to Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* and Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-3 for the revisions for potential impacts of sedimentation on wetland vegetation, and Volume I Section 3.5 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural communities* Potential Impact 3.5-18 (pages 3-560 to 3-561) for potential impacts of sedimentation on wildlife, which include amphibians and reptiles that use wetland habitat.

In summary, no significant or cumulatively considerable impacts to vegetation and/or wildlife resulting from sedimentation under the Proposed Project are found in the EIR.

Comment ORG46-277

The DEIR states that "Project activities including construction as well as reservoir drawdown would result in population-level impacts to culturally significant plant species or substantial degradation or removal of wetland and riparian habitat; therefore, there would be a significant short-term and long-term impact on culturally significant species." Mitigation Measure TER-1 is an avoidance measure only. It does not prevent impacts to culturally significant species affected by construction outside of wetlands, or for indirect impacts to species within wetlands (e.g., from desiccation as groundwater is removed). The DEIR is required by CEQA to include mitigation that actually mitigates for impacts of the Proposed Project. Such a measure would include a detailed plan to address culturally significant plants, with a list of species and a schedule for implementation to substantiate the claim that long-term and short-term impacts will not occur. Short- and long-term impacts to culturally significant species must be defined. Without these specifics, the DEIR is deferring mitigation.

Response to Comment ORG46-277

The Proposed Project includes actions to account for culturally significant species that cannot be avoided or that may be indirectly impacted (e.g., through disconnection from groundwater) including revegetation with wetland and riparian species in the reservoir footprints as defined in the Reservoir Area Management Plan (Appendix B: *Definite Plan – Appendix H*). Potential Impact 3.5-6 in Section 3.5.5.2 *Terrestrial Resources – Potential Impacts and Mitigation – Culturally Significant Species* (page 3-524) has been clarified to note that all of the culturally significant species that are documented to occur within the Primary Area of Analysis are associated with riparian and wetland habitat and that the revegetation mixes listed in the Reservoir Area Management Plan (Appendix B: *Definite Plan – Appendix H*) include all of those species. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* for the revisions.

Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* has been revised to clarify the definition of short-term effects. Please refer to Volume III Attachment 1 Section 3.5.4 *Terrestrial Resources – Impact Analysis Approach* for the revisions.

Comment ORG46-278

We recommend that the new mitigation measure recommended above (see comment 3.5-9) include a statement that culturally significant species will be collected from local seed and propagation material.

Response to Comment ORG46-278

Please refer to responses to comments LA9-38 and ORG46-277.

Comment ORG46-279

Using the terminology 'Recommended Terrestrial Measure 1" the DEIR creates confusion about mitigation measure numbering. In addition, the description in the DEIR lacks understandable transitions through the discussion of the restoration process. Some parts are handled under the Plant Mitigation and Monitoring Plan and others in the Final Restoration Plan. It is unclear what resources would be mitigated for under which plan and how these two plans are related. The DEIR is required to clearly present mitigation measures including and a discussion of how these plans would be designed to survive the natural flood cycle and describe the scope of revegetation in the riparian habitat.

Response to Comment ORG46-279

A Plant Mitigation and Monitoring Plan is referenced in Recommended Terrestrial Measure 1 of Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* (page 3-525). As presented, the recommended Plant Mitigation and Monitoring Plan would include measures to successfully mitigate for impacts to special-status plants at a minimum 1:1 ratio. These measures would include translocation, propagation, and planting procedures that take into account the special-status species' life history and monitoring procedures that would effectively assess the success of the restoration efforts, as specified in Appendix J of the Definite Plan. The impact analysis explains that such a plan could be developed and implemented as part of the Final Restoration Plan through the Federal Energy Regulatory Commission (FERC) process. As the State Water Board cannot ensure implementation of the terrestrial aspects of the Final Restoration Plan, Recommended Terrestrial Measure 1 may not be implemented, which is why the EIR concludes that Potential Impact 3.5-7 (pages 3-524 and 3-525) would be significant and unavoidable. Please see Master Response CEQ-2 for further discussion of Recommended Measures.

As described in Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-2 (pages 3-519 through 3-521), the Proposed Project includes several actions to encourage rapid revegetation with native riparian species in the reservoir footprints as defined in the Reservoir Area Management Plan (Appendix B: *Definite Plan – Appendix H*) that take into account the natural flood cycle and would ensure no net loss of wetland or riparian habitat acreage and functions. Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-2 has been clarified to indicate that the proposed acreage to be restored is greater than the total acreage that would be potentially impacted; therefore, there would be no net loss of wetlands under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* EIR Potential Impact 3.5-2 for the revisions.

Comment ORG46-280

The DEIR does not address long-term impacts to Western Pond Turtles. Because the Western Pond Turtle relies on open water, implementation of the Proposed Project will remove a substantial amount of occupied Western Pond Turtle habitat, a long-term impact that the DEIR fails to address. Mitigation needs to be proposed for this significant impact.

Response to Comment ORG46-280

Long-term impacts on western pond turtles and a discussion of the loss of reservoir habitat is provided in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-22 (pages 3-563 to 3-569). The EIR acknowledges that the Proposed Project would result in removing approximately 90 percent of the existing aquatic surface area resulting in a substantial decrease of open water (i.e., from approximately 1,950 acres to approximately 195 acres); however, the impact on western pond turtle would be more directly related to a change in the amount of shoreline habitat than open water habitat (page 3-568). There are currently approximately 18.4 miles of suitable nesting and basking habitat (PacifiCorp 2004a-2) along the shorelines of Copco No. 1 and Iron Gate reservoirs. Following the removal of the reservoirs, approximately 17.7 miles of mainstem and tributary reaches would be re-exposed in the reservoir footprints (see Reservoir Area Management Plan [Volume II Appendix B: *Definite Plan – Appendix H*]); however, the potential habitat suitability of the newly exposed shoreline is uncertain at this time. Implementation of Mitigation Measure TER-4 would reduce long-term impacts to less than significant.

Comment ORG46-281

“No pets will be allowed in the construction areas” should be added as a sixth bullet under Recommended Terrestrial Measure 5: Requirements for Construction Personnel.

Response to Comment ORG46-281

As Klamath River Renewal Corporation (KRRC) already indicates that contractors will not allow pets within the Limits of Work as part of the Proposed

Project (Appendix B: *Definitive Plan – Appendix J*, pages 551 of 878), this term is not included in Recommended Terrestrial Measure 5, as provided in Volume I Section 3.5.5. *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities*.

Comment ORG46-282

Table 3.5-8 and subsequent text lack discussion of how dam removal will affect bat feeding habitat by species. The DEIR description does not adequately justify a no impact for sensitive bat species. This justification for why the Proposed Project would not degrade bat habitat is required; especially because Proposed Project impacts, including removal of buildings, would eliminate bat nesting habitat and by removing the reservoirs, the Proposed Project would permanently alter the feeding habitat by removing open water areas.

Response to Comment ORG46-282

Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Table 3.5-8 identifies evidence of bat use at Lower Klamath Project structures based on a June 2017 reconnaissance survey and May and June 2018 surveys (pages 3-547 to 3-549). Data collected in fall 2018 were similar to data collected previously in the year and are incorporated into Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Table 3.5-8.

Please refer to Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities – Potential Impacts* Potential Impact 3.5-14 which has identified short- and long-term significant and unavoidable impacts on bats from construction noise and loss of roosting habitat, contrary to the comment's expressed concern. While recent surveys have identified only Yuma myotis as using Lower Klamath Project facilities for roosting habitat, because other bat species are present in the area; the bats are mobile; and the habitat could provide for other species as well, the EIR conservatively does not limit this finding to just Yuma myotis (KRRC 2019d). As noted, State Water Board Recommended Terrestrial Measure 12 *Roosting Bats and Habitat*, would reduce impacts to less than significant.

For a discussion of how dam removal would affect bat feeding habitat, please refer to Volume I Section 3.5 *Terrestrial Resources – Potential Impacts and Mitigation* Potential Impact 3.5-21 (pages 3-562 to 3-563), which contemplates a reduction in aquatic foraging habitat for bats that feed on flying insects. Of the species in Table 3.5-8, Yuma myotis is the only bat that feeds primarily on aquatic flying insects. Numerous other water bodies in the area are present to provide sufficient foraging opportunities. Additionally, as discussed in Volume I Section 3.5 *Terrestrial Resources – Potential Impacts and Mitigation* Potential Impact 3.5-17 (pages 3-559 to 3-560), once benthic macroinvertebrate populations reestablish following reservoir drawdown, bats would be able to forage for flying insects over re-established riverine habitat. Transitioning aquatic habitat to upland habitat may increase foraging opportunities for special-status bat species that feed mostly on terrestrial invertebrates species (Western mastiff bat, Townsends's western big-eared bat, spotted bat, pallid bat, fringed myotis, and long-eared myotis) [Western Bat Working Group 2019]). Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities – Potential Impacts* has been clarified to include species-specific bat foraging information and affects following reservoir drawdown. Please refer to Volume III Attachment 1 Section 3 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities – Potential Impacts* for the revisions.

Comment ORG46-283

The DEIR analysis of Proposed Project impacts on wildlife as a result of conversion of open water to riverine habitat is overly simplified. For example, there is no description of how present species utilize the reservoirs and how, or if, those species would or would not use the river after the Proposed Project is completed. Assuming that dabbling ducks, for example, would simply go elsewhere to forage assumes that there is suitable habitat nearby to support those species, an assumption that is not supported in the DEIR. The DEIR does not even reference the results of other dam removal projects to discuss how aquatic-habitat focused wildlife species composition changed after removal. The conclusion that the impacts to these species would be less than significant is unsupported.

Response to Comment ORG46-283

As noted in comment response ORG46-270, Section 3.5.2.4 *Terrestrial Resources – Existing Setting – Non-special-status Wildlife* and Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* have been revised to clarify how present non-special status and special-status wildlife species utilize the reservoirs. Please see Volume III Attachment 1 Section 3.5.2.4 *Terrestrial Resources – Existing Setting – Non-special-status Wildlife* and Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* for the revisions.

Additionally, Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* (page 3-500) have been revised to clarify how nearby wildlife refuges, creeks, lakes and reservoirs currently supports special-status wildlife species. Please see Volume III Attachment 1 Section 3.5.2.5 *Terrestrial Resources – Existing Setting –Special-status Species – Special-status Wildlife* for the revisions.

With respect to incorporating the results of other dam removal projects in the EIR analyses, please refer to Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities – Potential Impacts* Potential Impact 3.5-17 (pages 3-559 to 3-560), which incorporates information based on multiple dam removal studies to evaluate a change in benthic macroinvertebrate populations, a prey source for western pond turtle and birds, and other wildlife species. Potential Impact 3.5-21 and 3.5-29 have been revised to clarify results from wildlife studies following dam removal. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impacts 3.5-21 and 3.5-29 for the revisions.

Please also refer to Master Response TER-1 for a discussion of existing species' use of the Lower Klamath Project reservoirs.

Comment ORG46-284

Inundation maps are available for areas downstream of Copco Reservoir as well as the J.C. Boyle and Iron Gate facilities that are mentioned in the DEIR.

Response to Comment ORG46-284

Section 3.6.2.4 *Flood Hydrology – Environmental Setting – Risks of Dam Failure* has been revised to clarify that inundation maps are available throughout the Hydroelectric Reach. Please refer to Volume III Attachment 1 Section 3.6.2.4 *Flood Hydrology – Environmental Setting – Risks of Dam Failure* for revisions.

Comment ORG46-285

The DEIR states that "Existing conditions do not allow these reservoirs to assist in flood prevention in this manner." Flood control is not a primary purpose of how PacifiCorp operates the Klamath Hydroelectric Project, although the Klamath Hydroelectric Project nonetheless provides limited flood control benefits. Klamath Hydroelectric Project. There are occasions where reservoirs are drawn down prior to predicted high runoff events to allow for storage of high flows and modification of peak flows. The statement in the DEIR that "existing conditions do not allow" is not really correct. A more accurate statement would be "PacifiCorp does not currently operate Iron Gate and Copco reservoirs for flood control purposes."

Response to Comment ORG46-285

Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – Flood Hydrology* has been revised to clarify that Iron Gate and Copco reservoirs do not currently operate for flood control purposes. Please refer to Volume III Attachment 1 Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – Flood Hydrology* for revisions.

Comment ORG46-286

The discussion of drawdown of J. C. Boyle Reservoir is unclear as presented in the DEIR. The powerhouse would be offline, thereby removing the power canal as a conveyance avenue for water. Drawdown would have to happen via releases from the spillway or the low-level outlets. During periods of cold weather (e.g., single digit overnight low temperatures), PacifiCorp currently *operates J.C. Boyle Powerhouse continuously to keep ice from forming on the power canal. Icing is discussed in the DEIR, but the potential for an ice dam to form on the low-level outlets is discounted because of "surface ice would melt and be reduced because moving water mixes temperatures between the air and the ground...." Based on PacifiCorp's experience in the area, this is an overly optimistic assertion that could have implications for dam safety and flood control.*

Response to Comment ORG46-286

PacifiCorp manages ice at J.C. Boyle Dam by keeping water moving through the intake and water conveyance systems in the winter. The Klamath River Renewal Corporation (KRRC) proposes to initiate drawdown on January 1 at J.C. Boyle Reservoir. Regardless of whether PacifiCorp opts to continue power generation until January 1, it is possible to run the water conveyance system to the powerhouse under a "no load" condition, whereby flow is moving through the intakes and the turbines are spinning at the powerhouse even when disconnected from the generators and thus not generating power. The KRRC proposes that this operation would enable reservoir drawdown, keep water flowing, and not interfere with the decommissioning of the power generation system. Throughout this phase of drawdown, water would consistently be moving through the intakes as flow in would roughly equal flow out, and thus ice formation is not expected to be an issue. As outlined in the Definite Plan, once the partially drawn down reservoir has stabilized using the spillway and intakes, the next step is to open the first of the diversion culverts. Once that happens, flows would no longer access the intake, and the intake gate would be closed. The river would flow freely through one and then both diversion culverts. At no point in the process would there be a reduction or stoppage of water flow, and therefore, KRRC proposes that there would be no formation of ice cover in J.C. Boyle Reservoir that would prevent or restrict drawdown (S. Gentzler, AECOM as Technical Representative, pers. comm., July 2019).

Comment ORG46-287

The normal water surface elevation in Iron Gate Reservoir is about 2,326.5 ft above mean sea level (msl) and the crest of the spillway is at 2,328.0 ft msl. If the water surface elevation were at 2,331.3 ft msl as reported in the DEIR, about 3 ft of water would be spilling into the spillway.

Response to Comment ORG46-287

The elevations presented in Volume I Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – Flood Hydrology* Potential Impact 3.6-1 (pages 3-626 to 3-630) are taken from Volume II Appendix B: *Definite Plan*, which uses the North American Vertical Datum of 1988 (NAVD88), not the Project datum. To convert from NAVD88 to the Project datum at Iron Gate Dam, subtract 3.33 feet (see Table 1.4-1 in Appendix B: *Definite Plan*). The normal operating elevation of 2,331.3 feet above mean sea level (amsl) for Iron Gate Reservoir, as stated on page 3-628, converts to 2,327.97 feet amsl, which is slightly lower than the spillway crest.

Comment ORG46-288

Climate change is projected to change the frequency and magnitude of high flow events (USBR 2011). There is no discussion of the sensitivity of the Proposed Project's flood risk-related impacts with regard to climate change, which is anticipated to reduce winter snowpack and increase winter flows as more precipitation falls as rain.

Response to Comment ORG46-288

The section referenced in the comment, Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-5 (page 3-634), analyzes whether the release of sediment stored behind the Lower Klamath Project dams and resulting downstream sediment deposition under the Proposed Project would result in potentially exposing people and/or structures to a substantial risk of damage, loss, injury, or death involving flooding. The impact analysis determines that because the sediment deposition would be relatively small in comparison with the existing channel bed and bar sediment conditions, and it would occur primarily in pools and not in the riffle and bedrock sections that tend to control water surface elevations, it would not affect stream characteristics in a way that would substantively alter flood inundation or flood risks and would therefore be a less than significant impact.

Increases in the frequency and magnitude of high flow events under climate change would not affect short-term sediment deposition in the Klamath River during reservoir drawdown, since the United States Bureau of Reclamation ‘s (USBR’s) sediment transport model was run using nearly five decades of hydrologic record (USBR 2012a) that inherently accounts for flow variability within and between years; numerous instances of dry, medium, and wet water year types; and varying sequences of water year types (e.g., more than one wet year in a row, more than one dry year in a row, dry years followed by wet years, wet years followed by dry years, etc.). In the long term, once the sediment has been deposited in the reach from Bogus Creek to Cottonwood Creek, an increased frequency and magnitude of high flow events could result in a higher incidence of mobilization of deposited sediments in these reaches and transport downstream, eventually to the Pacific Ocean (please also refer to the portion of ORG46-8 relating to climate change effects on geomorphology); however, because the deposition of sediments in these reaches would not expose people and/or structures to a substantial risk of damage, loss, injury, or death involving flooding, consideration of changes to the frequency and magnitude of high flows under climate change would not affect the discussion for Potential Impact 3.6-5.

Consistent with CEQA Guidelines section 15125 (a), future climate changes are not part of the existing condition against which this EIR compares potential impacts. While climate change predictions are used in some sections of the Lower Klamath Project EIR to provide additional context for potential impact analyses related to the Proposed Project or the alternatives (e.g., Section 3.2.5.1

Water Quality – Potential Impacts and Mitigation – Water Temperature Potential Impact 3.2-1, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* Potential Impact 3.3-8, Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 [pages 4-103 to 4-108]), the predictions are not relied upon for significance determinations associated with the Proposed Project or the alternatives. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and 3.3 *Aquatic Resources*.

Comment ORG46-289

The DEIR fails to address the impacts to greenhouse gas emissions resulting from removing an existing carbon-free power source (see Major Issue 2.5). The qualitative analysis in the DEIR identifies the possible replacement of hydroelectric power with nonrenewable energy sources as an indirect impact. The impacts of power replacement should be quantified to determine if the impacts are significant and to determine feasible mitigation to offset the impacts.

State climate change policy adherence is inadequately addressed.

The DEIR does not address California's policies set forth in Senate Bill (SB) 100 (De León), which increases California's renewable portfolio standard (RPS) to 60 percent by 2030 and establishes a state policy whereby renewable and zero-carbon resources supply 100 percent of retail sales to California end-use customers by December 31, 2045. Any loss of a zero-carbon resource will make this standard more costly and difficult to meet. Oregon and Washington are considering climate change bills impacting the electric sector in 2019 legislative sessions. Oregon is considering the adoption of a cap-and-trade program that will link with California's while Washington is considering both a cap-and-trade program and a proposal that would require utilities in Washington to achieve 100 percent carbon neutral energy portfolio s by 2030. Carbon-dioxide emissions calculations for the complete removal, rather than only those portions within California, are needed to support findings that the impacts of power replacement would be offset by mitigation.

Response to Comment ORG46-289

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-290

The DEIR states that "Removal of the reservoirs associated with the Lower Klamath Hydroelectric Project dam complexes would also result in a reduction in methane (CH4) production," and "As previously described, CH4 emissions from the reservoirs range from 4,000 to 14,000 MTCO2e per year." The DEIR should make it clear that there have been no measurements of methane emissions from the Klamath Hydroelectric Project reservoirs and that these estimates are *speculative. Estimates of methane emissions from Klamath Hydroelectric Project reservoirs (in DEIR Appendix N) are based on estimates from observations on reservoirs elsewhere in the U.S. Th ese estimates indicate that such emissions from Klamath Hydroelectric Project reservoirs would be a very small percentage of replacement power emissions. See Major Issue 2.5.*

Response to Comment ORG46-290

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-291

Contrary to the statement in the DEIR, the mouth of the Klamath River is routinely closed by a sandbar. If this happens during the dam removal year, this would increase slack-water in the estuary and increase the rate at which fine materials are deposited in to the estuary. The statement that "If dam removal occurs during a low flow year, there may be relatively small volumes of sediment deposited in these areas" is completely unsupported in the DEIR.

Response to Comment ORG46-291

A sandbar does exist between two bedrock formations to the north and south of the Klamath River mouth, with the mouth typically situated on the far northern or southern end of the bar (Wallace 1998). The Klamath River Estuary mouth remains open most of the time, only occasionally closing during summer low flow periods (Stillwater Sciences 2009). During drawdown (November to March) and the following period of greatest sediment transport, the mouth would be open due to elevated flows. The subsection *Channel Response in the Klamath River Estuary* in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been revised to clarify that the Klamath River mouth would be open during the drawdown period. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 subsection *Channel Response in the Klamath River Estuary* for the revisions.

The Potential Impact 3.11-5 conclusion that relatively small volumes of sediment would be deposited in the Klamath River Estuary if dam removal occurs during a low-flow year, which is referred to in the comment, is supported by the impact analysis. However, the subsection *Channel Response in the Klamath River Estuary* in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to include citations relevant to fine sediment being transported past the Klamath River Estuary to the Pacific Ocean, as already cited elsewhere in the EIR. Please refer to Volume III Attachment 1 subsection *Channel Response in the Klamath River Estuary* in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

Comment ORG46-292

The definition of Tribal Cultural Resources from PRC Section 210749(1)(a) in this paragraph of the DEIR has a typo that could lead to misinterpretation. The definition currently states (emphasis added) "...or included in a local register or historical resources." The word "or" should be changed to "of" per the following excerpt from PRC 210749(1)(a):

"Tribal Cultural Resources (TCRs) are defined consistent with Public Resources Code section 21074(1)(a) which includes sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either included or determined to be eligible for inclusion in the California Register of Historical Resources, or included in a local register of historical resources, or as determined by the lead agency under the criteria for listing."

Response to Comment ORG46-292

Section 3.12 *Historical Resources and Tribal Cultural Resources* has been slightly modified to correct the typographical error in the definition of Tribal Cultural Resources (TCRs). Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* for the revision.

Comment ORG46-293

DEIR states that the KRRC conducted a records search in 2017 and that the KRRC search "compliments" [sic] record searches from 2012. Best practice in the industry is to complete a new or supplemental records search every 2 years because new cultural/tribal/historical resources may have been identified since the records searches were last completed. In an area with such high levels of archaeological and tribal sensitivity, there is a risk that additional cultural/tribal/historical resources may be present and have been identified since the 2017 (or earlier) records searches. Additional information may exist that could inform the Proposed Project and the assessment of impacts. A records search of the entire Project area should have been conducted in 2017. If the referenced 2017 records search does not cover the entire Klamath Hydroelectric Project area, a supplemental records search should be conducted before considering approval of the Proposed Project. It is unclear if the KRRC work was included in the preparation of the DEIR. This information should be included in the analysis.

Response to Comment ORG46-293

Please see the response to comment LA9-73.

Comment ORG46-294

This table includes a column for National Register of Historic Places (NRHP) Eligibility but does not include eligibility for the California Register of Historical Resources (CRHR). It is not clear if any of these resources have been evaluated or listed on the CRHR but not the NRHP. The State Water Board appears to *assume that NRHP status should also be assumed for the CRHR status. If a formal determination of eligibility was made under Section 106, then the resource is automatically listed in the CRHR. This should be clarified.*

Response to Comment ORG46-294

Please see the response to comment LA9-77. Additionally, the introductory text in Section 3.12 *Historical Resources and Tribal Cultural Resources* has been clarified to indicate that while not all California Register of Historical Resources (CRHR)-eligible resources are also eligible for the National Register of Historic Places (NRHP), resources listed on or evaluated as eligible for the NRHP are considered historical resources under CEQA. Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources* for the revisions.

Comment ORG46-295

Updated tribal cultural resources information provided by the Shasta Indian Nation as part of the State Water Board Assembly Bill 52 (AB 52) consultation should be included in this section. Specifically, the number of new tribal cultural resources identified along with the total number of tribal cultural resources identified should be provided. Without information on the types and number of sites identified and the source of that information, the analysis of impacts to tribal cultural resources is not substantiated in the DEIR. Obviously, confidential information should not be shared, but simple reference to a confidential appendix is not sufficient to understand the impact analysis or assess the adequacy of proposed mitigation measures.

Response to Comment ORG46-295

Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Project* has been revised to clarify the number and types of known tribal cultural resources in the Project area based on information provided by the Shasta Nation and Shasta Indian Nation. Please refer to Volume III Attachment 1 Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Project* for the revisions.

Comment ORG46-296

Describing the location of villages as is done in the DEIR may be disclosing confidential site location data. This sentence should be deleted or revised to maintain confidentiality and avoid the potential for site desecration by vandals.

Response to Comment ORG46-296

There is no village location description associated with the text referenced in the comment. The non-confidential portions of the EIR do not disclose information about tribal cultural resources that is not already in the public record.

Comment ORG46-297

Paragraph 1 seems to indicate that the significance criteria presented in this section were developed specifically for the Proposed Project; however, the DEIR needs to clarify that the actual criteria are specific to the Proposed Project and do not reflect the significance language presented in Appendix G of the CEQA guidelines.

Response to Comment ORG46-297

Section 3.12.3 *Historical Resources and Tribal Cultural Resources – Significance Criteria* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.12.3 *Historical Resources and Tribal Cultural Resources – Significance Criteria* for the revisions.

Comment ORG46-298

A source citation is needed in the following sentence to clarify whether it reflects a statement and understanding from the State Water Board or data as presented in Lenihan et. al. 1981: "When a river with a long history of cultural use is dammed and water is impounded, the cultural landscape is adversely affected through direct impacts to the archaeological or historical sites themselves and to the relationships of these properties to their environment and to each other on local and broader scales."

Response to Comment ORG46-298

The statement in question is not a quote from Lenihan et al. (1981). The statement in question was included in the KHSA 2012 EIS/EIR and it is in accord with statements from Native American Tribes made during consultation with the State Water Board for the Lower Klamath Project. The State Water Board agrees with the statement that when a river with a long history of cultural use is dammed and water impounded, the cultural landscape is adversely affected through direct impacts.

Comment ORG46-299

Given that research is underway at local repositories, the impact analysis for the Proposed Project is incomplete. The DEIR may be missing valuable information about potential historic built environment resources and historic period archaeological sites. Without this information, an accurate impacts analysis cannot be conducted and appropriate mitigation cannot be formulated. This could lead to a situation where the State Water Board incorrectly determines the magnitude of an impact or mitigation may be deferred and not enforced.

Response to Comment ORG46-299

Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Known Tribal and Historical Resources in the Vicinity of the Proposed Project – Historical Landscape Analysis* has been updated to clarify that the Klamath River Renewal Corporation (KRRC) completed the review of the J.C. Boyle collection as well as the archival and historical landscape research at local County repositories and historical societies. The Historic Landscape analysis conducted by the KRRC found no Historical Landscape in the Area of Analysis for the Project. Therefore, no unanalyzed impacts require analysis. Please refer to Volume III Attachment 1 Section *3.12.2.3 Historical Resources and Tribal Cultural Resources – Known Tribal and Historical Resources in the Vicinity of the Proposed Project – Historical Landscape Analysis* for the revisions.

Additionally, Section 3.12.4 *Historical Resources and Tribal Cultural Resources – Impact Analysis Approach* has been revised to clarify that (1) for the purposes of the EIR analysis, all known and unknown built environment and historic archaeological resources are assumed to be significant historical resources under CEQA and (2) some of these resources may not be National Register of Historic Places (NRHP)-eligible. Also, as listed in Section 3.12.5.2 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Built Environment and Historic-period archaeological Resources*, the DEIR accurately discloses that the Proposed Project would have significant and unavoidable impacts to historic resources even with the inclusion of the KRRC's Historic Properties Management Plan. The KRRC confirmed on August 27, 2019 that the Historic Properties Management Plan will address properties eligible under both state and federal law (KRRC 2019a), applying California Register of Historical Resources and National Register of Historic Places criteria.

Please refer to Master Response CEQ-2 and response to comment ORG46-302 for additional discussion of mitigation measures related to historical resources.

Comment ORG46-300

More recent studies exist regarding the impacts of reservoir drawdowns on archaeological sites in the Pacific Northwest and broader western U.S. than are presented in the DEIR. More region-specific and Project-relevant examples exist than the Puebloan archaeological sites in the southwestern U.S. cited under Haynes (2008) and the Lenihan et. al. (1981) study conducted by the National Park Service in the Southwest Cultural Resources Center. More recent analysis should be used for the impact study as it relates to inundation, wave action, and freeze-thaw disturbance once archaeological sites are exposed. Disturbance from freeze-thaw events for newly exposed archaeological sites is not mentioned.

Response to Comment ORG46-300

The EIR analyses of potential impacts to archaeological sites and tribal cultural resources due to reservoir drawdown find that there would be significant and unavoidable impacts even with mitigation. Inclusion of an additional set of exposure-related potential impacts, such as freeze-thaw disturbance impacts on stone materials and other data classes following drawdown, would not change the impact assessments or significance determination. Additionally freeze-thaw impacts are within the range of consideration of natural elements/weather exposure of the resource. Please refer to Potential Impact 3.12-2 for a discussion of potential impacts related to shifting, erosion, and exposure of known or unknown, previously submerged tribal cultural resources due to drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs, and Potential Impact 3.12-13 for a discussion of potential impacts related to shifting, erosion, and exposure of historic-period archaeological resources due to drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs. Volume III Attachment 1 presents the final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Comment ORG46-301

The concluding sentence "The results of these surveys on lands exposed from natural drawdown at Lake Mead, a man-made reservoir, are directly applicable to the proposed drawdown of the reservoirs along the Klamath River" is the opinion of the State Water Board. Other, more recent research has been conducted on reservoir drawdowns in California and Oregon that are equally as applicable if not more relevant, among them reservoir drawdown studies in California, Oregon, and Washington undertaken by the U.S. Army Corps of Engineers Portland District, Seattle District, Walla District, and Sacramento District. By not using the best available in formation, the State Water Board is providing an inadequate analysis in the DEIR.

Response to Comment ORG46-301

Reservoir drawdown studies undertaken by the United States Army Corps of Engineers (USACE) Walla Walla District and Portland District in support of the Columbia River Systems operation (Corcoran et al. 2001) as well as studies conducted in California, such as the Foster et al. (1977) study at the Folsom Reservoir, support and are consistent with the findings of the Draft EIR. Please note that the EIR analyses of potential impacts to archaeological sites and tribal cultural resources due to reservoir drawdown find that there would be significant and unavoidable impacts even with mitigation. Inclusion of additional literature references related to the potential for impacts due to reservoir drawdown would not change the impact assessments. Please refer to Potential Impact 3.12-2 for a discussion of potential impacts related to shifting, erosion, and exposure of known or unknown, previously submerged tribal cultural resources due to drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs, and Potential Impact 3.12-13 for a discussion of potential impacts related to shifting, erosion, and exposure of historic-period archaeological resources due to drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs. Volume III Attachment 1 presents the final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Comment ORG46-302

Regarding mitigation measures presented in this section, many of the measures consist of mitigation appropriate for compliance with Section 106 of the NHPA. For example, Mitigation Measure TCR-1 requires preparation of a Historic

Properties Management Plan (HPMP) and states that "The KRRC shall propose the HPMP for FERC's approval as a term of the license surrender order." This measure may be appropriate for the federal process and is enforceable by the federal lead agency in the NEPA/ permitting process; however, it is inconsistent with CEQA, not enforceable by the CEQA lead agency, and likely indefensible.

Response to Comment ORG46-302

Please refer to Master Response CEQ-2. The State Water Board developed tribal cultural resources mitigation measures in formal Assembly Bill 52 (AB 52) government-to-government consultation with Native American Tribes that have tribal cultural resources which could be impacted by the Proposed Project. To ensure implementation of the mitigation measures, the Klamath River Renewal Corporation (KRRC) was included in AB 52 consultations for development of tribal cultural resources mitigation measures. On October 17, 2018 and November 30, 2018 the KRRC confirmed their agreement with the mitigation measures, thus ensuring feasibility for implementation under CEQA.

Mitigation Measure TCR-1 requires the development of a Tribal Cultural Resources Management Plan (TCRMP) which will include, at a minimum, the items listed in TCR-1. The TCRMP will be included as a component of the Historic Properties Management Plan being developed as part of the Section 106 consultation in the Federal Energy Regulatory Commission (FERC) process. Given that Section 106 requirements are not required to extend to non-federally recognized Native American Tribes, and CEQA does not require that Tribal Cultural Resource impacts be dependent on a Native American Tribe's federal recognition status, the TCRMP covers both federal and non-federally recognized tribes.

Comment ORG46-303

The DEIR states "The TCRMP shall state a range of appropriate measures, and a protocol to select from such range." The mitigation statements in this section are general and do not include sufficient detail to demonstrate that the measure will reduce potential impacts. This in turn defers mitigation and is not enforceable by the CEQA lead agency. It is PacifiCorp's understanding that a discussion of impacts and mitigations for specific TCRs and historic period archaeological sites known at the time the DEIR was released should therefore be included. Appendix B includes substantial information about the known resources and resource-specific impacts. This information and corresponding mitigation should be included in the body of the DEIR.

Response to Comment ORG46-303

Please refer to Master Response CEQ-2 and response to comment on ORG46-302.

Mitigation Measure TCR-1 includes performance standards to ensure reduced impacts to tribal cultural resources. Specifically, TCR-1 item 3, states "The

TCRMP shall assure that the Project will avoid, minimize, or mitigate adverse impacts to TCRs, consistent with California Public Resources Code section 21084.3(a)."

California Public Resources Code section 21084.3(a) requires avoidance of damaging effects to tribal cultural resources where feasible. The measure identified in TCR-1 enumerate specific measures for consideration, including measures developed specifically for the Proposed Project through consultation, and the general measures identified in California Public Resources Code, section 21084.3(b). More broadly, consultation to identify specific measures for resources is best practice to avoid harm and minimize it when some level of harm is not feasible to avoid. (See, e.g,. 36 C.F.R. § 800.6*.)*

Requiring consultation to identify the appropriate use of specific measures or identification of additional measures to protect resources is particularly appropriate here, for several reasons. There is substantial uncertainty as to the location of submerged or buried resources, as to their condition, and as to whether they will be exposed during drawdown or disturbed during post-dam-removal construction or restoration activities. It would be impossible to determine, at this point, for example, whether a Project activity in one location versus another would have a greater or less impact on a particular tribal cultural resource. Similarly, the significance of a resource depends in part on the greater context in which the resource is found. The significance of known resources is likely to change based on their relationship to as yet unknown resources. Requiring consultation between the Klamath River Renewal Corporation (KRRC) and impacted tribes provides for adaptive management in protecting specific known and as of yet unknown tribal cultural resources, to the extent possible.

The KRRC has also agreed to complete evaluations of all currently identified cultural and historic resources within the limits of work and any resources that are identified in the future to determine whether they are eligible for listing in either the National Register of Historic Places (NRHP) or the California Register of Historical Resources [CRHR](KRRC 2019a, M. Kelly, AECOM as KRRC technical representative, pers. comm., August 2019).

The EIR acknowledges that completely avoiding harm is not likely to be feasible in all instances.

Additionally, as stated in the introduction to Section 3.12 *Historical Resources and Tribal Cultural Resources,* and in response to ORG46-302, the State Water Board engaged in regular Assembly Bill 52 (AB 52) consultations with the Shasta Indian Nation, the Shasta Nation, and the Yurok Tribe in 2017 and 2018. The consultations with all tribes resulted in identification of potentially-impacted resources, articulation of potential impacts, and involved extensive discussion regarding the appropriate mitigation measures to protect resources to the extent feasible, and in light of the considerable uncertainty regarding the location of and the impacts to submerged resources. The consultation with the Yurok Tribe and Shasta Indian Nation resulted in final agreement on specific mitigation measures (see Section 3.12.5.1 *Potential Impacts to Tribal Cultural Resources*, Mitigation Measures TCR-1 through TCR-8).

Consultation with Shasta Nation did not reach agreement on mitigation measures, in light of the Shasta Nation's position regarding the severity dam removal impacts on Shasta Nation tribal cultural resources, particularly burial sites. However, consultation with the Shasta Nation informed the description of Tribal Cultural Resource (TCR) mitigation measures presented in the EIR to reduce the harm of potential impacts to tribal cultural resources, as well as the significance determinations listed in Section 3.12.

KRRC has formally committed to implementing the measures as part of concluding AB 52 consultation, and has initiated consultation for development of a Tribal Cultural Resources Management Plan (TCRMP) to meet the requirements described in Mitigation Measures TCR-1 through TCR-4, as well as the requirements of National Historic Preservation Act (NHPA), Section 106. Please note that the TCRMP will be submitted to Federal Energy Regulatory Commission (FERC) as part of the application for license surrender.

Please note that Appendix B is included by reference in TCR-1, item 1 which states, "Appendix B: *Definite Plan – Appendix L* includes a preliminary inventory of such [TCRs] resources. KRRC will continue to develop the inventory through the consultation process for the license surrender application under authority of the National Historical Preservation Act (NHPA) Section 106."

Comment ORG46-304

Mitigation measures TCR-1 through TCR-8 are specific to TCRs. It is inadequate to refer to these mitigation measures for Potential Impacts 3.12-12, 3.12-13, 3.12-14 that are specific to historic-period archaeological sites. The mitigation measures for TCRs in Section 3.12.5.1 are specific to TCRs and are not written to be adopted for resources other than TCRs. Because the application of these mitigation measures to historic-period cultural resources and archaeological sites is inappropriate, the DEIR needs to be updated for these resources to discuss them at the same level of detail, assess the effects of the Proposed Project, and identify appropriate mitigation measures as required pursuant to CEQA.

Response to Comment ORG46-304

As stated in Potential Impacts 3.12-12, 3.12-13, and 3.12-14, the Klamath River Renewal Corporation (KRRC) is developing a Historic Properties Management Plan, which includes identification of prehistoric and historic-period archaeological sites and measures to implement before and during drawdown and dam removal activities to protect significant historic, cultural, and tribal resources during Proposed Project implementation. The KRRC's proposed Historic Properties Management Plan [HPMP] (discussed in Mitigation Measure

TCR-1), Looting and Vandalism Prevention Program [LVPP] (discussed in Mitigation Measure TCR-2), and Inadvertent Discovery Plan [IDP](discussed in Mitigation Measure TCR-3) all would offer protections for historic-period cultural resources and archaeological sites as well as tribal cultural resources, as indicated in the Draft EIR. For example, the historic properties management plan described in TCR-1 will address protection of archeological sites (historic and prehistoric), regardless of whether the sites are significant because of their cultural importance to a California Native American Tribe (or Tribes), to California history without a strong link to a California Native American Tribe, or both. For example, a home site flooded by filling the reservoirs and then exposed upon drawdown would be assessed and addressed under the historic properties management plan regardless of whether the home was that of an important tribal elder, that of a settler with no particular link to local tribes, or a family with an important role in both tribal and non-tribal history. While the mitigation measures for tribal cultural resources include particular measures that would not apply to all historic resources, because some of the measures apply to all historic resources, and because many historic resources are also tribal cultural resources, it is appropriate to cite them in the analysis of historic-period cultural resources and archaeological sites.

Comment ORG46-305

The statement that "...the inclusion of documentation measures in conformance with the Secretary of the Interior's guidance would lessen the impact to the resource, the impact to the Klamath Hydroelectric Historical District under the Proposed" is misleading. The DEIR should acknowledge that any documentation implemented as mitigation would not actually lessen the impact of proposed demolition of contributing features of the Historical District. Rather, the documentation would only mitigate to some degree the loss of the historic resource. Therefore, the impact finding is not substantiated and the impact may remain significant after mitigation is applied.

Response to Comment ORG46-305

Section 3.12.5.2 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Built Environment and Historic-period Archaeological Resources* has been revised to clarify that even with the inclusion of documentation measures in conformance with the Secretary of the Interior's guidance, the impact to the resource and its context would be significant and the historic resource would be materially impaired.

Comment ORG46-306

CEQA requires that mitigation measures prioritize preservation in place (CEQA Guidelines Section 15126.4). The mitigation measures in this section say little about the feasibility of preservation in place for all of the different types of historical resources (e.g., historic-period built environment, historic-period archaeological sites). Data recovery is only a suitable mitigation option after detailed analysis and documentation demonstrates that data recovery is the only *feasible mitigation. It does not appear that this detailed analysis has been conducted in such a manner that would allow this determination to be made.*

Response to Comment ORG46-306

CEQA Section 15126.4 (b) discusses Mitigation Measures Related to Impacts on Historical Resources and includes considerations for historical built environment resources as well as for historical resources of an archaeological nature, for which preservation in place is specified as the preferred manner of mitigation. As stated in Volume III Attachment 1 Potential Impacts 3.12-11, 3.12-13, 3.12-14, 3.12-15, and 3.12-16, the Klamath River Renewal Corporation (KRRC) is developing a Historic Properties Management Plan (HPMP), which includes identification of historic-period cultural resources and archaeological sites and measures to implement before and during drawdown and dam removal activities to protect significant historic, cultural, and tribal resources during Proposed Project implementation. Implementation of the HPMP for Potential Impacts 3.12-12, 3.12-13, and 3.12-16 would reduce significant impact considerably, and, for many resources is expected to avoid impacts completely, through the design and implementation of construction plans or on-the-ground modifications to Proposed Project implementation. Implementation of the HPMP for Potential Impacts 3.12-11, 3.12-14, and 3.12-15 may reduce impacts to resources identified in the near vicinity, but given Proposed Project construction plans, impacts would remain significant and unavoidable. The aforementioned plan would consider feasible mitigation – including preservation in place – to minimize significant effects as outlined in CEQA Section 15126.4(b) and would be submitted to Federal Energy Regulatory Commission (FERC) for approval before the commencement of any ground disturbing activities (including reservoir drawdown).

Comment ORG46-307

The DEIR does not present adequate information to allow for evaluation of how widespread the resource is within the potential area of impact; simply including the percentage of Area of Analysis that contains agricultural resources would clarify this analysis.

Response to Comment ORG46-307

Section 3.15.2 *Agriculture and Forestry Resources – Environmental Setting* has been revised to clarify existing conditions for agricultural resources within the Area of Analysis with the addition of a new table. Please refer to Volume III Attachment 1 Section 3.15.2 *Agriculture and Forestry Resources – Environmental Setting* Table 3.15-1-A for the revisions. Please also refer to Volume III Attachment 1 Section 3.15.2.1 *Agriculture and Forestry Resources – Environmental Setting – Important Farmland* Figure 3.15-2.

Comment ORG46-308

Add the Area of Analysis to this figure to provide a visual perspective of the amount and distribution of agricultural and forestry resources within the area of potential impact.

Response to Comment ORG46-308
Section 3.15.2.1 *Agriculture and Forestry Resources – Environmental Setting – Important Farmland* Figure 3.15-2 has been revised to clarify the Area of Analysis for agriculture and forestry resources. Please refer to Volume III Attachment 1 Section 3.15.2.1 *Agriculture and Forestry Resources – Environmental Setting – Important Farmland* Figure 3.15-2 for the revisions.

Comment ORG46-309
The DEIR does not present adequate information to allow for evaluation of how widespread the resource is within the potential area of impact; simply including the percentage of Area of Analysis that contains forestry resources would clarify this analysis.

Response to Comment ORG46-309
The Area of Analysis does not contain land zoned by Siskiyou County as Forest Resources. Please refer to Volume I Section 3.14 *Land Use and Planning*, Figure 3.14-3 (page 3-880).

Comment ORG46-310
This table as presented in the DEIR does not provide context for the reader relative to the Area of Analysis. At a minimum, the table should include upland tree habitat information within the Area of Analysis and discuss the importance of providing the information for the expanded mapping area.

Response to Comment ORG46-310
Section 3.15.2.4 *Agriculture and Forestry Resources – Environmental Setting – Forestry Resources* Table 3.15-2 has been revised to clarify upland tree acreage within the agriculture and forestry Area of Analysis. This information does not change any significance determinations. Please refer to Volume III Attachment 1 Section 3.15.2.4 *Agriculture and Forestry Resources – Environmental Setting – Forestry Resources* for the revisions.

Comment ORG46-311
The list of significance criteria uses the descriptor "substantial" to indicate the threshold of a significant impact (e.g., substantial conversion, substantial adverse environmental impact, substantial loss). The DEIR needs to define the term 'substantial' as it relates to each of these different criteria.

Response to Comment ORG46-311
Section 3.15.3 *Agriculture and Forestry Resources – Significance Criteria* has been revised to clarify the meaning of the word "substantial" as used in the significance criteria related to conversion of farmland and forestland. Please refer to Volume III Attachment 1 Section 3.15.3 *Agriculture and Forestry Resources – Significance Criteria* for the revisions."

Comment ORG46-312

The DEIR fails to address the impacts of diversions from Bogus and Fall creeks for hatchery operations in Section 3.15. Discuss how these diversions affect agriculture or forestry resources land and how any changes to these diversions under the Proposed Project would affect agriculture or forestry resources.

Response to Comment ORG46-312

The analysis in Section 3.15 *Agriculture and Forestry Resources* does not consider the potential impacts of the water diversions for the Bogus and Fall creeks hatcheries on agriculture and forestry resources because a) hatchery water use would be non-consumptive and there are no other water users between the point of diversion and the point of return for each of these facilities, and b) the lands surrounding these facilities are not zoned as Agriculture or Forest Resource lands by Siskiyou County; rather these lands are zoned as Open Space. In addition, none of the land surrounding the hatchery facilities is classified as Prime, Farmland of Statewide, or Farmland of Local Importance by the California Department of Conservation (CDOC). The land is classified as grazing land by the CDOC and would continue to be available for grazing irrespective of the proposed hatchery diversions. For additional information regarding hatchery-related water diversions, please refer to Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-1 (pages 3-676 to 3-678).

Comment ORG46-313

The list of significance criteria uses the descriptor "substantial" to indicate the threshold of a significant impact (e.g., substantial increase, substantial adverse effect). The DEIR needs to define the term 'substantial' as it relates to each of these different criteria.

Response to Comment ORG46-313

Please refer to Master Response CEQ-3.

Comment ORG46-314

The significance statement should be "Significant and unavoidable impact with mitigation" for Potential Impact 3.17-2 because the State Water Board cannot ensure implementation of the mitigation. Potential Impact 3.17-1 makes the same determination and the significance statement is "Significant and unavoidable impact with mitigation" on p 3-915.

Response to Comment ORG46-314

The significance determination (i.e., significant and unavoidable with mitigation) presented in Volume I Section 3.17.5 *Public Services – Potential Impacts and Mitigation* (page 3-915) refers to Potential Impact 3.17-1, Mitigation Measure HZ-1, and Recommended Measure TR-1. The significance determination on page 3-919 (i.e., significant and unavoidable) refers to Potential Impact 3.17-2 and Recommended Measure PS-1. Please refer to Master Response CEQ-2 for a discussion of why the text of the Final EIR has been revised to reflect that Recommended Measure TR-1 is now Mitigation Measure TR-1. Please also refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 through 3.22-5 for the revisions*.*

Comment ORG46-315

The first part of the first sentence of this section is missing, possibly omitting important information regarding what is addressed in this section.

Response to Comment ORG46-315

Section 3.18 *Utilities and Service Systems* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.18 *Utilities and Service Systems* for the revisions.

Comment ORG46-316

This section does not describe the baseline condition concerning electric utilities, the power generated by the hydroelectric dams, and the impacts from removing those dams and associated power transmission facilities. This section is also about the ability to deliver utilities. While the Proposed Project likely will not result in new needs for power, it will eliminate existing power sources at the hydroelectric dams. The impact analysis should address the removal of these utilities and how those utilities will be replaced and the impacts of that replacement (See Section 3 Thematic Comments).

Response to Comment ORG46-316

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment ORG46-317

This section does not address impacts to other utilities, including phone lines, fiber optic lines, and natural gas service. This section should identify buried and overhead utilities and provide mitigation to minimize impacts to existing utilities.

Response to Comment ORG46-317

This comment raises concerns regarding potential impacts to utilities such as phone lines, fiber optic lines, and natural gas service. Please note that CEQA documents analyze significant effects on the physical environment: CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, § 15131(a).) However, to inform the public and decisionmakers regarding the potential consequences of the Proposed Project, the State Water Board has confirmed that neither fiber optic lines nor natural gas lines occur within the Proposed Project Boundary. Furthermore, utility providers have construction standards and policies that contractors are required to adhere to in order to minimize short-term disruptions to services and to ensure that there would not be long-term or permanent disruption and related impacts, if and where those utilities exist.

Comment ORG46-318

The DEIR states that temporary sanitary facilities required by the Proposed Project will be determined by the number of workers onsite, but fails to incorporate information from other areas of the DEIR. Specifically, the number of workers is estimated in Section 3.22.5 Transportation and Traffic (pg. 3-1069; see Table 3.22-5). This number should be used to estimate the quantity of portable chemical toilets required during construction and any associated spill prevention and containment measures or other mitigation.

Response to Comment ORG46-318

Please note that the comment refers to the environmental setting. The relevant impact analysis occurs in Potential Impact 3.18-1 (pages 3-928 to 3-929). Potential Impact 3.18-1 expressly refers to Table 2.7-8, which includes the same workforce estimates as the table referenced in the comment (Table 3.22-5).

Comment ORG46-319

The Water Supply section description does not mention Yreka's water supply pipeline. The text does refer to Section 3.8 Water Supply/Water Rights; however, Section 3.18 should acknowledge that the City of Yreka 's water source and the infrastructure to deliver that water are located within the Area of Analysis. This section should also reference where in the DEIR additional information on Yreka's water supply pipeline can be found (including the impact analysis and mitigation to address impacts from temporary disconnections or service interruptions).

Response to Comment ORG46-319

The City of Yreka municipal water supply pipeline and the potential impacts from realigning this pipeline as part of dam removal are addressed in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-4 (page 3-682). This topic is addressed in Volume I Section 3.8 *Water Supply/Water Rights*, as noted in Volume I Section 3.18 *Utilities and Service Systems* (page 3-925) and Volume I Section 3.18.2.3 *Water Supply* (page 3-926).

Comment ORG46-320

The list of significance criteria indicates that significant effects to utilities and service systems include new wastewater or stormwater facilities that would cause significant environmental impacts. The DEIR should fully define the threshold of change that would be considered a significant environmental impact.

PacifiCorp recognizes that CEQA allows the SWRCB to establish its own significance criteria. However, this question from Appendix G should also be

included because the Proposed Project requires surface water diversions for operations at the Fall Creek and Iron Gate hatcheries:
“Would the project: ... d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?" (See CEQA Appendix G XVI Utilities and Service Systems.)

Response to Comment ORG46-320
Please refer to Volume I Section 3.18.3 *Utilities and Service Systems – Significance Criteria*, Volume I Section 3.18.4 *Utilities and Service Systems – Impact Analysis Approach* and Volume I Section 3.18.5 *Utilities and Service Systems – Potential Impacts and Mitigation* (pages 3-927 through 3-929), which describe the approach for defining the threshold of change. Volume I Section 3.18.3 *Utilities and Service Systems – Significance Criteria* notes that effects to utility and service systems are considered significant if the Proposed Project would result in one or more of the following conditions or situations:

- Require or result in the construction of new wastewater treatment and/or disposal facilities or expansion of existing facilities, due to inadequate capacity to serve the Proposed Project’s anticipated demand or where the construction of such facilities could cause significant environmental impacts.
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental impacts.

Volume I Section 3.15.5 *Utilities and Service Systems – Potential Impacts and Mitigation* Potential Impact 3.18-1 notes that the threshold is defined as whether the Proposed Project results in the need for construction or expansion of existing wastewater facilities and/or where such construction would result in a significant environmental impact. As noted in Potential Impact 3.18-2, the threshold is defined as whether the Proposed Project results in the need for construction or expansion of existing stormwater facilities where such construction would result in a significant environmental impact. As analyzed in Volume I, the Proposed Project would not require construction of additional facilities, and therefore neither of these thresholds would be exceeded.

Volume I Section 3.18 *Utilities and Service Systems*, (page 3-925) states that the hatchery water supplies/water rights are addressed in Volume I Section 3.8 *Water Supply/Water Rights*. Specifically, please refer to Volume I Section 3.8.2.1 *Water Supply/Water Rights – Environmental Setting – Upper Klamath Basin* (pages 3-670 to 3-671) and Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-1 (pages 3-676 to 3-679). Please also refer to Master Responses WSWR-3, WSWR-5, and WSWR-6. This section describes the available water supplies and entitlements, finding that water is available without injury to other lawful users and under existing rights.

Comment ORG46-321

Section 3.19 lacks clarity around the baseline condition. While the alternatives analyses seem to acknowledge the environmental baseline to be current conditions (i.e., the four dams, reservoirs, and associated structures), the analysis for the Proposed Project seems to generally reference a previously existing condition in which there were no hydroelectric facilities and instead free-flowing river. This previously existing condition also seems to be considered in defining the return to "more natural river, canyon, and valley vistas" as de facto beneficial. Unless the State Water Board has specifically defined multiple baselines for analysis, the DEIR should analyze the impacts of the Proposed Project in relation to baseline conditions, which are those at the time the NOP was issued in 2016.

Response to Comment ORG46-321

As stated in Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology*, all of the facilities except three [all associated with J.C. Boyle in Oregon] are located in areas that have been designated as a Class III area by a Resource Management Plan or have been classified as a Class III area because the area has not been given a specific Visual Resource Management (VRM) class by the Bureau of Land Management (BLM) (PacifiCorp 2004a-3). Thus, the Class III VRM designation is the existing condition and environmental baseline under CEQA. Section 3.19.3 *Aesthetics – Significance Criteria* has been revised to clarify the baseline used for the EIR aesthetic resources analysis. The first significance criterion has been modified to remove the objectives associated with the Class III VRM designation and to more clearly identify how a shift in VRM classification relative to the baseline (i.e., existing conditions) is treated in the analysis. The modified criterion also explicitly acknowledges how the analysis was applied in areas where the VRM analysis was not conducted. Additionally, Section 3.19.4 *Aesthetics – Impact Analysis Approach* has been revised to align with the clarified significance criteria and to remove any reference to natural conditions, since this is not the CEQA baseline. Please refer to Volume III Attachment 1 Sections 3.19.3 *Aesthetics – Significance Criteria* and 3.19.4 *Aesthetics – Impact Analysis Approach* for the revisions.

Comment ORG46-322

The DEIR fails to provide an individual analysis of the aesthetic impacts of removing each facility. For example, the removal of Copco No. 2 would have very small long-term impacts related to the loss of open water vistas as compared with the larger facilities visible by larger numbers of viewers. While noted in some of the alternatives discussions, the analysis in the DEIR would be better substantiated with a clear discussion of impacts related to each facility.

Response to Comment ORG46-322

The Proposed Project is to remove all of the Lower Klamath Project dams and associated facilities and thus the EIR analysis appropriately considers the removal of all facilities as a combined action. That said, both facility removal (e.g., dams, reservoirs, powerhouses, existing recreational facilities) and facility construction (e.g., new recreational facilities) for each of the facilities were considered in identifying potential impacts to key viewpoints. Proposed Project components that could have significant impacts on aesthetics, as well as potentially affected viewer groups, are discussed individually in the analysis, as appropriate (e.g., discussion of Copco No. 1 Reservoir in Potential Impact 3.19-1). The example provided in the comment does not consider the broader context within which the aesthetic change related to removal of this reservoir would be made under the Proposed Project.

As appropriate, the potential aesthetic impacts of removing all or portions of the individual Lower Klamath Project dams and associated facilities are discussed in the analysis of alternatives to the Proposed Project (Volume I Section 4.3.19 *Partial Removal Alternative –Aesthetics*, Volume I Section 4.5.19 *Two Dam Removal Alternative – Aesthetics*, Volume I Section 4.6.19 *Three Dam Removal Alternative – Aesthetics*), as well as the potential aesthetic impacts of constructing new facilities (fish ladders and associated structures) under the alternatives to the Proposed Project (Volume I Section 4.4.19 *Continued Operations With Fish Passage Alternative – Aesthetics*). Examples of the assessment of individual project components can also be found in Table 4.3-1 through Table 4.3-7 for the Partial Removal Alternative (pages 4-76 to 4-83 and 4-90), and Table 4.4-2 (page 4-170) for the Continued Operations with Fish Passage Alternative, among others.

Comment ORG46-323

As cited in the PacifiCorp (2004c) Land Use, Visual, and Aesthetic Resources Final Technical Report, almost all of the facilities are in areas designated as Class Ill under the Bureau of Land Management's (BLM) Visual Resource Management (VRM) system. However, while some facilities have been designated as such in a BLM resource management plan (RMP) (BLM 1993), the balance of the facilities are designated Class Ill in the DEIR "because the area has not been given a specific VRM class by BLM." The DEIR must provide analysis as to why the areas outside of RMP coverage are considered to be in this category because the impacts are later analyzed against the level of change acceptable to Class Ill areas.

Further, as detailed on DEIR page 3-938, if the criteria from the baseline Visual Resource Inventory in the 2012 KHSA EIS/EIR (DOI and CDFW 2012) are considered, all of the Proposed Project area "...could be classified as VRM Class 11, based on Class A distinctive scenic quality of high visual sensitivity as viewed from a foreground/middleground distance zone, from an inventory context." However, impact analysis in Section 3.19 is based on Class Ill acceptable *change criteria (not Class II) with no reasoning presented for this difference. Overall, this difference in assigned verses functional VRM class creates an analysis in the DEIR that underestimates the degree of impact from the Proposed Project because more substantial changes are permitted in a Class Ill area with impacts remaining less significant than are permitted in a Class II area.*

Response to Comment ORG46-323

The partial sentence quoted in the comment "because the area has not been given a specific VRM class by BLM" is from Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* and it is followed by a citation to PacifiCorp (2004a-3), which is the most recent assessment of land use, visual, and aesthetic resources in the aesthetics Area of Analysis. Please note that the first bulleted significance criterion in Section 3.19.3 *Aesthetics – Significance Criteria*, which listed objectives for Visual Resource Management (VRM) Class III areas including acceptable level of change, has been clarified to remove the specific comparisons to the Class III objectives and to focus specifically on whether the proposed activities would cause the VRM class to be degraded (i.e., changed to a higher numerical class) at a scenic vista in areas where the VRM analysis was conducted. Please refer to Volume III Attachment 1 Section 3.19.3 *Aesthetics – Significance Criteria* for the revisions.

The paragraph in Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* containing the sentence that is quoted in the second paragraph of the comment has been deleted as it does not belong in a discussion of the environmental baseline. The VRM Class II, III, and IV objectives have been added as footnotes to Table 3.19-2 to provide additional context for characterization of the environmental baseline. Please refer to Volume III Attachment 1 Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* for the revisions.

In addition, as discussed in response to comment ORG46-321, the significance criteria for the aesthetic resources analysis have been modified in Section 3.19.3 *Aesthetics – Significance Criteria* to clarify how the VRM results and other factors are used to determine impact significance. Please refer to Volume III Attachment 1 Section 3.19.3 *Aesthetics – Significance Criteria* for the revisions.

Comment ORG46-324

The conclusion of the discussion that the Proposed Project area would be considered Class II if BLM's Visual Resource Inventory Matrix was applied is that "If Class II objectives are applied, the changes due to the Proposed Project would be even more beneficial because they will return the areas to a more natural character, and would not change the significance of potential aesthetic impacts discussed in this section" (emphasis added). This statement refers to a more natural baseline prior to the hydroelectric complex, which is different than *the existing conditions/environmental baseline established at the time the NOP was issued as required in CEQA. Aside from the observation that the DEIR does not establish multiple baseline conditions, this conclusion is inaccurate because the significance threshold differs with different VRM classifications (see comment 3.19-3).*

Response to Comment ORG46-324

The paragraph in Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* containing the sentence that is quoted in the comment has been deleted as it does not belong in a discussion of the environmental baseline. The Visual Resource Management (VRM) Class II, III, and IV objectives have been added as footnotes to Table 3.19-2 to provide additional context for characterization of the environmental baseline. Please refer to Volume III Attachment 1 Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* for the revisions.

In addition, as discussed in response to comment ORG46-321, the significance criteria for the aesthetic resources analysis have been modified in Section 3.19.3 *Aesthetics – Significance Criteria* to clarify how the VRM results and other factors are used to determine impact significance. Please refer to Volume III Attachment 1 Section 3.19.3 *Aesthetics – Significance Criteria* for the revisions.

Comment ORG46-325

The DEIR states that the impact analysis is built on the general premise that the removal of human-made elements and restoration to more natural conditions would have beneficial effects in light of the significance criteria. However, the criteria consider factors like contrast and degree of change. The significance criteria are not well defined (e.g., terms like "substantial adverse change," "moderate," and "substantially degrade" are not defined), and the DEIR presents no evidence to support the assertion that a majority of viewers would consider removal and restoration beneficial as opposed to simply changed. PacifiCorp realizes that the magnitude of impact to visual resources is in part subjective and based on what a viewer considers important (e.g., restored river versus open water lake views); however, based on the stated visual resources assessment methodology (BLM's Visual Resource Management Process), the significance criteria are not consistent with that process and therefore do not allow for an objective evaluation of change related to the baseline conditions.

Response to Comment ORG46-325

As explained in response to comment ORG46-321, the significance criteria have been revised for clarity and the impact analysis approach has been revised to align with the clarified significance criteria. Please refer to Volume III Attachment 1 Sections 3.19.3 *Aesthetics – Significance Criteria* and 3.19.4 *Aesthetics – Impact Analysis Approach* for the revisions. The meaning of "moderate" is provided in Section 3.19.4 *Aesthetics – Impact Analysis Approach* and is further defined within Bureau of Land Management ‘s (BLM’s) Visual Resource Manual [VRM] (BLM 1984). Terms like “substantial” are commonly used and accepted in CEQA analyses, are found in the CEQA Guidelines checklist questions, and are particularly appropriate for a topic such as aesthetics, which is inherently subjective.

Please also refer to Master Response CEQ-3, and responses to comments ORG46-321 and ORG46 -323.

Comment ORG46-326

The DEIR states that “Furthermore, although the reservoirs could be considered scenic resources in their own right, they are in general not consistent with the Class Ill VRM designation, because their creation changed the character of the natural landscape and they dominate the view from many public view locations." This does not assume a baseline condition with the reservoirs in place as required by CEQA, but rather assumes an earlier baseline prior to the reservoir's creation.

Response to Comment ORG46-326

Please refer to response to comment ORG46-321. Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-1 have been revised to clarify how the Visual Resource Management (VRM) class is being used in the analysis and what is considered a substantial visual change. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-327

In discussing changes to flow and channel morphology, the DEIR notes that “...some aggradation of the channel immediately downstream of the dams is expected with the return to natural sediment loads. However, this would represent a return to natural conditions and is considered desirable." This conclusion is based on the premise that the millions of cubic-yards of sediment that will be released during dam removal is both a more natural condition and is beneficial visually. In this analysis it appears that the DEIR has muddled the impacts of the Proposed Project from the release of sediment with the Project objectives. The Proposed Project objectives include improving long-term water quality, advancing restoration of fish populations, restoring fish passage, and reducing disease rates in salmonids. The accumulation of sediment is an impact of the Proposed Project and should not be confused with the conditions the DEIR assumes are more desirable. Instead, this may be a localized change with less desirable visual (and other) effects depending on the viewpoint and those features that may be buried with sediment.

Response to Comment ORG46-327

Section 3.19.3 *Aesthetics – Significance Criteria* has been revised to clarify the landscape scenic elements that were considered in the analysis of potential impacts. Please refer to Volume III Attachment 1 Section 3.19.3 *Aesthetics – Significance Criteria* for the revisions.

Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* has been revised to clarify the title of Potential Impact 3.19-2 where this impact analysis focuses on the potential effects of changes in flows and channel morphology on scenic river vistas. Potential Impact 3.19-2 has been revised to clarify which key observation points along the river were considered as part of the EIR analysis. A new Figure 3.19-2 and a new Table 3.19-1 have been added to Section 3.19.2.1 *Aesthetics – Environmental Setting – PacifiCorp Analysis and Bureau of Land Management Methodology* to show the location of key observation points (KOPs) for the existing condition, and a new Table 3.19-3 has been added to Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* to describe potential short-term (temporary) and long-term (permanent) impacts to views from those key observation points, as well as vista points and community, recreation site area, trail, scenic highway, or river vantage points within the designated Wild and Scenic River (WSR) sections. Additionally, Potential Impact 3.19-2 has been revised to clarify the link to the significance criteria used in the aesthetics analysis. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-328

The basis for the determination of a weak to moderate contrast from existing conditions with regard to the visual impacts of turbidity is not defined in the DEIR. Comparisons to the sediment load normally carried in winter or past examples should be provided in this analysis.

Response to Comment ORG46-328

Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-3 has been revised to clarify how short-term and long-term water clarity were considered in the analysis. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-3 for the revisions.

Comment ORG46-329

The exposure of previously inundated areas is determined to represent a moderate contrast only in comparison to the existing condition under the VRM system. While arguments are presented to support this conclusion, it is somewhat subjective and could be considered a more severe impact by users that value open-water more than restored riverine views. Additionally, while this analysis is comparing the Proposed Project impact to the existing dammed river condition, it is inconsistent with other portions of the analysis that consider the pre-dam condition as a baseline.

Response to Comment ORG46-329

The paragraph referenced in Volume I on page 3-959 is part of Potential Impact 3.19-4, which focuses on potential short-term (temporary) visual changes resulting from reservoir drawdown and restoration including temporarily bare/unvegetated banks. The potential impact of replacing the existing scenic open-water reservoir view with restored riverine and canyon scenic views is discussed in Potential Impact 3.19-1. The analysis for Potential Impact 3.19-1 has been revised to clarify that replacing the open-water view with a restored riverine view would be a substantial change; however, since the Visual Resource Management (VRM) class would remain Class III (i.e., would not be degraded) at key observation points associated with the Lower Klamath Project facilities and located within the reservoir viewshed, the change is not considered to be adverse. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-1 for the revisions.

With respect to the comment's concern about the CEQA baseline used for the EIR analysis, please refer to response to comment ORG46-321.

Comment ORG46-330

As stated previously, the argument here is that the facilities are inconsistent with VRM Class Ill, which assumes a baseline prior to the existing conditions.

Response to Comment ORG46-330

Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-5 has been revised to clarify how the Visual Resource Management (VRM) classification was considered in the analysis and to clarify the significance determination. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions. Please also refer to response to comment ORG46-321.

Comment ORG46-331

With regard to the removal of recreational facilities, construction of new facilities, and other infrastructure improvements the DEIR says "Construction activities and equipment would be seen during construct ion but would be temporary and would occur in already heavily disturbed areas. Therefore, they would not degrade the existing visual character of the sites or their surroundings. Similar to the other short-term potential visual impacts from construction this is considered less than significant."

The DEIR makes the presumption that the hydroelectric facility areas are heavily disturbed (by the simple existence of the dams and associated facilities themselves regardless of how well established in the landscape they may be), many of the facilities are remote recreational facilities or roads/bridges in rural settings which may not be commonly considered "heavily disturbed." While the impacts are short-term in nature and CEQA does not generally view temporary *impacts as significant, the basis for the impact determination is subjective and the duration of construction would be temporary though it may not be short-term.*

Response to Comment ORG46-331

Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-5 and Potential Impact 3.19-6 have been clarified to indicate which key observation points were considered as part of the EIR analysis. A new Figure 3.19-2, and new tables 3.19-1 and 3.19-3, have been added to Section 3.19 *Aesthetics* to describe potential short-term (temporary) and long-term (permanent) impacts to views from key observation points and/or scenic vistas. Potential Impact 3.19-5 and Potential Impact 3.19-6 have also been clarified to more closely link the impacts to the significance criteria, to clarify the degree of disturbance assumed for the existing landscape, and to clarify the time periods used for assessing construction-related visual impacts. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-332

Lower Klamath Hydroelectric Project Reservoir data appear to be from 2007 and should be updated to reflect data from the 2015 PacifiCorp Licensed Hydropower Development Recreation Report cited in the Definite Plan for the Lower Klamath Hydroelectric Project (Appendix Q-Draft Recreation Plan of Appendix B in the DEIR).

Response to Comment ORG46-332

Information requests were submitted to corresponding facilities and reservoir representatives (e.g., PacifiCorp, California Department of Fish and Wildlife [CDFW], and Bureau of Land Management [BLM]) to obtain the most recent data for Table 3.20-4. Where available, updated information has been added to Section 3.20.2.1 *Recreation – Environmental Setting – Regional Recreation – Reservoir- and Lake-based Regional Recreation* Table 3.20-4, including information regarding recreational use of the Lower Klamath Project facilities contained in PacifiCorp (2015). Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-333

The DEIR presents out of date information (from 2007 or 2011) on whitewater boating data in the Hell's Corner Reach. Annual whitewater boating use data for the Hell's Corner Reach are available from the Bureau of Land Management, Klamath Falls Resource Area Office.

Response to Comment ORG46-333

The data in question were updated based on information provided by the U.S. Bureau of Land Management (BLM), Klamath Falls Resource Area Office. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-334

The statement "Data collected by USDA Forest Service and BLM…." is misleading when one considers there are approximately 190 river miles from Iron Gate Dam to the mouth and approximately 25 river miles (not including flatwater) between Iron Gate Dam and J.C. Boyle Dam. It is inappropriate to compare boating use numbers without normalizing the data in some fashion. For example, if a use-per-mile metric were developed, then perhaps an accurate statement about boating use levels in the two reaches could be made.

Response to Comment ORG46-334

The data presented in this section are to provide context for Potential Impact 3.20-5; user days and number of miles in between facilities are not used to support the impact significance determination. The impact analysis is dependent on whether flows would be acceptable for various river-based activities (e.g., whitewater rafting) (see Volume I Section 3.20.2.2. *Recreation – Environmental Setting – Klamath River-based Recreation – Upper Klamath River and the Hydroelectric Reach – Whitewater Boating Opportunities* Table 3.20-6), rather than user days. Please refer to Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-5 for more details. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-335

By failing to update the use data, the DEIR is possibly misrepresenting the impacts of the Proposed Project. Specifically, whitewater boating use is described as "...decreased somewhat..." from 2000-2003 and 2005-2009 or "...in recent years." Updated rafting data should be included from 2009 onward, and an evaluation completed in the DEIR to assess if the boating has changed.

Response to Comment ORG46-335

The whitewater boating baseline described in Section 3.20.2.2 *Recreation – Environmental Setting – Klamath River-based Recreation – Upper Klamath River and the Hydroelectric Reach – Whitewater Boating Opportunities* Table 3.20-7 and the associated text have been updated with the most recent data available from published and unpublished reports acquired from corresponding agencies. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-336

Salmon harvest information is provided from 2001-2015; however, the DEIR text refers only to data from 2001-2010 when making the statement that "…angler success for Chinook salmon varied annually, but was generally greater in the first half of the decade than the latter half." This is a misleading statement because it is inappropriate to compare harvest numbers without normalizing the data for the effort made to harvest those fish. If a catch-per-unit effort metric were developed, then an accurate statement about harvest levels could be made. Some of the total harvest data presented is inaccurate, possibly leading to incorrect conclusions in the DEIR. A comprehensive review of the data and an *update of this table with data through at least 2017 (including the angler day data) is necessary. The best source of information is the CDFW Megatable for fall-run Chinook salmon on the Klamath (available at the link below).*

https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=KlamathTrinity

Response to Comment ORG46-336
Section 3.20.2.2 *Recreation – Environmental Setting – Klamath River-based Recreation – Middle and Lower Klamath River – Fishing Opportunities* Table 3.20-9 has been updated with the most recent information available from California Department of Fish and Wildlife (CDFW) and the associated text has been modified accordingly. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-337
The DEIR is relying on outdated recreation annual use data for the J.C. Boyle Reservoir developed recreation facilities, calling into question the accuracy of the analysis and conclusions (sources used in the DEIR are from 2001/2002). More recent data should be provided in the DEIR and an evaluation completed if Estimated Facility Use is still considered below capacity. Annual use data for the Topsy Recreation site are available from the Bureau of Land Management, Klamath Falls Resource Area Office. Recreation use data for the recreation facilities managed by PacifiCorp were submitted to FERC as recently as April of 2015 (FERC Form-80 Recreation Use Report).

Response to Comment ORG46-337
Section 3.20.2.3 *Recreation – Environmental Setting – Lower Klamath Project Reservoir-based Recreation – Hydroelectric Reach – J.C. Boyle Reservoir* Table 3.20-11 has been updated with the most recent information available from PacifiCorp (2019b, c) and the U.S. Bureau of Land Management [BLM] (2019). Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-338
A reevaluation of use versus capacity at each recreation facility is necessary because the DEIR is using outdated information in the analysis calling the accuracy of the analysis and conclusions into question. Currently the DEIR provides facility information for each reservoir using 2001/2002 data. At a minimum, this should be updated to reflect data provided in the April 2015 FERC From-80 Recreation Use Report and/or the PacifiCorp Licensed Hydropower Development Recreation Report used for the Definite Plan for the Lower Klamath Hydroelectric Project (Appendix Q is the Draft Recreation Plan within the Definite Plan which is Appendix B in the DEIR).

Response to Comment ORG46-338
The information referenced in the comment has been updated based on more recent information. Federal Energy Regulatory Commission (FERC) Form 80

has been referenced in the Final EIR. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG46-339

The DEIR states that "Copco No. 1 and Iron Gate reservoirs serve as the major sources of large seasonal phytoplankton blooms." While PacifiCorp does not dispute the fact that the Klamath Hydroelectric Project reservoirs support populations of cyanobacteria and other algae, the sources for the nutrients that drive those populations are Keno Reservoir and Upper Klamath Lake (see comments on DEIR Section 3.2 and comment 4.5-2). Operation of the intake barrier curtain in Iron Gate Reservoir has resulted in improved water quality downstream of Iron Gate Dam (Watercourse 2016; PacifiCorp 2017b). The statement in the DEIR is an oversimplification of a complex process to which the Klamath Hydroelectric Project reservoirs contribute, but are not solely responsible (see comment 3.2-9).

Response to Comment ORG46-339

Please refer to Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403), Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Phytoplankton* (pages 3-405 to 3-413), Section 3.4.2.4 *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River – Phytoplankton* (pages 3-413 to 3-418), Section 3.4.2.5 *Phytoplankton and Periphyton – Environmental Setting – Klamath River Estuary* (pages 3-420 to 3-421), and EIR Section 3.4.2.6 *Phytoplankton and Periphyton – Environmental Setting – Pacific Ocean Nearshore Environment* (pages 3-421 to 3-422) for discussion of the habitat and nutrient conditions in the Klamath River that contribute to large seasonal phytoplankton blooms in the Lower Klamath River reservoirs, including the results of genetic analysis of *Microcystis aeruginosa* in Copco No. 1 Reservoir, Iron Gate Reservoir, and multiple Klamath River sites downstream of Iron Gate Dam that identified Iron Gate Reservoir as the principal source of *Microcystis aeruginosa* to the Klamath River downstream of Iron Gate Dam (Otten et al. 2015). Please also refer to Volume I Potential Impact 3.4-2 (pages 3-428 to 3-433) for an analysis of the changes in phytoplankton abundance under the Proposed Project due to dam removal and elimination of reservoir habitat. While nutrients currently entering the Hydroelectric Reach would continue to be available in the Klamath River following dam removal, phytoplankton, especially blue-green algae, would be limited in their ability to use those nutrients for growth and reproduction since dam removal would decrease the amount of optimal phytoplankton habitat (i.e., calm, slow-moving water).

Please refer to Volume I Potential Impact 4.2.2-2 (pages 4-109 to 4-111) for a discussion of the effects to date of the intake barrier/thermal curtain on releases of blue-green algae [cyanobacteria] downstream of Iron Gate Dam, including the statement that while results from the intake barrier/thermal curtain indicate that the curtain reduces entrainment of blue-green algae into the Iron Gate

Powerhouse intake and subsequent release downstream into the Klamath River (PacifiCorp 2017a), the data do not indicate that this measure could improve algal-derived (organic) suspended material in the reservoirs such that they would no longer cause an exceedance of water quality standards or achieve the Klamath Total Maximum Daily Loads (TMDLs) phytoplankton chlorophyll-*a* target of 10 micrograms per liter (ug/L) for Copco No. 1 and Iron Gate reservoirs during the May to October growth season (North Coast Regional Board 2010).

Comment ORG46-340
Again, the DEIR fails to update the data with readily available information. See comments 3.20-3, 3.20-4, and 3.20-5.

Response to Comment ORG46-340
Please refer to responses to comments ORG46-334, ORG46-335, and ORG46-336.

Comment ORG46-341
This paragraph is full of unsupported and undocumented assertions about how the Klamath Hydroelectric Project affects the fishery resources in the Klamath River downstream of Iron Gate Dam. This section of the DEIR should leave the detailed discussions of sediment transport, geomorphology, fish production, and habitat to the sections where that is most appropriate and include by reference those conditions that are directly applicable to the Wild and Scenic River designation and changes from the baseline condition that would be created by the Proposed Project.

Response to Comment ORG46-341
Section 3.20.2.4 *Recreation – Environmental Setting –Wild and Scenic River Conditions – California Klamath River Wild and Scenic River Segment* has been revised to reference other resource area subsections. Please refer to Volume III Attachment 1 Section 3.20.2.4 *Recreation – Environmental Setting –Wild and Scenic River Conditions – California Klamath River Wild and Scenic River Segment* for these revisions.

Comment ORG46-342
As noted in previous comments (see comments 3.20-6 and 3.20-7), information regarding use at existing recreation facilities is outdated throughout Section 3.20 and a reevaluation is required to adequately analyze the recreational impacts of the Proposed Project.

The statement that the PacifiCorp recreation facilities are operating "below capacity" is not substantiated in the DEIR because the data used in the analysis are 10 years out of date. If recreation use numbers in the past 10 years indicate the facilities are operating at a much higher capacity, an evaluation would be needed to ensure that surrounding recreational facilities have adequate capacity for similar activities (e.g., boating and camping) and can handle the loss of *recreational activities resulting from the Proposed Project. The DEIR is lacking the level of analysis necessary to substantiate a finding of No Significant Impact.*

Response to Comment ORG46-342
Information requests were submitted to corresponding facilities and reservoir representatives (e.g., PacifiCorp, California Department of Fish and Wildlife [CDFW], and Bureau of Land Management [BLM]) to obtain the most recent data for Section 3.20 *Recreation*. Where available, updated information has been added to this section. Please refer to Volume III Attachment 1 Section 3.20 *Recreation* for the revisions.

Comment ORG46-343
The DEIR does not address the potential for hazardous materials impacts related to leaving potential contaminants in place (No Project Alternative).

Response to Comment ORG46-343
Volume I Section 4.2.21 *Alternatives – No Project Alternative – Hazards and Hazardous Materials* (page 4-74) provides a discussion of potential hazardous materials impacts under the No Project Alternative. Please also refer to Master Response HAZ-1 for additional information on the existing facilities.

Comment ORG46-344
Without completing the Phase 1 and 2 assessments and accurately evaluating the presence of any hazardous materials known and inventoried, the DEIR impact analysis cannot adequately evaluate the potential for public or environmental exposure, ensure applicable risk minimization plans address actual risk pathways, or definitively determine that mitigation measure implementation will reduce the impact to a less-than-significant level. The KRRC has been working on a Phase 1 and Phase 2 and this information should be included in this analysis as appropriate.

Response to Comment ORG46-344
Please refer to Master Response HAZ-1.

Comment ORG46-345
The analysis of the Proposed Project finds "no significant impact with mitigation" for all but the last three impacts analyzed. In most cases, this conclusion was reached with the implementation of mitigation measure HAZ-1. This mitigation measure presumes that the Final Hazardous Materials Management Plan will address all of the potential impacts discussed, coordinate the elements of the overall Health and Safety Plan, and sufficiently reduce potentially significant impacts to a less than significant level. This essentially defers development of specific mitigation and therefore, the sufficiency of the final plan as mitigation cannot be analyzed in this DEIR. Complicating the matter is that many of the specific risk pathways cannot be known without a complete Phase 1 and possibly

Phase 2 Site Assessments, neither of which is referenced in the DEIR (see comment 3.21-2).

Response to Comment ORG46-345

With respect to the commenter's claim that the EIR defers development of specific mitigation, the EIR explains that the Definite Plan includes a proposed Hazardous Materials Management Plan (HMMP), but the Hazardous Materials Management Plan is not yet finalized. Accordingly, Mitigation Measure HZ-1 is required to reduce potential impacts to less than significant.

Mitigation Measure HZ-1 requires the Klamath River Renewal Corporation (KRRC) to submit a Final Hazardous Materials Management Plan and obtain approval from the State Water Board prior to the start of pre-dam removal and construction activities. Mitigation Measure HZ-1 includes specific performance standards the mitigation will achieve: The State Water Board's water quality certification sets forth minimum monitoring and adaptive management requirements the Final Hazardous Materials Management Plan must meet. In addition, any modifications to the proposed Hazardous Materials Management Plan must be developed in coordination with the State Water Board and provide the same or better level of protection; the Final Hazardous Materials Management Plan must comply with applicable regulations; and the Final Hazardous Materials Management Plan must describe how the elements of the proposed Health and Safety Plan, Spill Prevention, Control, and Countermeasure Plan, the Emergency Response Plan, and the Traffic Management Plan (TMP) are coordinated together to adequately protect water quality with respect to hazardous materials management. The KRRC will be required to indicate compliance with those standards in its Final Hazardous Materials Management Plan, which must be approved by the State Water Board and included in the State Water Board's 401 Certification prior to the start of construction activities.

Please also refer to Volume I Section 3.21.2.1 *Hazards and Hazardous Materials – Environmental Setting – Transport/Releases of Hazardous Materials* (pages 3-1029 to 1031) and Volume I Section 3.21.2.3 *Hazards and Hazardous Materials – Environmental Setting – Contaminants/Contaminated Sites* (pages 3-1033 to 1035). Please also refer to Volume I Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* Potential Impact 3.21-1 (specifically pages 3-1042 to 3-1045), Potential Impact 3.21-2 (specifically pages 3-1045 to 3-1046), and Potential Impact 3.21-4 (specifically pages 3-1046 to 3-1047) for analysis of the potential impacts of the Proposed Project as related to the routine transport, use, disposal, accidental spill/release, handling, and/or emissions of hazardous materials. Pages 3-1043 to 3-1044 list federal and state regulations applicable to the Proposed Project.

With respect to the commenter's concern that specific risk pathways cannot be known without a complete Phase 1 and possibly Phase 2 Site Assessments, that information was not available to the public when the Draft EIR was released because PacifiCorp determined that the information could not be disclosed to the public. On December 30, 2019, the State Water Board received a submittal from PacifiCorp (PacifiCorp 2019a), which included redacted versions of Phase I and Phase II reports (KRRC 2019f,g,h,i,j,k,l,m,n,o). The redacted Phase I and Phase II reports confirm the findings in the Draft EIR, which disclosed the potential for certain types of hazardous materials (e.g., asbestos, heavy metals, polychlorinated biphenyls [PCBs], creosote-treated wood), at the various facilities as well as information in Appendix B: *Definite Plan – Appendix O-3 Hazardous Materials Management Plan*. For more information regarding the Phase I and II reports, please refer to Master Response HZ-1 and Volume III Attachment 1 Section 3.21 *Hazards and Hazardous Materials*.

Comment ORG46-346

Sections such as 4.4 (Continued Operations with Fish Passage Alternative) are unclear about what potential hazardous materials would still be transported. The overall amount and quantity of hazardous waste being removed and transported offsite could potentially be much less than the Proposed Project but are found to be significant and unavoidable as enforceable compliance and risk management plans cannot be guaranteed.

Overall, the alternatives analyses (Chapter 4) do not adequately describe the specific hazardous materials that would or would not be disturbed, removed, or transported as compared to the Proposed Project.

Response to Comment ORG46-346

The EIR acknowledges that the type of hazardous materials impacts under the Continued Operations with Fish Passage Alternative would be similar to those under the Proposed Project, and acknowledges that there would be less disturbance of hazardous materials under the Continued Operations with Fish Passage alternative than under the Proposed Project because of reduced construction activity, and because the power generation and transmission facilities would not be decommissioned (see Volume I Section 4.4.21 *Alternatives – Continued Operations with Fish Passage Alternative – Hazards and Hazardous Materials* [pages 4-178 to 4-179]). However, please note that construction of fish ladders would remain a major construction project, and would occur under wet circumstances that increase the risk of contamination by hazardous materials used in construction. Thus, absent mitigation, the risk remains significant. Hazardous materials management under any of the alternatives would be subject to the same state and federal regulatory programs as those that would be applicable under the Proposed Project, and Mitigation Measures HZ-1 would similarly reduce the potential impacts such that no significant impact would occur. Please note this finding in Volume I Section 4.4.21 *Alternatives – Continued Operations with Fish Passage Alternative – Hazards and Hazardous Materials* on page 4-178.

Since circulation of the Draft EIR, the dam owner has submitted redacted information on the types of materials present in the Lower Klamath Project facilities. Please see Master Response HAZ-1 for more discussion of this information. However, the submittals do not contain significant new information on hazard location and quantities. Furthermore, it is not certain which facilities would need to be removed or altered in light of construction of fishways. In light of the information limits and in light of the similarities in potential impacts and mitigation, the qualitative approach in the Draft EIR remains appropriate.

Comment ORG46-347

In explaining which roadways were considered for analysis, the DEIR states that analysis "...excludes other local roads...because those local roads would not be used for transportation of construction equipment or workers." This claim requires substantiation or further explanation that the use of other local roads would be prohibited per the traffic management plan. See comment 3.22-2 below on Figure 3.22-1.

Response to Comment ORG46-347

The comment references a statement and figure that generally describe major access roadways and requests additional information and analysis for other roadways. The additional information and analysis are found throughout the EIR. For example, Section 2 *Proposed Project* (starting on page 2-25) includes an additional description of roads that would be used during implementation of the Proposed Project. These roadways are depicted in greater detail in Volume I Section 2.7.1 *Proposed Project – Proposed Project – Dam and Powerhouse Deconstruction* Figures 2.7-2 (page 2-35), 2.7-3 (page 2-48), and 2.7-4 (page 2-50). This section also references Volume II Appendix B: *Definite Plan* for additional details. The condition of the roads that would be used for construction access is described in Volume I Section 3.22.2.1 *Transportation and Traffic – Environmental Setting –Traffic Flow* (beginning with page 3-1060) and 3.22.2.3 *Transportation and Traffic – Environmental Setting –Road Conditions* (beginning with page 3-1063), which also references Volume II Appendix B: *Definite Plan – Section 5 Dam Removal Approach* (see Sections 5.3, 5.4 and 5.5). Sections 5.3.2, 5.4.2 and 5.5.2 of the *Definite Plan* discuss construction access assessments and related transportation improvements and maintenance. Please also refer to Volume II Appendix B: *Definite Plan – Section 7.4,* which provides a summary of the all pertinent road segments, bridges, and culverts and the associated improvements. Klamath River Renewal Corporation (KRRC) performed a site visit and desktop study to assess the state of road infrastructure expected to be used throughout the Project. Tables in Appendix K show the findings of this assessment and provide additional details regarding roads that would be used.

These roadways are analyzed under Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 and 3.22-2 (starting on page 3-1069). As noted under Potential Impact 3.17-1 (pages 3-913 to 3-915), and as partially revised by Response to Comment ORG47-56, KRRC has committed to addressing all potential traffic conflicts as part of their final Traffic Management Plan (TMP). KRRC states that the *"Final TMP would be informed by KRRC's contractor's specific measures and methods for construction and input received from relevant local jurisdictions."*

Comment ORG46-348

The DEIR doe s not clearly present the roads included or excluded from the analysis. The local road network should be included in the figure and those roads within the traffic analysis should be clearly indicated. If transportation routing plans have not been completed for use in the DEIR's analysis, mitigation requiring the preparation of these plan s prior to approval of construction permits should identify the allowed construction routes and measures to prohibit use of other local roads.

Response to Comment ORG46-348

Regarding identification of roads included in the analysis and transportation routing plans, please refer to response to comment ORG46-347.

Comment ORG46-349

The scale of the maps that show the four work locations is too regional to identify where the road, bridge, and culvert construction would occur. Add a more appropriately scaled map that clearly presents the locations of the road bridge, and culvert construction to provide a visual perspective on the distribution of this construction across the Area of Analysis.

Response to Comment ORG46-349

Regarding location of road, bridge, and culvert construction where construction would occur, please refer to response to comment ORG46-347. The maps referenced in that response show bridge replacement locations. The road and culvert replacement locations are not precisely known and are therefore not mapped. However, they are described to the extent possible in the text referenced in ORG46-347.

Comment ORG46-350

The list of significance criteria uses the descriptor "substantial" and the term "increased risk" to indicate the threshold of a significant impact (e.g., substantial conflict, substantial increase, substantial safety risks, increased risk of harm to the public). These specific terms must be quantitatively defined in the DEIR.

Response to Comment ORG46-350

Regarding use of the term 'substantial' in the EIR, please refer to Master Response CEQ-3. Similarly, CEQA does not require an EIR to deviate from the common English language usage of the word 'risk' to mean exposure to the chance of injury or loss; a hazard or dangerous chance (Dictionary.com 2019, Lexico 2019); possibility of loss or injury (Merriam-Webster 2019). An ‘increase’ in the risk refers to an increase beyond the existing conditions baseline.

Comment ORG46-351

The DEIR incorrectly states that "Once the construction-related activity is complete there will be no traffic generated directly related to the Proposed Project. In reality, there will be traffic related to the Proposed Project through the restoration and monitoring period that follows the construction work. What the DEIR likely meant to say was that there would be no construction-related traffic. The post-construction traffic should be compared to Existing Conditions to allow for an evaluation of long-term impacts that is missing in this section of the DEIR.

Response to Comment ORG46-351

As described in Volume I Section 2.7.4 *Proposed Project – Proposed Project – Restoration Within the Reservoir Footprint* (pages 2-69 to 2-77), construction-related activity includes the restoration activities and associated monitoring. This information is restated on page 3-1069 in paragraph four.

Comment ORG46-352

Delete the final sentence from this paragraph. The DEIR analyzes the Proposed Project's effect on or compatibility with applicable resources, policies, plans, etc. The DEIR does not analyze the effect of a Regional Transportation Plan on the Proposed Project.

Response to Comment ORG46-352

Section 3.22.4 *Transportation and Traffic – Impact Analysis Approach* has been revised to remove the unnecessary sentence noted in the comment. Please refer to Volume III Attachment 1 Section 3.22.4 *Transportation and Traffic – Impact Analysis Approach* for the revisions.

Comment ORG46-353

The term “recreational day" requires definition. The text states “...there is no information on the peak number of recreational trips from recreational use." This analysis should include baseline data from the recreational operators in the area (see comment 3.20-7).

Response to Comment ORG46-353

As stated in the EIR, ‘recreational days’ is defined by FERC (2007) as follows: “A recreation day is defined as one visitor to a recreation area for any reason in a 24-hour period.” This definition is also included as a footnote in Volume I Table 3.20-5 (page 3-978).

Please also refer to FERC (2007) (beginning on page 3-431) as well as PacifiCorp (2004c). *Recreation resources, final technical report for relicensing the Klamath Hydroelectric Project (FERC Project No. 2082) February, 2004.*

Comment ORG46-354

The DEIR fails to provide any substantiation for the assumption that peak recreational trips are double the average. A more conservative estimate of impacts would assume more intense impacts (i.e., assuming peak trips are more than double the average daily trips). A 20 percent increase in trips is a less conservative estimate than a 100 percent increase in trips.

Response to Comment ORG46-354

The EIR does not assume that peak recreational trips would be “double the average”; rather, the EIR states that the analysis assumptions only provide a relative comparison between existing conditions (recreational use) and anticipated construction-related traffic under the Proposed Project, in order to provide context for the comparison. Anything more specific would be speculative. The EIR analysis does not use the relative comparison as the basis of a significance determination but rather compares existing average daily traffic (ADT) and level of service (LOS) determinations for roadways compared to estimated added vehicle trips under the Proposed Project. Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impacts 3.22-1 and 3.22-2 (starting on page 3-1069) discuss related traffic impacts with findings of ‘significant and unavoidable’.

Comment ORG46-355

The method for calculating VT per Day results should be provided in the DEIR. For example: Total VT / Peak Duration / 30. Using Copco No. 1 as an example, 2,426 / 7 / 30 = ~12 VT per Day, not 15.

Response to Comment ORG46-355

Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Table 3.22-6 has been clarified by adding a footnote that defines the average vehicle trips (VT) per day calculation and corrects the resulting VT per day in the table and in the subsequent paragraph. Please refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-356

Revised text regarding FERC licensees only being required to comply with state and local requirements "where possible," remove "where possible."

Response to Comment ORG46-356

Contrary to the assertion in the comment, the referenced phrase notes FERCs preference; not the EIR’s determination.

Comment ORG46-357

Change the significance statement to "Significant and unavoidable impact with mitigation" for Potential Impacts 3.22-1 through 3.22-5 because the State Water Board cannot ensure implementation of the mitigation.

Response to Comment ORG46-357

Contrary to the assertion in the comment, at the time of the Draft EIR, the referenced determinations of significant and unavoidable impact were correct as stated in the Draft EIR. However, as Recommended Measure TR-1 is now a mitigation measure, these impacts have been revised accordingly. Please refer to Volume III Attachment 1 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-358

The threshold for what constitutes "an unacceptable level of risk" should be defined.

Response to Comment ORG46-358

Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* Potential Impact 3.22 page 3-1076 defines a potentially substantial increased risk of harm to bicyclist or pedestrian use as a decrease in the performance and safety of the roadways utilized by the Proposed Project during construction activities. This level of risk is considered unacceptable. The Traffic Management Plan (TMP) identifies a process for assessing and addressing all traffic-related impacts during construction-related activities. Please also refer to Master Response CEQ-3.

Comment ORG46-359

Revised text regarding FERC licensees only being required to comply with state and local requirements " where possible," remove "where possible."

Response to Comment ORG46-359

Contrary to the assertion in the comment, the referenced phrase notes Federal Energy Regulatory Commission's (FERC's) preference and not the determination of the EIR.

Comment ORG46-360

The DEIR analyzes the Proposed Project's effect on or compatibility with applicable resources, policies, plans, etc. The DEIR does not analyze the effect of a General Plan on the Proposed Project; therefore, delete "...does not contain measures or programs that would conflict with the Proposed Project in a manner that would adversely affect the environment. "

Response to Comment ORG46-360

Section 3.22.5 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* has been revised to remove the redundant text. Please refer to Volume III Attachment 1 Section 3.22.5 Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* for the revisions.

Comment ORG46-361

The DEIR does not provide a specific discussion of the cumulative effects of the Proposed Project on suckers or Redband Trout in the upper Klamath River.

Response to Comment ORG46-361

The Draft Environmental Impact Report's (DEIR's) cumulative impacts analysis for redband trout and suckers is encompassed by its discussion of cumulative impacts for aquatic resources generally. As described in Volume I Section 3.24.1.1 *Cumulative Effects – Introduction – Analysis Approach* (page 3-1103), the CEQA guidelines state that when a project's contribution is not cumulatively considerable, then the EIR need only briefly describe supporting reasoning for this conclusion (CEQA Guidelines section 15130(a)(2)). Furthermore, the guidelines state that the "discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great detail as is provided for the effects attributable to the project alone (CEQA Guidelines section 15130(b))." Accordingly, the analysis of potential cumulative impacts to suckers or redband trout are adequately covered by the depth and breadth of the analysis in Volume I Section 3.24.3 *Cumulative Effects – Introduction – Analysis Approach* (pages 3-1162 to 3-1166), which considers these species collectively with other aquatic species. There are no cumulatively considerable impacts to aquatic resources – redband trout, suckers, or others – from the Proposed Project when considered with other projects with related potential impacts to aquatic resources.

Comment ORG46-362

Potential Cumulative Impact 3.24-47 Short-term and / or long-term historical and tribal cultural resources effects from the Proposed Project in combination with development projects: The terminology included in the section "Significant and unavoidable <u>short-term</u> ground-disturbing construction-related impacts on archaeological and non-archaeological tribal cultural resources (TCRs)..." implies that impacts from ground disturbance are short-term. The DEIR should be revised to reflect the fact that ground disturbance, regardless of the duration, causes permanent impacts to TCRs, historic-period archaeological sites, and historic resources.

Response to Comment ORG46-362

The "short-term" and "long-term" descriptors have been removed from this impact title and analysis to avoid confusion regarding the duration of ground-disturbance related impacts to historical and tribal cultural resources, which, if they were to occur, would be permanent. Please refer to Volume III Attachment 1 Section 3.24.12 *Cumulative Effects –Historical Resources and Tribal Cultural Resources* Potential Impact 3.24-27 for the revisions.

Comment ORG46-363

The DEIR requires clarification to describe if the cumulative impact analysis addresses effects from the combination of the Proposed Project and wildfire.

Response to Comment ORG46-363

The title of Potential Cumulative Impact 3.24-53 in Section 3.24.15 *Cumulative Effects – Agriculture and Forestry* has been clarified to correct the typographic error (i.e., missing the word "and"). Please refer to Volume III Section 3.24.15 *Cumulative Effects – Agriculture and Forestry* for the revision. Additionally, as stated in the Section 3.24.1.1 *Cumulative Effects – Introduction – Analysis Approach* on page 3-1104, "this cumulative effects analysis considers increased frequencies and intensities of wildfires along with the list of 'projects' that could result in cumulative impacts (Table 3.24-1)."

Comment ORG46-364

A map of pertinent reasonably foreseeable projects should be included and should depict the Proposed Project area.

Response to Comment ORG46-364

Volume I Section 3.24.1.1 *Cumulative Effects – Introduction – Analysis Approach* Table 3.24-1 (pages 3-1106 to 3-1146) presents information on the locations of projects. Some of the planned, approved, or reasonably foreseeable projects listed in Table 3.24-1 have point locations, but many are tributary- or basin-wide, or otherwise geographically non-discrete, and thus would be difficult to clearly present in a figure. In accordance with CEQA, the locations of the listed projects were considered in the discussions of cumulative impacts for each resource, along with the type of project (CEQA Guidelines Section 15130[b][2]).

Comment ORG46-365

Because the City of Yreka's water supply infrastructure is within the Area of Analysis, mention the pipeline here and specify that the City's water supply infrastructure is addressed in Water Supply.

Response to Comment ORG46-365

Section 3.24.18 *Cumulative Effects – Utilities and Service Systems* has been clarified as requested; specific reference to the City of Yreka's water supply infrastructure has been added to the first paragraph. Please refer to Volume III Attachment 1 Section 3.24.18 *Cumulative Effects – Utilities and Service Systems* for the revisions.

Comment ORG46-366

The summary of Proposed Project impacts reiterates several conclusions from the Proposed Project analysis that have been previously commented on in Section 3.19, including the use of BLM VRM Class Ill as the assumed condition of the Area of Analysis for Aesthetics when Class II may be more appropriate and conservative. The cumulative discussion needs to be updated to reflect edits made in the main DEIR discussion.

Response to Comment ORG46-366
Regarding concerns about the CEQA baseline used in the EIR, please refer to responses to comments ORG46-321 and ORG46-323. Additionally, Section 3.24.19 *Cumulative Effects – Aesthetics* has been clarified to reflect the modifications made to Section 3.19 *Aesthetics*. Please refer to Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics* for the revisions.

Comment ORG46-367
The paragraph refers to cumulative impacts from projects not already considered in the utilities and service systems resource area effects and should be deleted.

Response to Comment ORG46-367
The third paragraph in Volume I Section 3.24.19 *Cumulative Effects – Aesthetics* has been deleted in Volume III because it is not related to the aesthetics analysis. Please refer to Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics* for the revisions.

Comment ORG46-368
Overall, this section is confusing and should be rewritten. The aesthetics significance criteria should be the same for potential cumulative impacts as for the Proposed Project and this does not appear to be the case.

Response to Comment ORG46-368
As stated in Vol. I Section 3.24.19 *Cumulative Effects – Aesthetic*s (page 3-1209), the significance criteria for the analysis of potential cumulative aesthetic impacts are the same as those defined for the Proposed Project in Section Vol. III 3.19.3 *Aesthetics – Significance Criteria.*

Comment ORG46-369
As was stated previously (see comment 3.19-1) the conclusion of this analysis again assumes the change from open water vistas to more "natural river, canyon, and valley vistas" is not significant because it is beneficial and visual quality for the public would not be substantially degraded. In making this conclusion, the DEIR assumes everyone would find the natural river and canyon views equal or more positive than the existing open water views, a position that the DEIR fails to substantiate. Further, even if beneficial, the degree of change may still be significant for even Class Ill VRM lands, let alone Class II.

It could also be considered that other reasonably foreseeable projects with scenic-vista effects (other than just the loss of open water) could create cumulative effects but were not discussed here (an example would be timber harvest within the viewshed of a reservoir).

Response to Comment ORG46-369
Regarding the aesthetic change from open water vistas to more natural river, canyon, and valley vistas, please see the response to comment ORG46-321.

Volume I Section 3.24.19 *Cumulative Effects – Aesthetics* Potential Cumulative Impact 3.24-57 (page 3-1209), which is modified in Volume III Attachment 1, relates specifically to open water; therefore, adding an analysis of other projects such as timber harvest would be out of context. Additionally, none of the known forest and wildfire management projects, including timber harvest, identified in Volume I Section 3.24.1 *Cumulative Effects – Introduction – Analysis Approach* Table 3.24-1 (pages 3-1106 to 3-1146) are within the Primary Area of Analysis for aesthetics, which is within the viewshed of Lower Klamath Project reservoirs; therefore, an expanded or new impact assessment to address potential scenic vista effects from forest and wildfire management is not required. However, for completeness, clarifying information relating to forest and wildfire management has been added to Potential Cumulative Impact 3.24-59 in Volume III Section 3.24.19 *Cumulative Effects – Aesthetics*. Please refer to Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics* for the revisions.

Comment ORG46-370

The significance criteria applied to the cumulative impact analysis of aesthetics and the potential impacts analyzed in this section do not mirror the Proposed Project analysis. The analysis brings in elements not previously considered and seems to focus on only a few types of foreseeable projects. The cumulative analysis should consider the residual effects of the Proposed Project in conjunction with other reasonably foreseeable projects to evaluate the contribution of the Proposed Project to overall change. For example, Potential Cumulative Impact 3. 24-58 does not focus on flow and channel morphology, but rather on impacts from other restoration, flow, and water quality projects.

Response to Comment ORG46-370

The approach to the cumulative effects analysis is described in Volume I Section 3.24.1.1 *Cumulative Effects – Introduction – Analysis Approach* (pages 3-1103 to 3-1146). Clarifying language has been added to the impacts in Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics*, including Potential Cumulative Impact 3.24-58, to place greater emphasis on the relevant aesthetics significance criteria. Please refer to Volume III Section 3.24.19 *Cumulative Effects – Aesthetics* for the revisions.

Comment ORG46-371

This section states "Other projects (Table 3.24-1) have the potential to alter river channel morphology and result in a cumulative impact." However, this analysis discusses only the visual impacts related to suspended sediment and does not list or analyze the impacts from any other projects except to mention that other restoration projects would help reduce nutrient loading and seasonal algal blooms.

Further, this section of the DEIR repeats the unsubstantiated conclusion that visual quality impacts related to suspended sediment will be weak to moderate.

With 30 to 50 percent of the estimated 15.1 million cubic yards accumulated sediment flushing during reservoir drawdown, and possibly more with other actions such as the 2017 United States District Court-ordered flushing flows, additional information is needed to support this opinion.

Response to Comment ORG46-371

The reference to “other projects” in the opening paragraph of Section 3.24.19 *Cumulative Effects – Aesthetics* Potential Cumulative Impact 3.24-58 has been revised to include a reference to restoration, flow enhancement, and water quality improvement projects. Please refer to Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics* for the revisions.

The final paragraph in Volume I Section 3.24.19 *Cumulative Effects – Aesthetics* Potential Cumulative Impact 3.24-58 (page 3-1210) assesses the potential cumulative aesthetic impacts of the Proposed Project and other projects in relation to nutrients and algal blooms. Other potentially overlapping restoration projects in the Klamath Basin are listed in Volume I Section 3.24.1.1 *Cumulative Effects – Introduction – Analysis Approach* Table 3.24-1 (pages 3-1106 to 3-1146) and an example of a relevant restoration project is given in the final paragraph of Potential Cumulative Impact 3.24-58 (page 3-1210).

Please also refer to response to comment ORG46-328.

Comment ORG46-372

The discussion of other projects with the potential to create substantial areas of bare sediment and rock should not be constrained to the reservoir footprints but should be considered across the entire aesthetics Area of Analysis.

Response to Comment ORG46-372

The first paragraph of Potential Cumulative Impact 3.24-59 (page 3-1210) in Volume I Section 3.24.19 *Cumulative Effects – Aesthetics* has been revised in Volume III to include consideration of ground disturbing and construction projects within the aesthetics Area of Analysis that could potentially expose bare sediment and rock, rather than consideration of ground disturbing and construction projects only within the reservoir footprints. This change has not affected the significance determination – *no significant cumulative impact*. Please refer to Volume III Attachment 1 Section 3.24.19 *Cumulative Effects – Aesthetics* Potential Cumulative Impact 3.24-59 for the revisions.

Comment ORG46-373

The text indicates the I-5 has an ADT (correct to AADT) of 391 vehicles. That number is incorrect. Page 3-1060 states that I-5 Exit 789 has AADT levels of 20,900 vehicles (peak) and 17,200 vehicles (average). The mainline of I-5 cannot have an AADT less than its off-ramps.

Response to Comment ORG46-373
Contrary to the assertion in the comment, the referenced text discusses the added average daily traffic (ADT) from the project, not the average annual daily traffic (AADT) on Interstate 5.

Comment ORG46-374
In this paragraph, the DEIR explains why the No Project Alternative analysis addresses only short-term effects (up to 5 years). The reason given in the DEIR is that there is significant uncertainty about the long-term conditions in the basin that could affect the No Project Alternative, such as USBR' s operation of the Klamath Irrigation Project, adaptive management of existing projects, and planned restoration activities. The DEIR' s decision not to assess long-term effects for this alternative because of such uncertainty should be applied equally to all alternatives and to other information is used in the DEIR, including information that is used to assess long-term effects of the Proposed Project and other alternatives. For example, the DEIR makes extensive use of the total maximum daily loads (TMDLs), including for modeling results and development of significance criteria for water quality. This is the case even though the DEIR itself states that "...the mechanisms for implementation and the timing required to achieve future TMDL compliance are currently speculative" (DEIR pg. 3-66). The DEIR relies on and makes use of other foreseeable but uncertain information such as that related to potential future salmon production and specific future climate change effects in the basin.

Response to Comment ORG46-374
The manner in which the EIR addresses speculation is consistent with CEQA Guidelines 15145. The Draft EIR also states that projecting one specific No Project scenario for the long term would be speculative, in light of the detailed reasons provided in Volume I Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description*, and would be contrary to the CEQA Guidelines' mandate to disclose and assess the environmental impacts that would "reasonably be expected to occur in the foreseeable future." The paragraph cited in the comment, in Volume I Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternative Selection – Alternatives Carried Forward for More Detailed Analysis* on page 4-3, has been revised to be consistent with the reasons provided in Volume I Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description*. Please refer to Volume III Attachment 1 Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternative Selection – Alternatives Carried Forward for More Detailed Analysis* for the revisions.

Comment ORG46-375
The DEIR states: "...while infrequent (i.e., less than 1 percent of the time at Iron Gate Dam), daily average flows in the Klamath River exceed the deep flushing flow requirement of 11,250 cfs during some storm events in the period of analysis." Based on the information in the DEIR, it appears that deep flushing

flows would occur significantly more often for No Project conditions compared to the Proposed Project. Because it is theorized that deep flushing flows will decrease effects of disease related to C. shasta, the DEIR analysis should assume that any alternative that incorporates deep flushing flows will have a greater positive effect on disease than those that do not (such as the Proposed Project). This conclusion is not present in the DEIR analysis of alternatives.

Response to Comment ORG46-375

Please note that the court-ordered 2017 deep flushing flow requirements at issue in this comment are no longer in effect as flow requirements.

The EIR considers deep flushing flows with respect to the potential for fish disease in the analysis of the Proposed Project in Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, noting that while there has not been enough time to collect data characterizing the efficacy of the flushing flows since they were initiated in 2017, the necessity to use the emergency dilution flows in 2018 and 2019 suggests that the flushing flows are insufficient on their own to resolve the issue of fish disease downstream of Iron Gate Dam. Because polychaete populations are located outside of the main flow along the margins of the river (Bartholomew and Foott 2010), variable flows disrupt this habitat. Therefore, removal of the Lower Klamath Project dams under the Proposed Project would disrupt microhabitat conditions and is expected to reduce polychaete populations (Stocking and Bartholomew 2007, Bartholomew and Foott 2010) and presumably, reduce infection rates within polychaete populations both in the short and long term (Hetrick et al. 2009).

The EIR also considers deep flushing flows with respect to the potential for fish disease in the analysis of the No Project Alternative in Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites,* noting that while the flushing flows have not been occurring over a long enough time to allow collection of enough data on the efficacy of the flushing flows, the necessity to use the emergency dilution flows in 2018 and 2019 suggests that the flushing flows are insufficient on their own to resolve the issue of fish disease downstream of Iron Gate Dam. Therefore, the No Project Alternative would result in continued substantial deleterious effects on salmon because of fish disease and parasites.

Thus, the comment's assertion that any alternative that incorporates deep flushing flows will have a greater positive effect on disease than those that do not (such as the Proposed Project) is not supported by the analyses in the EIR.

Please note that the discussion of flows has been revised in Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species*, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, and Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic*

Resources – Key Ecological Attributes – Fish Disease and Parasites to clarify how the deep flushing flows were considered in the analysis and to include consideration of the 2019 BiOp Flows, which are now the current operational flow requirement for the Klamath River. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species*, Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*, and Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* for the revisions. For additional information about how the EIR considers the 2019 BiOp Flows, please refer to Master Response HYD-1.

Comment ORG46-376

The DEIR includes many references to "existing adverse conditions." The DEIR should remove the undefined characterization of "adverse" as the discussion is limited to changes from "existing conditions."

Response to Comment ORG46-376

The term “adverse” provides important context for the discussion, particularly for the general reader. With respect to the comment’s assertion that “adverse” is not defined, neither CEQA nor the Lower Klamath Project EIR identify any reason to deviate from use of the word ‘adverse’ to mean harmful or unfavorable, consistent with the common English language usage of this word.

Comment ORG46-377

The DEIR states "In general, the No Project Alternative would not affect the current ongoing changes to water temperature caused by the reservoirs and by dam operations, as described in Section 3.2.2.2 Water Temperature.” Because the No Project analysis does not include long-term effects, the DEIR should clarify that this conclusion, and other conclusions throughout this section, relate only to effects in the short term.

Response to Comment ORG46-377

Please refer to Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality* (page 4-24) introduction that states that the No Project Alternative considers reasonably foreseeable conditions over the period of 0−5 years. Additionally, please refer to the last sentence on page 4-24 that states: “Other potential impacts related to water temperature in the foreseeable short-term (0−5 years) under the No Project Alternative are discussed under a new impact heading, below.”

Comment ORG46-378

The DEIR states "In the Hydroelectric Reach from the Oregon-California state line to the upstream end of Copco No. 1 Reservoir, daily hydropower peaking operations would continue to cause artificially high daily maximum water temperatures and daily variability in water temperatures that occur under existing conditions." This is incorrect. While the diurnal range may be larger under the

No Project Alternative (largely a function of the daily minimum temperature being low in response to J. C. Boyle Powerhouse not operating for some period of the day and dominance of relatively cold spring flow through this reach during this period), the maximum daily water temperature is not predicted to be appreciably higher under the No Project Alternative than the Proposed Project. Peaking flows are high volume and have short transit times. Under the Proposed Project, the flow volumes will be smaller and travel time longer than under the No Project Alternative during the principal heating daytime hours. Even with spring inflow dilution, the maximum daily temperature will not be significantly different.

The DEIR fails to identify one of the clear environmental benefits of the No Project Alternative in the J.C. Boyle Bypass Reach. Under No Project Alternative, the water temperatures at the downstream end of the bypass reach rarely exceed 15°C because most of the water comes from a large spring complex that starts less than a mile downstream from J.C. Boyle Dam. With J.C. Boyle Dam removed and the full flow of the Klamath River passing through this reach, maximum daily water temperatures in summer will be on the order of 22°C to 23°C, that is 7 to 8°C warmer than under the No Project Alternative. Currently, the bypass reach forms a reach-scale thermal refugia spanning several miles of river channel. Dilution of this refugia will probably reduce it to a quarter mile or less without J.C. Boyle Dam in place.

Response to Comment ORG46-378

Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Hydroelectric Reach* (page 4-25) is correct when it states “daily hydropower peaking operations would continue to cause artificially high daily maximum water temperatures and daily variability in water temperatures that occur under existing conditions” in the Hydroelectric Reach from the Oregon-California state line to the upstream end of Copco No. 1 Reservoir. In addition to the Klamath River Total Maximum Daily Load (TMDL) model estimating a higher maximum water temperature at the Oregon-California state line during summer (i.e., June through August) and portions of the fall (i.e., October and November) under existing conditions than under the Proposed Project (see EIR Potential Impact 3.2-1, Figure 3.2-7), the Klamath River Water Quality Model (KRWQM) water temperature results indicate that there is a higher maximum water temperature during portions of the year under existing conditions than would occur under the Proposed Project. PacifiCorp (2014) presents Klamath River water temperature results at the Oregon-California state line from an updated version of the KRWQM in Figure 5.2-19 (reproduced below) for the PacifiCorp (2014) Proposed Project (i.e., continued operations of the Lower Klamath Project dams with additional measures to enhance water quality and beneficial uses; the PacifiCorp [2014] Proposed Project is different from the EIR Proposed Project of removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams), Existing Conditions, and a California Temperature Objective (i.e., no more than 5°F [2.8°C] increase hypothetical without-Project water temperatures [based on model simulations]; labeled as “Objective”).

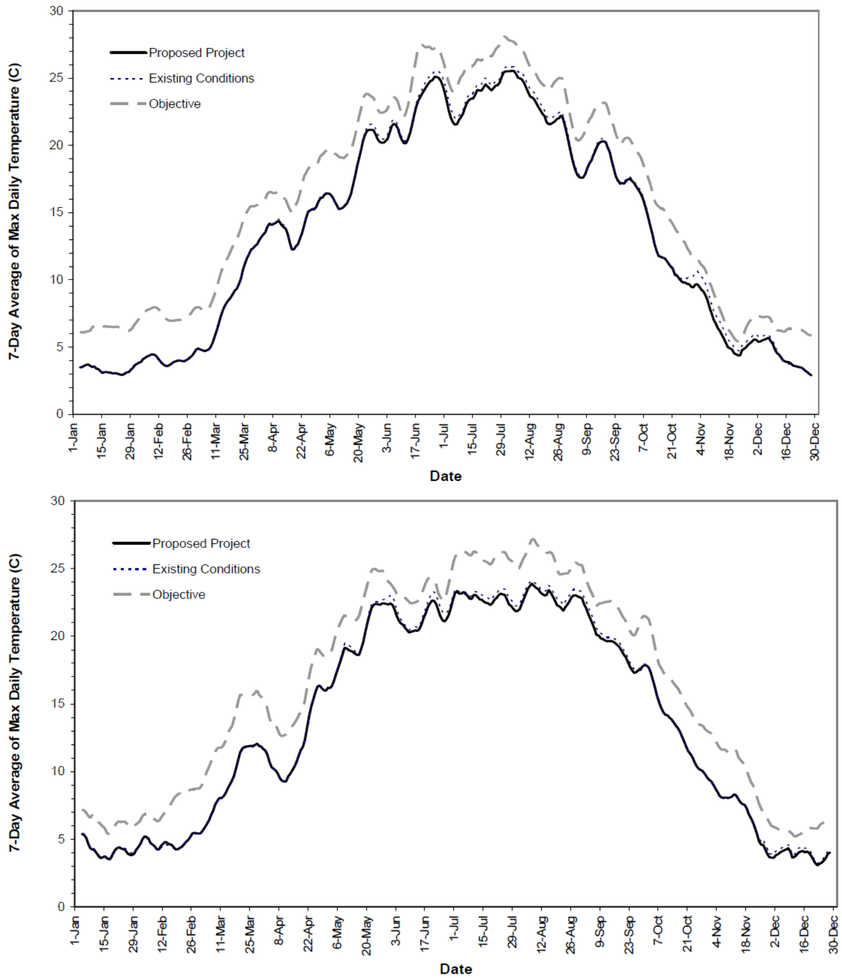


Figure 5.2-19 from PacifiCorp (2014). Time-Series of the 7-Day Average of Maximum Water Temperature (in Degrees C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Oregon-California State Line, Compared to the California Temperature Objective (i.e., No More Than 5ºF [2.8ºC] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]).

PacifiCorp (2014) Figure 5.2-19 does not present a direct comparison of Klamath River water temperatures at Oregon-California state line under existing conditions with the dams in place and under hypothetical without-Project conditions (i.e., removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dam and powerhouse developments), but the “Objective” water temperature shown is the hypothetical without-Project conditions shifted up 2.8 degrees Celsius (ºC). A comparison of the PacifiCorp (2014) Figure 5.2-19 Klamath River water temperatures at the Oregon-California state line under existing conditions and the “Objective” water temperatures shifted down by 2.8ºC would highlight the influence of J.C. Boyle Reservoir daily peaking operations on water temperature at the Oregon-California state line since the shifted “Objective” water temperatures would represent the estimated without Project (i.e., Proposed Project) water temperature conditions. Higher 7-day average of maximum daily temperatures under existing conditions than under the shifted “Objective” water temperature would demonstrate that peaking operations increase the temperature in the Klamath River at the Oregon-California state line.

As shown in Figure ORG46-378-1 below, the 7-day average of the maximum daily Klamath River Water Quality Model (KRWQM) Klamath River water temperatures at the Oregon-California state line under existing conditions and the “Objective” water temperatures shifted down by 2.8^{o}C (i.e., blue lower dashed line) are not identical, with water temperature under existing conditions (i.e., J.C. Boyle Reservoir peaking operations) higher or lower than the shifted “Objective” water temperatures depending on the time of year. The 7-day average of the maximum daily KRWQM Klamath River water temperature at the Oregon-California state line under existing conditions is typically higher than the shifted “Objective” water temperatures representing conditions under the Proposed Project during late-spring to mid-summer (i.e., May to July) and late fall (i.e., November to December), supporting the conclusion that peaking operations increase the maximum water temperature during these periods. However, the 7-day average of the maximum daily KRWQM Klamath River water temperature at the Oregon-California state line under existing conditions is generally similar or lower than the shifted “Objective” water temperatures during other months, indicating J.C. Boyle Reservoir peaking operations are either reducing or not influencing the 7-day average of the maximum daily water temperature at the Oregon-California state line.

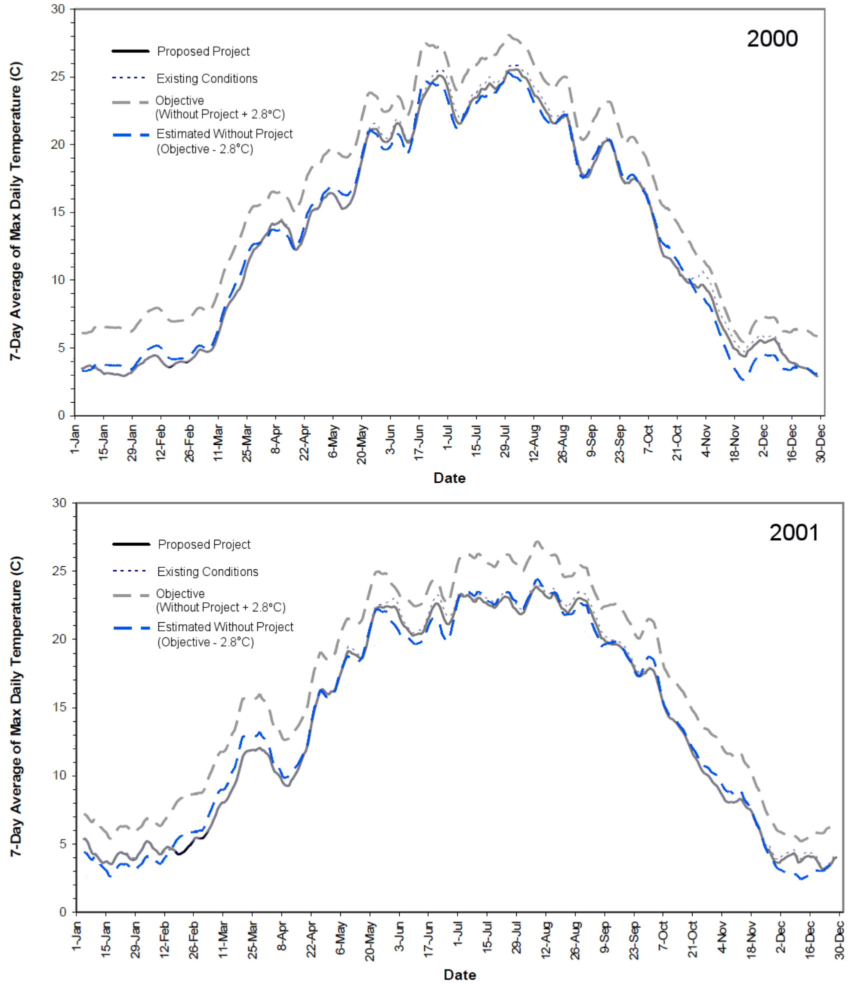


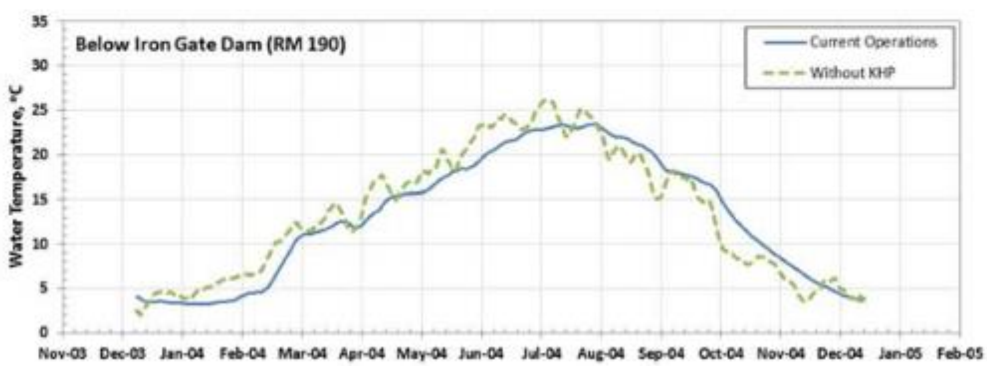
Figure ORG46-378-1 modified Figure 5.2-19 from PacifiCorp (2014). Time-Series of the 7-Day Average of Maximum Water Temperature (ºC) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River at the Oregon-California State Line, Compared to the California Temperature Objective (i.e., No More Than 5ºF [2.8ºC] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]) (grey upper dashed line) and the Estimated Without Project (i.e., California Temperature Objective Shifted 2.8ºC Down) (blue lower dashed line).

Please see Volume III Attachment 1 Section 3.2.1 *Water Quality – Area of Analysis* for a summary of the water quality Area of Analysis under the Proposed Project and Volume I Section 4.2.1.2 *Alternatives – No Project Alternative – Alternative Description – Alternatives Analysis Approach* (page 4-24) for an explanation that the Area of Analysis under the No Project Alternative is the same as under the Proposed Project, unless otherwise indicated. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Hydroelectric Reach* (page 4-25) has been modified to clarify the periods when the TMDL model and 2004/2005 KRWQM water temperature results indicate that daily hydropower peaking operations cause artificially high daily maximum water temperatures under existing conditions at the Oregon-California state line compared to the Proposed Project. Water temperatures in the J.C. Boyle Bypass Reach were not specifically discussed in Potential Impact 4.2.2-1 – *Hydroelectric Reach* (page 4-25) since the water temperature at the Oregon-California state line would represent the net influence of the Lower Klamath Project and J.C. Boyle hydropower peaking operations on water temperature in California and conditions upstream of the Oregon-California state line (RM 214.1) were only considered in the EIR analysis to the extent they influence water temperature downstream in California. However, Potential Impact 4.2.2-1 – *Hydroelectric Reach* has been modified to also clarify potential changes in water temperature in the J.C. Boyle Bypass Reach upstream of the Oregon-California state line (RM 214.1).

Comment ORG46-379

The DEIR describes adverse conditions, but not beneficial conditions under the No Project Alternative. For example, the 7DADMax temperatures (as per USEPA 2003) will be notably cooler under No Project in the reach downstream of Iron Gate Dam from later winter to mid-summer than would occur under the Proposed Project. For example, the graph below shows modeled annual time-series of 7DADMax water temperatures (in °C in the Klamath River downstream of Iron Gate Dam (RM 190.1) for the model year 2004, which was a "moderate" hydrological year (adapted from PacifiCorp 2014). The graph shows model results for two scenarios that represent: (1) existing operations of the Klamath Hydroelectric Project (Current Operations); and (2) the hypothetical absence of Klamath Hydroelectric Project facilities (without Project), which is akin to the Proposed Project.



Response to Comment ORG46-379

Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Middle and Lower Klamath River and*

Klamath River Estuary has been revised to clarify that water temperatures downstream of Iron Gate Dam under the No Project Alternative would remain cooler than the 7-day average maximum daily water temperatures downstream of Iron Gate Dam under the Proposed Project. Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Middle and Lower Klamath River and Klamath River Estuary* for the revisions.

Comment ORG46-380

The DEIR states "Overall, there would be no change from existing, adverse conditions for water temperature in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, or the Pacific Ocean nearshore environment…" The word "adverse" should be deleted from this statement, and other similar statements throughout this section, because water temperature conditions are not adverse at most times and locations. Also, water temperature is simply water temperature, and may create "adverse" conditions for a receptor sensitive to changes in water temperature, but there is no such thing as "adverse conditions for water temperature."

Response to Comment ORG46-380

Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Middle and Lower Klamath River and Klamath River Estuary h*as been revised to clarify that existing adverse conditions refer to the discharge of elevated water temperature from Copco No. 1 and Iron Gate Reservoirs during late summer/fall that cause exceedances of the Thermal Plan water quality standards. Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 for the revisions.

Comment ORG46-381

The DEIR states "The No Project Alternative would continue to result in the same small annual decreases in total phosphorus (TP) and total nitrogen (TN) through the Hydroelectric Reach as occurs under existing conditions..." The word "small" should be deleted from this statement. These decreases, particularly in phosphorous from a biostimulatory perspective are notable. Nutrient retention in Iron Gate and Copco reservoirs has been calculated and the actual data should be used in the evaluation of the Proposed Project and its alternatives (see Asarian and Kann 2005; Kann and Asarian 2007). The process wherein the reservoirs result not only in retention of nutrients, but also increased passage time so that many nutrients leave the reservoir late in or after the primary production season is not addressed in the DEIR.

Response to Comment ORG46-381

Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 – *Hydroelectric Reach* (page 4-28) has been revised to clarify the specific calculated annual nutrient retention amounts for the Lower

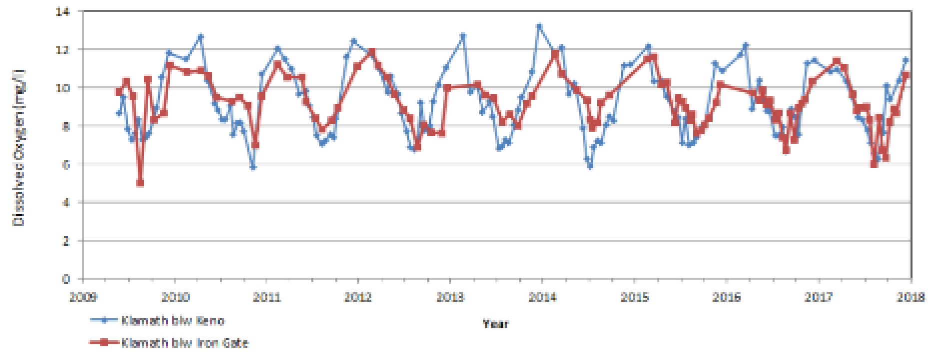
Klamath Project dams (Asarian et al. 2009) that the EIR considers to be relatively small. While these annual nutrient retention amounts are cited in PacifiCorp (2014a), the magnitudes of the most recent annual nutrient retention for Copco No. 1 and Iron Gate reservoirs in Asarian et al. (2009) differ from previous studies because earlier studies either analyzed nutrient data from only part of a year or used an improved method for estimating nutrient retention in the reservoirs. Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 – *Hydroelectric Reach* for the revisions.

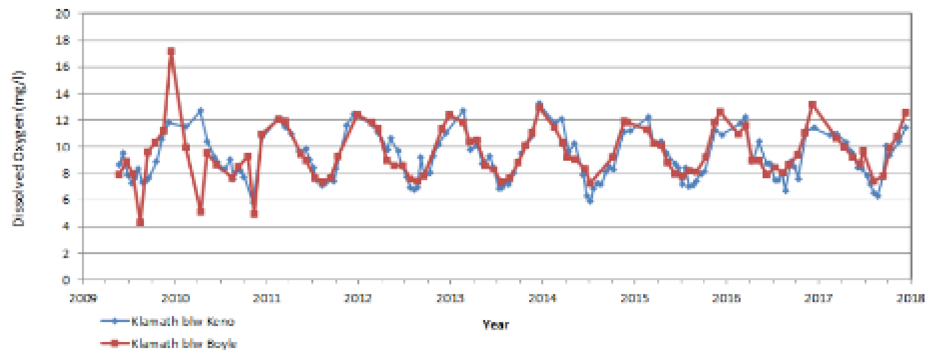
Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 – *Hydroelectric Reach* (page 4-28) does explain that seasonal total phosphorus (TP), and to a lesser degree total nitrogen (TN), increases would occur during summer and fall due to releases of ortho-phosphorus and ammonium from Copco No. 1 and Iron Gate reservoir sediments. Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 – *Hydroelectric Reach* (page 4-28) has been revised to provide further clarifying details about the magnitude and timing of seasonal nutrient retention and releases from Copco No. 1 and Iron Gate reservoirs. Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 – *Hydroelectric Reach* for the revisions.

For additional discussion of seasonal nutrient releases from the Lower Klamath Project reservoirs, please refer to responses to comments ORG46-34, ORG46-96, and ORG46-98.

Comment ORG46-382

The DEIR states "The No Project Alternative in the Klamath River would result in no change from existing, adverse conditions in the reasonably foreseeable short-term (0-5 years) with respect to large summertime variations in dissolved oxygen in the Hydroelectric Reach and dissolved oxygen concentrations in the Middle Klamath River immediately downstream of Iron Gate Reservoir that fall below the Basin Plan minimum dissolved oxygen criteria (Section 3.2.2.5 Dissolved Oxygen)." This statement does not consider that dissolved oxygen conditions upstream of the Klamath Hydroelectric Project are generally worse than water quality conditions downstream of J.C. Boyle Dam and Iron Gate Dam. See data below taken from Interim Measure 15 monitoring results, which indicate dissolved oxygen downstream of these dams is generally better than or no worse than upstream water quality conditions.





Response to Comment ORG46-382

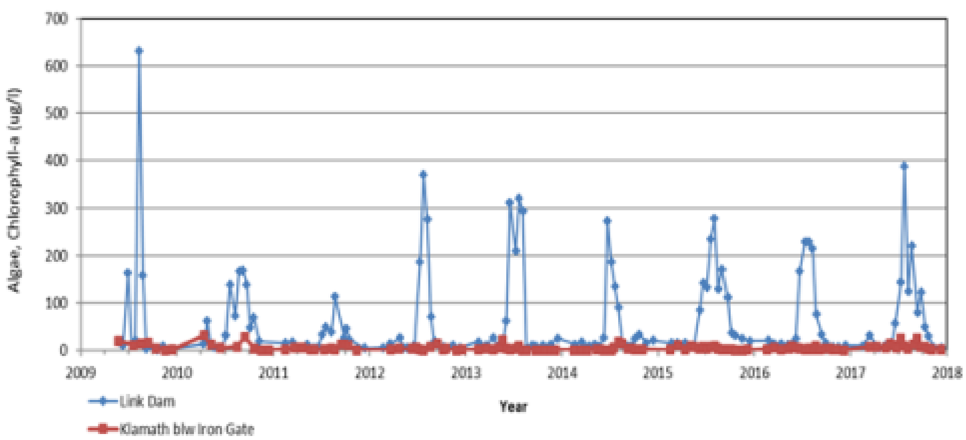
A simple time series comparison of the relative dissolved oxygen conditions at different locations in the Klamath River under existing conditions (e.g., upstream of the Hydroelectric Reach with the dissolved oxygen conditions downstream of J.C. Boyle or Iron Gate Dam) oversimplifies the discussion because it does not explicitly consider the details of how the presence and operations of the Lower Klamath Project facilities in the Klamath Hydroelectric Reach affect dissolved oxygen in the Klamath River on a seasonal basis. These details are presented in Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen*. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

As analyzed in Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential 4.2.2-5 (pages 4-30 to 4-31), there would be no change from existing conditions under the No Project Alternative in the Hydroelectric Reach, including the dissolved oxygen conditions entering the Hydroelectric Reach from upstream.

<u>**Comment ORG46-383**</u>

The DEIR states "the No Project Alternative would continue to result in the same pH values that exceed the Basin Plan instantaneous maximum pH objective of 8.5 s.u. and large daily fluctuations in the Hydroelectric Reach in Copco No. 1 and Iron Gate reservoirs during summertime periods of intense algal blooms (see Section 3.2.2.6 pH)." The DEIR goes on to state "Under the No Project Alternative, existing conditions for pH would continue to occur for periods of high photosynthesis, particularly when large phytoplankton blooms are transported *from Iron Gate Reservoir into the Middle and Lower Klamath River, with the most extreme pH exceedances typically occurring from Iron Gate Dam to approximately Seiad Valley." The DEIR should explain that the Klamath River is weakly buffered, a condition that is largely a function of watershed geology, not reservoir dynamics. Even modest amounts of primary production will create conditions both with and without the Proposed Project, where elevated pH would occur throughout much of the Klamath River, particularly the river upstream of Seiad Valley, during summer. Because there is a large contribution of nutrients from upstream sources (e.g., Upper Klamath Lake, Keno Reservoir), primary production will occur at levels sufficient to generate pH values that exceed Basin Plan targets.*

Contrary to what is stated in the DEIR, phytoplankton blooms washing out of Iron Gate Reservoir are not a major contribution to elevated pH downstream. While they may appear extensive, they are small compared to, for example, blooms washing out of Upper Klamath Lake (see chlorophyll-a figure below for conditions downstream of Link River Dam and Iron Gate Dam). Modeling has indicated that phytoplankton contributions to the river are minor compared to periphyton and macrophytes (Deas 2000). Finally, algae speciation data indicate that river samples are often dominated by species associated with the upstream periphyton and not necessarily reservoir species.



Response to Comment ORG46-383
Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-6 has been revised to clarify that the Klamath River is a weakly buffered system susceptible to photosynthesis-driven pH variations. Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – pH* for the revisions.

Further, the Klamath River is a weakly buffered system, as noted by the comment, so it is susceptible to pH variations from photosynthesis and respiration. While the chlorophyll-*a* concentrations measured at the Link River Dam upstream of the Hydroelectric Reach are greater than those measured downstream of Iron Gate Dam, indicating a relatively higher density of phytoplankton cells and associated photosynthesis, pH variations may occur even from relatively small changes in the photosynthesis and respiration in a weakly buffered system such as the Klamath River.

While modeling may indicate that phytoplankton have a relatively small contribution to the pH in the river under typical conditions, existing models do not appear to sufficiently replicate the observed dynamics of algal blooms. Currently, the influence of algal blooms on pH conditions in the Klamath River is better represented by measurements of existing conditions in the Klamath River during algal blooms. While algae speciation data provide estimates of the abundance of various algae types, algae speciation data alone do not quantify the relative contribution of phytoplankton on pH conditions in the Klamath River. During 2012, measurements were made at three locations in the Klamath River (i.e., Seiad Valley, Weitchpec, and Turwar) to estimate the relative contributions of phytoplankton and periphyton and benthic organisms to stream metabolism. While stream metabolism was estimated in dissolved oxygen per square meter per day, photosynthesis and respiration by phytoplankton and periphyton and benthic organisms influence the variations in dissolved oxygen, and these same processes would influence variations in pH. As such, the relative contribution of phytoplankton and periphyton and benthic organisms estimated from the stream metabolism in dissolved oxygen per square meter per day are suggestive of the relative contribution of these organisms to pH variations in the Klamath River. Periphyton and other benthic organisms were found to be responsible for approximately 89 percent of the variations in dissolved oxygen per square meter per day (i.e., stream metabolism) when phytoplankton blooms are not occurring in the reservoirs or being subsequently transported downstream into the river (Genzoli and Hall 2016). However, phytoplankton blooms in the reservoirs during September through mid-October 2012 and the transport of suspended phytoplankton into the Middle and Lower Klamath River shifted the stream metabolism from being primarily due to periphyton and other benthic organisms to a mixture of periphyton, other benthic organisms, and phytoplankton. During phytoplankton bloom conditions, the relative contribution of phytoplankton to stream metabolism increased to 55 percent at some river sites (Genzoli and Hall 2016). Thus, in-reservoir phytoplankton blooms being transported downstream of Iron Gate Dam would potentially contribute significantly to the pH variations and elevated pH in the Middle and Lower Klamath River under the No Project Alternative. Overall, Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – pH* Potential Impact 4.2.2-6 (pages 4-32 to 4-33) is accurate to state that existing conditions for pH would continue to occur under the No Project Alternative and the large pH variations (0.5 to 1.5 standard units [s.u.]) observed under existing conditions would likely continue to occur during periods of high photosynthesis, especially when large phytoplankton blooms are transported from Iron Gate Reservoir into the Middle and Lower Klamath River.

<u>Comment ORG46-384</u>

The DEIR states "Downstream of Iron Gate Dam, chlorophyll-a and algal toxin trends generally would be similar to existing conditions under the No Project Alternative, with releases of chlorophyll-a and algal toxins (i.e., microcystin) in the lower Klamath Hydroelectric Project reservoirs to the Middle and lower Klamath River, and eventually the Klamath River Estuary." The DEIR fails to acknowledge that in 2015 PacifiCorp installed and continues to test a barrier curtain to reduce releases of blue-green algae from Iron Gate Dam to downstream Klamath River reaches (see Watercourse 2016; PacifiCorp 2017b). While PacifiCorp is still testing this prototype curtain and operational refinements are ongoing, there are a range of conditions where water quality monitoring indicates that the barrier curtain does successfully segregate surface waters in Iron Gate Reservoir and result in retention of blue-green algae in the reservoir. Testing and refinement of curtain design and operations is ongoing.

Response to Comment ORG46-384

Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Chlorophyll-a* Potential Impact 4.2.2.7 has been revised to clarify that existing conditions include the intake barrier/thermal curtain and testing and refinement of the curtain designs and operations are ongoing. The intake barrier/thermal curtain tested in 2014 was referred to as a prototype and the current intake barrier/thermal curtain installed in 2015 has not been described as a prototype in published, publicly available PacifiCorp reports on its operation and performance since then (PacifiCorp 2016a, 2017a, 2018a). Please refer to Volume III Attachment 1 Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – Chlorophyll-a* for the revisions.

<u>Comment ORG46-385</u>

The DEIR states "Under the No Project Alternative, the effects of ongoing and future upstream water quality improvements under the TMDLs would improve water temperatures downstream of Keno Dam, as described in Section 3.2.2.2 Water Temperature." PacifiCorp is not aware of any actions contemplated under the TMDL implementation plans that are reasonably projected to bring water temperatures downstream of Keno Dam into compliance with water temperature standards. Further, the TMDL requires further reductions in water temperature standards when anadromous fish have access to Keno Reservoir, which will further challenge attainment of water quality standards. Water quality improvements to achieve TMDL requirements are not reasonably certain to occur and thus the DEIR should not rely upon them as assumed future conditions(see Section 3 Thematic Comments).

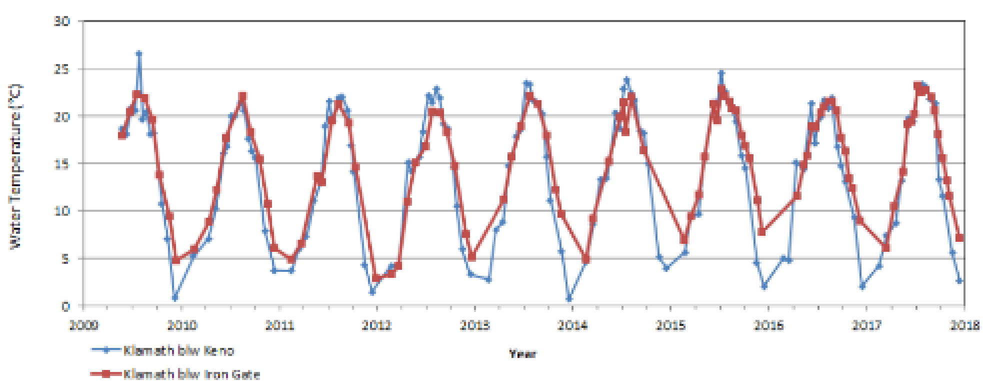
Response to Comment ORG46-385

Volume I Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature* has been revised to clarify that the No Project Alternative, which is analyzed for the reasonably foreseeable short-term (0−5 years), would not affect the current ongoing changes to water temperature caused by the reservoirs and by dam operations. Please refer to Volume III Attachment 1 Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature* for the revisions.

With respect to the comment regarding anadromous fish access to Keno Reservoir when water temperatures are elevated, please refer to Volume III Attachment 1 Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation Measures* Potential Impact 3.3-7, which includes a detailed discussion of the potential impediments to fish passage from water quality conditions in Keno Reservoir/Lake Ewauna, and includes analysis of the potential implications if passage is not improved there.

<u>Comment ORG46-386</u>

The DEIR states “The river's thermal regime downstream from the reservoirs would continue to be out of phase with the natural temperature regime (Hamilton et al. 2011).” The DEIR should consider actual water quality monitoring data, which does not support this statement. See below water quality monitoring data collected under Interim Measure 15, which compares water temperatures downstream of Keno Dam to water temperatures downstream of Iron Gate Dam. While Iron Gate Dam and Reservoir may contribute to a temperature lag, the overall river water temperatures down stream of Iron Gate are aligned with water temperatures upstream of the Klamath Hydroelectric Project that fish would encounter if dams are removed.



Response to Comment ORG46-386

Existing conditions water quality monitoring data cannot be used to evaluate whether the timing of the thermal regime of the river is altered by reservoir releases because the reservoirs are constantly influencing the water temperature in the river and data cannot be collected about the natural temperature regime without the reservoirs. It is incorrect to compare the water temperature downstream of Keno Dam and Iron Gate Dam to evaluate whether the water temperature downstream of Iron Gate Dam is out of phase with the natural temperature regime in the Klamath River since the water temperature downstream of Keno Dam is influenced by releases from the Keno

Impoundment/Lake Ewuana; thus, the water temperature downstream of Keno Dam also is not representative of the natural temperature regime. Section 3.2.2.2 *Water Quality – Environmental Setting –Water Temperature* Figure 3.2-3, Hamilton et al. (2011) Figure 8, and PacifiCorp (2004a-1, 2005a, 2008a, 2014a) present the Klamath River Water Quality Model (KRWQM) water temperature results showing the Klamath River water temperature under existing condition out of phase with the Klamath River water temperature under hypothetical conditions without J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The comment's assertion that fish would encounter the water temperatures shown in the figure for the locations downstream of Keno Dam if the dams were to be removed is correct only once fish reach that location. Further downstream, fish would encounter water temperatures that would be influenced by multiple factors including the cold-water springs in the J.C. Boyle Peaking Reach; tributary inputs; and the elimination of the thermal effects previously created by the reservoirs and from hydropower peaking operations.

Comment ORG46-387

The DEIR states "Bartholow et al. (2005) and PacifiCorp (2004b) showed that the reservoirs delay seasonal thermal signatures by 18 days." This is an oversimplification or misrepresentation of what the PacifiCorp source indicates. PacifiCorp model results (see PacifiCorp 2004a, 2008, 2014) show that the delay is actually 18 days or less in the river from Iron Gate Dam to the confluence with the Shasta River (RM 176). The effects of the Klamath Hydroelectric Project reservoirs on water temperatures downstream of Iron Gate Dam (RM 190) progressively diminish until reaching a downstream location where effects are absent. The DEIR should clarify this statement accordingly.

Response to Comment ORG46-387

Bartholow et al. (2005) state that the annual temperature cycle downstream of Iron Gate Dam (river mile [RM] 193.1) shifted an average of about 18 days earlier in the year with Iron Gate Dam in place, with the phase shift of the annual temperature cycle a longer duration during the fall low-flow period (3 to 4 weeks) and shorter in the higher-flow spring and early summer (2 to 3 weeks). PacifiCorp (2004a-1) specifically states the thermal lag effect (i.e., the shift in the thermal signature) is still evident in the Klamath River just above the Shasta River, but is greatly diminished by Seiad Valley and generally absent by the Salmon River. PacifiCorp (2008a, 2014) both conclude that the impact of the thermal lag diminishes by approximately 50 percent by the Shasta River and continues to diminish in the downstream direction.

Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature – Middle and Lower Klamath River* has been revised to clarify the duration and extent of the delay in the seasonal thermal signature downstream of Iron Gate Dam and correct a typo so the

PacifiCorp (2004b) citation refers to the PacifiCorp (2004a) rather than PacifiCorp (2004b). Please refer to Volume III Attachment 1 Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature – Middle and Lower Klamath River* for the revisions.

Comment ORG46-388

In this paragraph, the DEIR indicates that "the No Project Alternative would result in continued substantial deleterious effects on salmon because of fish disease and para sites." This statement is referring to the reach "below Iron Gate Dam." However, the reach "below Iron Gate Dam" is not specifically defined in this section of the DEIR, and therefore the DEIR is erroneously leading the reader to conclude that the reach extends to the ocean (see Major Issue 2.8). Data presented in Bartholomew and Foott (2010) show that polychaete numbers and infection rates are low for the Iron Gate Dam to just above the Shasta River reach; the mainstem reach that has the highest number of adult spawners. Thus, in relation to stream reaches downstream of the Shasta River, polychaetes are not abundant nor does the river reach from Iron Gate to the Shasta River produce high infection rates. The DEIR should clarify and correct this point.

Response to Comment ORG46-388

Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* has been revised to clarify where the highest rates of infection would occur under the No Project Alternative. Please refer to Volume III Attachment 1 Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* for the revisions.

Comment ORG46-389

The DEIR states "Conditions under the No Project Alternative would continue to contribute to elevated concentrations of disease parasites and would provide the conditions required for the cross infection of fish and polychaetes," and then states "These interacting factors could decrease the viability of Chinook and Coho salmon populations in the future." Aside from the observation that the DEIR previously indicated that the analysis of long-term effects was too uncertain to evaluate, the assumption that continued Project operations could decrease the viability of Chinook stocks in the future from disease is not supported by any data or analysis. The Hetrick et al. (2009) and Hamilton et al. (2011) references cited to support these statements only provide speculative and anecdotal information on this topic. Further, this analysis is supposed to be reviewing the potential effects of the No Project Alternative on Essential Fish Habitat (EFH), yet there is no discussion of the important elements of EFH, how the No Project Alterative would affect those elements.

Response to Comment ORG46-389
EIR Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* has been revised to clarify the effects on Chinook and coho salmon Essential Fish Habitat (EFH) quality under continued operations, and to address the comment regarding citations of Hetrick et al. (2009) and Hamilton et al. (2011). Please refer to Volume III Attachment 1 Section 4.2.3.1 *Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Fish Disease and Parasites* for the revisions.

<u>Comment ORG46-390</u>
For both the No Project and Continued Operation with Fish Passage alternatives, the DEIR analysis mistakenly assumes that flow variability would be less than the Proposed Project. PacifiCorp currently operates Iron Gate Dam in such a manner that flows can and do change daily based on direction from USBR and various upper basin hydrologic conditions. In addition, when daily target flows are relatively steady, PacifiCorp runs a diurnal fluctuation program at Iron Gate powerhouse that fluctuates flows within the day. Discharges from Iron Gate Dam could be adjusted to create conditions that attract adults into fish passage facilities or, provide a wider range of daily flows for potential use in scouring or desiccating polychaete habitat. Several other measures or adaptive management components could be incorporated into future dam operations alternatives as evidenced by the FERC (2007) EIS for the Klamath Hydroelectric Project.

Response to Comment ORG46-390
Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-7 has been revised to clarify what is meant by dampened flow. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* for the revisions.

Please also refer to responses to comments ORG46-226 and 228 and Master Response FLD-1.

<u>Comment ORG46-391</u>
The DEIR should describe the existing losses of Shortnose and Lost River suckers and that according to the USFWS (2013) these are "sink" populations that contribute little to the overall population status and recovery. This will help make the linkage to the conclusion presented. The reference to PacifiCorp (2013) is incorrect and it is not clear from the DEIR what the source of the statements are regarding either loss of suckers through turbine entrainment or via stranding downstream of J.C. Boyle Powerhouse as a result of peaking operations.

Table 3. Estimates of Maximum Annual Sucker Mortality under Current Operations at Link River Dam and the Klamath Hydroelectric Project Facilities Due to Turbines, Spillways, Flow Lines, Reservoir Fluctuations, and Stranding Estimates are derived using USFWS (2013a) approach to estimating sucker mortality. (Appendix A). PacifiCorp does not agree that these estimates necessarily reflect take associated with its activities.

				Facility				
Life Stage	East Side & West Side[A]	Link River[B]	Keno	J.C. Boyle	Copco No. 1	Copco No. 2	Iron Gate	Total
Estimated Annual Mortality[C] Due to Turbine, Spillway, and Flow Line Operations								
Larvae	731,161	38,995	8,208	9,500	13, 268	9,951	733	811,815
Juveniles	66	594	65	77	6	5	0	814
Adults	4	1	0	0	0	0	0	5
Total	731,231	39,590	8,273	9,577	13, 274	9,956	733	812,634
Estimated Annual Mortality[C] Due to Reservoir Fluctuations and Stranding Effects								
Eggs	0	0	0	10,000	0	0	0	10,000
Larvae	0	1,000	400	3,00	200	20	100	4,720
Juvenile	0	100	20	205	50	0	0	375
Adult	0	0	0	0	0	0	0	0
Total	0	1,100	420	13,205	250	20	100	15,095

[A] *The estimates for mortality at the East Side and West Side facilities are based on passage or entrainment through the East Side and West Side turbines or flow lines. Under current operations, the East Side and West Side turbines are offline during the August–October peak entrainment period as explained in the text, but relatively small amounts of water pass (approximately 80 cfs total) through the lines.*

[B] *Mortality estimates in this column are based on spill releases at Link River Dam, which are attributable to Reclamation's operations.*

[C] *Annual mortality is defined as the estimated number of individuals killed from the encounters with the listed operations sources. Total mortality includes losses resulting from spill at Link River dam. Spillway mortality associated with Link River dam is attributable to Reclamation operations.*

Response to Comment ORG46-391

The EIR refers to the sucker populations in the Hydroelectric Reach as "sink populations." Volume III Attachment 1 Section 3.3.2.1 *Aquatic Species– Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species – Lost River and Shortnose Suckers* identifies the Lost River and shortnose suckers located in the Lower Klamath Project reservoirs as a "sink population." Additionally, Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and mitigation – Aquatic Reosurce Impacts* Potential Impact 3.3-13 details the population in the Upper Klamath River Hydroelectric Reach as being a "sink population" that is not likely to be self-sustaining due to low recruitment.

The PacifiCorp (2013) Interim Operations Habitat Conservation Plan for Lost River and Shortnose Suckers reference is correct, and it does include information regarding loss of suckers through turbine entrainment or via stranding. For example, Table 3 in PacifiCorp (2013), included below, summarizes estimates of sucker mortality at each Klamath River Hydroelectric Project Facility due to turbines, spillways, flow lines, reservoir flucations, and stranding.

TABLE 3

Estimates of Maximum Annual Sucker Mortality under Current Operations at Link River Dam and the Klamath River Hydroelectric Project Facilities Due to Turbines, Spillways, Flow Lines, Reservoir Fluctuations, and Stranding

Estimates are derived using the USFWS (2013a) approach to estimating sucker mortality (Appendix A). PacifiCorp does not agree that these estimates necessarily reflect take associated with its activities.

Life Stage	Facility							
	East Side & West Side[A]	Link River[B]	Keno	J.C. Boyle	Copco No. 1	Copco No. 2	Iron Gate	Total
Estimated Annual Mortality[C] Due to Turbine, Spillway, and Flow Line Operations								
Larvae	731,161	38,995	8,208	9,500	13,268	9,951	733	811,815
Juveniles	66	594	65	77	6	5	0	814
Adults	4	1	0	0	0	0	0	5
Total	731,231	39,590	8,273	9,577	13,274	9,956	733	812,634
Estimated Annual Mortality[C] Due to Reservoir Fluctuations and Stranding Effects								
Eggs	0	0	0	10,000	0	0	0	10,000
Larvae	0	1,000	400	3,000	200	20	100	4,720
Juvenile	0	100	20	205	50	0	0	375
Adult	0	0	0	0	0	0	0	0
Total	0	1,100	420	13,205	250	20	100	15,095

A. The estimates for mortality at the East Side and West Side facilities are based on passage or entrainment through the East Side and West Side turbines or flow lines. Under current operations, the East Side and West Side turbines are offline during the August – October peak entrainment period as explained in the text, but relatively small amounts of water pass (approximately 60 cfs total) through the flow lines.

B: Mortality estimates in this column are based on spill releases at Link River dam, which are attributable to Reclamation's operations.

C. Annual mortality is defined as the estimated maximum number of individuals killed from the encounters with the listed operations sources. Total mortality includes losses resulting from spill at Link River dam. Spillway mortality associated with Link River dam is attributable to Reclamation operations.

Comment ORG46-392

The DEIR is missing a discussion of the status of the Redband Trout population and how (or if) it would change under the No Project Alternative. The existing Redband Trout populations in the Project area continue to be a valuable, wild, self-sustaining resource. In fact, the J.C. Boyle peaking reach trout fishery has been designated as an "Outstandingly Remarkable Value" (ORV) under the Wild and Scenic Rivers Act, in recognition of the "exceptional trout fishery," with a catch rate among the highest in the states of Oregon and California. The Redband Trout population in the J.C. Boyle peaking reach supports a high-quality recreational fishery (PacifiCorp 2004b). Annual angler catch rates in the Oregon portion of the peaking reach from 1979 to 1984 averaged 0.77 Redband Trout per hour. These catch rates are comparable to or exceed those of other high-quality trout streams in Oregon including the Deschutes and Metolius rivers (City of Klamath Falls 1986). Annual angler catch rates in the California portion of the peaking reach were slightly lower, averaging 0.59 rainbow trout per hour during 1974 to 1977, 1981, and 1982. CDFG (2000) reported that the upper Klamath River Wild Trout Area had the highest overall catch rate among the wild trout rivers it monitors in California. Although somewhat dated, the above sources are still appropriate for characterizing the recreational fishery in the J.C. Boyle peaking reach because basic supporting conditions (e.g., physical habitat, flow, and water quality) are unchanged. More recent in formation suggests that the upper Klamath River, including the J.C. Boyle Peaking Reach, remains a high-quality Redband Trout fishery (Mueller 2011). The DEIR' s failure to analyze the substantial benefits to Redband Trout fishery from existing operations (No Project) is particularly notable given the DEIR's characterization of the "adverse" existing conditions ascribed to the Klamath Hydroelectric Project, and suggests a conclusion-oriented bias in the DEIR's alternatives analysis.

Response to Comment ORG46-392

With respect to the status of the redband trout population, please refer to the Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Resident Riverine Fish Species – Rainbow and Redband Trout* for a discussion of the status of the redband trout population. The redband trout population in the Upper Klamath Basin is one of the largest and most functional adfluvial redband trout population of Oregon's interior basins (Hamilton et al. 2011).

With respect to how the redband trout population is predicted to be altered under the No Project Alternative, please refer to Volume I Section 4.2.3.2 Alternatives – *No Project Alternative – Aquatic Resource Potential Impacts, Impacts, and* Mitigation Potential Impact 4.2.3-14 (pages 4-55 and 4-56) for a description of the predicted effects of the redband trout population under the No Project Alternative. Several key factors from existing conditions would continue under the No Project Alternative including: 1) limited genetic exchange and movement by redband trout between reaches; 2) lack of habitat connectivity for redband trout in the Klamath River; 3) continued fish entrainment and mortality rates at

Klamath Hydroelectric Project (KHP) facilities; and 4) continued productivity impacts in the J.C. Boyle Peaking Reach and J.C. Boyle Bypass Reach.

<u>Comment ORG46-393</u>
The DEIR states that "Migration over the Copco No. 1 and 2 dams is in the downstream direction only, as there is no fishway. These conditions would remain unchanged under the No Project Alternative and the Redband Trout population would continue to suffer the effects of restricted habitat connectivity." However, the DEIR provides no evidence to support the assertion that there is any effect from restricted habitat connectivity. If this is a documented limiting factor for Redband Trout in this system, the DEIR needs to provide that information. As described in the previous comment above (see comment 4.2-18), the existing Redband Trout populations in the reach from Copco No. 1 Reservoir upstream to J.C. Boyle Dam continue to be a valuable wild, self-sustaining resource, and support a high-quality recreational fishery (PacifiCorp 2004b; CDFW 2000; Mueller 2011).

Response to Comment ORG46-393
Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-14 (page 4-55) discusses the effects of restricted habitat connectivity on redband trout populations from loss of genetic exchange and lack of access to productive spawning habitat in Spencer Creek from the J.C. Boyle Bypass and Peaking Reaches, based on the analysis and reporting of NMFS 2006, and support the conclusions in the EIR.

<u>Comment ORG46-394</u>
The DEIR states that "It is estimated that 'several tens of thousands of resident fish' are annually entrained at 'each of the Projects' facilities (NMFS 2006a), and it is likely that these entrainment and mortality rates would continue under the No Project Alternative." However, the DEIR does not accurately present a reference for NMFS 2006a such that this assertion can be verified nor does the document indicate how many of these entrained fish are Redband Trout. The DEIR needs to support the assertion that entrainment is a documented limiting factor for Redband Trout in this system.

Response to Comment ORG46-394
Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* – Potential Impact 4.2.3-14 (page 4-55) has been modified to address the typographical error. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* – Potential Impact 4.2.3-14 for the revisions.

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species* has been revised to clarify the impact of entrainment on redband trout. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish – Resident Riverine Fish Species* for the revisions.

In addition, Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and* Mitigation – Potential Impact 4.2.3-14 has been revised to clarify the potential for redband trout entrainment and mortality. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and* Mitigation – Potential Impact 4.2.3-14 for the revisions.

Comment ORG46-395

The DEIR states that "The health and productivity of Redband Trout in the J.C. Boyle Peaking Reach and J.C. Boyle Bypass Reach would continue to be affected under the No Project Alternative." The DEIR fails to present any evidence to support the assertion that the health and productivity of the population is or has been affected. The DEIR assert s only that factors thought to be related to trout health and productivity are affected by the Lower Klamath Hydroelectric Project. If all of the assertions in this section were true, there would be no Redband Trout in the J.C. Boyle Peaking or Bypass reaches. In fact, the reach from Copco No. 1 Reservoir upstream to J.C. Boyle Dam supports a valuable, wild, self-sustaining Redband Trout population, which provides a high-quality recreational fishery (PacifiCorp 2004b, CDFW 2000, Mueller 2011). It is also unclear from the DEIR why there is such an extensive discussion of conditions upstream of the Oregon/ California border. The DEIR's unsubstantiated conclusion of an adversely impacted red trout fishery from existing operations (No Project) ascribed to the Klamath Hydroelectric Project, and suggests a conclusion-oriented bias in the DEIR' s alternatives analysis which fails to adequately inform decision-makers and the public about the actual existing conditions and potential impacts associated with the Proposed Project.

Response to Comment ORG46-395

Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and* Mitigation Potential Impact 4.2.3-14 (page 4-56) discuss constraints on redband trout health and productivity in the J.C. Boyle Peaking Reach and J.C. Boyle Bypass Reach under existing conditions, including risk of entrainment and mortality at Lower Klamath Project facilities as reported in NMFS (2006), along with fish stranding and displacement, reduced fry habitat, and reduced macroinvertebrate production based on analysis and reporting by Hamilton et al. (2011). It has been reported by Hamilton et al. (2011) that productivity under existing conditions is limited by the Lower Klamath Project due to reduced redband trout spawning and rearing habitat.

Please also refer to response ORG46-396.

Comment ORG46-396

With respect to the J.C. Boyle peaking reach, the DEIR states that "All of these conditions could result in substantial declines in redband trout abundance in this reach." The analysis for the No Project Alternative is limited to 0 to 5 years, and it is unclear how existing conditions would result in a substantial decline in Redband Trout abundance over this short timeframe. There is no documentation of any decline of the fishery (in fact, the opposite appears to be the case, see previous comments),and therefore the DEIR misrepresents the effects or continued operations.

Response to Comment ORG46-396

With respect to redband trout populations, Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and* Mitigation Potential Impact 4.2.3-14 has been revised to clarify the expected conditions under the No Project Alternative. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and* Mitigation Potential Impact 4.2.3-14 for the revisions.

Comment ORG46-397

The DEIR seems to be missing a word or phrase for clarity "Under the No Project Alternative, diversion of water at continue to alter flows downstream, as occurs under existing conditions." Assume this may be "at Copco 2" between 'diversion of water' and 'continue'.

Response to Comment ORG46-397

Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-14 has been revised to clarify the location being discussed. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* for the revisions.

Comment ORG46-398

The DEIR states that "Reduced redband trout abundance and distribution upstream of Iron Gate Dam attributable to Lower Klamath Hydroelectric Project features and operations would continue under the No Project Alternative." The Redband Trout population would be reduced relative to what, historical conditions? As with this entire impact discussion there is no evidence presented to support this assertion. Also, analysis of the effects of the alternative should be made in comparison to baseline conditions which are those present in 2016 when the NOP was published, not some poorly defined pre-dam condition as seems to be the assertion in this discussion.

Response to Comment ORG46-398

With respect to redband trout populations, Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* – Potential Impact 4.2.3-14 has been revised to clarify the expected conditions of redband trout populations under the No Project Alternative. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-14 for the revisions.

Comment ORG46-399

The DEIR states that "Apparent phenotypic changes in the redband trout in these reaches would likely be maintained or continue under the No Project Alternative, such as declines in size (Jacobs et al. 2007, as cited in Hamilton et al. 2011) and condition factor (ODFW 2003, as cited in Hamilton et al. 2011)." As described in previous comments, the existing Redband Trout populations in the reach from Copco No. 1 Reservoir upstream to J.C. Boyle Darn continue to be a valuable, wild, self-sustaining resource, and support a high-quality recreational fishery (PacifiCorp 2004b; CDFW 2000; Mueller 2011). The existing Redband Trout caught in the J.C. Boyle Bypass Reach tend to be smaller than those caught in the upstream Keno Reach and the downstream J.C. Boyle Peaking Reach (PacifiCorp 2004b; Tinniswood and Smith 2003; Starcevich et al. 2006). Nonetheless, average condition factor and relative weight indicate that trout in the J.C. Boyle Bypass Reach are average to above-average in condition and plumpness relative to other populations (PacifiCorp 2007). PacifiCorp (2004b) assessed condition factor of fish in the Klamath Hydroelectric Project reaches. Gamperl et al. (2002) report that average condition factors for studied Redband Trout populations in southeastern Oregon were 1.03 to 1.10. While some seasonal variation was present, PacifiCorp (2004) found that condition factor values averaged 1.3 for Redband Trout in the J.C. Boyle Peaking Reach (and 1.2 in the J.C. Boyle Bypass Reach) during all seasons, indicating average to above average (i.e., healthy) robustness or physiological condition compared to other populations in southeastern Oregon. Similar to condition factor, Tinniswood and Smith (2003) assessed relative weight of Redband Trout in the J.C. Boyle Peaking Reach. As with condition values, the relative weight values calculated by Tinniswood and Smith (2003) indicate that Redband Trout in the peaking reach are average to above average in condition compared to other populations. The DEIR should be revised to reflect the actual status of this Redband Trout population. (see comment 3.3-39).

Response to Comment ORG46-399

Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-14 has been clarified as requested. Please refer to Volume III Attachment 1 Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-14 for the revisions.

In addition, please refer to response to comment ORG46-392 and ORG46-398 which address the status of the redband trout population.

Comment ORG46-400

The DEIR states, "..J.C. Boyle Reservoir provides no storage and the dam typically operates in spill mode at flows above plant capacity (i.e., approximately 6,000 cfs; Table 2-1 in USBR 201 2)." This statement is incorrect. J.C. Boyle Reservoir does provide storage, which is relied upon to support hydropower peaking operations and to reregulate flows from the upstream Keno Dam. It appears that the DEIR intended to state that Keno Dam provides no storage and operates in spill mode. There is no powerhouse at J.C. Boyle Dam, yet capacity is limited by the flow rate through the power canal to about 2,800 cfs, not the 6,000 cfs listed in the DEIR. Because J.C. Boyle Development is operated as a power peaking facility, there is often some available storage in J.C. Boyle Reservoir. On the other hand, Keno Reservoir is typically operated for agricultural supply to within a tenth of a foot, greatly limiting the available storage to approximately 250 acre-feet.

Response to Comment ORG46-400

Volume I Section 4.2.6 *Alternatives – No Project Alternative – Flood Hydrology* Potential Impact 4.2.6.2 has been revised to correct the storage capacity for J.C. Boyle Reservoir. The same revisions have been made in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-4. Please refer to Volume III Attachment 1 Section 4.2.6 *Alternatives – No Project Alternative – Flood Hydrology* and Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* for the revisions.

Comment ORG46-401

Total storage in J.C. Boyle, Copco, and Iron Gate reservoirs is only about 109,000 acre-feet. Even including Keno Reservoir (not part of the lower Klamath Hydroelectric Project), the 169,000 acre-feet of storage presented in the DEIR is simply not possible.

Response to Comment ORG46-401

Volume I Section 4.2.6 *Alternatives – No Project Alternative – Flood Hydrology* Potential Impact 3.6-6 has been revised to correct the total storage capacity for the Lower Klamath Project. Note that the source of the reservoir storage information in the EIR is Klamath River Renewal Corporation's (KRRC's) Definite Plan (AECOM et al. 2017), where the data have been adjusted from those reported in FERC 2007 and USBR 2012a based on available data (e.g., as-built drawings, aerial photographs, topographic information). Volumes reflect the total storage volume following dam construction. Storage volumes have decreased over time due to sediment deposition in the reservoirs. The same revisions have been made in Volume I Section 3.6.5.3 *Flood Hydrology – Potential Impacts and*

Mitigation – Risks of Dam Failure Potential Impact 3.6-6. Please refer to Volume III Attachment 1 Section 4.2.6 *Alternatives – No Project Alternative – Flood Hydrology* and Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* for the revisions.

Comment ORG46-402

The DEIR states that "The dams are inspect ed regularly and the probability of failure has been found to be low." The DEIR is correct in that PacifiCorp routinely evaluates facility conditions as required by FERC and the California Division of Safety of Dams; however, PacifiCorp does not analyze the probability of failure for these facilities.

Response to Comment ORG46-402

The EIR statement in question does not indicate that PacifiCorp analyzes the probability of dam failure for the Lower Klamath Project.

Please note that Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 has been revised to clarify the discussion of risks of dam failure under existing conditions, during reservoir drawdown, and dam deconstruction; as well as the most recent (2019) Division of Safety of Dams ratings and hazard classifications for the three California dams. Please refer to Volume III Attachment 1 Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 for the revisions.

Comment ORG46-403

The DEIR states that for the Partial Removal Alternative that "...unless otherwise indicated, use the same definitions of short term and long term as described for each resource area analyzed for the Proposed Project." This approach contrasts with the No Project Alternative analysis, which addresses only short-term effects (up to 5 years). The DEIR should clarify why this approach was taken for this alternative but not the other, since the same uncertainty about the long-term conditions in the basin that the DEIR claims to affect the No Project Alternative would also seem to affect the Partial Removal Alternative. This arbitrary limitation for the No Action Alternative generates confusion and will mislead the public and decision-makers as they compare the relative effects of the alternatives or verify the determinations made by the lead agency.

Response to Comment ORG46-403

The EIR can describe short- and long-term impacts for a Partial Removal Alternative because there is sufficient information to determine what such an alternative would look like in the future without undue speculation. The EIR discloses that some of the remaining features under this alternative would likely require ongoing maintenance, including periodic repair and replacement of fencing and repainting/recoating facilities (Volume I Section 4.3.1.1 *Alternatives – Partial Removal Alternative – Introduction – Alternative Description* [pages 4-75 to 4-83]). Please also refer to response to comment ORG46-374 for a discussion of why projecting one specific No Project scenario for the long term would be speculative.

Comment ORG46-404

The discussion of impacts to aquatic resources for the Partial Removal Alternative would be the same as Proposed Project relative to resident fisheries (particularly Redband Trout, endangered suckers, and reservoir fish). Please see comments made in reference to the Proposed Project analysis of Aquatic Resources in DEIR Section 3.3.

Response to Comment ORG46-404

Please refer to Volume I Section 4.3.3.2 *Alternatives – Partial Removal Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* (page 4-85) which explains that, as with the Proposed Project, reservoir drawdown associated with dam removal under the Partial Removal Alternative could directly impact aquatic species. In addition, the removal of dams and reservoirs could alter the availability and quality of habitat, resulting in direct and indirect effects on aquatic species. Although the Partial Removal Alternative would leave some Lower Klamath Project structures in place (Table 4.3-1 through Table 4.3-6), the entirety of each dam would be removed to ensure a free-flowing Klamath River and year-round volitional fish passage under all river stages and flow conditions. Under the Partial Removal Alternative, hatchery operations would continue with reduced production for eight years following dam removal, as described for the Proposed Project (Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations*). Although there would be some decrease in construction-related activities under the Partial Removal Alternative due to some Lower Klamath Project structures remaining in place, the degree of difference would not be sufficient to significantly reduce water quality impacts identified for the Proposed Project. Therefore, the potential impacts to aquatic resources, and the potential mitigation measures, would be the same as those described for the Proposed Project (Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* Potential Impacts 3.3-1 through 3.3-24).

Please refer to response to PacifiCorp's comments on the aquatic resources section of the Proposed Project for information regarding any more specific concerns raised. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG46-405

This section concludes with the statement "Therefore, potential impacts and beneficial effects on these resources and any associated mitigation measures under the Partial Removal Alternative would be the same as those described for the Proposed Project." Without a quantification of the number of historical resources (e.g., tribal, archaeological, and historic built environment), it is difficult to assess the relative level of impact between reasonable alternatives. While the

Partial Removal Alternative will still have a significant impact, it may be that a much smaller number of historical resources will be adversely affected by the Proposed Project. This discussion should be clarified to allow the reader to understand the magnitude of difference between the alternatives.

Response to Comment ORG46-405

Please refer to the first paragraph in Volume I Section 4.3.12 *Alternatives – Partial Removal Alternative – Historical and Tribal Cultural Resources* (pages 4-91 and 4-92), which is located just above the sentence referenced in the comment. The first paragraph specifically identifies which structures would be retained under the Partial Removal Alternative as compared to the Proposed Project, as well as describing the historic significance of these structures. Tables 4.3.1, 4.3.3 and 4.3.5 compare the partial removal and Proposed Project alternatives with regard to retention of potentially historic structures. As stated in Section 4.3.12 *Alternatives – Partial Removal Alternative – Historical and Tribal Cultural Resources* (pages 4-91 and 4-92) retaining some historic-period archaeological resources or tribal cultural resources (TCRs) under this alternative would reduce some impacts, it would not change the significance related to either historic-period archaeological resources or tribal cultural resources compared with those described for the Proposed Project because the impact will remain significant and unavoidable. This section has been revised to clarify the estimated number of TCR's that would potentially not be impacted under this alternative as compared with the Proposed Project. Please refer to Volume III Attachment 1 Section 4.3.12 *Alternatives – Partial Removal Alternative – Historical and Tribal Cultural Resources* for the revisions.

Comment ORG46-406

The DEIR states that for the Continued Operations with Fish Passage Alternative "the potential impacts for each environmental resource area are analyzed both in the short term and the long term, and unless otherwise indicated, use the same definitions of short term and long term as described for each resource area analyzed for the Proposed Project." This approach contrasts with the No Project Alternative analysis, which addresses only short-term effects (up to 5 years). The DEIR should clarify why this approach was taken for this alternative but not the other, since the same uncertainty about the long-term conditions in the basin that the DEIR claims to affect the No Project Alternative would also seem to affect the Continued Operations with Fish Passage Alternative. The confusion that this generates regarding conclusions leaves the reader unable to compare the relative effects of the alternatives or verify the determinations made by the lead agency.

Response to Comment ORG46-406

The EIR can describe short- and long-term impacts for a Continued Operations with Fish Passage Alternative because there is sufficient information to determine what such an alternative would look like in the future without undue speculation. The National Marine Fisheries Service (NMFS) has drafted mandatory fish ladder conditions. Should the fish ladders be built, and a Federal Energy Regulatory Commission (FERC) operating license granted, it is not speculative to assume that they would persist for the long term. FERC licenses run from 30 to 50 years. Please also refer to Volume I Section 4.1.1.1 *Alternatives – Alternatives Selection/Overview – Alternatives Selection – Alternatives Carried Forward for More Detailed Analysis – Continued Operations with Fish Passage Alternative* (pages 4-3 to 4-5).

In contrast, should the Proposed Project not move forward, it is relatively certain that the existing condition – continued operation of the hydroelectric project under the current terms of annual licenses issued by FERC – would continue for the short term. However, because that condition is not feasible in the long term, it would be misleading to analyze a long-term scenario for a temporary condition that will not persist. Therefore, it is proper to refer to other alternatives for an assessment of the potential long-term consequences of the Proposed Project not being implemented. Please also refer to response to comment ORG46-374 and Volume I Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description* (pages 4-15 to 4-23) for discussion of the detailed reasons that analysis of long-term impacts under this alternative would be speculative.

Comment ORG46-407

The DEIR includes many references to "existing adverse conditions." The DEIR should remove the biased term "adverse" and limit discussion to changes from "existing conditions."

Response to Comment ORG46-407

In addition to meeting CEQA's requirements to identify and analyze potentially significant impacts from the proposed project, this EIR is intended to inform the State Water Board's decision with respect to potential issuance of a water quality certification for the proposed project under the federal Clean Water Act (CWA). Unlike CEQA, which is concerned primarily with new impacts as compared to baseline conditions, section 401 of the Clean Water Act authorizes issuance of a water quality certification only if the issuing authority (here, the State Water Board) finds that discharges from a facility (here, the project) will not result in violations of water quality standards. In that context, identifying and evaluating existing conditions of water quality standards is an important component of the State Water Board's consideration of the conditions that may be necessary to certify the approval of the project will not cause violations of water quality standards.

Additionally, an EIR is a public information document, and including accurate information about existing conditions enhances rather than detracts from that purpose. Use of this phrase is intended to provide appropriate and helpful context for the general reader to understand the nature of the existing condition in light of the CEQA requirement to consider the baseline condition as existing conditions (CEQA Guidelines Section 15125(a)). Please also refer to responses to comments ORG46-376, ORG46-430, ORG46-447, ORG46-453, and ORG46-465.

Comment ORG46-408

The DEIR states "...there are three actions under the Continued Operations with Fish Passage Alternative that would potentially modify water temperatures in the Klamath River and the Lower Klamath Hydroelectric Project reservoirs relative to existing conditions in both the short term and long term: 1) increased minimum flows in the J.C. Boyle Bypass Reach and limited peaking operations at J.C. Boyle Powerhouse ; 2) increased minimum flows for the Copco No. 2 Bypass Reach ; 3) and implementation of a Reservoir Management Plan." Subsequently, the DEIR's analysis concludes "There is currently no reasonable proposal to achieve the temperature allocations in the Klamath TMDLs with the Lower Klamath Hydroelectric Project dams remaining in place, despite the modest improvements achieved to date through implementation of the Reservoir Management Plan" (DEIR pg. 4-106). There are a couple of issues with these statements:

1. The DEIR should recognize that the Reservoir Management Plan was prepared as a draft document and has not been finalized or implemented. PacifiCorp assumes the Reservoir Management Plan would receive considerable additional work if pursued in the future including considerable additional consultation needed with the State Water Board and other stakeholders. Therefore, it would be reasonable for the DEIR to assume that the final Reservoir Management Plan will incorporate reservoir operations and technologies sufficient to meet State Board approval. Such reservoir operations and technologies are described in the current draft Reservoir Management Plan but have not been fully evaluated and designed. However, studies to date and other Klamath Hydroelectric Project analogues indicate that such reservoir operations and technologies are available to be designed and implemented, and would be very effective and feasible.

2. With regard to the Klamath River TMDL, there is a robust record suggesting that the Klamath River TMOLs are technically flawed (as explained in comment 3.2-34). Because of this the TMDL does not accurately reflect existing condition s or likely results of aggressive reservoir management for temperature, dissolved oxygen, nutrient loading, or other water quality concerns.

3. In light of the known and well-documented flaws with the TMDLs and the uncertainties about the effects of the Reservoir Management Plan, the DEIR cannot accurately or definitively say that there is "no reasonable proposal to achieve the temperature allocations." The DEIR is inconsistent in how it deals with uncertain future conditions in the alternatives analysis (see comment 3.3-66) and with respect to the Proposed Project.

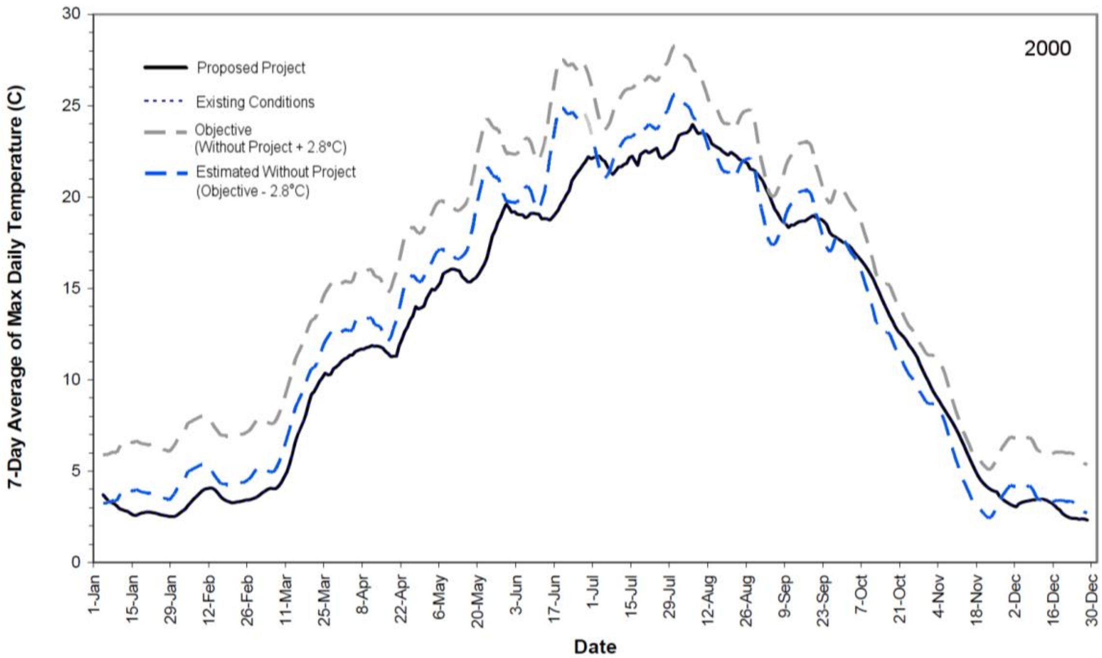
Response to Comment ORG46-408

As specified in Volume I Section 4.4.1.1 *Continued Operations with Fish Passage Alternative – Introduction – Alternative Description* (pages 4-99 to 4-101), the Continued Operations with Fish Passage Alternative includes the design and implementation of a Reservoir Management Plan, as described in the 2014 water quality certification application for Klamath Hydroelectric Project (KHP) operations. Volume I Section 4.4.1.1 *Continued Operations with Fish Passage Alternative – Introduction – Alternative Description* (pages 4-99 to 4-101) also specifies that no Klamath Hydroelectric Settlement Agreement (KHSA) Interim Measures (IMs) would continue under the Continued Operations with Fish Passage Alternative, but actions consistent with IMs designed for water quality improvements are analyzed in this alternative as part of the current Reservoir Management Plan.

While the comment notes that reservoir operations and technologies described in the current Reservoir Management Plan have not been fully evaluated and designed, implementation of KHSA IMs in the past several years have only produced modest improvements in water temperature (PacifiCorp 2017, 2018a) and none of the implemented KHSA IMs achieved the Klamath River Total Maximum Daily Load (TMDL) temperature allocations. The comment asserts that studies to date and other Klamath Hydroelectric Project analogues indicate reservoir operations and technologies are available to be designed and implemented to help meet the Klamath River TMDLs, but there are currently no additional proposed reservoir operations and/or technologies that have been demonstrated to achieve the Klamath River TMDL temperature allocations and the assertion that there are operations and technologies that can achieve the temperature allocations in the Klamath River TMDLs is unsupported and speculative. Any proposed operations and technologies to achieve the temperature allocations in the Klamath River TMDLs (e.g., selective withdrawal of cold water from the bottom of the reservoir) would also need to demonstrate that other Klamath River TMDL allocations and water quality objectives (e.g., dissolved oxygen) would also be met when achieving the Klamath River TMDL temperature allocations. Since the KHSA IMs implemented in the past several years have not been able to achieve Klamath River TMDL temperature allocations, it has not been demonstrated that the current Reservoir Management Plan measures could achieve Klamath River TMDL temperature allocations, and there are no additional proposed operations and/or technologies that have been shown could achieve the temperature allocations in the Klamath River TMDLs. The EIR analysis is correct to conclude that there is currently no reasonable proposal to achieve the temperature allocations in the Klamath TMDLs with the Lower Klamath Project dams remaining in place and it is not reasonable to make the unsupported and speculative assumption in the EIR analysis that a future final Reservoir Management Plan could incorporate reservoir operations and technologies to achieve Klamath River TMDL temperature allocations along with the other Klamath River TMDL allocations and water quality objectives (e.g., dissolved oxygen).

Volume I Potential Impact 4.2.2-1 (pages 4-103 to 4-108) has been revised to clarify that the modest improvements in water temperature have been exhibited through implementation of KHSA IMs that could be incorporated into the final Reservoir Management Plan, rather than through implementation of the Reservoir Management Plan. Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 for the revisions.

As summarized in North Coast Regional Board (2010) Table 5.1 (pages 5-1 to 5-2), the Klamath River TMDLs water temperature numeric target is the estimated natural water temperature at the reservoir tailrace – expressed as monthly average water temperature, with the allocation limited to the water temperature increase expected to naturally occur in the river reach occupied by the reservoirs. As such, the Klamath River TMDL numeric target and allocation for water temperature can be evaluated using Klamath River TMDL model or any other model that estimates water temperature downstream of the reservoirs under existing conditions and under dam removal conditions (i.e., quantifying the temperature increase expected to naturally occur in the river reach occupied by the reservoirs). PacifiCorp (2014) Figure 5.2-21 does not present a direct comparison of Klamath River water temperatures downstream of Iron Gate Dam under existing conditions with the dams in place against a hypothetical without-Project conditions involving the removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dam and powerhouse developments. However, the “California Temperature Objective” (hereafter referred to as “Objective”) water temperature shown in PacifiCorp (2014) Figure 5.2-21 is the hypothetical without-Project conditions shifted up by 2.8°C. A comparison of the PacifiCorp (2014) Figure 5.2-21 Klamath River water temperatures downstream of Iron Gate Dam under existing conditions with the “Objective” water temperatures shifted down by 2.8°C would demonstrate the influence of Iron Gate Dam on downstream water temperature as the shifted “Objective” water temperatures represent the estimated water temperature without the Project facilities (i.e., dam removal) water temperature. Higher 7-day average of maximum daily temperatures under existing conditions than under the shifted “Objective” water temperature demonstrate that releases from Iron Gate Dam increase the temperature in the Klamath River downstream of Iron Gate Dam and that water temperature in this reach would not meet the TMDL water temperature allocation.



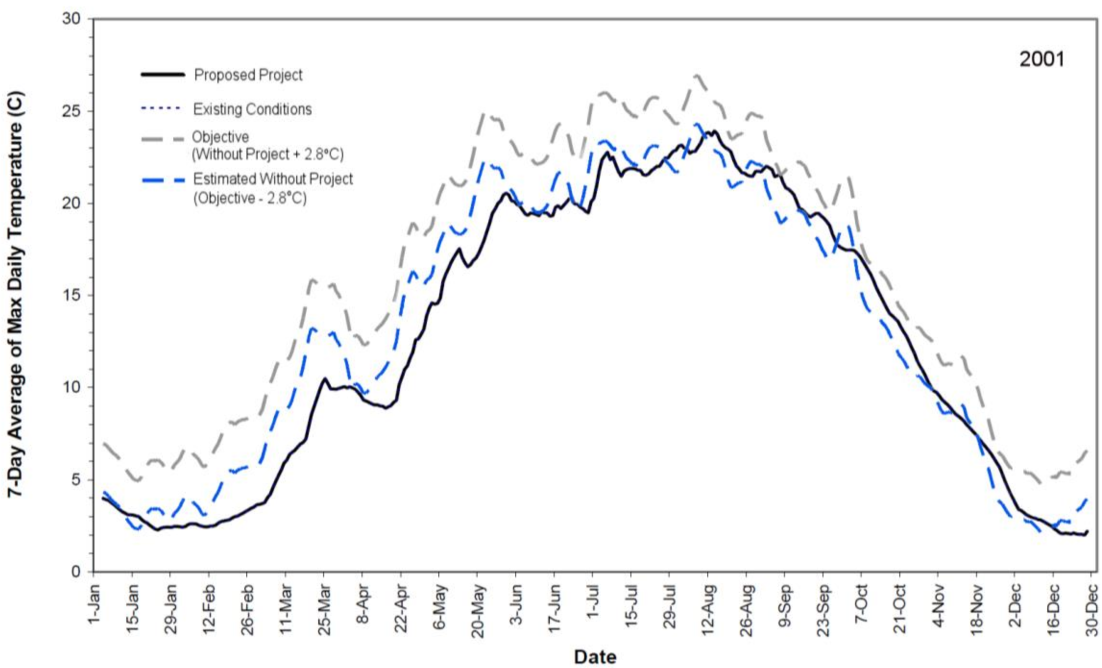


Figure ORG46-408-1 modified Figure 5.2-21 from PacifiCorp (2014). Time-Series of the 7-Day Average of Maximum Water Temperature (°C) for the Year 2000 (Top Plot) and 2001 (Bottom Plot) in the Klamath River downstream of Iron Gate Dam, Compared to the "California Temperature Objective" (i.e., No More Than 5°F [2.8°C] Increase Above Hypothetical Without-Project Water Temperatures [Based on Model Simulations]) (grey upper dashed line) and the Estimated Without Project (i.e., "California Temperature Objective" Shifted 2.8°C Down) (blue lower dashed line).

As shown in Figure ORG46-408-1 above, the 7-day average of the maximum daily Klamath River Water Quality Model (KRWQM)-modeled Klamath River water temperatures downstream of Iron Gate Dam under existing conditions and the “Objective” water temperatures shifted down by 2.8°C (i.e., blue lower dashed line) are not identical, with water temperature under existing conditions higher or lower than the shifted “Objective” water temperatures depending on the time of year. Thus, PacifiCorp’s KRWQM (2014) water temperature results indicate that there is an increase above the water temperature expected to naturally occur in the river reach occupied by the reservoirs, so Iron Gate Dam does not meet the TMDL water temperature allocation. While PacifiCorp’s KRWQM (2014) water temperature model results may not incorporate “aggressive reservoir management” for water temperature, current implementation KHSA IMs or actions identified in the current Reservoir Management Plan have not been shown to sufficiently achieve the temperature allocations in the Klamath TMDLs with the Lower Klamath Project dams remaining in place (PacifiCorp 2017, 2018a) and the assertion that there are other aggressive reservoir management operations or technologies that would achieve the temperature allocations in the Klamath River TMDLs is unsupported and speculative, as previously discussed. Thus, there is currently no reasonable proposal to achieve the temperature allocations in the Klamath TMDLs with the Lower Klamath Project dams remaining in place.

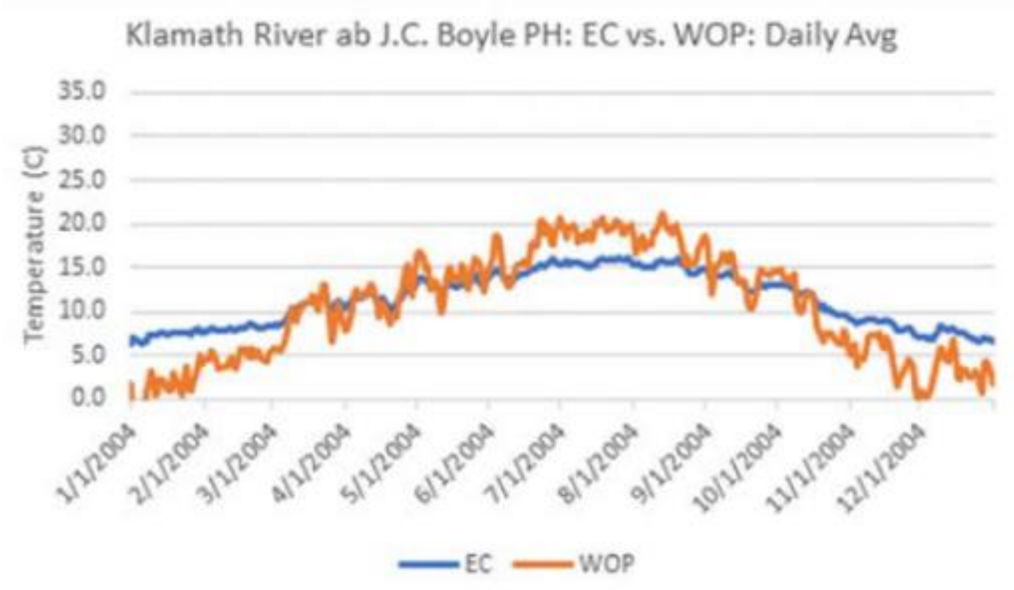
For additional discussion of the Klamath River TMDLs, please refer to Master Response WQ-5.

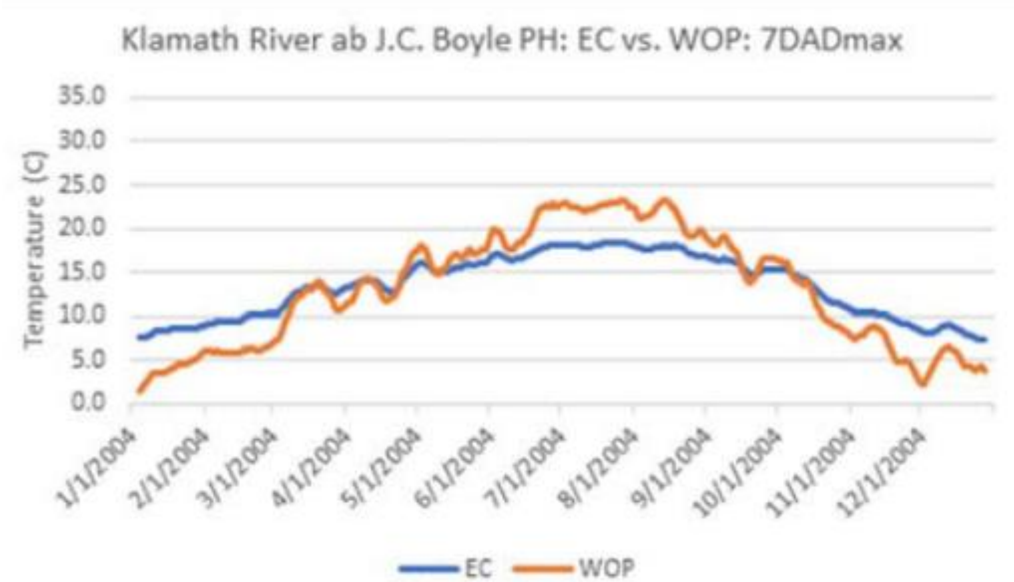
Comment ORG46-408.1

The DEIR inconsistently discusses the magnitude of the water temperature change in the J.C. Boyle Bypass Reach across alternatives, and the detail and accuracy of the discussions are inconsistent. Currently, the DEIR implies that thermal refugia benefits would be relatively equal for each alternative. This is not the case. Modeling results show substantive differences in water temperature in the J.C. Boyle Bypass Reach between the No Project and Proposed Project alternatives. These differences are evident in modeling performed for the Existing Conditions scenario (that includes the Klamath Hydroelectric Project) and a Without-Project (WOP) scenario (that assumes the Klamath Hydroelectric Project is absent). Results from this modeling are shown in the figure below and fairly represent the No Project and Proposed Project alternatives as assumed in the DEIR.

As can be seen in the modeling results, water temperature under the Existing Condition scenario (which is representative of the DEIR’s No Project Alternative) would be on average much cooler than the WOP scenario (which is representative of the DEIR’s Proposed Project) in most months (middle panel in figure). Water temperature under the Existing Condition scenario (which is representative of the DEIR’s No Project) also would have lower daily temperature variability (top panel), and would have cooler 7DADMax values (bottom panel).

Under Existing Conditions (which is representative of the DEIR's No Project Alternative), the J.C. Boyle Bypass Reach would continue to provide over 4 miles of thermal refugia for both juvenile and adult fish. According to the DEIR, thermal refugia under the Proposed Project would be located only around the areas where springs actually enter the channel in the upstream end of the reach. Additionally, under Existing Conditions, water temperatures would continue to be more protective for USEPA 7DADMax temperature criteria for salmon/trout core juvenile rearing, egg incubation, Steelhead smoltification, and adult holding. Therefore, the J.C. Boyle bypass reach will be important as a thermal refuge for maintaining anadromous fish production in the basin given the expected effects of climate change and uncertainty of achieving TMDLs. The DEIR needs to standardize the discussion of water temperature outcomes for each alternative and make those evaluations in comparison to standards and thresholds presented in USEPA (2003) and Carter (2008).
Modeling Results Figure





Response to Comment ORG46-408.1

The discussion of J.C. Boyle Bypass Reach water temperature conditions in Volume I Section 4.4.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* (pages 4-102 to 4-108), and specifically the discussion on page 4-103 referenced by the comment, are about water temperature under the Continued Operations with Fish Passage Alternative and they should not be confused with a discussion of water temperature under the No Project Alternative since the J.C. Boyle Dam and Powerhouse operations under these two alternatives are different. As summarized in Volume I Section 4.2.1.1 *No Project Alternative – Introduction – Alternative Description* (pages 4-15 to 4-23), J.C. Boyle Dam peaking operations and flow in the J.C. Boyle Bypass Reach under the No Project Alternative would be the same as existing conditions. As summarized in Volume I Section 4.4.1.1 *Continued Operations with Fish*

Passage Alternative – Introduction – Alternative Description (pages 4-99 to 4-101), at least 40 percent of J.C. Boyle Reservoir inflow would be released downstream through the J.C. Boyle Bypass Reach to increase minimum flows in the this reach under the Continued Operations with Fish Passage Alternative. Additionally, the generation of peaking power at the J.C. Boyle Power Plant under the Continued Operations with Fish Passage Alternative would be limited to one day per week, as water supplies allow, with the weekly peaking power flows also being used for recreation (i.e., whitewater boating) flows. Power generation would be suspended and all inflow to J.C. Boyle Reservoir would be released down the J.C. Boyle Bypass Reach under a seasonal high flow event that would occur for seven full days in later winter/spring when inflows to J.C. Boyle first exceed 3,300 cubic feet per second (cfs) (DOI 2007; NMFS 2007b; FERC 2007). The flow and peaking operations in the J.C. Boyle Bypass and Peaking Reach are sufficiently different between the No Project Alternative and the Continued Operations with Fish Passage Alternative that water temperature modeling of conditions under No Project Alternative would not be representative of conditions under the Continued Operations with Fish Passage Alternative.

Water temperature in the J.C. Boyle Bypass Reach was not specifically discussed in Volume I Section 4.2.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Hydroelectric Reach* (pages 4-103 to 4-106) since the water temperature at the Oregon-California state line would represent the net influence of the Lower Klamath Project and J.C. Boyle hydropower peaking operations on water temperature in California and conditions upstream of the Oregon-California state line (river mile [RM] 214.1) were only considered in the EIR analysis to the extent that they influence water temperature downstream in California. Please see Volume III Attachment 1 Section 3.2.1 *Water Quality – Area of Analysis* for a summary of the water quality Area of Analysis under the Proposed Project and Volume I Section 4.4.1.2 *Continued Operations with Fish Passage Alternative – Introduction – Alternatives Analysis Approach* (page 4-101) for an explanation that the Area of Analysis under the Continued Operations with Fish Passage Alternative is the same as under the Proposed Project, unless otherwise indicated. Please refer to Volume I Section 4.4.3.3 *Continued Operations with Fish Passage Alternative – Aquatic Resources – Water Quality* (pages 4-126 to 4-128) for a discussion of the water temperature in the J.C. Boyle Bypass Reach under Continued Operations with Fish Passage Alternative since the aquatic resources Area of Analysis extends upstream of the Oregon-California state line due to the potential for aquatic resources in California to utilize upstream habitats like those found in the J.C. Boyle Bypass Reach.

While the water temperature at the Oregon-California state line would represent the net influence of the Lower Klamath Project and J.C. Boyle hydropower peaking operations on water temperature in California, Potential Impact 4.2.2-1 – *Hydroelectric Reach* (Volume I Section 4.2.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature*) has been revised to clarify potential changes in water temperature upstream of the Oregon-California state line (RM 214.1) in the J.C. Boyle Bypass Reach and the upper portion of the J.C. Boyle Peaking Reach along with the potential changes in water temperature downstream of the Oregon-California state line in the lower portion of the J.C. Boyle Peaking Reach. Potential Impact 4.2.2-1 – *Hydroelectric Reach* also has been modified to clarify the discussion of J.C. Boyle Bypass Reach water temperature. Please refer to Volume III Attachment 1 Section 4.2.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* for the revisions.

Additional analysis of the water temperature in this reach with respect to aquatic resources under the Continued Operations with Fish Passage Alternative is discussed in Volume I Section 4.4.3.3 *Continued Operations with Fish Passage Alternative – Aquatic Resources – Water Quality* (pages 4-126 to 4-128).

Comment ORG46-409

The DEIR states "Results from testing of a powerhouse intake barrier/ thermal curtain in Iron Gate Reservoir under Interim Measure 11 indicate that modest water temperature improvement is possible using this technique." Previously, on page 3-23, the DEIR states "Results from the intake barrier/thermal curtain indicate that modest 1-2°C (1.8–3.6°F) water temperature improvement is possible (PacifiCorp 2017b)." The DEIR should define the term "modest" in this context, as an improvement of up to 2°C is significant when considered relative to water temperature objectives and aquatic biota preferences.

Response to Comment ORG46-409

The comment misquotes Volume I Section 4.4.2.1 *[Continued Operations with Fish Passage] Water Temperature* (page 4-102 to 4-108), selectively truncating the sentence quoted to exclude the final part of the sentence explaining that the results of the testing of a powerhouse intake barrier/thermal curtain are discussed below.

Section 4.4.2.1 *[Continued Operations with Fish Passage] Water Temperature* has been modified to clarify the magnitude of modest water temperature improvements from the powerhouse intake barrier/thermal curtain by incorporating details from Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* comparing the magnitude of the water temperature improvement from the intake barrier/thermal curtain relative to compliance with the Thermal Plan and the Klamath River Total Maximum Daily Load (TMDL) temperature requirements in the Middle Klamath River. Please refer to Volume III Attachment 1 Section 4.4.2.1 *[Continued Operations with Fish Passage] Water Temperature* for the revisions.

Comment ORG46-410

The DEIR states that "Areas adjacent to the coldwater springs in the Bypass Reach would continue to serve as thermal refugia for aquatic species because *the springs themselves would not be affected by the Continued Operations with Fish Passage Alternative." While thermal refugia would remain, the size and temperature condition in this refugia would be altered. The DEIR does not state any thermal refugia criterion, but if minimum flows downstream of J.C. Boyle Dam are increased, water temperatures in the bypass would increase several degrees Celsius (see comment 4.4-4). The DEIR should state quantitative values for temperature and assess the potential impact in relation to those values taking into account how dilution can affect the refugia.*

Response to Comment ORG46-410

Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* provides a discussion of the occurrence of cold-water tributaries and springs that act as thermal refugia when temperatures reach levels stressful to salmonids. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please refer to Volume I Section 4.4.3.3 *Continued Operations with Fish Passage Alternative – Aquatic Resources – Water Quality* (pages 4-126 to 4-128) for a discussion of water temperature in the J.C. Boyle Bypass Reach under Continued Operations with Fish Passage Alternative.

Data and/or model results are not currently available to quantify changes in the area of thermal refugia under the Continued Operations with Fish Passage Alternative compared to existing conditions. While it can be qualitatively estimated that the area of thermal refugia would decrease as more warm water from J.C. Boyle Reservoir flows down the J.C. Boyle Bypass Reach and mixes with the colder flow from the groundwater springs, vertical or lateral water temperature variations that would determine the area of thermal refugia cannot be quantified since available water temperature modeling provides only spatially averaged water temperature at locations in the Klamath River.

Please refer to response to comment ORG46-408.1 for a discussion of revisions that have been made to Volume I Potential Impact 4.2.2-1 – *Hydroelectric Reach* (pages 4-103 to 4-106) to clarify the anticipated response of the area of thermal refugia area to changes in flow, as well as the limitations of available data and modeling to estimate changes in the area of thermal refugia, under the Continued Operations with Fish Passage Alternative compared to existing conditions.

Comment ORG46-411

The DEIR states "In the remainder of the Hydroelectric Reach (i.e., Copco No. 1 and Iron Gate reservoirs) water temperatures would be the same as those described under the existing condition (see Section 3.2.2.2 Water Temperature), where spring, summer, and fall water temperatures would continue to be influenced by the thermal mass of Copco No. 1 and Iron Gate reservoirs, and the seasonal stratification patterns of the two reservoirs." The DEIR further states "Of the seven water quality improvement actions described in the Reservoir Management Plan, selective withdrawal and intake control is most focused on water temperature improvements. With respect to this approach, PacifiCorp has *estimated that the maximum useable cool water volume in Copco No. 1 Reservoir in summer (approximately 3,100 acre-feet at less than 14°C and 4,800 acre-feet at less than 16°C (PacifiCorp 2014b), which if selectively withdrawn from the reservoirs, would decrease water temperatures immediately downstream of Copco No. 1." This statement is incorrect for Copco 1 Reservoir as discussed in this alternative. Because there would be a change in Klamath River inflow temperature under this alternative, the thermal stratification in Copco 1 Reservoir would be different than in the cited source material. Currently, Copco 1 Reservoir receives a wide range of inflow temperatures over the course of a 24-hour period. The cold inflows that traverse the reach overnight are largely made up of spring inflow and warmer inflows are associated with daytime peaking. Each flow has a unique density with colder flows being denser than warmer flows. The DEIR does not evaluate the change in thermal structure of Copco 1 Reservoir or the potential associated impact on thermal stratification, time of turnover, primary production, outflow temperatures, or other water quality conditions. This dynamic is likely to have a notable effect on the coldwater pool estimates for release to the Klamath River downstream of Copco 1 Dam.*

Response to Comment ORG46-411

In PacifiCorp (2004a-1), the Klamath River Water Quality Model (KRWQM) was used to model existing conditions, Steady Flow conditions (i.e., no peaking flows) with the dams remaining in place, and without-Project conditions that included the removal of Keno Dam in addition to removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. Steady Flow conditions model results provide an estimate of water temperature changes under the Continued Operations With Fish Passage Alternative as these results highlight how eliminating peaking operations would alter Klamath River water temperatures in the Hydroelectric Reach. While modeled Steady Flow conditions are not identical to the flow conditions under the Continued Operations With Fish Passage Alternative (e.g., under the Continued Operations With Fish Passage Alternative peaking flows would occur once a week, as water supplies allow), a comparison of water temperatures under Steady Flow conditions with the water temperature under existing conditions would characterize the general variations and trends in water temperature under Continued Operations With Fish Passage Alternative. Water temperature would be more similar to existing conditions than Steady Flow conditions during the limited time periods when steady flow is not maintained (e.g., peaking flows). Water temperatures in the J.C. Boyle Bypass and Peaking reaches under Continued Operations With Fish Passage Alternative would also likely be slightly warmer than water temperature under Steady Flow conditions since the Continued Operations With Fish Passage Alternative includes a provision to have 40 percent of the inflow to J.C. Boyle Reservoir flow through the J.C. Boyle Bypass Reach, while the Steady Flow conditions modeling does not direct any more water down the J.C. Boyle Bypass Reach.

As detailed in PacifiCorp (2004a-1) Figures 4.8-33 and 4.8-34 and reproduced below, diel water temperature variations in the J.C. Boyle Peaking Reach under

Steady Flow conditions are less than under existing conditions with the influence of peaking operations diminishing downstream of the J.C. Boyle Powerhouse. Diel water temperature variations in the J.C. Boyle Peaking Reach are consistently less, the maximum water temperatures are lower, and the minimum water temperatures are higher. Upstream of Copco No. 1 Reservoir, water temperature differences between Steady Flow models and existing conditions are less consistent, as the influence of peaking on water temperature diminishes. In the first week of July 2000 upstream of Copco No. 1 Reservoir, the maximum water temperature was typically approximately 2^{o}C or less under Steady Flow conditions, but the minimum water temperature ranged from approximately 1^{o}C colder to approximately 1^{o}C warmer under Steady Flow conditions compared to existing conditions. In the first week of July 2001 upstream of Copco No. 1 Reservoir, the maximum water temperature was typically greater (1^{o}C or less) under Steady Flow than under existing conditions, but the minimum water temperature was consistently 2 to 3^{o}C less under Steady Flow than under existing conditions. Maximum and minimum water temperatures would be likely to increase slightly under the Continued Operations With Fish Passage Alternative compared to those modeled under Steady Flow conditions due to more flow in the J.C. Boyle Bypass Reach under this alternative. Overall, the water temperature results of the PacifiCorp (2004a-1) KRWQM upstream of Copco No. 1 Reservoir indicate that ceasing peaking operations (i.e., Steady Flow conditions) would produce more natural diel water temperature variations in the Klamath River than under existing conditions, but this would potentially result in maximum and minimum water temperatures entering Copco No. 1 Reservoir increasing or decreasing by approximately 2^{o}C or less depending on the local meteorological conditions.

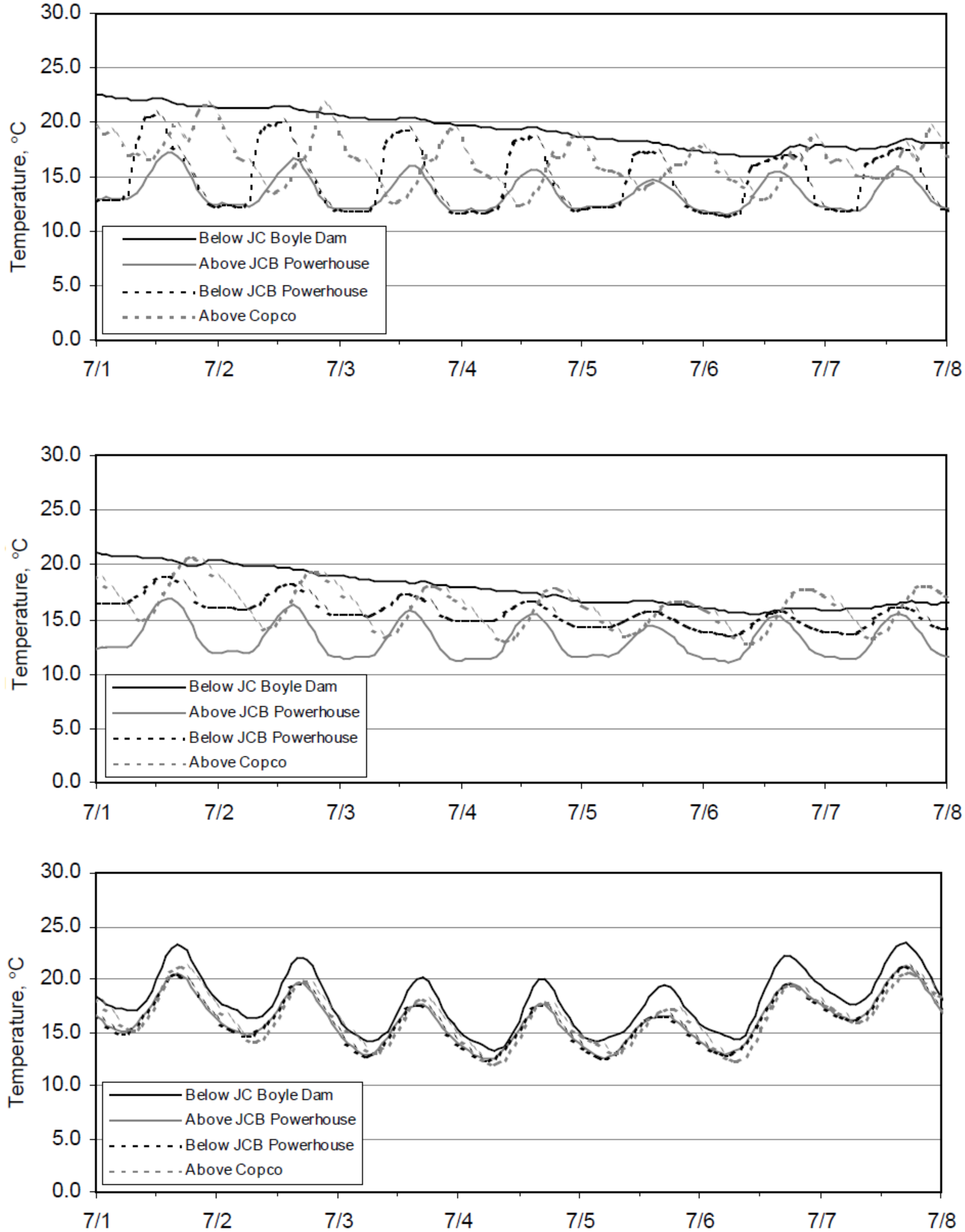


Figure 4.8-33 from PacifiCorp (2004a-1). J.C. Boyle Bypass and Peaking Reach Water Temperature, 2000: EC [Existing Conditions] (Top), SF [Steady Flow] (Middle), and WOP [Without-Project] (Bottom). Note: Without-Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Include the Removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

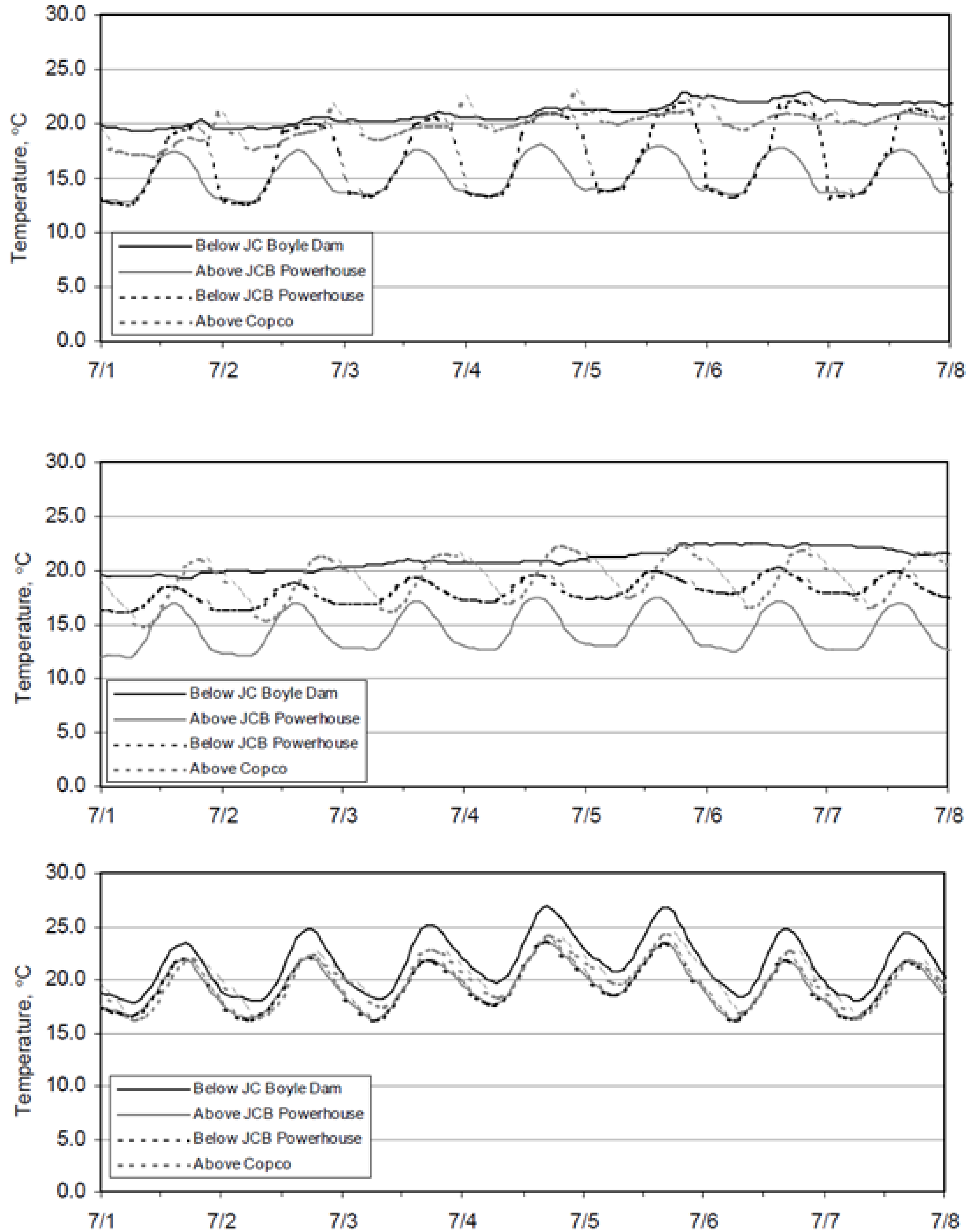
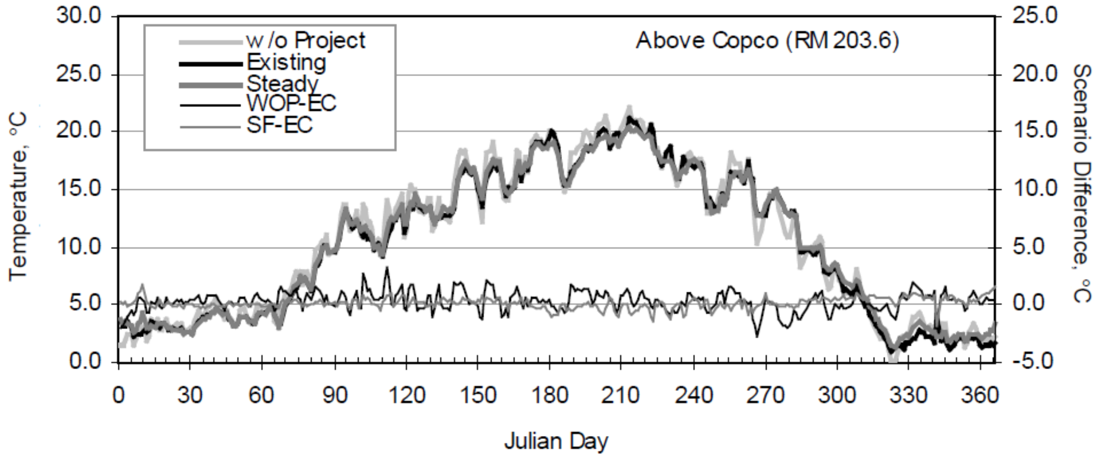


Figure 4.8-34 from PacifiCorp (2004a-1). J.C. Boyle Bypass and Peaking Reach Water Temperature, 2001: EC [Existing Conditions] (Top), SF [Steady Flow] (Middle), and WOP [Without-Project] (Bottom). Note: Without-Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Include the Removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

As detailed in PacifiCorp (2004a-1) Figure 4.8-38 and reproduced below, water temperatures under Steady Flow conditions and existing conditions upstream of Copco No. 1 Reservoir are generally similar on a daily average basis (Figure 4.8-38), with an approximately 2ºC or less difference between the Steady Flow (SF) and existing conditions (EC) water temperature (i.e., "SF – EC"). The magnitude of the difference between the water temperature under Steady Flow and existing conditions varies between years. In 2000, the difference between Steady Flow and existing conditions water temperature is typically less than 1ºC without a consistent bias (i.e., cooler or warmer). In 2001, the water temperature under Steady Flow conditions tended to be warmer than existing conditions during fall and winter (i.e., November to March) and cooler than existing conditions during summer and early fall (i.e., July to October). The increased flow in the J.C. Boyle Bypass Reach under the Continued Operations With Fish Passage Alternative compared to Steady Flow conditions would likely shift the actual magnitude of the difference between the water temperature under this alternative and existing conditions closer to those calculated for the "WOP-EC" ("without Project" minus existing conditions) in PacifiCorp (2004a-1) Figure 4.8-38 below. Please note that "without Project" conditions in PacifiCorp (2004a-1) involve the removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. The magnitude of the difference between the water temperature under the Continued Operations With Fish Passage Alternative and existing conditions potentially would be shifted slightly warmer, but the general trends would be similar to those calculated between Steady Flow and existing conditions.



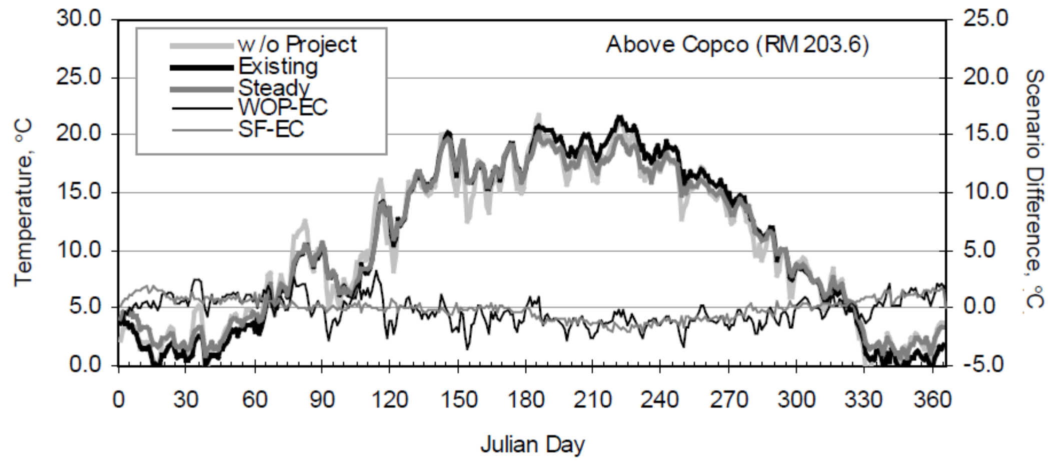
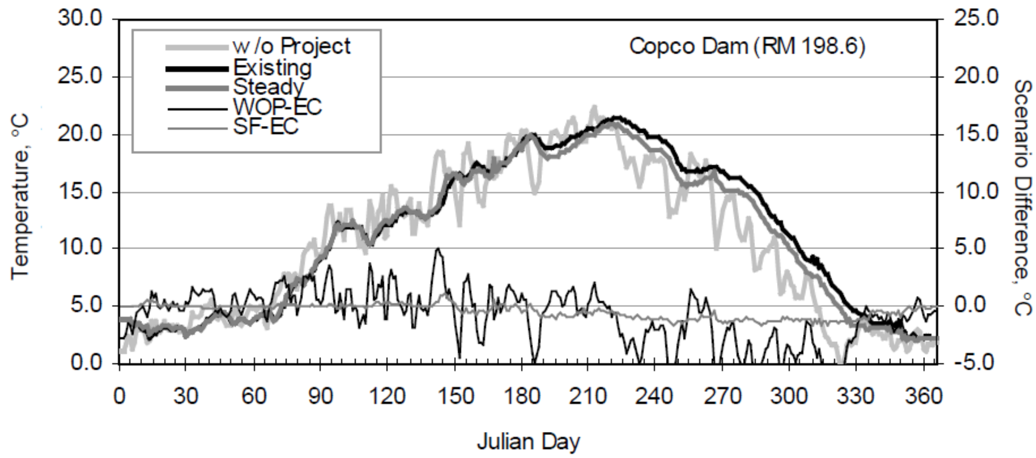


Figure 4.8-38 from PacifiCorp (2004a-1). EC [Existing Conditions] Versus SF [Steady Flow] and WOP [Without Project] Mean Daily Water Temperature in the J.C. Boyle Peaking Reach Above Copco No. 1 Reservoir for 2000 (top) and 2001 (bottom). Note: Without Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Include the Removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

As detailed in PacifiCorp (2004a-1) Figure 4.8-49 and reproduced below, the water temperature at Copco No. 1 Dam under Steady Flow conditions generally would be similar to conditions under existing conditions, but the water temperature in summer and early fall (i.e., approximately July to October) would be approximately 1°C or less under Steady Flow conditions than under existing conditions and the water temperature in late fall to winter (i.e., December to March) would be less than 1°C under Steady Flow than under existing conditions. Additionally, KRWQM results in PacifiCorp (2004a-1) Section 4.8.6.2 *Temperature* Table 4.8-1 (Water Resources FTR page 4-62) indicate that the onset of stratification date, the fall turnover date, the duration of stratification, the maximum water temperature difference, and the minimum hypolimnetic (i.e., bottom) water temperature in Copco No. 1 Reservoir would be the same under Steady Flow and existing conditions. PacifiCorp (2004a-1) KRWQM results indicated that the date of maximum stratification would potentially occur earlier during some years (e.g., 10 days in 2001) under Steady Flow than under existing conditions. Potential water temperature increases under the Continued Operations With Fish Passage Alternative conditions compared to the Steady Flow conditions would not be expected to alter this since general trends in the magnitude of the change in water temperature entering Copco No. 1 Reservoir under Steady Flow conditions compared to existing conditions, and under the without Project (i.e., w/o Project or WOP) compared to existing conditions, were similar.



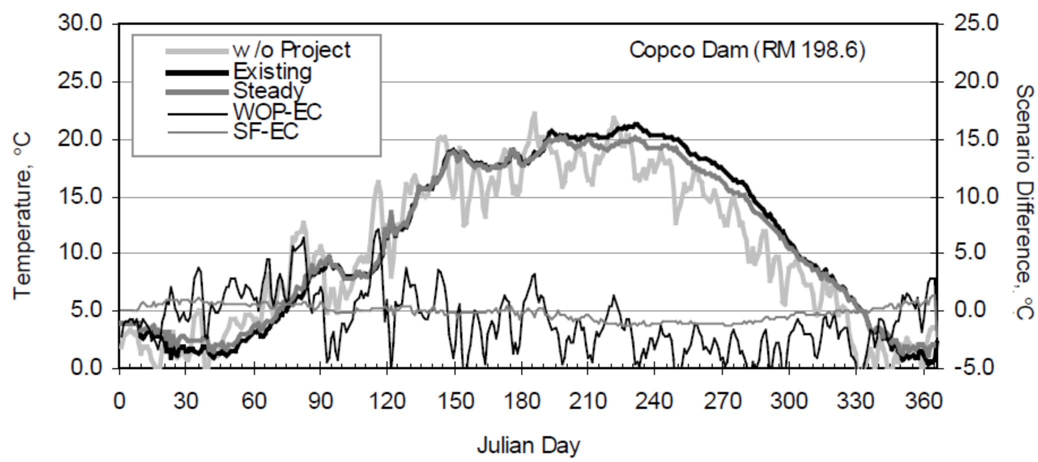


Figure 4.8-49 from PacifiCorp (2004a-1). EC [Existing Conditions] Versus SF [Steady Flow] and WOP [Without Project] Mean Daily Water Temperature Below Copco No. 1 Dam for 2000 (Top) and 2001 (Bottom). Note: Without Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Include the Removal of Keno, J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

Overall, the PacifiCorp (2004a-1) KRWQM results indicate that the water temperature upstream and downstream of Copco No. 1 Reservoir, along with the thermal structure of Copco No. 1 Reservoir, would be generally similar under Steady Flow conditions and existing conditions, but there potentially would be approximately 2ºC or less differences in the water temperature during some periods. Water temperature in the J.C. Boyle Peaking Reach and Copco No. 1 Reservoir under the Continued Operations With Fish Passage Alternative typically would be similar to or slightly warmer than water temperature under Steady Flow conditions since peaking operations are typically eliminated and more flow would occur through the J.C. Boyle Bypass Reach under this alternative's conditions, but the limited peaking operations under the Continued Operations With Fish Passage Alternative (i.e., one day per week, as water supplies allow) would result in water temperature being more similar to PacifiCorp (2004a-1) KRWQM existing conditions results than Steady Flow conditions during peaking operations. The thermal structure of Copco No. 1 Reservoir was similar for PacifiCorp (2004a-1) KRWQM Steady Flow and existing conditions, so the overall thermal structure of Copco No. 1 Reservoir would be expected to be similar under the Continued Operations With Fish Passage Alternative and the existing conditions. The specific usable cool water volume in Copco No. 1 Reservoir in summer would potentially vary compared to existing conditions due to the changes in Klamath River water temperature upstream of Copco No. 1 Reservoir, but the total volume would likely remain similar or potentially slightly increase compared to existing conditions based on PacifiCorp (2004a-1) KRWQM results under Steady Flow conditions that show either a range of minimum water temperatures from approximately 1ºC colder to approximately 1ºC warmer or consistently cooler minimum water temperatures.

Section 4.4.2.1 *Continued Operations With Fish Passage Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 has been revised according to the above discussion. Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations With Fish Passage Alternative – Water Quality – Water Temperature* Potential Impact 4.2.2-1 for the revisions.

Comment ORG46-412

The DEIR states "As for the J.C. Boyle Peaking Reach, elimination of any artificial temperature signal in the Copco No. 2 Bypass Reach under existing conditions would better conform with the California." This statement is unclear and appears to be missing words.

Response to Comment ORG46-412

Please refer the next page of the Volume 1 Section 4.4.2.1 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* (page 4-105) for the rest of the sentence. The entire sentence is: "As for the J.C. Boyle Peaking Reach, elimination of any artificial temperature signal in the Copco No. 2 Bypass Reach under existing conditions would better conform with the California Thermal Plan's prohibition on elevated temperature discharges (Table 3.2-4) and would be beneficial."

Comment ORG46-413

The DEIR states "The anticipated increases in water temperatures due to climate change would occur over a timescale of decades and would act in opposition to improvements expected from actions taken in furtherance of TMDL implementation throughout the Upper Klamath Basin, such as increased riparian shading and decreased diversion from cold springs (ODEQ 2010)." The DEIR should clarify how "increased riparian shading and decreased diversion from cold springs" in Oregon in the Upper Klamath Basin apply to the Klamath Hydroelectric Project area in California and include temperatures downstream of Iron Gate Dam. Additionally, the DEIR should recognize that the ODEQ (2010) temperature TMDL was withdrawn and is currently being revised by ODEQ, so this policy may not be an appropriate source for predicting future upstream water quality.

Response to Comment ORG46-413

An increase in riparian shading would reduce the amount of solar radiation heating the Klamath River and its tributaries, while a decrease in the diversions from cold springs would increase the thermal mass of cool water in the Klamath River and its tributaries. Both of these processes in the Upper Klamath Basin would potentially influence the water temperature in the Klamath River at the Oregon-California state line since they would alter the heat exchange processes that control water temperature in the Klamath River. The reference to the Upper Klamath and Lost Subbasins Temperature Total Maximum Daily Load (TMDL) has been updated to reflect the final TMDL (ODEQ 2019).

Volume I Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* Potential Impact 4.2.2-1 (pages 4-103 to 4-108) has been revised to clarify the location where upstream changes would potentially alter water temperature in the California portion of the Klamath River and to include references to pollutant management strategies for water temperature included in the final TMDL (ODEQ 2019). Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* for the revisions.

Comment ORG46-414

The DEIR states "While full implementation of the Klamath TMDLs is anticipated to result in late summer/fall reductions in water temperature in the range of 2–10°C immediately downstream from Iron Gate Dam (North Coast Regional Board 2010)." This statement is misleading. In the table below are the monthly average water temperature targets downstream of Iron Gate Dam from the Klamath River TMDL (North Coast Regional Board 2010, Table 5-4 pg. 5-18). None of these targets are 10°C lower than existing conditions (from year 2000 TMDL simulation).

Table 5.4: Temperature numeric targets for Iron Gate and Copco Reservoir tailrace waters

	May	June	July	August	September	October
Copco 1&2	14.8 °C 58.7 °F	18.5 °C 65.3 °F	19.7 °C 67.5 °F	19.3 °C 66.8 °F	15.4 °C 59.7 °F	10.5 °C 50.9 °F
Iron Gate	15.1 °C 59.1 °F	18.7 °C 65.6 °F	19.9 °C 67.9 °F	19.5 °C 67.1 °F	15.5 °C 60 °F	10.6 °C 51 °F
	November	**December**	**January**	**February**	**March**	**April**
Copco 1&2	3.5 °C 38.3 °F	2.2 °C 35.9 °F	2.9 °C 37.3 °F	5.9 °C 42.7 °F	9.4 °C 48.9 °F	11.7 °C 53 °F
Iron Gate	3.4 °C 38.2 °F	2.1 °C 35.8 °F	2.9 °C 37.2 °F	5.9 °C 42.6 °F	9.4 °C 48.9 °F	11.5 °C 52.7 °F

The DEIR states "...there is currently no reasonable proposal to achieve the temperature allocations in the Klamath TMDLs with the Lower Klamath Project dams remaining in place." However, as PacifiCorp has previously noted the temperature allocations in the Klamath TMDLs are questionable because of the error in heat budget assumption in the riverine section of the TMDL models. Should the shortcomings of the Klamath TMDL be addressed and an accurate temperature load allocation for Iron Gate Reservoir be determined, PacifiCorp is confident that a revised detailed Reservoir Management Plan would be developed to achieve the TMDL target.

Response to Comment ORG46-414

The quoted language is not referring to monthly average water temperatures, which are the focus of the table referenced in the comment.

Volume I Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* (page 4-102) has been revised to clarify that multiple studies have quantified the thermal lag caused by the reservoirs immediately downstream of Iron Gate Dam and that the Klamath River water temperature Total Maximum Daily Load (TMDL) allocates a zero water temperature increase above natural water temperatures for Copco No. 1 and Iron Gate reservoirs. Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* for the revisions.

Volume I Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* Potential Impact 4.2.2-1 (page 4-105) has been revised to clarify that numerous studies have identified the thermal lag created by the reservoirs during summer/fall, which is the reason for citing the 2 to 10°C water temperature range downstream of Iron Gate Dam. Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations with Fish Passage – Water Quality – Water Temperature* for the revisions.

Please also refer to Master Response WQ-5 for discussion of the appropriateness of using the Klamath River TMDLs and the Klamath River TMDL model results in the analysis, and response to comment ORG46-408 for discussion of the potential for reservoir operations and technologies to achieve the temperature allocations in the Klamath TMDLs.

Comment ORG46-415

The DEIR states "One of the purposes of the curtain is to isolate warmer, less dense near-surface waters while withdrawing cooler, denser, and deeper waters from the reservoir for release to the Klamath River downstream (PacifiCorp 2018c). The other purpose is to isolate surface waters that have high concentrations of blue-green algae (cyanobacteria) such that extensive summer and fall blooms are not readily released downstream to the Middle and Lower Klamath River (see further discussion in Potential Impact 4.2.2-4)." The DEIR should clarify that the principal purpose of the curtain is to isolate surface waters with blue-green algae (cyanobacteria) and reduce their release into the Klamath River downstream. The isolation or warmer surface waters and release of cooler water is a beneficial but secondary purpose of the curtain.

Response to Comment ORG46-415

The Volume I Section 4.4.2.1 *Continued Operations With Fish Passage – Water Quality – Water Temperature* Potential Impact 4.2.2-1 – *Middle and Lower Klamath River and Klamath River Estuary* (pages 4-106 to 4-108) discussion of the intake barrier/thermal curtain has been updated to clarify that the primary purpose of the intake barrier/thermal curtain was for managing blue-green algae releases to the Klamath River. The intake barrier/thermal curtain tested in 2014 was referred to as a prototype and the current intake barrier/thermal curtain installed in 2015 has not been described as a prototype in published, publicly available PacifiCorp reports on its operation and performance since then (PacifiCorp 2016a, 2017a, 2018a). Please refer to Volume III Attachment 1 Section 4.4.2.1 *Continued Operations With Fish Passage – Water Quality – Water Temperature* for the revisions.

Comment ORG46-416

The DEIR acknowledges that nutrient reduction measures in response to the Klamath River TMDLs "necessary to achieve significant reductions are, at this point, unknown" and that reductions and subsequent effects "are likely to require decades to achieve." The DEIR should also point out that, even under the full-compliance TMDL scenario, very large fluxes of organic matter would still be periodically released into the river from Upper Klamath Lake (ODEQ 2002, 2019; Walker 2001). According to studies upon which the Upper Klamath Lake TMDL analysis was based, very large fluxes would still occur 2 out of every 8 years after the TMDL measures are achieved (ODEQ 2002). These large nutrient and organic matter fluxes from Upper Klamath Lake are not considered in the DEIR's analysis.

Response to Comment ORG46-416

Please refer to response to comment ORG46-125, which explains that the episodic large fluxes of organic matter and associated nutrients from Upper Klamath Lake constitute part of the existing conditions. Volume I Section 4.4.2.2 *Continued Operations With Fish Passage Alterative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) considers these episodic large fluxes of organic matter and associated nutrients from Upper Klamath Lake as part of existing conditions when it concludes that the Continued Operations with Fish Passage Alternative would result in no change from existing conditions with respect to interception, decomposition, retention, and/or dilution of algal-derived (organic) suspended material originating from Upper Klamath Lake (in Oregon) within J.C. Boyle Reservoir and the Hydroelectric Reach to Copco No. 1 Reservoir (Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* and Appendix C.2.1.1; please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and Appendix C).

Volume I Section 4.4.2.2 *Continued Operations With Fish Passage Alterative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) has been revised to clarify that episodic large fluxes of algal-derived (organic) suspended material would still likely enter the Hydroelectric Reach from upstream even after Total Maximum Daily Load (TMDL) nutrient allocations are achieved because Upper Klamath Lake is a naturally productive lake that has become hyper-productive (hyper-eutrophic) due to anthropogenic (human) inputs of nutrients. Please refer to Volume III Attachment 1 Section 4.4.2.2 *Continued Operations With Fish Passage Alterative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 for the revisions.

Comment ORG46-417

The DEIR indicates that nutrient reduction measures in Oregon and California TMDLs could decrease algal-derived (organic) suspended material in Copco No. 1 and Iron Gate reservoirs by decreasing nutrient availability. However, in the next sentence, the DEIR states that these nutrient reduction measures "...are, at this point, unknown and reductions and subsequent effects on the Lower Klamath Project reservoirs are likely to require decades to achieve." This paragraph illustrates an important shortcoming with the DEIR's analyses, namely that uncertainty is a critical consideration, especially related to the potential for significant water quality improvements given that the main nutrient source of the Klamath River is Upper Klamath Lake, and Upper Klamath Lake is hypereutrophic, a condition that will not change for decades if ever. The DEIR does not consistently address how this uncertainty is addressed (in this alternative and others as has been noted in other comments).

Response to Comment ORG46-417

Please refer to Master Response WQ-5 for a discussion of how the analysis of potential impacts to water quality under the Continued Operations With Fish Passage Alternative consistently considers the possibility of full implementation of the Klamath River Total Maximum Daily Loads (TMDLs) in the long term and whether PacifiCorp has put forth reasonable proposals to achieve these TMDLs with the Lower Klamath Project dams remaining in place. The uncertainty about whether there are sufficient measures that can be implemented to achieve Klamath River TMDL allocations with the Lower Klamath Project dams remaining in place is specifically acknowledged in the EIR by the discussion that the measures necessary to achieve significant reductions are, at this point, unknown and reductions and subsequent effects on the Lower Klamath Project reservoirs are likely to require decades to achieve. Further discussion of potential measures to achieve Klamath River TMDL allocations and their potential impact on water quality parameters is not included in the analysis since this would be speculation.

Section 3.2.4 *Water Quality – Impact Analysis Approach* summarizes how the Klamath River TMDLs and the Klamath River TMDL model results are used in the analysis of the Proposed Project and its alternatives. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please also refer to Volume II Appendix D Section D.1.2 *Available Numeric Models for Analysis of the Proposed Project and Alternatives – Klamath River TMDL Model* (pages D-1 to D-7) for a summary of the Klamath River TMDL model, including where to find more information on the model assumption, limitations, and sources of uncertainty.

Comment ORG46-418

The DEIR states "...continued seasonal phytoplankton blooms in Copco No. 1 and Iron Gate reservoirs that subsequently die and settle to the bottom, would continue to build up nutrients and organic matter in the reservoir sediments. This layer of nutrients would continue to be recycled into the water column (through internal nutrient loading, see Figure 3.2-2) during periods of stratification and low dissolved oxygen and would continue to stimulate large seasonal phytoplankton blooms in the reservoirs that are then released to the Middle and Lower Klamath River." The DEIR erroneously assumes that mixing from the bottom of the reservoir into the epilimnion is somehow occurring during periods of stratification when mixing is the least likely to occur. This error is then magnified by the unsubstantiated conclusion in the DEIR that downstream releases of nutrients could occur that can lead to phytoplankton blooms in the river. Late in the year when destratification does occur and deeper water s can mix throughout the water column, release of nutrients to the river has a low chance of generating an algal bloom. This is because complete destratification and a return to isothermal conditions typically occurs in Iron Gate Reservoir during November or December, after the growth season for phytoplankton.

Response to Comment ORG46-418

The comment incorrectly asserts that the EIR assumes mixing from the bottom of the reservoir into the epilimnion during thermal stratification. Volume I Section

4.2.2.2 *Continued Operations With Fish Passage – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) does not assume that there is mixing from the bottom of the reservoir into the epilimnion when the reservoir is stratified. As discussed in Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin*, low dissolved oxygen conditions in the lower portion of a reservoir (i.e., below the thermocline) during periods of thermal stratification can release nutrients contained in the bottom reservoir sediments back into the water column. Thermal stratification inhibits mixing across the thermocline, but diffusion and limited mixing within the lower portion of Copco No. 1 and Iron Gate reservoirs create a concentration gradient below the thermocline as nutrients are released under low dissolved oxygen conditions (Raymond 2009a). While nutrient concentrations remain low above the thermocline (i.e., in the epilimnion), nutrient concentrations increase below the thermocline with the highest nutrient concentration occurring near the bottom sediments (Raymond 2009a). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

As summarized in Volume I Section 3.4.2.1 *Phytoplankton and Periphyton – Environmental Setting – Phytoplankton* (pages 3-392 to 3-403), cyanobacteria [blue-green algae] cells alter their buoyancy to remain near the water surface to obtain light for photosynthesis (Walsby et al. 1997). Cyanobacteria [blue-green algae] cells also alter their buoyancy to access nutrients below the thermocline; they decrease their buoyancy under nitrogen and phosphorous limitation to vertically migrate below the thermocline and obtain nutrients contained in the hypolimnion, and they increase their buoyancy to vertically migrate back above the thermocline to obtain light for photosynthesis (Moisander et al. 2009; Paerl and Otten 2015; Paerl et al. 2018). As such, nutrients released from reservoir sediments during low dissolved oxygen conditions when the reservoirs stratify can stimulate large seasonal phytoplankton blooms without physical mixing occurring across the thermocline.

The comment also incorrectly asserts that Volume I Section 4.2.2.2 *Continued Operations With Fish Passage Alternative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) says that the downstream release of nutrients could lead to phytoplankton blooms in the river. There is no statement in Potential Impact 4.2.2-2 that nutrient releases from the reservoirs would stimulate phytoplankton blooms in the Middle or Lower Klamath River. As quoted in the comment, Potential Impact 4.2.2-2 explains that nutrients released from reservoir sediments during periods of thermal stratification and low dissolved oxygen “would continue to stimulate large seasonal phytoplankton blooms in the reservoirs that are then released to the Middle and Lower Klamath River.” Note that Volume I Section 4.4.2.2 *Continued Operations With Fish Passage Alternative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) and Volume I Section 4.4.2.3 *Continued Operations With Fish Passage Alternative – Water Quality – Nutrients* Potential Impact 4.2.2-4 (pages 4-112 to 4-115) state that large seasonal phytoplankton blooms in the reservoirs would be released to the Middle and Lower Klamath River. Please refer to Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-422) for additional discussion of the release of phytoplankton blooms from Iron Gate Dam into the Middle and Lower Klamath River under existing conditions.

While Volume I Section 4.4.2.2 *Continued Operations with Fish Passage Alternative – Water Quality – Suspended Sediments* Potential Impact 4.2.2-2 (pages 4-109 to 4-111) does not discuss the potential for Iron Gate Dam to release nutrients from reservoir sediments during periods of thermal stratification and low dissolved oxygen, there are data from the reservoirs and downstream of Iron Gate Dam that indicate total phosphorous may be released between August and November. Please refer to Volume III Attachment 1 Appendix C, Section C.3.1.1 *Nutrients – Upper Klamath Basin – Hydroelectric Reach* for further information regarding the seasonal release of nutrients from in-reservoir production under existing conditions.

Lastly, Iron Gate Reservoir releases containing nutrients from reservoir sediments would potentially provide nutrients for phytoplankton, periphyton, and macrophyte growth downstream of Iron Gate Dam. However, it should be noted that the water velocity and constant mixing in the Middle and Lower Klamath River creates an environment that is not supportive of phytoplankton growth (Genzoli and Kann 2017) and growth and/or reproduction of phytoplankton cells within calm, slow-moving habitats along shorelines, protected coves, and backwaters along the Klamath River that would be suitable habitat for phytoplankton growth have not been documented. Habitat conditions are suitable for periphyton and macrophyte growth in the Middle and Lower Klamath River (Eilers 2005; Stillwater Sciences 2009; PacifiCorp 2014a; Asarian et al. 2014, 2015). As such, reservoir releases containing nutrients from reservoir sediments would potentially stimulate phytoplankton growth downstream of Iron Gate Dam, but releases of nutrients from reservoir sediments would be more likely to stimulate the growth of periphyton and macrophytes.

Comment ORG46-419

The DEIR states "Other Reservoir Management Plan studies have included consideration of in-reservoir oxygenation systems for Keno, J.C. Boyle, and Iron Gate reservoirs (MEI 2007, PacifiCorp 2014, 2018); however, results of the aforementioned studies do not indicate that these approaches, either individually or in combination, would allow the reservoirs to meet Klamath TMDL targets for nutrients (TP and TN) for the tailraces of Copco No. 2 and Iron Gate dams, where these targets numerically interpret the narrative biostimulatory substances objective for the Klamath River (see Section 3.2.3.1 Thresholds of Significance - Nutrients)." It is unrealistic for the DEIR to presume that in-reservoir activities need to be sufficient to meet TMDL targets. It should be obvious that in-reservoir activities would have to be supported by TMDL compliance efforts elsewhere in the Klamath River Basin, most of which are not the responsibility of PacifiCorp.

Such compliance efforts elsewhere, particularly in the Upper Klamath Basin and Upper Klamath Lake (in Oregon), would be crucial given the enormous nutrient and organic matter loads emanating from those sources. In this context, the DEIR should further describe that Upper Klamath Lake water quality impairments are of such magnitude that it is uncertain if or when TMDL compliance will be achieved a fact acknowledged by ODEQ (2002) in the TMDL for Upper Klamath Lake.

Response to Comment ORG46-419

The Total Maximum Daily Load (TMDL) allocations assigned to the Lower Klamath Project are for the reservoir-induced contributions to changes in nutrients/organic matter in the Hydroelectric Reach of the Klamath River. Please refer to Volume I Section 4.4.2.3 *[Continued Operations with Fish Passage] Water Quality – Nutrients* Potential Impact 4.2.2-4 (page 4-114), which describes how the Draft EIR considers nutrient reduction measures in Oregon's Upper Klamath River and Lost River TMDLs, and nutrient reduction measures in California's Lower Lost River TMDLs and Klamath River TMDLs, as part of the analysis of continued nutrient cycling in Copco No. 1 and Iron Gate reservoirs and opportunity for seasonal nutrient release to the Hydroelectric Reach and the Middle Klamath River.

Comment ORG46-420

The DEIR states that "There is currently no reasonable proposal to achieve the Klamath TMDLs targets for nutrients (TP and TN) for the tailraces of Copco No. 2 and Iron Gate dams…" In reality, there is "currently no reasonable proposal to achieve the Klamath TMDLs targets for nutrients (TP and TN)" at any location upstream of the Klamath Hydroelectric Project in the Klamath Basin in California or Oregon, or for that matter, downstream of Iron Gate Dam, even should the Klamath Hydroelectric Project dams be removed. Thus, this statement is gratuitous, has no useful basis for comparison of alternatives, and appears designed to mislead decision-makers and the public by mischaracterizing the effects of the Klamath Hydroelectric Project on existing water quality conditions in the Klamath River Basin.

Response to Comment ORG46-420

Please refer to response to comment ORG46-419. As this statement refers to the reservoir-related contributions to nutrients, it provides useful information to the public for comparison of alternatives.

Comment ORG46-421

The DEIR indicates that no reservoir management method to date has succeeded in improving dissolved oxygen in Lower Klamath reservoirs and in discharge from those reservoirs. However, the DEIR should recognize that PacifiCorp's Reservoir Management Plan was prepared as a draft document and has never been finalized or implemented. This means that none of the actions potentially capable of supporting higher dissolved oxygen concentrations in the *reservoirs have been implemented. It would be logical for the DEIR to assume that the Reservoir Management Plan would receive considerable additional work if pursued in the future including considerable consultation with the State Water Board and other stakeholders. Therefore, it would be reasonable for the DEIR to assume that the final Reservoir Management Plan will incorporate reservoir operations and technologies sufficient to meet State Water Board approval. Such reservoir operations and technologies are described in the current draft Reservoir Management Plan but have not been fully evaluated and designed. However, studies to date and other Klamath Hydroelectric Project analogues indicate that such reservoir operations and technologies are available to be designed and implemented, including for oxygenation, and would be very effective and feasible. For example, proven oxygenation technologies have demonstrated substantive saturation of hypolimnetic dissolved oxygen in at least three dozen projects where anoxia had previously prevailed (Cooke et al. 2005; Singleton and Little 2006; Beutel and Horne 1999; Gantzer at al. 2009; Singleton et al. 2007; Mobley et al. 2012).*

Response to Comment ORG46-421

The introduction in Volume I Section 4.4.2.4 *Alternatives –Continued Operations with Fish Passage – Water Quality – Dissolved Oxygen* (pages 4-115 to 4-116) provides a summary overview of the dissolved oxygen conditions in the Hydroelectric Reach, Middle and Lower Klamath River, and the Klamath River Estuary under the Continued Operations with Fish Passage Alternative. It thus does not go into detail about potential revisions to the Reservoir Management Plan that would incorporate operations and technologies to meet dissolved oxygen water quality standards. Please refer to Potential Impact 4.2.2-5 (pages 4-116 to 4-120) for a more detailed analysis of the impact of current operations and technologies on dissolved oxygen conditions and the potential impact of other operations and technologies proposed in the current Reservoir Management Plan on dissolved oxygen conditions in the long term under the Continued Operations with Fish Passage Alternative.

The references provided in the comment (Cooke et al. 2005, Singleton and Little 2006, Buetel and Horne 1999, Gantzer et al. 2009, Singleton et al. 2007, Mobley et al. 2012) describe numerous projects that increase dissolved oxygen in the bottom waters of lakes and reservoirs, and the State Water Board is aware that operations and technologies that would improve reservoir dissolved oxygen concentrations to meet Basin Plan minimum dissolved oxygen criteria exist. However, PacifiCorp has stated that it is not prepared to proceed with oxygen diffuser systems in the reservoirs and that further studies are necessary to determine whether other cost-effective technologies would sufficiently improve dissolved oxygen conditions (PacifiCorp 2014a).

The introduction in Volume I Section 4.4.2.4 *Alternatives –Continued Operations with Fish Passage – Water Quality – Dissolved Oxygen* (pages 4-115 to 4-116) has been revised to clarify details about the operations and technologies proposed in the most recent revision of the Reservoir Management Plan (PacifiCorp 2014) and to clarify that the final Reservoir Management Plan could potentially include additional operations and technologies to improve dissolved oxygen concentrations to meet Basin Plan minimum dissolved oxygen criteria. Please refer to Volume III Attachment 1 Section 4.4.2.4 *Continued Operations with Fish Passage – Water Quality – Dissolved Oxygen* for the revisions.

Comment ORG46-422

The DEIR states that "Overall, while results from the Reservoir Management Plan feasibility investigations of in-reservoir oxygenation and deployment of an intake barrier/thermal curtain suggest that improvement in dissolved oxygen is possible in the reservoirs (PacifiCorp 2017b, 2018b), these studies have not resulted in water quality improvements at Copco No. 1 or Iron Gate reservoirs that meet TMDL requirements for dissolved oxygen in the reservoirs, nor have they otherwise sufficiently improved Lower Klamath Project impacts to dissolved oxygen in the Middle Klamath River immediately downstream of Iron Gate Dam." The DEIR should clarify two things:

1. Because of the KHSA and implementation of the elements associated with that agreement, forward progress on finalization of the Reservoir Management Plan and actual implementati on of that plan, inclu ding reservoir oxygenation, was not necessary. To say that PacifiCorp has not implemented any of the Reservoir Management Plan elements is an oversimplification.

2. The barrier curtain is a prototyp e and testing continues as initial results show promise.

Elsewhere throughout the DEIR, Klamath TMDL implementation has been presumed to achieve water quality improvement even though specific TMDL measures and actions are not defined let alone having been subjected to a feasibility analysis like reservoir oxygenation. The DEIR should be consistent in its assumptions and analysis and therefore also assume that reservoir water quality management actions can be implemented and be effective for improving dissolved oxygen in the reservoirs and the river downstream of Iron Gate Dam.

Response to Comment ORG46-422

Please refer to Volume I Section 4.4.1.1 *Alternatives – Continued Operations with Fish Passage Alternative – Introduction – Alternative Description* (page 4-101) which states that under Continued Operations with Fish Passage, no Klamath Hydropower Settlement Agreement (KHSA) Interim Measures (IMs) would continue, although actions consistent with IMs designed for water quality improvements are analyzed in this alternative as part of the Reservoir Management Plan (Volume I Section 4.4.2 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality*). In examining the Continued Operations with Fish Passage alternative, the CEQA analysis is required to disclose the expected reasonable measures for ongoing operations, including disclosing that there is currently no reasonable proposal to achieve the Total Maximum Daily Load (TMDL) allocations.

It is reasonable and appropriate to use a finer lens in examining the ability of PacifiCorp's most recent (2014) Reservoir Management Plan to achieve a particular load allocation than the EIR uses to describe the entire suite of projects contemplated for implementation of the TMDLs. The feasibility of an alternative to achieve a project objective is appropriate to analyze in greater detail than a projected long-term future compliance with TMDLs based on a range of ongoing and future activities not related to the Proposed Project. Thus, the EIR examines the Reservoir Management Plan provided by PacifiCorp as part of the revised *Clean Water Act Section 401 Water Quality Certification Application for the Klamath Hydroelectric Project and Update on Implementation of the Klamath Hydroelectric Settlement Agreement* (PacifiCorp 2014a) as a reasonable indication of potential solutions to address water quality impairments associated with J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams. Regarding the request to characterize the Reservoir Management Plan (PacifiCorp 2014a) as a draft plan, please refer to response to comment ORG46-408.

Contrary to the comment's assertion, the EIR does not state or imply that PacifiCorp has not implemented any of the Reservoir Management Plan elements. As one example, Volume I Section 4.4.2.3 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Nutrients* states that PacifiCorp has proposed a design for a demonstration wetlands facility adjacent to the Upper Klamath River, evaluated five potential sites, and developed construction costs and a monitoring plan (PacifiCorp 2018b). This section goes on to state that PacifiCorp has not implemented the demonstration facility, although PacifiCorp has continued to fund pilot studies of diffuse source (i.e., small distributed) treatment wetlands for reducing nutrient transport into Upper Klamath Lake, which would eventually help to improve water quality conditions downstream in the Klamath River.

Additionally, the EIR identifies in turn which of the seven water quality improvement actions described in the Reservoir Management Plan (PacifiCorp 2014) is most focused on water temperature, suspended materials, nutrients, dissolved oxygen, pH, chlorophyll-*a*, and/or algal toxins, and then discusses whether, given existing information, a particular action or set of actions presented in the Reservoir Management Plan (PacifiCorp 2014) is likely to meet TMDL requirements or otherwise sufficiently improve each of the aforementioned water quality parameters based on results from the Reservoir Management Plan techniques employed to date.

The comment's assertion that "because of the KHSA and implementation of elements associated with that agreement, forward progress on finalization of the Reservoir Management Plan and actual implementation of that plan was not necessary", does not remove the State Water Board's obligation under CEQA to disclose the expected reasonable measures for ongoing operations, including disclosing that there is currently no reasonable proposal to achieve the TMDL allocations.

With respect to the comment regarding the intake barrier/thermal curtain, this apparatus was referred to as a prototype in 2014; however, the current intake barrier/thermal curtain installed in 2015 has not been described as a prototype in more recently published, publicly available PacifiCorp reports on its operation and performance (PacifiCorp 2016a, 2017a, 2018a). Section 4.4.2.4 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Dissolved Oxygen* Potential Impact 4.2.2-5 *Hydroelectric Reach* has been revised to clarify that while the primary purpose of the powerhouse intake barrier/thermal curtain installed in Iron Gate Reservoir was to reduce transport of extensive summer and fall blue-green algae (cyanobacteria) blooms downstream of the reservoir to the Middle and Lower Klamath River, results from deployment of the apparatus in 2016 indicate that the presence of the curtain can reduce dissolved oxygen concentrations in reservoir discharge water (PacifiCorp 2017), and that the curtain was completely rolled up during portions of 2017 to maximize dissolved oxygen concentrations for aquatic life (PacifiCorp 2018a). Please refer to Volume III Attachment 1 Section 4.4.2.4 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Dissolved Oxygen* Potential Impact 4.2.2-5 *Hydroelectric Reach* for the revisions.

With respect to the comment's broader assertion that the Draft EIR is not consistent with respect to assumptions and analysis of TMDL compliance across the Proposed Project and the alternatives, the EIR states repeatedly in the Proposed Project and alternatives analyses that it would be speculative at this point to identify either the mechanisms necessary to implement the TMDLs or the timing required to achieve full compliance, including Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-1 (water temperature), Potential Impact 3.2-8 (nutrients), 3.2-10 (dissolved oxygen), 3.2-11 (pH). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. For the Proposed Project, the EIR also indicates that removal of the Lower Klamath Project Reservoirs would rapidly and substantially move the Klamath River downstream of Iron Gate Dam towards achieving TMDL compliance for water temperature (Potential Impact 3.2-1). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

For the No Project Alternative, which is analyzed for the reasonably foreseeable period of 0−5 years, Volume I Section 4.2 *Alternatives – No Project Alternative* (specifically pages 4-15 to 4-16) states that efforts aimed at meeting Klamath River TMDLs are not analyzed for the No Project Alternative because the basin response to the restoration measures to meet the total maximum daily loads (TMDLs) during the short term is too speculative. Because water quality improvement measures in Oregon and California due to the Klamath TMDLs would result in long-term changes in water quality, these potential changes are analyzed as part of the Proposed Project and other alternatives. Please note that Section *4.2.3.1 Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Quality* and *4.2.3.1 Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature* have been revised to clarify how the EIR considers TMDL attainment for the No Project Alternative. Please refer to Volume III Attachment 1 Section *4.2.3.1 Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Quality* and *4.2.3.1 Alternatives – No Project Alternative – Aquatic Resources – Key Ecological Attributes – Water Temperature* for the revisions. Please also refer to response to comment ORG46-385 for changes made to the EIR regarding TMDL implementation assumptions relevant to the No Project Alternative.

For the Continued Operations With Fish Passage Alternative, which is analyzed for both the short term and long term, the EIR analysis considers the possibility of full implementation of the California Klamath River TMDLs in the long term and whether PacifiCorp has put forth reasonable proposals to achieve the TMDLs with the Lower Klamath Project dams remaining in place. As noted above, it is reasonable and appropriate to use a finer lens in examining the ability of PacifiCorp's most recent (2014) Reservoir Management Plan to achieve a particular load allocation than the EIR uses to describe the entire suite of projects contemplated for implementation of the TMDLs, including projects in the Upper Klamath Basin and Upper Klamath Lake. The feasibility of an alternative to achieve a project objective is appropriate to analyze in greater detail than a projected long-term future compliance with TMDLs based on a range of ongoing and future activities not related to the Proposed Project.

Thus, this analysis includes consideration of improvements achieved to date through implementation of various approaches described in the most recent version of PacifiCorp's Reservoir Management Plan (2014). The EIR also considers whether long-term climate change-induced changes in water quality would partially offset any projected TMDL improvements. For specific details, please refer to each TMDL-related water quality parameter analyzed under the Continued Operations with Fish Passage Alternative (i.e., Volume I Section 4.4.2.1 *Water Temperature* [pages 4-102 to 4-103], Section 4.4.2.2 *Suspended Sediments* [pages 4-108 to 4-109], Section 4.4.2.3 *Nutrients* [page 4-112], Section 4.4.2.4 *Dissolved Oxygen* [pages 4-115 to 4-116], Section 4.4.2.5 *pH* [page 4-120], Section 4.4.2.6 *Chlorophyll-a and Algal Toxins* [pages 4-122 to 4-123]), as well as the impact analyses themselves (Potential Impact 4.2.2-1 [pages 4-103 to 4-108], Potential Impact 4.2.2-2 [pages 4-109 to 4-111], Potential Impact 4.2.2-4 [pages 4-112 to 4-115], Potential Impact 4.2.2-5 [pages 4-116 to 4-120], Potential Impact 4.2.2-6 [pages 4-121 to 4-122], Potential Impact 4.2.2-7 [pages 4-123 to 4-124]. Additionally, Section 4.4.1.2 *Alternatives – Continued Operations with Fish Passage Alternative – Alternative Analysis Approach* has been revised to clarify how TMDL compliance was considered in the short term for each of the aforementioned water quality parameters. Please refer to Volume

III Attachment 1 Section 4.4.1.2 *Alternatives – Continued Operations with Fish Passage Alternative – Alternative Analysis Approach* for the revisions.

With respect to the comment's broader assertion that the Draft EIR is not consistent with respect to assumptions and analysis of TMDL compliance across the Proposed Project and the alternatives, the EIR states repeatedly in the Proposed Project and alternatives analyses that it would be speculative at this point to identify either the mechanisms necessary to implement the TMDLs or the timing required to achieve full compliance.

Comment ORG46-423

Regarding the DEIR discussion in "4.4.2.5 pH," the DEIR should clarify that the seasonal (summer and fall) pH challenges are geologic in nature and going to occur whether there is a reservoir or river in place for reaches upstream of Iron Gate Dam where macrophytes and periphyton can grow. The DEIR omits any mention of this important fact: long-term pH condition cannot be reduced or mitigated, and existing pH conditions will be exacerbated by climate change. See comments 3.2-5, 3.2-23, 4.2-9.

Response to Comment ORG46-423

The Klamath River is a naturally weakly buffered system (i.e., low alkalinity typically less than 100 milligrams per liter [mg/L] as calcium carbonate [CaCO3]; PacifiCorp [2004a], Karuk Tribe of California [2010]), so it is susceptible to photosynthesis-driven daily and seasonal swings in pH. Please also refer to ORG46-87, ORG46-106, and ORG46-383 for further discussion of the weakly buffered conditions in the Klamath River. However, seasonal pH variations in the Hydroelectric Reach in Copco No. 1 and Iron Gate reservoirs during summertime periods of intense algal blooms would not occur under dam removal conditions. Please refer to Volume III Attachment 1 Section 3.2.5.5 *Water Quality – Potential Impacts and Mitigation – Dissolved Oxygen* Potential Impact 3.2-11 for analysis of the pH under the Proposed Project, including the potential pH variations associated with periphyton colonization and growth in the Hydroelectric Reach. Please also refer to ORG46-149 for further discussion of pH variations under the Proposed Project.

Volume I Section 4.4.2.5 *[Continued Operations with Fish Passage] Water Quality – pH* (pages 4-120 to 4-122) has been revised to clarify that the Klamath River is a weakly buffered system susceptible to photosynthesis-driven pH variations. Please refer to Volume III Attachment 1 Section 4.4.2.5 *[Continued Operations with Fish Passage] Water Quality – pH* for the revisions.

The comment is incorrect to assert that long-term pH conditions in the Klamath River cannot be improved or mitigated. While the weakly buffered nature of the Klamath River would always make it suspectable to photosynthesis-driven pH variations, nutrient reductions associated with measures in Oregon and

California's Total Maximum Daily Loads (TMDLs) would likely be beneficial to pH over time since nutrient reductions would likely reduce phytoplankton, periphyton, and macrophyte growth and associated photosynthesis that drives pH variations in the Klamath River. As discussed in Volume I Section 4.2.2 *Alternatives – No Project Alternative – Water Quality – pH* Potential Impact 4.2.2-6 (pages 4-121 to 4-122), the specific actions necessary to achieve significant nutrient reductions are, at this point, unknown and sufficient reductions to reduce pH variations in the Klamath River are likely to require decades to achieve.

Volume I Potential Impact 4.2.2-6 (pages 4-121 to 4-122) acknowledges warmer water temperatures under climate change would further exacerbate the seasonal phytoplankton blooms that occur in the Hydroelectric Reach under existing conditions. While pH variations are linked to periods of high photosynthesis associated with phytoplankton blooms and periphyton growth in Section 3.2.2.6 *Water Quality – Environmental Setting – pH* (please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*), Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-421), and Volume I Section 4.4.2.5 *Continued Operations with Fish Passage Alternative – Water Quality- pH* (pages 4-120 to 4-122), it is not explicitly stated in Potential Impact 4.2.2-6 (pages 4-121 to 4-122) that the potential increase in seasonal phytoplankton blooms due to warmer water temperatures under climate change would produce larger or more frequent pH variations that exceed pH standards. Thus, Potential Impact 4.2.2-6 (pages 4-121 to 4-122) has been revised to clarify that the warmer water temperatures under climate change would exacerbate seasonal phytoplankton blooms in the reservoirs, increasing pH variations and potentially resulting in more frequent exceedances of pH objectives in the Hydroelectric Reach in the long term compared to existing conditions. Please refer to Volume III Attachment 1 Section 4.4.2.5 *Continued Operations with Fish Passage Alternative – Water Quality- pH* for the revisions.

Comment ORG46-424

The DEIR states "Warmer water temperatures under climate change would further exacerbate seasonal phytoplankton blooms in the Hydroelectric Reach, which would then be transported downstream, and overall there is currently no reasonable proposal to achieve TMDL targets and meet applicable water quality standards for water temperature, nutrients and dissolved oxygen, which would also continue to result in elevated chlorophyll-a concentrations and periodically high algal toxin concentrations in the surface waters of Copco No. 1 and Iron Gate reservoirs during summer and fall months." Aside from the generally confusing sentence structure, the DEIR should clarify that in-reservoir compliance with TMDL targets would have to be supported by TMDL compliance efforts elsewhere in the Klamath River Basin, most of which are not the responsibility of PacifiCorp. Such compliance efforts elsewhere particularly in the Upper Klamath Basin and Upper Klamath Lake, would be crucial given the enormous nutrient and organic matter loads emanating from those sources. In *this context, the DEIR should further describe that Upper Klamath Lake water quality impairments are of such a magnitude that it is uncertain if or when TMDL compliance will be achieved. That said, elsewhere throughout the DEIR, Klamath TMDL implementation has been presumed to achieve water quality improvement even though specific TMDL measures and actions are not defined. Thus, the DEIR should be consistent and also assume that water quality management actions can be implemented in the Klamath Hydroelectric Project area and be effective for improving chlorophyll-a concentrations and periodically high algal toxin concentrations in the reservoirs and the downstream river.*

Response to Comment ORG46-424

For a discussion of how the EIR handles the speculative nature of the mechanisms necessary to implement the Total Maximum Daily Loads(TMDLs) and the timing required to achieve full compliance in the analyses of the Proposed Project and alternatives, please refer to response to comment ORG46-422. Please also refer to response to comment ORG46-385 for changes made to the EIR regarding TMDL implementation assumptions relevant to the No Project Alternative.

The comment asserts that the EIR should "further describe that Upper Klamath Lake water quality impairments are of such a magnitude that it is uncertain if or when TMDL compliance will be achieved". Please note that Section 3.2 *Water Quality* describes the existing conditions that affect water quality in the Klamath River. For example, in Section 3.2.2.4 the draft EIR notes that Upper Klamath Lake and the Lost River Basin are two major sources of nutrients to the Area of Analysis. Please also note that on page 4-124 of Volume I Section 4.4.2 *Alternatives – Continued Operations with Fish Passage – Water Quality*, which is the focus of the comment, the text states that nutrient reduction measures in Oregon and California's TMDLs would, over time, be beneficial with respect to decreasing these water quality constituents, although the measures to achieve such reductions remain unclear, and the improvements could require decades.

Volume I Section 4.4.2.6 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins* Potential Impact 4.2.2-7 (page 4-124) has been grammatically clarified. Please refer to Volume III Attachment 1 Section 4.4.2.6 *Alternatives – Continued Operations with Fish Passage Alternative – Water Quality – Chlorophyll-a and Algal Toxins* for these revisions.

Comment ORG46-425

The DEIR's statement regarding the 2017 United States District Court order to USBR that addresses flushing flows is lacking detail. Although stating the flows are incorporated into the Continued Operations with Fish Passage Alternative, the DEIR does not appear to have included any modeling of these flows. The DEIR also does not analyze the effectiveness of these flows to reduce polychaete abundance. The DEIR should indicate whether these Court ordered *flows have achieved their objectives and been effective to date because this information would be important in accurately assessing the relative effects of alternatives to the Proposed Project. The Court ordered flows are based on the best available information regarding the amount of flow required to mobilize substrate. The DEIR should clarify where these flows would be the same, higher in volume, and address the frequency of these flows under the Proposed Project as comparted to this and other alternatives.*

Response to Comment ORG46-425

Section 4.4.3.2 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Bed Elevation and Grain Size Distribution* (page 4-126) has been revised to clarify how the 2017 court-ordered flushing flows were considered in the EIR analysis. Please refer to Volume III Attachment 1 Section 4.4.3.2 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Bed Elevation and Grain Size Distribution* for the revisions.

Please also refer to Master Response HYD-1 for discussion of how the EIR considers the 2019 BiOp Flows.

Note that this comment is in reference to the analysis of bed mobilization. The analysis of disease issues related to the flushing flows that the comment raises are addressed in Section 4.4.3.4 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Disease and Parasites*.

Comment ORG46-426

The DEIR states that a portion of the fall-run Chinook upstream migration would be limited unless they travel in a narrow band of temperature and dissolved oxygen that exist in the upper 10 meters of the reservoirs. The temperature data cited in Appendix C show that such a band exists in the reservoirs in most years. As they do in the lower Klamath River, adult Chinook would migrate at night when temperatures are cooler and take advantage of thermal refugia provided by Fall Creek and other tributaries. The DEIR' s analysis should be consistent in discussing the fishery consequences of thermal refugia for all alternatives. The DEIR should also remove the discussion of spring-run Chinook from this paragraph because spring-run Chinook are no longer found upstream of the Salmon River in the Klamath Basin.

Response to Comment ORG46-426

With regard to the comment’s assertion that Volume II Appendix C indicates that a band of acceptable dissolved oxygen and water temperature exists in the reservoirs in most years, please refer to Figure C-1 (reproduced below) which indicates that water temperature is greater than approximately 23ºC in most years during the period of fall-run Chinook salmon migration (August through September).

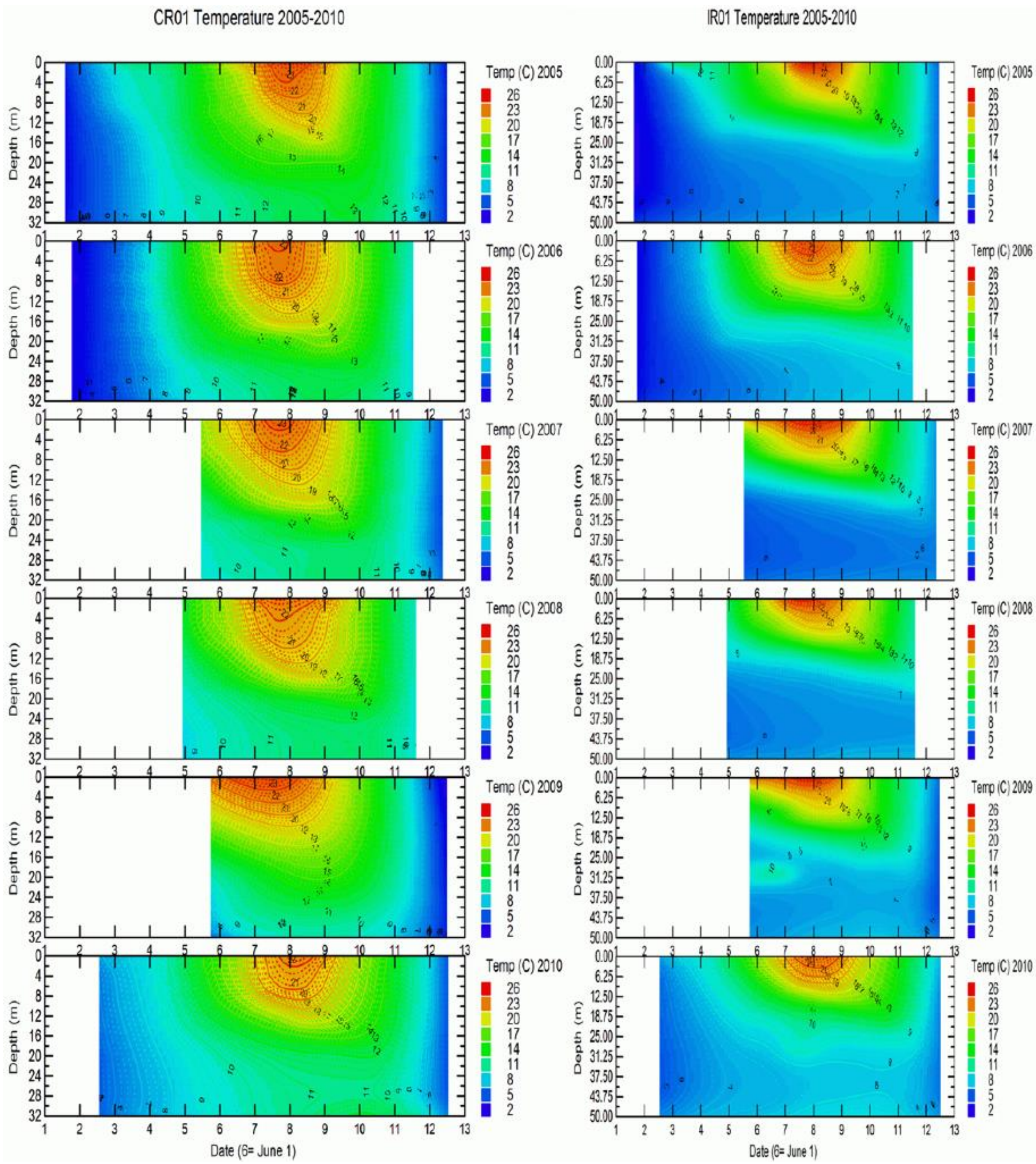


Figure C-1. Depth-time Distribution of Isopleths of Water Temperature at Station CR01 in Copco No. 1 Reservoir and IR01 in Iron Gate Reservoir from January 2005 to December 2010. Source: Asarian and Kann 2011.

With respect to the comment regarding nighttime migration, Section 4.4.3.3 *Alternatives – Continued Operations With Fish Passage Alternative – Aquatic Resources – Water Quality* (page 4-127) has been revised to clarify how migrating at night and use of thermal refugia would affect fall-run Chinook salmon under this alternative. Please refer to Volume III Attachment 1 Section 4.4.3.3 *Alternatives – Continued Operations With Fish Passage Alternative – Aquatic Resources – Water Quality* for the revisions.

With respect to the comment regarding spring-run Chinook salmon not currently found upstream of the Salmon River, as described in Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species*, Huntington (2006) reasoned that spring-run Chinook salmon likely accounted for the majority of the Upper Klamath Basin's actual salmon production under historical conditions. Spring-run Chinook salmon spawned in the tributaries of the Upper Klamath Basin (Moyle 2002, Hamilton et al. 2005, Hamilton et al. 2016) with large numbers of spring-run Chinook salmon spawning in the basin upstream of Klamath Lake in the Williamson, Sprague, and Wood rivers (Snyder 1931). The EIR predicts that all alternatives providing fish passage past Iron Gate Dam (including the Continued Operations with Fish Passage Alternative) would allow spring-run Chinook salmon to recolonize their historical habitat and distribute farther upstream than the confluence with Salmon River.

Comment ORG46-427

The DEIR should clarify that spring temperatures are cooler under the Continued Operations with Fish Passage Alternative than the Proposed Project, these cooler temperatures provide benefits to fish.

Response to Comment ORG46-427

PacifiCorp asserts that Section 4.4.3.4 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Disease and Parasites* (page 4-128) fails to mention that under continued operations water temperatures will be lower during spring than under the Proposed Project. Volume I Section 4.4.3.3 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Water Quality* (page 4-126 and 4-127) discusses water temperature under this alternative and compares temperatures with those anticipated under the Proposed Project. Please also refer to Volume I Potential Impact 4.2.2-1 (page 4-106) for a discussion of lower spring water temperatures under continued operations compared to those anticipated under the Proposed Project.

Comment ORG46-428

The DEIR does a poor job explaining the different factors that affect C. shasta and leaves much to inference. To address this, the DEIR should include a discussion that provides the differences in factors that affect C. shasta in regard to nidus formation. For example, a table could provide the level and frequency of flushing and dilution flows, and deep flushing flows produced under the Proposed Project compared to Court ordered flows produced under the different alternatives. Such a table would allow the readers of the DEIR to see the likelihood of the effectiveness of the flows.

The Court ordered deep flushing flows (11,200 cfs) to occur at least once between February 15 to March 31. The February 15 date was set to avoid scouring redds and incubating eggs. This assumes that the majority of *emergence has occurred prior to this date; however, the emergence timing information for Chinook, Coho, and Steelhead in Sect ion 3.3 of the DEIR indicates that significant numbers of eggs and alevins will still be in the gravel through May (dependent on species). As such, the DEIR should discuss the risk to mainstem spawners from deep flushing flows where appropriate. It is also worth noting that the assumption that the deep flushing flow would continue to be required is not reflected in the USBR's proposed action (USBR 2018a) nor are these flows that can be artificially created on a desired schedule with existing water control facilities on the Klamath River let alone those that would remain after implementation of the Proposed Project.*

Response to Comment ORG46-428

Deep flushing flows are not included in the 2019 BiOp Flows and thus would not occur after March 2019 under the Proposed Project or any alternative analyzed in the EIR. Section 4.4.3.4 *Alternatives – Continued Operations With Fish Passage Alternative – Aquatic Resources – Fish Disease and Parasites* has been revised to clarify how the 2019 BiOp Flows are analyzed under this alternative. Please refer to Volume III Attachment 1 Section 4.4.3.4 *Alternatives – Continued Operations With Fish Passage Alternative – Aquatic Resources – Fish Disease and Parasites* for the revisions. Please also refer to Master Response HYD-1 for additional discussion about how the EIR considers the 2019 BiOp Flows.

In regard to deep flushing flows potentially impacting mainstem spawning salmon redds, note that the referenced deep flushing flows that were required by the 2017 court order are not included in the 2019 BiOp Flow prescriptions. For additional information, the timing of the surface flushing flows under the 2019 BiOp are managed to occur after fall-run Chinook salmon fry emerge from redds and would not occur when eggs are incubating. Please note that steelhead and coho primarily spawn in tributaries and their redds would therefore be less at risk from any flushing flows.

In regard to nidus formation, please see Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* as well as Master Responses AQF-5 and 6.

Comment ORG46-429

The DEIR states that the disease nidus is anticipated to continue to occur to some degree under this alternative. The DEIR should ensure that this assumption is incorporated into all of the alternatives. This is particularly warranted, because earlier in this same paragraph the DEIR states that flow and dilution requirements alone have not been successful at eliminating the nidus. When this observation is connected with that by Bartholow and Foott (2010) who noted that a low number of infected adult salmon (>3,000) are sufficient to maintain high infection prevalence in polychaetes and the fact that polychaetes *are distributed throughout the river, it is reasonable to expect that C. shasta will be found anywhere there are Chinook and Coho in the Klamath River .*

Response to Comment ORG46-429
The analysis of the Proposed Project and all alternatives includes an assessment of the risk of the nidus remaining downstream of Iron Gate, and the risk of a new nidus forming upstream of Iron Gate Dam for those alternatives that incorporate dam removal or fish passage. Please also refer to Master Response AQF-5 and AQF-6.

Comment ORG46-430
The DEIR includes many references to "existing adverse conditions." The DEIR should remove the biased term "adverse" and limit discussion to changes from "existing conditions."

Response to Comment ORG46-430
In addition to meeting CEQA's requirements to identify and analyze potentially significant impacts from the Proposed Project, this EIR is intended to inform the State Water Board's decision with respect to potential issuance of a water quality certification for the Proposed Project under the federal Clean Water Act (CWA). Unlike CEQA, which is concerned primarily with new impacts as compared to baseline conditions, section 401 of the Clean Water Act authorizes issuance of a water quality certification only if the issuing authority (here, the State Water Board) finds that discharges from the project/facility will not result in violations of water quality standards. In that context, identifying and evaluating potential or confirmed exceedances of water quality standards under existing conditions is an important component of the State Water Board's consideration of the conditions that may be necessary to certify that approval of the project will not cause violations of water quality standards.

Additionally, an EIR is a public information document, and including accurate information about existing conditions enhances rather than detracts from that purpose. Use of this phrase is intended to provide appropriate and helpful context for the general reader to understand the nature of the existing condition in light of the CEQA requirement to consider the baseline condition as existing conditions (CEQA Guidelines Section 15125(a)).

Here, the phrase "existing adverse conditions" is used instead of "existing conditions" because algal toxin concentrations measured under existing conditions are high enough to result in adverse impacts on environmental receptors (e.g., fish). In addition to evaluating changes to the physical environment from baseline conditions, this EIR is also intended to inform the State Water Board's required findings in its Clean Water Act section 401 water quality certification regarding the project's effects on attainment of applicable water quality standards and other state laws. Volume I Section 4.4.3.5 *Alternatives – Continued Operations with Fish Passage – Aquatic Resources –*

Algal Toxins (pages 4-129 to 4-130) is objective and unbiased when it concludes that the Continued Operations with Fish Passage Alternative would result in no change from existing adverse conditions in the Hydroelectric Reach.

Please also refer to response to comment ORG46-376.

Comment ORG46-431

The DEIR's discussion on activities currently underway to recover salmonid and sucker populations is useful but does not appear in other alternatives (e.g., Sections 4.2, 4.3, etc.). The DEIR should treat this information equally in all alternatives.

Response to Comment ORG46-431

The concept that activities currently underway to recover salmonid and sucker populations within the Klamath Basin would likely continue at their current levels appears in substance in all of the alternatives, though phrasing and exact text varies.

Comment ORG46-432

The DEIR refers to "Implementation of the Coho Enhancement Fund under the No Project Alternative..." This should be "under the Continued Operations with Fish Passage Alternative..."

Response to Comment ORG46-432

Section 4.4.3.6 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Aquatic Habitat and Instream Flows* has been revised to clarify Continued Operations with Fish Passage Alternative. Please refer to Volume III Attachment 1 Section 4.4.3.6 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Aquatic Habitat and Instream Flows* for the revisions.

Comment ORG46-433

The DEIR states that assumed trap and haul survival rates for aquatic species is not different than for volitional fish passage systems. The DEIR should clarify whether this means that the trap and haul system has a 21 percent mortality rate as defined for volitional fish passage, or whether assumed trap and haul survival rates are the same as survival rates assumed for a single ladder and collection system. This clarification is needed in the DEIR because it would make little sense to implement a trap and haul system that had the same survival rate as a volitional system through four dams and reservoirs.

The assumptions reported in the DEIR for the trap and haul system should be corrected. The assumed survival rate for juveniles trapped at J.C. Boyle Dam and transported to the river downstream of Iron Gate Dam averaged 81 percent and ranged from 67 to 95 percent (Option 1C in Oosterhout 2005). Adult survival rates for fish transported from Iron Gate Dam to J.C. Boyle Reservoir was 79 *percent (range 70 to 89 percent, Tables 2 and 6 in Oosterhout 2005). Note that Oosterhout (2005) incorporated delayed mortality for adults transported in trucks in the estimate and cites the literature estimate (7 to 22 percent) used in the analysis.*

Oosterhout (2005) estimated that fall-run Chinook spawner abundance for the volitional passage and trap and haul scenario (Option 1C in Oosterhout 2005) were within a couple of thousand fish (29,754 and 28,539 under a no harvest assumption). Both options produced about 12,000 less adults than the four-dam removal option. Because Iron Gate Hatchery produces approximately 50,000 fall-run Chinook adults, total production under volitional and trap and haul scenarios is significantly higher than the four-dam removal. The Oosterhout (2005) and Ecosystem Diagnosis Testing (EDT) Habitat modeling results (PacifiCorp 2005) provide analyses that can be used to show the expected difference in adult fall Chinook production for alternatives in the DEIR. The EDT analysis has data for Chinook, Coho, and Steelhead. PacifiCorp's recent work on a trap-and-haul program on the Lewis River (WA) has indicated survival of adult salmon and Steelhead approaches 100 percent (PacifiCorp and Public Utilities District No. 1 of Cowlitz County 2016). This indicates that the mortality assumptions included in prior work evaluating trap and haul alternatives were high relative to those experienced in current practice.

The DEIR should clarify the findings of Lusardi and Moyle (2017). Lusardi and Moyle (2017) did not perform a literature review of prespawn mortality rates for volitional, natural, and trap and haul passage systems. They presented findings showing that trap and haul systems can have high adult prespawn mortality rate and therefore can pose a risk to reintroduction efforts. Specific ally, the 20 percent adult mortality figure came from one Coho program on the Toutle River in Washington. In contrast to this, PacifiCorp has been moving salmon and Steelhead, both adults and juveniles, past the Lewis River dams with very little mortality (PacifiCorp and Public Utilities District No. 1 of Cowlitz County 2016). The issues associated with juvenile trap and haul programs discussed are most frequently related to programs on the Columbia River that barge juvenile salmonids for hundreds of miles. As Lusardi and Moyle (2017) note, there are substantial differences in survival based on the species, run, distance fish are moved, method of movement, water quality, and so on. There is no basis, let alone substantial evidence, to assume that trap and haul survival is similar to survival from passage via ladders and screens without substantially more detailed research and evaluation. The DEIR should have addressed these complexities.

Data collected by the Wild Fish Conservancy (2008) show that prespawn mortality can be as high as 100 percent for streams in the Pacific Northwest. The environmental conditions present in the stream have a substantial effect on prespawn mortality rates. Thus, in order to determine if trap and haul has a higher prespawn mortality rate than the volitional passage system, the DEIR *needs to define the rates for both, which it does not. The DEIR should have defined these rates for all alternatives.*

Response to Comment ORG46-433

Analysis of fish passage in the EIR is based on considering likely passage alternatives, potentially including volitional passage, or trap and haul. Regarding the comment that it would not make sense to implement a trap and haul system that did not improve passage survival compared to volitional passage, it is worth noting that some facilities have selected trap and haul because of cost or other feasibility concerns, rather than to improve passage survival (Lusardi and Moyle 2017).

In regard to the trap and haul mortality predictions used in the EIR, PacifiCorp's recent evaluation of a trap and haul facility on the Lewis River is not considered a reliable analogue for the Lower Klamath Project, since the Lewis River has much better water quality conditions than the Klamath River, fewer miles required to be traversed to haul fish, and other site specific considerations affecting juvenile fish collection efficiency. Section 4.4.3.7 *[Continued Operations with Fish Passage] Aquatic Resources – Fish Passage* has been revised to clarify the passage effect assumptions used in the EIR analysis, more directly incorporate the predictions of Oosterhout (2005), and to clarify how the passage methods considered in Lusardi and Moyle (2017) apply to the EIR analysis. These revisions address the comment's concern regarding comparability of mortality rates. Revisions have been similarly made to Potential Impacts 4.2.3-1, 4.2.3-7, 4.2.3-8, 4.2.3-9, 4.2.3-10, and 4.2.3-11. Please refer to Volume III Attachment 1 Section 4.4.3.7 *[Continued Operations with Fish Passage] Aquatic Resources – Fish Passage* for the revisions.

Comment ORG46-434

The DEIR's assumption that effects of passage through trap and haul facilities would be equivalent to volitional passage for other migratory species may be reasonable for Redband Trout but is unsupported for other species such as lamprey and suckers if they were also subject to trap and haul.

Response to Comment ORG46-434

Trap and haul facilities have been shown to be similarly as effective for Pacific lamprey (Corbett et al. 2014), and sucker species (Cheek 2014) as for salmonids. Effects would vary based on site specific considerations and design, as they would for salmonids.

Comment ORG46-435

The DEIR' s analysis should be more precise when defining the reach referred to as downstream of Iron Gate Dam. The DEIR should be specific as to whether this reach extends to the Shasta River, estuary, or just a few miles downstream of the dam.

The DEIR states that "there is currently no reasonable proposal to achieve water quality standards important to Coho salmon within or downstream of the Hydroelectric Reach." The DEIR should list all proposals considered in regard to this statement and the specific justification for why they are not reasonable

Response to Comment ORG46-435
Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-1 has been clarified with respect to the extent of the Middle Klamath River downstream of Iron Gate Dam in which coho salmon are more susceptible to disease. Please refer to Volume III Attachment 1 Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-1 for the revisions.

With respect to the comment's concern regarding proposals to achieve water quality standards under continued operations of the Lower Klamath Project, the quote in the comment is incomplete. The first portion of the referenced sentence was omitted in the comment; this portion informs the reader regarding where to look for the analysis of various actions that have been proposed to achieve water quality standards. The entire quote is: "Despite the modest water quality improvements achieved to date through implementation of actions contained within PacifiCorp's Reservoir Management Plan (see also Volume I Section 4.4.2 *[Continued Operations with Fish Passage] Water Quality*), there is currently no reasonable proposal to achieve water quality standards important to Coho salmon within or downstream of the Hydroelectric Reach." As such, please refer to Volume I Section 4.4.2 *[Continued Operations with Fish Passage] Aquatic Resources – Water Quality* (pages 4-102 to 4-125) for discussion of PacifiCorp's Reservoir Management Plan and its proposed solutions to addressing water quality impairments and meeting water quality standards, including water temperature, algal-derived (organic) suspended material, nutrients, dissolved oxygen, pH, chlorophyll-a, and algal toxins.

Comment ORG46-436
The DEIR states that predation on outmigrating juveniles is expected to be low but fails to provide a value for this metric. On page 4-137, the DEIR indicates that juvenile passage mortality through the hydroelectric reach is expected to be 58 percent, but the source of this mortality is not clear.

The Oosterhout (2005) analysis used a survival value for volitional fish passage for fish arriving downstream of Keno Dam to downstream of Iron Gate Dam of about 77 percent. For trap and haul, the juvenile survival value was 81 percent. If this type of information is provided for one alternative, the DEIR should provide the same type of information for all alternatives, including the Proposed Project.

Response to Comment ORG46-436

The sentence in Volume I page 4-137 referenced in the comment includes a reference to Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* (page 4-132) for more information on the estimates of passage survival used in analysis of effects of the alternative on fall-run Chinook salmon, and cites the source of the estimates (which is FERC 2007). As noted in the cited section, the mortality estimates are cumulative assuming migration through all facilities past all dams and through all reservoirs, and specifically noting that predation is included in the mortality estimate (which is the same approach used by Oosterhout 2005).

The No Project Alternative appropriately assumes adult migration mortality similar to existing conditions, based on reported smolt-to-adult return rates, and implicitly incorporates predation and disease.

The Proposed Project includes volitional passage, and therefore appropriately does not include a mortality estimate for migration through a facility or hydroelectric reservoir. An estimate of migration mortality (from predation, harvest, disease) is included within the estimates of escapement predicted by Hendrix (2011) and reported in the EIR, through incorporation of adult migration mortality modeling based on available information for the watershed and region.

Each of the alternatives includes explicit discussion of the approach to estimating adult migration and fish passage survival, and the assumptions are applied consistently.

Comment ORG46-437

The DEIR describes effects of dissolves oxygen under the Continued Operations with Fish Passage Alternative on fall-run Chinook. The DEIR states that oxygen levels will range from less than 85 percent saturation to 90 percent saturation. The effects to Chinook from these oxygen levels are not discussed. Carter (2005) reviewed oxygen effects to salmon and showed that effects are expressed in concentrations of dissolved oxygen in mg/l. Expressing dissolved oxygen values as percent of saturation is consistent with the Basin Plan, but because the actual values can vary based on elevation and water temperature, they are difficult to interpret in terms of effects to fish. The resulting oxygen values for the months cited should be reported and compared to a published metric so that the public and decision-makers can understand likelihood and scale of effect to salmonids.

Response to Comment ORG46-437

Potential Imapct 4.2.3-7 has been revised to clarify the relevant dissolved oxygen concentrations and the associated potential effects on egg incubation. Please refer to Volume III Attachment 1 Section 4.4.3.7 *Continued Operations With Fish Passage Alternative – Aquatic Resources – Fish Passage* for the revisions.

Comment ORG46-438

The DEIR includes a summary statement for the Continued Operations with Fish Passage Alternative indicating that there would be no impact (no change relative to existing conditions) for fall-run Chinook salmon in the short term (i.e., less than 5 years) timeframe. The DEIR should ensure that each summary section of effects for all alternatives should have a conclusion statement as to whether the alternative achieves the identified objectives of the Proposed Project for natural fish populations. As previously stated on page ES-4 of the DEIR, the objective is as follows: "Advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation." The level of advancement sought in this objective is not defined in the DEIR. Thus, while the scale of the advancement may vary between alternatives, it appears that all alternatives achieve the objective to some extent.

Response to Comment ORG46-438

Please refer to Volume I *Executive Summary –Alternatives to Proposed Project* (pages ES-17 and ES-18) for a discussion of how alternatives meet the identified objectives of the Proposed Project.

The Proposed Project and every alternative evaluate the potential short- and long-term impacts to Chinook salmon.

Comment ORG46-439

The DEIR states that "...poor water quality in reservoirs is expected to have minor effects on this species, and only at the early and late ends of migration periods, outside peak migration times." Given that there are no spring-run Chinook upstream of the Salmon River, the DEIR needs to clarify why the early portion of the spring-run Chinook adult migration would be negatively affected by the reservoirs before and during April. The DEIR should further clarify why this same statement is not made for the Keno Reservoir. The water quality parameters that the DEIR assumes would negatively affect adult spring-run Chinook migrating through reservoirs before and during April should be identified and applied equally through the river and within the DEIR.

Response to Comment ORG46-439

Volume I Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-8 (page 4-141) describes how fish passage facilities installed at the Lower Klamath Project dams within the Hydroelectric Reach would allow spring-run Chinook salmon to regain access to 360 miles of habitat in the upper Klamath River upstream of J.C. Boyle Reservoir. The access would expand the Chinook salmon's current habitat to include historical habitat along the mainstem Klamath River upstream to the Sprague, Williamson, and Wood rivers (Hamilton et al. 2005, Butler et al. 2010, Hamilton et al. 2016). Huntington (2006) reasoned that spring-run Chinook salmon likely accounted for the majority of the Upper Klamath

Basin's actual salmon production under historical conditions. Overall, the Continued Operations with Fish Passage Alternative would provide spring-run Chinook access to 49 significant tributaries in the Upper Klamath Basin, comprising hundreds of miles of additional potentially productive anadromous fish habitat upstream of Iron Gate Dam (DOI 2007), including access to important thermal refugia within areas influenced by groundwater exchange that are more resistant to climate change (Hamilton et al. 2011).

Volume I Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-8 (page 4-141) does include the same consideration for spring-run Chinook salmon timing and reservoir water quality for the Keno Reservoir, stating, "Under the current migration timing, most or all of the spring-run Chinook salmon migrants would be able to pass upstream through the Keno Impoundment/Lake Ewuana area before seasonal water quality reductions would make passage restricted."

Comment ORG46-440

Given that there is not a population of spring-run Chinook upstream of the Salmon River, the DEIR needs to explain why there is an analysis of effects to spring-run Chi nook. The DEIR note s that spring-run Chinook could recolonize habitat upstream through straying. However, Iron Gate Hatchery data indicate that spring-run Chi nook have not been collected at Iron Gate Hatchery for decades. This is likely because the nearest spring-run Chinook population is about 130 river miles downstream of Iron Gate Dam in the Salmon River. The Salmon River spring-run Chinook population is also very small, thereby reducing the number of adults likely to stray. Therefore, the DEIR should account for the actual population data and state that it is highly unlikely spring-run Chinook would recolonize existing habitat by straying from the Salmon River in any reasonable timeframe. The DEIR should not speculate about spring-run Chinook recolonization, but at a minimum should indicate that if straying from the Salmon River does occur, it likely would take decades (or longer) before substantial spring-run Chinook production occur upstream of Iron Gate Dam. This same statement should be added to all alternatives.

Response to Comment ORG46-440

As discussed in response to comment ORG46-439, increased habitat access for spring-run Chinook salmon has been predicted to increase the opportunity for migration upstream beyond the Salmon River, and upstream of Iron Gate Dam. The text this comment refers to indicates that the timeframe for spring run recolonization without active reintroduction would be long.

The issue of the timeframe for recolonization has been considered by state and federal salmonid resource managers, and Oregon Department of Fish and Wildlife (ODFW) has drafted a plan for the active reintroduction of spring-run Chinook salmon to habitat within Oregon upstream of Iron Gate Dam (T. Wise, ODFW, pers. comm., 2018). Active reintroduction of spring-run Chinook salmon has been demonstrated to be effective at supporting relatively rapid recolonization of habitat within other Oregon watersheds, including several tributaries within the upper Willamette River.

ODFW has not specified the fish passage alternatives that would be a prerequisite for active reintroduction. The potential for this plan to be implemented also exists for all alternatives. Stray rates of spring-run Chinook salmon from the Salmon River to habitat upstream of Iron Gate Dam would be directly addressed through active reintroduction efforts from ODFW. Otherwise, as noted in the text, recolonization would likely be slow. Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 has been revised to note that a draft plan for active reintroduction of spring run Chinook salmon exists, although the EIR does not rely on its implementation. Please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for the revisions.

Comment ORG46-441

Previous comments related to prespawn mortality rates apply here (see comment 3.2-43 and 3.3-70). The DEIR should clarify that, although temperature effects from the dams do not extend downstream of Clear Creek (RM 95), summer temperatures downstream of Clear Creek can be naturally high enough to impair adult salmon migration and survival. This is a condition that would persist independent of the Propose d Project or any alternatives.

Response to Comment ORG46-441

Please refer to response to comment ORG46-127, which affirms that the Lower Klamath Project effects on water temperature are apparent to the confluence with the Salmon River (river mile [RM] 66.3).

With regard to pre-spawn mortality, please also refer to responses to comments ORG46-19, ORG46-128, ORG46-185, ORG46-227, and ORG46-433.

Comments ORG46-442, ORG46-443, and ORG46-444

The DEIR should state that juvenile Steelhead survival rate may be higher than the smaller juveniles produced by fall-run Chinook. Because juvenile Steelhead rear for a longer amount of time in freshwater and juvenile Steelhead are larger than juvenile Chinook which imparts a higher survival rate.

The DEIR indicates that aquatic resource measure AR-6 (Suckers) is not included in this alternative because measures under AR-6 are not possible to implement in this alternative. The elements included in AR-6 are possible, but likely unnecessary because the existing reservoirs would remain. However, if suckers were encountered in fish passage facilities developed for this alternative, then genetic testing for hybridization, followed by sucker salvage and release would be possible and perhaps reasonable to implement.

Response to Comments ORG46-442, ORG46-443, and ORG46-444
Please refer to Volume I Section 4.4.3.7 *[*Alternatives – *Continued Operations with Fish Passage] Aquatic Resources – Fish Passage* (pages 4-131 to 4-132) for information regarding juvenile steelhead and Chinook salmon downstream survival rates. For the analysis of juvenile downstream mortality rates, the best available scientific data indicate that effects of passage through volitional fishways would be equivalent for other migratory species based on available data (DWR 2013) for fishways designed and constructed to modern agency criteria as required by DOI (2007). The commenter's assertion that Chinook salmon and steelhead would have different survival rates during migration is not critical to the analysis of the EIR. Assumed survival rates during migration are estimates based on available data and used for comparing alternatives. The nuanced differences in survival that may occur between various species would not affect the analysis comparing alternatives, or the conclusions reached by the EIR; therefore, using the best available data on survival rates and assuming similar survival among species is reasonable and appropriate.

Regarding the comment's assertion that genetic testing for hybridization followed by sucker salvage and release would be possible and perhaps reasonable to implement under the Continued Operations with Fish Passage Alternative, please note that there is no reason to expect that Aquatic Resource Measure AR-6 would be feasible under this alternative. As discussed in Section 3.3 *Aquatic Resources – Potential Impacts and Mitigation* Potential Impact 3.3-13, Section 2081.11 was added to the Fish and Game Code to authorize take of Lost River and shortnose suckers, subject to certain conditions. CDFW (2018b) has reviewed Aquatic Resource Measure AR-6 and preliminarily agreed that the Proposed Project with implementation of Aquatic Resource Measure AR-6 potentially meets the standards for take authorization under Fish and Game Code, section 2081.11. Further, as stated in 4.4.3.7 *[Continued Operations with Fish Passage] Aquatic Resources – Fish Passage* Potential Impact 4.2.3-13, because the Continued Operations with Fish Passage Alternative would directly connect the reservoirs to Upper Klamath Lake, it would not be possible prevent further hybridization under this alternative and would thus not be reasonable to implement Aquatic Resource Measure AR-6, irrespective of feasibility.

Comment ORG46-445
The DEIR incorrectly concludes that there would be no impact for Lost River and Shortnose sucker populations in the long term. As the DEIR notes, volitional passage could allow hybrid suckers to move into Upper Klamath Lake but aside from citing work cautioning against allowing hybrid suckers to reach Upper Klamath Lake, the DEIR makes no effort to evaluate the potential for this affect to be a substantial effect on the sucker populations in Upper Klamath Lake. The DEIR reasonably asserts that "Overall, it is speculative to determine whether increased access to spawning habitat outweigh the increased risk of hybridization, or vice-versa." Just because something is speculative does not

mean there is no impact, and the DEIR certainly speculates about many other topics throughout the document. The DEIR correctly concludes that there are no significant impacts for Shortnose and Lost River suckers in the short term although that conclusion should probably be restricted to the population in the Klamath Hydroelectric Project reservoirs and not those in Upper Klamath Lake.

Response to Comment ORG46-445

Potential Impact 4.2.3-13 has been revised to clarify how hybridization is considered in the analysis of the Continued Operations with Fish Passage Alternative. Please refer to Volume III Attachment 1 Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-13 for the revisions.

Comment ORG46-446

Other species have a discussion in the DEIR of trap and haul as it differs from volitional passage. That discussion is missing for Redband Trout and the DEIR either needs to add such a discussion or explain to the reader why it was not included.

Response to Comment ORG46-446

With respect to redband trout passage, Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-14 has been revised to clarify trap and haul implementation under continued operations of the Lower Klamath Project. Please refer to Volume III Attachment 1 Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage – Aquatic Resources – Fish Passage* Potential Impact 4.2.3-14 for the revisions.

Comment ORG46-447

The DEIR states that "Continued Operations with Fish Passage Alternative would result in no change from existing adverse conditions in the short term and long term for these reaches." The DEIR should remove the biased term "adverse" and limit discussion to changes from "existing conditions."

Response to Comment ORG46-447

In addition to meeting CEQA's requirements to identify and analyze potentially significant impacts from the Proposed Project, this EIR is intended to inform the State Water Board's decision with respect to potential issuance of a water quality certification for the Proposed Project under the federal Clean Water Act (CWA). Unlike CEQA, which is concerned primarily with new impacts as compared to baseline conditions, section 401 of the Clean Water Act authorizes issuance of a water quality certification only if the issuing authority (here, the State Water Board) finds that discharges from the project/facility will not result in violations of water quality standards.

In that context, identifying and evaluating existing exceedances of water quality standards is an important component of the State Water Board's consideration of the conditions that may be necessary to certify that approval of the project will not cause violations of water quality standards.

Additionally, an EIR is a public information document, and including accurate information about existing conditions enhances rather than detracts from that purpose. Use of this phrase is intended to provide appropriate and helpful context for the general reader to understand the nature of the existing condition in light of the CEQA requirement to consider the baseline condition as existing conditions (CEQA Guidelines Section 15125(a)).

Here, the phrase "existing adverse conditions" is used instead of "existing conditions" because high cyanobacteria [blue-green algae] cell counts and algal toxin concentrations measured under existing conditions exceed primary (i.e., algal toxin) and secondary (i.e., cyanobacteria [blue-green algae] cell counts) threshold triggers for posting health advisories for recreational water contact and these levels can result in adverse impacts on human health or environmental receptors (e.g., fish). Please refer to Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach - Phytoplankton* (pages 3-405 to 3-413) for a summary of the nuisance and/or noxious phytoplankton blooms occurring in the reservoir under existing conditions and the public health advisory postings that have occurred in Copco No. 1 and Iron Gate reservoirs and the Middle and Lower Klamath River from 2005 to 2017. Potential Impact 4.4.4-1 (pages 4-162 to 4-163) is objective and unbiased when it concludes that the Continued Operations with Fish Passage Alternative would result in no change from existing adverse conditions in the short term and long term for these reaches.

Comment ORG46-448

The description of work for the Continued Operations with Fish Passage Alternative indicates that "Under the Continued Operations with Fish Passage Alternative, construction activities to install fish ladders would occur at all four Lower Klamath Project dam complexes." Considering that this work may be conducted within the Klamath Hydroelectric Historic District or directly impact the four individual/contributing dams and reservoirs (J.C. Boyle Dam, Copco No. 1 Dam, Copco No. 2 Dam, Iron Gate Dam) and all associated hydroelectric facilities, an analysis of impacts resulting from the installation of fish ladders is warranted here. Table ES-1 (Summary of Impacts and Mitigation Measures) indicates that this alternative would have "No Significant Impacts" to the Historic District or the four individual/contributing darns and reservoirs but it is not clear from the DEIR how this finding was reached.

Response to Comment ORG46-448

Section 4.4.12 *Continued Operations with Fish Passage Alternative – Historical Resources and Tribal Cultural Resources*, second paragraph has been revised to add a reference to Potential Impact 3.12-11, which should have been cited instead of Potential Impact 3.12-12. Please refer to Volume III Attachment 1 Section 4.4.12 *Continued Operations with Fish Passage Alternative – Historical Resources and Tribal Cultural Resources* for the revisions.

Table ES-1 has been corrected to indicate that Potential Impact 3.12-11 for historic-period archaeological resources under the Continued Operations with Fish Passage Alternative would be significant and unavoidable. Please refer to Volume III Attachment 1 *Executive Summary* for the revisions.

Comment ORG46-449

This section includes a significance statement, while other sections do not, and the reader is left to interpret the text, possibly leading to different conclusions than the DEIR authors intended. These sections should be organized similarly with consistent significance statements.

Response to Comment ORG46-449

For the alternatives analysis, as with other sections of the EIR, significance statements are presented for each analysis that begins with a numbered potential impact title. For the alternatives, significance statements for new potential impacts or for changed findings of significance in comparison to the Proposed Project also are presented. Here, the numbered potential impact title was inadvertently omitted. Section 4.4.22 *Alternatives – Continued Operations with Fish Passage Alternative – Transportation and Traffic* has been revised to clarify which part of the impact analysis is associated with the short-term construction-related changes to traffic and which part of the impact analysis is associated with long-term operational changes to traffic due to trap and haul. Please refer to Volume III Attachment 1 Section 4.4.22 *Alternatives – Continued Operations with Fish Passage Alternative – Transportation and Traffic* for the revisions.

Comment ORG46-450

The DEIR incorrectly states that "J.C. Boyle Reservoir would not alter water temperature in the J.C. Boyle Peaking Reach from the Oregon-California state line to Copco No. 1 Reservoir." However, under the Two Dam Removal Alternative, a steady state flow from J.C. Boyle Powerhouse would produce a different diurnal temperature signal than the Proposed Project or No Action Alternative. This condition would occur because water would be released to the bypass reach and through the J.C. Boyle Powerhouse. Travel times through these areas differ and waters would heat at different rates if they were conveyed through the power canal or the bypass reach to the J.C. Boyle Powerhouse location. The DEIR does not accurately reflect conditions that would occur as a result of this alternative.

Response to Comment ORG46-450

Volume I Section 4.5.2.1 *Two Dam Removal Alternative – Water Quality – Water Temperature* (pages 4-187 to 4-189) has been revised to clarify the potential water temperature changes in the J.C. Boyle Peaking Reach under the Two Dam Removal Alternative compared to existing conditions. Please refer to Volume III Attachment 1 Section 4.5.2.1 *Two Dam Removal Alternative – Water Quality – Water Temperature* for the revisions.

Comment ORG46-451

The DEIR states that "The long-term increases in mineral (inorganic) and algal-derived (organic) suspended material due to the lack of interception by the dams would be a less than significant impact under the Proposed Project as only a small amount of sediment and suspended material is delivered from upstream of J.C. Boyle Dam." This statement is dangerously incorrect and reflects a serious misunderstanding of water quality dynamics in the Klamath River. There are very large seasonal loads (especially organic matter) conveyed from reaches "upstream of J.C. Boyle Dam," including notably Keno Reservoir and Upper Klamath Lake. The loss of retention in Iron Gate and Copco reservoirs under the Two Dam Removal Alternative would lead to additional available nutrients to support macrophyte and periphyton growth in the free-flowing reaches of the Klamath River, which in turn will impact water quality, particularly pH and dissolved oxygen. The loss of retention in Iron Gate and Copco reservoirs would also result in reduced travel time, translating to conveyance of organic matter to downstream reaches (all the way to the estuary) over a much shorter timeframe. Travel time from J.C. Boyle Dam to the estuary would be reduced from several weeks under existing conditions to approximately 5 days. Organic material that used to settle and/or break down in reservoirs would be delivered to the lower Klamath River and estuary, which would increase organic matter oxygen demand as well as the associated nutrients bound to the organic matter. The DEIR does not address the impacts of the conditions that would result from this alternative on water quality in the lower river and estuary.

Response to Comment ORG46-451

Please note that paragraph two of Section 4.5.2.2 *Alternatives – Two Dam Removal – Water Quality – Suspended Sediments* (page 4-191) provides context for the sentence in paragraph four that is quoted in the comment, including context for the use of "small". Paragraph two states the following: "While the amount of sediment supplied to the Klamath River on an annual basis from the watershed upstream of J.C. Boyle Dam is a relatively small fraction of the total sediment (Stillwater Sciences 2010) (see also Section 3.11.2.4 *Sediment Load*), the long-term increase in mineral (inorganic) suspended material downstream of J.C. Boyle Dam under this alternative would be less than under the Proposed Project since J.C. Boyle Dam would continue to intercept upstream sediment. The majority of algal-derived (organic) suspended material from upstream sources (Upper Klamath Lake, Klamath Straights Drain, Lost River) is intercepted and retained by the Keno Impoundment/Lake Ewauna, but J.C. Boyle Dam does retain some algal-derived (organic) suspended material (see Appendix C, Section C.2.1 Upper Klamath Basin for more detail)."

Additionally, please refer to Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach* (pages 3-405 to 3-413), Volume II Appendix C, Section C.2 *Suspended Sediments* (pages C-14 to C-23), and Volume III Attachment 1 Section 3.2.2.3 *Water Quality – Environmental Setting – Suspended Sediments* for a summary of the suspended sediment and algal dynamics in the Klamath River within and upstream of the Hydroelectric Reach that would potentially influence water quality dynamics in California (i.e., downstream of the Oregon-California state line).

Please refer to response to comment ORG46-135 for further discussion of the Klamath Hydropower Settlement Agreement (KHSA) Interim Measure 15 (IM15) measured total suspended solids (TSS) and volatile suspended solids (VSS) from 2003 to 2017 upstream of J.C. Boyle Reservoir (river mile [RM] 233.3), at the USGS 11510700 gage downstream of the J.C. Boyle Powerhouse (RM 224.45), and upstream of Copco No. 1 Reservoir/upstream of Shovel Creek (RM 211.2) that quantifies mineral (inorganic) and algal-derived (organic) suspended material entering the Hydroelectric Reach.

While algal-derived (organic) suspended material is transported from the Upper Klamath Lake into the Klamath River, algal-derived (organic) suspended material (measured as total phytoplankton biovolume, TSS, or VSS) in the Klamath River decreases in the downstream direction such that the average total phytoplankton biovolume decreases an order of magnitude from the Upper Klamath Lake to the upstream end of J.C. Boyle Reservoir (i.e., from approximately 10 millimeters cubed per liter (mm^3/L) at Pelican Marina to 1.0 mm^3/L upstream of J.C. Boyle Reservoir; see Volume I Figure 3.4-11 [page 3-407]) and organic suspended sediments (as TSS) typically decrease approximately 50 percent from the mouth of Link River to the upstream end of J.C. Boyle Reservoir (i.e., from approximately 15 mg/L at the mouth of Link River to 7 mg/L upstream of J.C. Boyle Reservoir; see Volume II Figure C-13 [page C- 16]). The data summarized in Volume I Section 3.4.2.3 *Hydroelectric Reach* (pages 3-405 to 3-413), Volume II Appendix C, Section C.2 *Suspended Sediments* (pages C-14 to C-23), and Volume III Attachment 1 Section 3.2.2.3 *Suspended Sediments*, along with KHSA IM15 TSS and VSS data presented in response to comment ORG46-135 quantify the magnitude of inorganic and organic suspended material expected to enter the Hydroelectric Reach under the Proposed Project. These data are also applicable to the Two Dam Removal Alternative, since neither alternative would alter inorganic and organic suspended material conditions in the Klamath River upstream of J.C. Boyle Reservoir.

In addition to the additional context provided above, the sentence referenced in the comment has been clarified to replace "only a small amount" with "a relatively small amount". Please refer to Volume III Attachment 1 Section 4.5.2.2

Alternatives – Two Dam Removal – Water Quality – Suspended Sediments for the revisions.

Further, while the comment is correct that the overall travel time from J.C. Boyle Dam to the Klamath River Estuary would be reduced under the Two Dam Removal Alternative, the decrease in the travel time would only occur from J.C. Boyle Dam to downstream of Iron Gate Dam due to the conversion of Copco No. 1 and Iron Gate reservoirs to a free-flowing river. There would be no change in the travel time from downstream of Iron Gate Dam to the Klamath River Estuary since Klamath River flow downstream of Iron Gate Dam is determined by the operation of the United States Bureau of Reclamation's (USBR's) Klamath Irrigation Project and the applicable biological opinion(s) to meet the needs of listed species and maintain full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies, and the Two Dam Removal Alternative does not include any changes to the amount of flow released by the Klamath Irrigation Project.

Conversion of Copco No. 1 and Iron Gate reservoirs to a free-flowing river under the Two Dam Removal Alternative would potentially decrease algal-derived (organic) suspended material in the Hydroelectric Reach due to increases in mechanical breakdown and elimination of reservoir production of algal-derived (organic) suspended material, but conversion of the reservoirs to a free-flowing river would also potentially increase algal-derived (organic) suspended material in the Hydroelectric Reach due to periphyton and potential macrophyte growth in the new free-flowing river reaches. As discussed in Volume III Attachment 1 Potential Impact 3.2-6 for the Proposed Project (which also removes Copco No. 1 and Iron Gate reservoirs), Volume III Attachment 1 Section 4.5.2.2 *Alternatives – Two Dam Removal Alternative – Water Quality – Suspended Sediments*, and response to comment ORG46-136 (which is focused on the Proposed Project, but is also relevant to the Two Dam Removal Alternative because of the removal of Copco No. 1 and Iron Gate reservoirs), the magnitude of the potential decreases in algal-derived (organic) suspended material is anticipated to be similar to the magnitude of the potential increases in algal-derived (organic) suspended material, so there generally would be no decrease in algal-derived (organic) suspended material through the Hydroelectric Reach compared to existing conditions. It is also conservatively assumed that there potentially would be a slight relative long-term increase in algal-derived (organic) suspended material downstream of Iron Gate Dam due to the reservoirs no longer providing calm, slow-moving water conditions for algal-derived (organic) suspended material to settle out of the water column and organic suspended material production from periphyton and macrophyte growth within the new free-flowing river portions of the Hydroelectric Reach, but such increases would be well below the algal-derived suspended material previously produced in Copco No. 1 and Iron Gate reservoirs and would not exceed levels that would substantially adversely affect the cold freshwater habitat (COLD) beneficial use or any other existing designated beneficial use at the levels currently supported, exacerbate an existing exceedance of water quality standards, or result in a failure to maintain an existing beneficial use. Please refer to Volume I Section 4.5.2 *Alternatives – Two Dam Removal Alternative – Water Quality* (pages 4-186 to 4-204) for discussion of the potential impacts to other water quality parameters under the Two Dam Removal Alternative.

Section 4.5.2.2 *Two Dam Removal Alternative – Water Quality – Suspended Sediments* has been revised to clarify the conclusions of the EIR for the Two Dam Removal Alternative with respect to long-term increases in mineral (inorganic) and algal-derived (organic) suspended material. Please refer to Volume III Attachment 1 Section 4.5.2.2 *Two Dam Removal Alternative – Water Quality – Suspended Sediments* for the revisions.

Comment ORG46-452

The DEIR states that "Accordingly, existing large summertime variations in dissolved oxygen in J.C. Boyle Reservoir, especially at depth, would still occur and could continue to influence dissolved oxygen concentrations in the California portion of the Hydroelectric Reach in the same manner as under existing conditions (see also 3.2.2.5 Dissolved Oxygen)." The DEIR should recognize that the modified operation of J.C. Boyle from a peaking facility to a run-of-river system would change the sub-daily flow regime in the reservoir from one of release-then-store to a continual flow. This modification would likely impact the settling rate, intermittent thermal stratification, algal assemblage, and other water quality conditions in the reservoir. The DEIS should analyze these potential impacts (or benefits) in the reservoir and from releases downstream.

Response to Comment ORG46-452

While the change from peaking operations to run-of-river operations for J.C. Boyle Reservoir would alter mixing conditions and dissolved oxygen concentrations in the reservoir, the analysis of long-term dissolved oxygen conditions under the Two Dam Removal Alternative in Volume I Section 4.5.2.4 *Two Dam Removal Alternative – Water Quality – Dissolved Oxygen* (pages 4-196 to 4-199) accurately characterizes the dissolved oxygen trends in J.C. Boyle Reservoir and the California portion of the Hydroelectric Reach. However, additional details, including PacifiCorp's Klamath River Water Quality Model (KRWQM) results of dissolved oxygen under steady flow conditions similar to those expected under the Two Dam Removal Alternative, are available to clarify how the change from peaking operations to run-of-river operations would alter dissolved oxygen conditions from J.C. Boyle Reservoir to the upstream end of Copco No. 1 Reservoir. Therefore, Section 4.5.2.4 *Two Dam Removal Alternative – Water Quality – Dissolved Oxygen* has been revised in Volume III Attachment 1 to clarify that modeling of steady flow conditions similar to the Two Dam Removal Alternative in PacifiCorp (2004a-1) indicates that summertime variations in dissolved oxygen in J.C. Boyle Reservoir would still occur and could continue to influence dissolved oxygen concentrations in the California portion of the Hydroelectric Reach in the same manner as under existing conditions, but the magnitude of these variations would potentially be less than occurs under existing conditions. Please refer to Volume III Attachment 1 Section 4.5.2.4 *Two Dam Removal Alternative – Water Quality – Dissolved Oxygen* for the revisions.

For related discussion of hydropower peaking flows in the J.C. Boyle Peaking Reach and the release of lower dissolved oxygen water from J.C. Boyle Reservoir that potentially affects dissolved oxygen concentrations further downstream in the California portion of the J.C. Boyle Peaking Reach, please refer to response to comment IND156-27.

For discussion of the potential impact of modified J.C. Boyle Dam operations on water temperature under the Two Dam Removal Alternative, please refer to ORG46-450. With respect to the comment's concern regarding a change in settling rate in J.C. Boyle Reservoir due to operating the reservoir as a run-of-river facility, Section 4.5.2.2 *Alternatives – Two Dam Removal Alternative – Water Quality – Suspended Sediments* has been revised to clarify that some degree of settling of suspended material would still occur in in calm areas along the channel margins and areas nearest the J.C. Boyle Dam face, but the amount of settling would be less than under the Proposed Project. Please refer to Volume III Attachment 1 Section 4.5.2.2 *Alternatives – Two Dam Removal Alternative – Water Quality – Suspended Sediments* for the revisions.

With respect to the comment's concern regarding a change in algal assemblage in J.C. Boyle Reservoir due to operating the reservoir as a run-of-river facility, Volume I Section 4.5.2.6 *Alternatives – Two Dam Removal Alternative – Water Quality – Chlorophyll-a and Algal Toxins* states on page 4-200 and 4-201 that the shallow depth (8.3 feet average depth) and short hydraulic residence time (1.1 days at average flows) of J.C. Boyle Reservoir does not promote the low mixing conditions or thermal stratification that create optimal habitat for phytoplankton growth, so the reservoir does not have large phytoplankton blooms (as measured by chlorophyll-a) under existing conditions (see Figure 3.2-5). The EIR goes on to state that the residence time of J.C. Boyle Reservoir without peaking operations would still be short (i.e., on the order of one to three days), so leaving this dam in place and ceasing peaking flows would be unlikely to create conditions that would support large seasonal phytoplankton blooms or increase chlorophyll-a concentrations relative to existing conditions. The comment does not specify why consideration of algal assemblage in J.C. Boyle Reservoir under the Two Dam Removal Alternative is needed in addition to the information provided above and in Volume I Section 4.5.2.6.

With respect to 'other water quality parameters' please refer to Volume I Section 4.5.2.3 *Alternatives – Two Dam Removal Alternative – Water Quality – Nutrients* (pages 4-193 to 4-196) and Volume I Section 4.5.2.5 *Alternatives – Two Dam Removal Alternative – Water Quality – pH* (pages 4-199 to 4-200) for a discussion of why leaving J.C. Boyle Dam in place and ceasing peaking and recreation flows would be unlikely to impact these water quality parameters.

Comment ORG46-453

The DEIR states that "...no impact (no change from existing adverse conditions)." The DEIR should remove the biased term "adverse" and limit discussion to changes from "existing conditions."

Response to Comment ORG46-453

In addition to meeting CEQA's requirements to identify and analyze potentially significant impacts from the proposed project, this EIR is intended to inform the State Water Board's decision with respect to potential issuance of a water quality certification for the proposed project under the federal Clean Water Act (CWA). Unlike CEQA, which is concerned primarily with new impacts as compared to baseline conditions, section 401 of the Clean Water Act authorizes issuance of a water quality certification only if the issuing authority (here, the State Water Board) finds that discharges from the facility will not result in violations of water quality standards. Thus, the State Water Board cannot issue a water quality certification even if approval of a project would only continue existing violations of water quality standards.

In that context, identifying and evaluating existing exceedances of water quality standards is an important component of the State Water Board's consideration of the conditions that may be necessary to certify that approval of the project will not cause violations of water quality standards.

Additionally, an EIR is a public information document, and including accurate information about existing conditions enhances rather than detracts from that purpose. Use of this phrase is intended to provide appropriate and helpful context for the general reader to understand the nature of the existing condition in light of the CEQA requirement to consider the baseline condition as existing conditions (CEQA Guidelines Section 15125(a)).

Here, the phrase "existing adverse conditions" is used instead of "existing conditions" because data from J.C. Boyle Reservoir sediments indicate that existing conditions have the potential to cause an adverse impact on an environmental receptor. Please refer to Volume II Appendix C, Section C.7 *Inorganic and Organic Contaminants* (pages C-83 to C-119) for a summary of the inorganic and organic contaminant concentrations in J.C. Boyle Reservoir sediments greater than human and ecological screening levels, toxicity test results for J.C. Boyle Reservoir sediments that indicate moderate potential for sediment toxicity, and contaminants in aquatic biota from J.C. Boyle Reservoir greater than screening levels for the protection of human health and wildlife.

Please also refer to response to comment ORG46-376.

Comment ORG46-454

The DEIR alludes to the "poor water temperature conditions that occur downstream of the larger Lower Klamath Project reservoirs (Iron Gate and Copco No. 1 reservoirs) under existing conditions." This discussion should be revised to reflect the actual conditions that could occur under the alternative and how those conditions relate to the significance criteria.

Response to Comment ORG46-454

Section 4.5.3.3 *Alternatives – Two Dam Removal Alternative – Aquatic Resources Water Quality* (page 4-205) clearly expresses that under the Two Dam Removal Alternative the remaining two reservoirs (Copco No. 2 and J.C. Boyle reservoirs) are relatively small and have short residence times, and therefore they would generally not support the same poor water temperature conditions that occur downstream of the larger Lower Klamath Project reservoirs (Iron Gate and Copco No. 1 reservoirs) under existing conditions. This is a valid comparison to existing conditions to explain the predicted effect of this alternative.

Comment ORG46-455

The DEIR alludes to "removing Iron Gate, Copco No. 1, and Copco No. 2 reservoirs and converting the reservoir areas to a free-flowing river under this alternative..." However, Copco No. 2 Reservoir would remain under this alternative. This should be corrected.

Response to Comment ORG46-455

Section 4.5.3.3 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Water Quality* has been clarified as requested. Please refer to Volume III Attachment 1 Section 4.5.3.3 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Water Quality* for the revisions.

Comment ORG46-456

The DEIR indicates that aquatic resource measure AR-6 (Suckers) is included in this alternative. Given that this impact is not considered significant, it is unclear why this measure is included, perhaps it is required for Fish and Game Code 2081.11 under CEQA although CDFW has not made a final determination as to whether this measure meets the standards for take authorization under Fish and Game Code, section 2081.11.

Response to Comment ORG46-456

Resource measures can be implemented to further reduce effects, even when impacts are not predicted to be significant. Please also refer to responses to comment ORG46-257 and Master Response CEQ-2.

Comment ORG46-457

The DEIR alludes to "...restored habitat access of anadromous salmonids that would not differ between the Proposed Project and the Two Dam Removal

Alternative. In actuality access would differ because of the small amount of mainstem habitat inundated by Copco No. 2 and a larger amount by J.C. Boyle Reservoir, and the downstream most portion of Spencer Creek that is inundated by J.C. Boyle Reservoir. The DEIR should be corrected to accurately reflect the alternative.

Response to Comment ORG46-457
Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage* Potential Impact 3.3-14 (page 4-220) discusses restored habitat access for anadromous salmonids as it relates to the potential for competition, predation, and exposure to disease which is expected to be similar under the Two Dam Removal Alternative since anadromous salmonids would have access to habitat upstream of Iron Gate Dam. In addition, Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage* Potential Impact 3.3-14 (page 4-220) states: "3.8 miles of mainstem and tributary habitat would continue to be inundated by Copco No. 2 and J.C. Boyle reservoirs. It is anticipated that under the Two Dam Removal Alternative this habitat would continue to support an adfluvial redband trout population."

Comment ORG46-458
The paragraph discussing the effects of sediment release on Redband Trout is confusing. Under the Two Dam Removal Alternative, J.C. Boyle and Copco No. 2 dams remain but most of this paragraph focusses on the Proposed Project. The DEIR should actually evaluate the impact on Redband Trout of removing Copco No. 1 and Iron Gate dams

Response to Comment ORG46-458
Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage Potential Impact 3.3-14* has been clarified to evaluate the impact on redband trout under the Two Dam Removal Alternative. Please refer to Volume III Attachment 1 Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage* Potential Impact 3.3-14 for the revisions.

Comment ORG46-459
The DEIR should clarify that the "long-term substantial increase in redband trout habitat quality and quantity" would presumably be relative to the No Project Alternative.

Response to Comment ORG46-459
Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage Potential Impact 3.3-14* has been clarified as requested. Please refer to Volume III Attachment 1 Section 4.5.3.8 *Alternatives – Two Dam Removal Alternative – Aquatic Resources – Fish Passage Potential Impact 3.3-14* for the revisions.

Comment ORG46-460

The DEIR states that "The areas downstream of the Trinity River confluence do not currently support Anodonta spp. and are unlikely to in the future (Davis et al. 2013)." If this is the case, then the DEIR should clarify why the salvage and relocation plan considers these sites.

Response to Comment ORG46-460

Regarding *Anodonta spp.* salvage and relocation, please refer to response to comment ORG46-261.

Comment ORG46-461

In this paragraph, the DEIR concludes that there would be a "...significant impact to the Anodonta spp. population under the Two Dam Removal Alternative in the short term." However, this seems to conflict with the DEIR conclusion in the following paragraph that "impacts would be not significant with for Anodonta spp. in the short term." The DEIR needs to be revised to indicate if this impact is significant or not in the short term.

Response to Comment ORG46-461

Section 4.5.3.8 *[Two Dam Removal] Aquatic Resources – Fish Passage* Potential Impact 3.3-19 has been revised to clarify the analysis regarding freshwater mussels. Please refer to Volume III Attachment 1 Section 4.5.3.8 *[Two Dam Removal] Aquatic Resources – Fish Passage* for the revisions.

Comment ORG46-462

Only short-term effects are discussed in the text leading up to this conclusion, yet a conclusion is drawn for long-term impacts for which there is no discussion.

Response to Comment ORG46-462

Please refer to response to comment ORG46-461 for revisions to text to clarify long-term effects.

Comment ORG46-463

There is no specific discussion in this section for how the Two Dam Removal Alternative would impact historic-period archaeological sites. Construction activities and a new day use area at Copco No. 2 Dam may impact known and as yet unknown historic period archaeological sites. The statement "However, installation of upstream and downstream fish passage at Copco No. 2 Dam and a new day use area near Copco No. 2 Dam, including all associated construction activities, may impact known, or as yet unknown, tribal cultural resources to a similar degree as that described for the Proposed Project" could also apply to historic-period archaeological resources. The DEIR does not currently reflect the potential impacts from this alternative.

Response to Comment ORG46-463
Section 4.5.12 *Alternatives – Two Dam Removal Alternative – Historical Resources and Tribal Cultural Resources* has been revised to clarify that historic-period archaeological resources were considered as part of the impact analysis. Please refer to Volume III Attachment 1 Section 4.5.12 *Alternatives – Two Dam Removal Alternative – Historical Resources and Tribal Cultural Resources* for the revisions.

Comment ORG46-464
This section includes a significance statement, while other sections do not. The alternatives analysis sections should be organized similarly so that the public and decision-makers can make an informed and meaningful comparison of the relative effects of the various alternatives analyzed.

Response to Comment ORG46-464
For the alternatives analysis, as with other sections of the EIR, significance statements are presented for each analysis that begins with a numbered potential impact title. For the alternatives, significance statements for new potential impacts or for changed findings of significance in comparison to the Proposed Project also are presented. Here, the numbered potential impact was incorrectly numbered. Section 4.5.23 *Alternatives – Two Dam Removal Alternative – Noise* has been revised to clarify that the potential impact number should be 4.5-23-1. Please refer to Volume III Attachment 1 Section 4.5.23 *Alternatives – Two Dam Removal Alternative – Noise* for the revisions.

Comment ORG46-465
The DEIR states "...no impact (no change from existing adverse conditions)." The DEIR should remove the biased term "adverse" and limit discussion to changes from "existing conditions."

Response to Comment ORG46-465
In addition to evaluating changes to the physical environment from baseline conditions, this EIR also is intended to inform the State Water Board's required findings in its Clean Water Act (CWA) section 401 water quality certification regarding the project's effects on attainment of applicable water quality standards and other state laws. Accurately characterizing current water quality conditions in relation to applicable water quality standards is consistent both with the EIR's purpose as a public information document and with informing the findings that the Clean Water Act requires for a water quality certification.

The phrase "existing adverse conditions" is used instead of "existing conditions" because data from J.C. Boyle Reservoir sediment samples indicate that existing conditions have the potential to cause an adverse impact on an environmental receptor. Please refer to Volume III Attachment 1 Appendix C, Section C.7 *Inorganic and Organic Contaminants* for a summary of the inorganic and organic contaminant concentrations in J.C. Boyle Reservoir sediments that are greater than human and ecological screening levels; toxicity test results for J.C. Boyle Reservoir sediments that indicate moderate potential for sediment toxicity; and contaminant concentrations in aquatic biota from J.C. Boyle Reservoir that are greater than screening levels for the protection of human health and wildlife. Please also refer to response to comment ORG46-376.

Comment ORG46-466

The DEIR appears to be missing text. Assume the DEIR should read "Potential impacts of changes in water quality on aquatic resources in California..."

Response to Comment ORG46-466

Section 4.6.3.3 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Water Quality* has been modified to clarify that the analysis is about the potential impact of water quality on aquatic resources in California. Please refer to Volume III Attachment 1 Section 4.6.3.3 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Water Quality* for the revisions.

Comment ORG46-467

The DEIR indicates that aquatic resource measure AR-6 (Suckers) is included in this alternative. Given that this impact is not considered significant, it is unclear why this measure is included, perhaps it is required for Fish and Game Code 2081.11 under CEQA although CDFW has not made a final determination as to whether this measure meets the standards for take authorization under Fish and Game Code, section 2081.11.

Response to Comment ORG46-467

Resource measures can be implemented to further reduce effects, even when impacts are not predicted to be significant. Please also refer to responses to comments ORG46-456,ORG46-257, and Master Response CEQ-2.

Comment ORG46-468

It appears the DEIR is missing a word in this sentence "...impacts of sediment release on redband trout that would occur under the Three Dam Removal Alternative would be substantially less under the Proposed Project." Given that the Proposed Project would remove J.C. Boyle Dam and presumably this is where most of the impacts to Redband Trout would originate, PacifiCorp suspects that this sentence should read "...substantially less than under the Proposed Project."

Response to Comment ORG46-468

Section 4.6.3.8 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Fish Passage* has been revised as requested. Please refer to Volume III Attachment 1 *Section 4.6.3.8 Alternatives – Three Dam Removal Alternative – Aquatic Resources – Fish Passage* for the revisions

Comment ORG46-469

The DEIR should clarify that "long-term substantial increase in redband trout habitat quality and quantity" would be relative to the No Project Alternative. Considered as a whole, there would actually be slightly less of an increase than the Proposed Project because J.C. Boyle Dam and Powerhouse would remain, but in California the effects of this alternative would be the same as the Proposed Project.

Response to Comment ORG46-469

Section 4.6.3.8 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Fish Passage* Potential Impact 3.3-14 has been clarified to compare to existing conditions. Please refer to Volume III Section 4.6.3.8 *Alternatives – Three Dam Removal Alternative – Aquatic Resources – Fish Passage* for the revisions.

Comment ORG46-470

The DEIR states that "The areas downstream of the Trinity River confluence do not currently support Anodonta spp. and are unlikely to in the future (Davis et al. 2013)." The DEIR should clarify why the salvage and relocation plan considers these sites.

Response to Comment ORG46-470

Section 4.6.3.8 *Alternatives –Three Dam Removal – Aquatic Resources – Fish Passage* Potential Impact 3.3-19 has been revised to clarify the analysis regarding freshwater mussels. Please refer to Volume III Attachment 1 Section 4.6.3.8 *Alternatives –Three Dam Removal – Aquatic Resources – Fish Passage* for the revisions. Aquatic Resource Measure AR-7, as described in the Definite Plan, is intended to benefit all species of freshwater mussels, not just *Anodonta spp*. Therefore, while the EIR is clear that relocation locations downstream of Trinity River would not benefit *Anodonta spp*., other species of mussels would benefit. The revised text clarifies this dynamic. The analysis is also clear that impacts from sediment deposition following dam removal are predicted to be short (< 1 year) in duration, and the re-formation of river channel that would occur following the removal of Iron Gate Dam is expected to have long term benefits for *Anodonta spp., M. falcata, G. angulate,* and freshwater clams by providing more suitable substrates (i.e., large gravel, cobble, and boulder) than currently exists, especially within the current reservoir reaches.

Comment ORG46-471

In this paragraph, the DEIR concludes that a "...significant impact to the Anodonta spp. population under the Three Dam Removal Alternative in the short term." However, this seems to conflict with the DEIR conclusion in the following paragraph that "impacts would be not significant with for Anodonta spp. in the short term." The DEIR needs to be revised to indicate if this impact is significant or not in the short term.

Response to Comment ORG46-471
Please refer to response to comment ORG46-470.

Comment ORG46-472
Only short-term effects are discussed in the text above (see comment 4.6-7), yet a conclusion is drawn for long-term impacts. The DEIR needs to be consistent in how the long-term effects of the different alternatives are analyzed.

Response to Comment ORG46-472
Please refer to response to comment ORG46-470 for a discussion of revisions to Section 4.6.3.8 *Alternatives –Three Dam Removal – Aquatic Resources – Fish Passage* to clarify the analysis regarding freshwater mussels. Please note that these revisions include the clarification that the re-formation of the Klamath River channel that would occur following the removal of Iron Gate Dam is expected to have long term benefits for *Anodonta spp., M. falcata, G. angulate,* and freshwater clams by providing more suitable substrates (i.e., large gravel, cobble, and boulder) than currently exists, especially within the current reservoir reaches. Please refer to Volume III Attachment 1 Section 4.6.3.8 *Alternatives –Three Dam Removal – Aquatic Resources – Fish Passage* for the revisions.

Comment ORG46-473
There are no data or analyses presented to support the DEIR statement that "The potential for flood disturbance further downstream along the Klamath River would not be different under this alternative from that described for the Proposed Project (Potential Impact 3.12-3) since Copco No. 1, Copco No. 2, and Iron Gate dams would still be removed." Known quantifiable data associated with each alternative, study area, or resource type (e.g., tribal, historic period archaeological, historic built environment) are missing from this discussion.

Response to Comment ORG46-473
Section 4.6.12 *Alternatives – Three Dam Removal Alternative – Historical Resources and Tribal Cultural Resources* has been revised to clarify that the analysis is referring to the potential for flood disturbance of known or unknown historical and/or tribal cultural resources, as described under the Proposed Project. Please refer to Volume III Attachment 1 Section 4.6.12 *Alternatives – Three Dam Removal Alternative – Historical Resources and Tribal Cultural Resources* for the revisions.

Comment ORG46-474
See other comments (see Major Issue 2.8 and comment 3.3-28) related to C. shasta and the infectious zone downstream of Iron Gate Hatchery.

Response to Comment ORG46-474
Please refer to response to comment ORG46-185, and to response to comment ORG46-16. Please also refer to Master Responses AQF-5 and AQF-6.

Comment ORG46-475

The DEIR asserts that there are adverse effects from competition of hatchery Chinook with natural origin fish yet provides no information to support this claim (see comment 3.3-92).

Response to Comment ORG46-475

Please refer to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for a summary of available information, including recent scientific literature, on the effects of competition between hatchery Chinook salmon and natural origin fish. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for the revisions.

Comment ORG46-476

The DEIR indicates that aquatic resource measure AR-6 (Suckers) is included in this alternative. Given that this impact is not considered significant, it is unclear why this measure is included, perhaps it is required for Fish and Game Code 2081.11 under CEQA although CDFW has not made a final determination as to whether this measure meets the standards for take authorization under Fish and Game Code, section 2081.11.

Response to Comment ORG46-476

Resource measures can be implemented to further reduce effects, even when impacts are not predicted to be significant. Please also refer to responses to comments ORG46-456, ORG46-257, ORG46-467, and Master Response CEQ-2.

Comment ORG46-477

Most recent and best available information regarding spawning Coho downstream of Iron Gate Dam does not support the DEIR's assertion that Coho have a wide distribution in the tributaries (see MKWC 2016, 2017, 2018). The data indicates that there perhaps less than 1,000 adult Coho annually in the mainstem and the tributaries from Portuguese Creek to Iron Gate Dam including the Scott and Shasta rivers (see Major Issue 2.1).

Response to Comment ORG46-477

Please refer to response to comment ORG46-164 for a discussion of the available data supporting that coho salmon are widely distributed downstream of Iron Gate Dam. As clarification, the citations have been added to the Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Coho salmon. Please* refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Coho salmon* for the revisions.

<u>Comment ORG46-478</u>
See Major Issue 2.1 as it relates to the upper Klamath Coho population, hatchery production, etc. The DEIR acknowledges that hatchery Coho have made up over 5O percent of the upper Klamath population, but does not characterize the loss of this integrated population as a significant impact.

Response to Comment ORG46-478
Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-9 evaluates of the loss of hatchery production on coho salmon adults from the Upper Klamath River Population Unit, and the broader coho salmon population the Klamath River Basin. To the extent this comment refers to comments earlier in the comment letter, please refer to the responses to those comments – ORG46-2 through ORG46-5.

Please refer to Master Response AQF-9 for a discussion of significance criteria and associated text edits to the EIR.

<u>Comment ORG46-479</u>
The DEIR states that hatchery Coho are somehow of less value than natural origin fish even though the hatchery is managed as an integrated part of the Coho population through the HGMP (CDFW and PacifiCorp 2012). Because this hatchery program is integrated with the upper Klamath population, the loss of the hatchery program should be given appropriate consideration. The DEIR makes the assertion that returning hatchery adults do not contribute to the sustainability of the naturally reproducing population after previously stating that adult hatchery Coho stray into Bogus Creek and the Shasta River at relatively high percentages (about 50 percent according to the data (see Chesney and Knechtle 2017 and Knechtle and Giudice 2918a)), presumably to spawn naturally and contribute to the natural-origin populations.

Response to Comment ORG46-479
Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* and Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* (page 4-311), includes discussion of the contribution of hatchery strays to the abundance of the natural coho salmon population under existing conditions, and the predicted outcome of removing hatchery operations. It further discusses the context of loss of hatchery production, noting that the reduction in natural population is not equivalent to the reduction in total population from loss of the hatchery, because most of the hatchery fish return to the hatchery, rather than straying (which would increase the numbers of naturally-spawning fish). The section does not, as the comment states, assert that the fish do not contribute to the natural population. The section reflects the conservation value of coho produced at Iron Gate Hatchery, per the Hatchery Genetics Management Plan (HGMP). The EIR reflects that the HGMP clearly describes the value of naturally produced coho in terms of fitness, demographic risk to the population, and life

history diversity. In addition, the HGMP describes the potential impacts of hatchery-origin fish, including those produced for conservation.

Comment ORG46-480

Diversions from Bogus and Fall creeks that would not occur under the No Hatchery Alternative should be addressed here. Text should describe how the restoration of those diversions to their respective creeks would affect resources including aquatic and agricultural resources.

Response to Comment ORG46-480

As stated in the referenced text Volume I Section 4.7.15 *No Hatchery Alternative – Agriculture and Forestry Resources* (page 4-320), there is no change to agricultural resources between the Proposed Project and the No Hatchery Alternative, because the Proposed Project's diversions on Bogus Creek and Fall Creek would not impact agricultural resources.

Effects on aquatic resources of the No Hatchery Alternative are addressed in Volume I Section 4.7.3 *[No Hatchery Alternative – Aquatic Resources* (pages 4-304 to 4-313), and has been revised in Volume III Section 4.7.3 to specifically include mention that the effects of diversions from Bogus and Fall Creeks will not occur.

Iron Gate Hatchery currently receives water from Iron Gate Reservoir, not Bogus Creek. Under the No Hatchery Alternative, Iron Gate Hatchery would close and there would be no need to initiate diversion from Bogus Creek. Therefore, there would be no change in Bogus Creek from the current condition and no impact under the No Hatchery Alternative. California Department of Fish and Wildlife (CDFW) currently maintains flow through the Fall Creek Hatchery (FCH), even though no fish have been reared there since 2003. This existing diversion is expected to continue under the No Hatchery Alternative, which would result in no anticipated changes to aquatic resources in Fall Creek.

Comment ORG46-481

The discussion of fish production as it relates to retention of recreational fisheries following removal of hatcheries in the upper basin is overly optimistic and not supported by the record. Iron Gate Hatchery currently provides on average 28,000 fall-run Chinook for the recreation and tribal fisheries (CASHRG 2012). Under the Proposed Project fall-run Chinook production would be reduced, but still contribute to these fisheries although at a reduced rate. Under the No Hatchery Alternative, it is unlikely that the habitat upstream of Iron Gate Dam would generate this same number of fish in any reasonable timeframe (see comment 3.3-42) such that there would not be a substantial reduction in adult fall-run Chinook available for harvest or even a season during which to harvest these fish. The DEIR should present an actual analysis of this alternative in relation to potential adult returns and their availability for harvest.

Response to Comment ORG46-481

As cited in the text the comment references, Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* Potential Impact 3.3-7 (pages 4-306 to 4-308) provides an analysis of fall-run Chinook salmon abundance, including effects on salmon available for harvest under the No Hatchery Alternative. The text the comment references further discloses that fewer Chinook salmon would be available for recreational harvest and evaluates the impact of this reduction on recreation.

Comment ORG46-482

Benefits and costs should be listed separately instead of together in one list. Mixing benefits and costs is confusing. Additionally, some benefits are placed in the list while others are cited in the DEIR text.

Response to Comment ORG46-482

Comment noted. Please note that CEQA documents analyze significant effects on the physical environment. CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, § 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Section 5.4.1 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential costs and benefits for a number of topics.

Comment ORG46-483

The DEIR presents a list of benefits for a variety of topics from a USBR (2012) study and includes "Hydroelectric energy costs" on that list when in fact, "Hydroelectric energy costs" are not on the USBR (2012) list. Instead, the USBR (2012) study includes costs associated with the loss of hydropower benefits as "Foregone Hydropower Benefits" and are discussed under costs. The DEIR needs to clarify the source for its "Hydroelectric energy costs" or clarify the terminology.

Response to Comment ORG46-483

The referenced list in Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic information for Resources Potentially Affected by Dam Removal* (page 5-4), paragraph 1 includes a list of cost and benefit topics, which include energy costs. Hydroelectric energy costs were subsequently not included in a statement associated with benefits, and paragraph 2 on page 5-4 acknowledges the USBR (2012b) and DOI Real Estate Sub-Team (2012) economic studies that determined direct dam removal costs, which included forgone costs to hydropower. As further discussed, "Benefits were identified for irrigated agriculture, commercial fishing, ocean sport fishing, in-river sport fishing, tribal fisheries and cultural values, refuge recreation, nonuse values (e.g., desire to preserve ecosystems, altruism towards plants and animals), and real estate. Benefits to tribal fisheries and cultural values, the wildlife viewing component of refuge recreation, and real estate were not quantified in economic terms in USBR (2012b)."

Comment ORG46-484

The DEIR states "USBR (2012) reported that the removal of the dams and associated facilities would likely increase the viability of the SONCC coho ESU in the Klamath Basin." The DEIR also states, "Following dam removal, harvests would be larger because of increased abundance of salmon, which would in turn, increase commercial fishing revenues." The DEIR also states "The USBR (2012) quantitative economic analysis relied heavily on the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) model." Although not explicitly cited in this section of the DEIR, it appears that the referenced EDRRA modeling is as presented by Hendrix (2011). Several issues have been raised in these comments with the Hendrix (2011) EDRRA modeling (see Major Issue 2.6, comments 3.3-66, 3.3-76, and 3.3-86 to 3.3-97). These issues call into question the abundance and productivity estimates of salmon derived from the Hendrix (2011) EDRRA modeling that are used in the USBR (2012) quantitative economic analysis cited in the DEIR.

Response to Comment ORG46-484

The EIR explicitly describes the derivation of the Evaluation of Dam Removal and Restoration of Anadromy (EDRRA) modeling (i.e., Hendrix 2011) in Potential Impact 3.3-7. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. In regard to abundance and productivity estimates of salmon derived from the EDRRA modeling, please refer to Master Response AQF-8.

Comment ORG46-485

The statement "dam and facilities removal was estimated by USBR (2012) to provide an additional 11 to 218 commercial fishing industry jobs within the five management areas" is confusing in stating the number of jobs created as it implies that this is a range of the total number of jobs created. The sentence should be revised in a manner consistent with the USBR (2012) study, which shows the following jobs for each of the five management areas:

- *San Francisco Management Area: 218*
- *Fort Bragg Management Area: 69*
- *KMZ-CA: 19*
- *KMZ-OR: 11*
- *Central Oregon Management Area: 136*

See page 2-7 of the Benefit Cost and Regional Economic Development Technical Report (USBR 2012b).

Response to Comment ORG46-485
Section 5.4.1.1 *Social and Economic Factors Under CEQA – Commercial Fishing* has been clarified in Volume III Attachment 1 as requested. Please refer to Volume III Attachment 1 Section 5.4.1.1 *Social and Economic Factors Under CEQA – Commercial Fishing* for the revisions.

Comment ORG46-486
The annual net revenue benefit estimate of $267,131 is not shown in Table 1.1-2 of the USBR document (USBR 2012b) for the KMZ-CA portion. That document shows a value of $381,396 for this management area. This number needs to be corrected or the DEIR needs to otherwise explain how this other value was developed. See page 1-13 of the Benefit Cost and Regional Economic Development Technical Report (USBR 2012b).

Response to Comment ORG46-486
Section 5.4.1.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Commercial Fishing* has been revised in Volume III Attachment 1 to correct the KMZ-CA portion of the annual net revenue benefit. Please refer to Volume III Attachment 1 Section 5.4.1.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Commercial Fishing* for the revisions.

Comment ORG46-487
The DEIR states the following conclusions:

> *"For the reasons discussed in this EIR i n Section 3.3.5 Aquatic Resource Impacts, the KRRC' s Proposed Project would be beneficial for populations of fall-run Chinook salmon (Potential Impact 3.3-7), spring-run Chinook salmon (Potential Impact 3.3-8), and coho salmon (Potential Impact 3.3-9). Although some aspects of the KRRC's Proposed Project are different from the dam removal scenarios analyzed in the USBR/DOI economic analyses, the primary assumptions regarding the effects of dam removal on coho and Chinook salmon have remained the same, such that the prior economic indication of the benefits of dam removal to commercial fisheries also informs consideration in this EIR that dam removal would advance the long-term restoration of natural fish populations in the Klamath Basin, including having a significant beneficial effect on commercial fisheries and an associated significant beneficial economic impact on the coastal commercial fishing industry."*

These conclusions are incorrect in that the dam removal scenarios analyzed in the USBR (2012b) economic analysis included in the analysis one fundamental assumption regarding the effects of dam removal on Coho and Chinook salmon that is no longer valid. Specifically, the Proposed Action dam removal scenario in the USBR (2012b) analysis included not only dam removal but also the entirety *of the KBRA programs and actions as a fully connected action. However, the KBRA expired in 2012 due to inaction in the U.S. Congress. The Upper Klamath Basin Comprehensive Agreement (UKBCA) also was inactivated due to the absence of funding that resulted from the KBRA's expiration. The expiration of the KBRA caused uncertain ty in moving forward with the KHSA and UKBCA, which prompted the KHSA Parties to renegotiate and sign an amended KHSA in April 2016.*

The fact that the KBRA is expired and unlikely to be resuscitated indicates that a key assumption of the USBR (2012b) analysis regarding the effects of dam removal on Coho and Chinook salmon is no longer applicable. Because this key assumption of the USBR (2012b) analysis is no longer valid, the findings for the USBR (2012b) economic analysis regarding the effects of dam removal on Coho and Chinook salmon lack accuracy to support of DEIR conclusions.

Response to Comment ORG46-487
As noted in the referenced paragraph, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, 3.3-8, and 3.3-9 describe predicted increase in fall-run Chinook salmon, spring-run Chinook salmon, and coho salmon. Thus, the primary assumptions of increased fish populations supporting economic benefits remains under the Proposed Project without the full range of Klamath Basin Restoration Agreement (KBRA) actions contemplated in USBR 2012. Please refer to Volume III Attachment 1 for final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-8 for a discussion of predictions of increased fall-run Chinook salmon abundance. Please note that there is currently not a commercial harvest for spring-run Chinook salmon or coho salmon.

Comment ORG46-488
The second sentence beginning with "USBR (2012) qualitatively assessed dam removal..." is not explicit in stating that the short-term declines in real estate values were those associated with properties adjacent to J.C. Boyle, Copco, or Iron Gate reservoirs. Given the potential effects on property values around the reservoirs, this section should be revised. See page 1-42 of the Benefit Cost and Regional Economic Development Technical Report (USBR 2012b).

Response to Comment ORG46-488
Section 5.4.1.3 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Real Estate and Property Taxes* has been revised in Volume III Attachment 1 to clarify that the potential short-term decline in real estate values would be associated with parcels surrounding the reservoirs. Please refer to Volume III Attachment 1 Section 5.4.1.3 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Real Estate and Property Taxes* for the revisions.

<u>Comment ORG46-489</u>

The sentence "For other parcels downstream of Iron Gate Dam, U5BR (2012) indicated that improvements of water quality could lead to increased real estate values in the long term" needs to be explicit that it is talking about riverine parcels and that the water quality improvements are detectable and important to property owners. See page 1-42 of the Benefit Cost and Regional Economic Development Technical Report (USBR 2012b).

Response to Comment ORG46-489

Section 5.4.1.3 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Real Estate and Property Taxes* has been clarified as requested. Please refer to Volume III Attachment 1 Section 5.4.1.3 *Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Real Estate and Property Taxes* for the revisions.

<u>Comment ORG46-490</u>

According to the following paragraph from the DEIR, an updated records search was conducted in 2018:

"In response to the delineation of a preliminary APE, KRRC initiated an expanded records search in 2018 for an area encompassing a 0.5-mile wide zone on either side of the Klamath River from below Humbug Creek to the mouth of the river at the Pacific Ocean, in California. KRRC will incorporate results of the 2018 expanded records search for California into future reports and are not reflected in the discussion and tables provided below."

The DEIR only includes records search data from 2017 (see DEIR pg. 3-806). The 2018 data are available on known cultural resources (e.g., tribal, historic-period archaeological, historic built environment resources), and any other relevant findings from the recent KRRC studies may provide additional detail on significant impacts to cultural resources and allow for the identification and development of specific mitigation measures. This information should be included in the DEIR and the cultural resources impact analysis should be amended.

Response to Comment ORG46-490

Section 3.12.2.3 *Historical Resources and Tribal Cultural Resources – Environmental Setting – Known Tribal and Historical Resources in the Vicinity of the Proposed Project* has been revised to clarify complete versus incomplete inventory efforts. Please refer to Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* for the revisions.

Additionally, although previously stated in various locations throughout the EIR, the introductory text of Section 3.12 *Historical Resources and Tribal Cultural*

Resources has been clarified to acknowledge that not all of the required cultural resources inventory and significance analysis would be completed prior to certification of the Final EIR.

The decision regarding whether to update record search data or conduct additional surveys would be made during pre-survey record searches and outreach with local tribes (see Mitigation Measure TCR-1). Site form updates would be completed in the context of significance evaluations for sites not previously evaluated, or when formulating site-specific mitigation measures.

Please also refer to response to comment ORG46-299.

Comment ORG46-491

The following excerpt suggests that an archaeological inventory covering 100 percent of the designated areas will be conducted: "Any archaeological inventory to be conducted for the Project will include100 percent, intensive-level survey of designated areas. The inventory will employ a standard systematic pedestrian survey following the appropriate Oregon and California survey and reporting standards, tailored if appropriate to meet any specific federal land management agency guidelines." Archaeological inventories typically represent a sample survey where archaeologists walk systematic intervals and/or excavate systematic shovel scrapes/shovel tests as part of a sample inventory effort. Given the scale of the Proposed Project, a commitment to survey and inventory 100 percent of designated area(s) would be very costly and may not be completed in compliance with state standards. Because this inventory may not be possible to conduct in compliance with state standards, the identification of potential impacts to cultural resources is not complete and the proposed investigations necessary to develop appropriate mitigation are not feasible.

Response to Comment ORG46-491

The commenter is providing its interpretations of a portion of the Klamath River Renewal Corporation's (KRRC's) Definite Plan (Appendix B of the Draft EIR), specifically Definite Plan Appendix L and the KRRC's proposed archaeological inventory survey methods. The commenter interprets the statement "…the Project will include 100 percent, intensive-level survey of designated areas" to mean that 100 percent of the ground will be surveyed within these designated areas. The commenter's interpretation is not an accurate reading of the statement. Rather, the KRRC is stating that 100 percent of all designated areas will be surveyed using an intensive-level survey approach. The commenter is referring to Section 6.2.4, paragraph 1 of Appendix L, with states that inventory of parcels will employ standard transect spacing of 15 meter or less which is consistent with Oregon and California survey and reporting standards. In paragraph 2 of the same section, it states that the KRRC will conduct surveys in accordance with Guidelines for Conducting Field Archaeology in Oregon, published by the Oregon State Historic Preservation Office, and, in California, by the guidelines provided by the California Department of Historic Preservation.

On lands managed by federal agencies, KRRC will follow methods prescribed by the United States Forest Service (USFS) and the Bureau of Land Management (BLM). Following these state and federal standards, KRRC is committed to surveying all designated areas using standard transect interval spacing. This standard survey methodology proposed is sufficient for the identification of potential impacts to cultural resources.

Comment ORG46-492

Under federal law, a Programmatic Agreement (PA) can defer nearly all aspects of identification, evaluation, assessment of effects, and mitigation; however, this is not an acceptable approach for CEQA because it defers making a determination of significance and committing to adopt mitigation measures to reduce the significance of the impact. According to the following statement in DEIR Appendix L, the PA and Historic Properties Management Plan (HPMP) are intended to support compliance with CEQA: "KRRC will produce a number of management plans and agreements to support the Project's Section 106, CEQA, and AB-52's compliance efforts. The documents currently planned include a HPMP, Programmatic Agreement, Inadvertent Discovery Plan, Plan of Action for the treatment of human remains, and a Cultural Resources Monitoring Plan."

Response to Comment ORG46-492

The commenter is providing comments on the Klamath River Renewal Corporation's (KRRC's) Definite Plan (Volume II Appendix B), specifically Definite Plan Appendix L and the KRRC's plans for developing a Historic Properties Management Plan (HPMP), Programmatic Agreement, Inadvertent Discovery Plan (IDP), Plan of Action for the treatment of human remains, and a Cultural Resources Monitoring Plan.

Please refer to Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* for a list of potential impacts, impact analysis, and mitigation measures pertaining to the historical and tribal cultural resources. Please see Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Please also refer to Master Response CEQ-2 and response to comment LA9-78.

Comment ORG46-493

The introduction makes the same unsupported assertions as the body of the DEIR in stating that 80 percent of the reservoir sediments are expected to reach the Pacific Ocean (see Major Issue 2.4 and comment ES.3 and 2.16).

Response to Comment ORG46-493

Regarding sediment transport modeling and fine sediment erosion, transport, and deposition, please refer to Master Response GEO-1. For any more specific comments from the body of the EIR, please see responses to those comments.

Comment ORG46-494

The assertion that the 2013 BiOp flows are 'sufficiently similar' to the 2010 BiOp flows and the KBRA flows as related to modeling results from USBR (2012a) is not adequately supported (see Major Issue 2.2 and comment 3.3-46).

Response to Comment ORG46-494

Volume II Appendix E *An Analysis of Potential Suspended Sediment Effects on Anadromous Fish in the Klamath Basin* Section E.2 *Methods* and Section E.2.2.1 *Methods – Using the Model to Predict Suspended Sediment Concentrations – Range of Conditions Assessed* have been revised to clarify where the comparative analysis of the 2013 BiOp Flows and the 2010 BiOp Flows can be found in the EIR and to incorporate the 2019 BiOp Flows into the analysis. Please refer to Volume III Attachment 1 Appendix E Section E.2 *Methods* and Section E.2.2.1 *Methods – Using the Model to Predict Suspended Sediment Concentrations – Range of Conditions Assessed* for the revisions.

Additionally, Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description – Summary of Available Hydrology Information for the No Project Alternative* has been revised to include a brief summary of the 2010 BiOp Flows and a comparison between 2010 BiOp Flows and 2013 and 2019 BiOp Flows that focuses on flow differences that would inform the analysis of potential suspended sediment effects on fish under the existing condition/No Project Alternative (see also Appendix E), since no other analysis in this EIR uses USBR (2012a) model output for the existing condition/No Project Alternative. Please refer to Volume III Attachment 1 Section 4.2.1.1 *Alternatives – No Project Alternative – Introduction – Alternative Description – Summary of Available Hydrology Information for the No Project Alternative* for the revisions.

Comment ORG46-495

The DEIR states that "The implication for this analysis is that predictions of impacts may be slightly higher than would occur with the faster drawdown rate under the Proposed Project." The USBR (2012) modeling does not take sediment jetting into account which may raise suspended sediment concentrations. The analysis should be updated to reflect the actual Proposed Project and hydrology conditions that can be reasonably expected to exist (e.g., 2013 BiOp or perhaps even 2019 BiOp flows) (see Major Issue 2.4 and comment USBR-2012-C).

Response to Comment ORG46-495

With regard to sediment jetting, please see response to comment ORG46-132 and LA9-69.

With regard to Proposed Project hydrology, please refer to Master Response HYD-1.

Comment ORG46-496

The DEIR states that (emphasis added): "The model was used to predict the magnitude and duration of SSCs for discrete calendar-year periods corresponding to each species' life history stages. These periods could not overlap in order to ovoid erroneously accounting for on event's Impact on two separate life stages of a cohort at the same time, which is impossible (e.g., a pulse of suspended sediment in March cannot simultaneously affect rearing juveniles and outmigrating smolts of the same cohort, but can simultaneously affect different life history stages of different species such as adult migrants of one species and smolts of another. For predicting potential SSC impacts to species identified above, the model evaluated each species and its life history stages separately."

The italicized sentence is an oversimplification of fish life cycles. Not all members of a cohort behave the same, some may migrate others may not. In the example provided, the March sediment pulse could impact both migrants and resident life stages. The modeling of suspended impacts on fish needs to be updated to more accurately reflect the life stages effected and the hydrology present.

Response to Comment ORG46-496

As described in the approach to analyzing the effects of suspended sediment on aquatic resources in Volume II Appendix E Section E.2.2 *Methods – Using the Model to Predict Suspended Sediment Concentrations*, analysis of the potential impacts due to elevated suspended sediment concentrations (SSCs) during reservoir drawdown considers that not all members of a cohort behave the same way during any one period of time; some may migrate while others may not. For example, the analysis of impacts to fall-run Chinook salmon juveniles takes into account the proportion of the cohort during spring that migrates (Type I life history), and the proportion that does not migrate until the following fall (Type II life history) (Volume II Appendix E, Table E-2). In applying this approach for impacts to a cohort in a specific time period, the EIR model does not "double count" impacts and instead considers impacts to the cohort as a whole, based on the proportion of each life history occurring within the relevant time period. In the above example, impacts during spring are considered for migrating Type I life history, as well as Type II and Type III life histories that would not migrate during that time.

Comment ORG46-497

These scenarios are reasonable but should be expressed simply as 10th, 50th, and 90th exceedance scenarios only. Using terms like 'mild' and 'extreme' is a judgement and modifies the readers perception of effects. Even the median conditions discussion states that these are "conditions that most often occur for each species and life stage..." but in reality, the median simply represents an equal probability that conditions will be different in either direction, not conditions that occur most often.

Response to Comment ORG46-497

The names used for each scenario analyzed in Volume II Appendix E.2.2.1 *Methods – Using the Model to Predict Suspended Sediment Concentrations – Range of Conditions Assessed* were selected to communicate to the reader what the occurrence probabilities mean. Each scenario equates to a relative probability of occurrence – 10^{th}, 50^{th} and 90^{th} exceedance scenarios – and the EIR includes these definitions for readers conversant with those statistical terms. Here, the exceedance scenarios relate directly to the severity of the effect. Therefore, “mild conditions for fish” are literally “mild” in comparison to “extreme conditions for fish,” and both are rare (low probability of occurrence) in comparison with the “median conditions” for fish scenario. This characterization leads to greater accessibility for probability-based modeling.

Comment ORG46-498

The data used to describe the distribution of different life history strategies for fall-run Chinook is from 2000. At the very least this information should be verified to ensure that the timing still represents the population and if it does not the DEIR should be updated to reflect any shifts in timing.

Response to Comment ORG46-498

Volume II Appendix E.3.1.1 *Results – Existing Conditions – Fall-run Chinook Salmon* (pages E-12 to E-14) includes a summary of relevant fall-run Chinook salmon life history information based on the best available and most current scientific and factual data. In some instances, the summary is based on data collected in the early 2000’s (e.g., Scheiff et al. 2001, Magneson 2006), and it has been updated with more recent data where appropriate (e.g., Jetter and Chesney 2016).

Comment ORG46-499

It is not unreasonable to expect that hatcheries have an influence on populations near the hatchery (e.g., hatchery fish straying into Bogus Creek or the Shasta River from Iron Gate Hatchery). However, Coho spawning surveys in tributaries downstream of Iron Gate Dam have found one hatchery Coho carcass in 4 years of surveys (MKWC 2016, 2017, 2018, 2019 in progress).

Response to Comment ORG46-499

Regarding the influence of adult hatchery salmon strays that return to Iron Gate Hatchery on the coho salmon impacts analysis, please refer to response to comment ORG46-189.

Comment ORG46-500

It is extremely difficult to follow the discussion of juvenile Coho rearing and outmigration life history patterns as presented in the DEIR. This is important because these are the Coho life stages especially susceptible to impacts from suspended sediments generated by the Proposed Project.

Response to Comment ORG46-500
Volume I Appendix E Section E.3.1.3 provides a summary of the best available and most current scientific and factual data on coho salmon from the Klamath River Basin. The Appendix aims to prepare this technical information in a clear, concise, and understandable manner.

Comment ORG46-501
Coho rearing in off-channel habitats of the Klamath River would be impacted by suspended sediments, it ap pears that the DEIR is referring to off-channel rearing in the tributaries.

Response to Comment ORG46-501
As described in Volume II Appendix E Section E.3.1.3 *Coho Salmon* (page E-20), juvenile coho salmon using off-channel habitats during the winter appear to be seeking refuge from high water velocities and high suspended sediment loads. As clarification, additional detail has been added. Please refer to Volume III Appendix E Section E.3.1.3 *Coho Salmon* for the revisions.

Comment ORG46-502
The DEIR states that "After the first year following dam removal, the flow will be confined with in the historical main channel and no longer be able to access the remaining fine sediment left on the floodplain, unless an extremely high flood event is to occur." This is a confusing statement. It appears to reference the stream channel within the former reservoir areas. While the assumption may be true, the analysis does not seem to allow for increased erosion from winter rains on the reservoir sediments (which would seem likely to erode at a higher rate than adjacent soils even following revegetation), high-flow scour, bank failure, or shifts in channel alignment within the former reservoirs.

The DEIR states that increases in suspended sediment concentrations as a result of higher flow events that may erode reservoir deposits would be insignificant, but does not offer any justification for this conclusion.

Response to Comment ORG46-502
The statement quoted in the comment is from Volume II Appendix E: *An Analysis of Potential Suspended Sediment Effects on Anadromous Fish in the Klamath Basin* – Section E.3.2 *Proposed Project*. A more comprehensive discussion of the potential for reservoir sediment erosion following dam removal is provided in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-770), which is partially modified in Volume III Attachment 1. Please also refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3 for analysis of the suspended sediment concentrations (SSCs) under dam removal conditions. Additionally, the response to comment ORG46-8 explains that after the initial reservoir drawdown, the greatest potential

for bank slumping, gullying of reservoir sediments, and associated secondary erosion would occur in the short-term period (within two years of dam removal) following sub-aerial exposure of the reservoir sediments, as a surface runoff network establishes in the reservoir sediment deposits, connecting with existing and historic channels. Consolidation of the remaining reservoir sediment deposits (USBR 2012c), along with intensive hydroseeding (see Volume II Appendix B Section 6.1.1 of the *Definite Plan – Measures to Manage Remaining Sediment*), means that elevated concentrations of suspended sediments, with potential to impact water quality and aquatic species, are not expected to occur in the longer term. Downstream of the reservoirs, Master Response GEO-1 explains that the flow of water and sediment is expected to follow existing and historic channels, which are reasonably confined and have sufficient width-depth ratios to allow for the predicted sediment deposition to occur primarily within the channel.

Appendix E: *An Analysis of Potential Suspended Sediment Effects on Anadromous Fish in the Klamath Basin* Section E.3.2 *Proposed Project* has been clarified in Volume III Attachment 1 to relate to SSCs, which are relevant to fish impacts. Please refer to Volume III Attachment 1 Appendix E: *An Analysis of Potential Suspended Sediment Effects on Anadromous Fish in the Klamath Basin* Section E.3.2 *Proposed Project* for the revisions. Additionally, please refer to response to comment ORG46-134 for further clarification of the potential for elevated SSCs following dam removal.

Comment ORG46-503
The DEIR text incorrectly refers to December 15 as the start of the drawdown.

Response to Comment ORG46-503
Volume II Appendix E Section E.3.2.3 *Proposed Project – Coho Salmon* has been revised to clarify timing of reservoir drawdown under the Proposed Project. Please refer to Volume III Attachment 1 Appendix E Section E.3.2.3 *Proposed Project – Coho Salmon* for the revisions.

Comment ORG46-504
The DEIR does not present a clear discussion of why sediment impacts on the age 1+ outmigrating Coho would be less under the Proposed Project than existing conditions. These fish would be arriving in the mainstem Klamath River from tributaries early in 2021, the year in which drawdown would be occurring and sediment loads would be at their highest levels.

The DEIR indicates that about 44 percent of Coho migrate from February–March with the remainder migrating from April–June. While the DEIR clearly states that Coho smolts were assumed to migrate during periods of lowest suspended sediment, it does not indicate if those relative percentages of the population that migrate were shifted into periods of relatively lower suspended sediments loads throughout the entire migration window or just within their relative timeframe. In *other words, did the analysis assume that all 44 percent of those early migrating smolts wait until April or May or did they migrate during periods of lower suspended sediment loads in their normal migration window? If they waited until April or May, where did they reside, what was the impact of that delayed migration on their overall survival? If they waited for periods of relatively lower sediment loads during their normal migration window, how much lower were those sediment loads and what were the impacts to those fish?*

By using percentages of the population affected by the Proposed Project, the DEIR obscures the actual impact to Chinook and Coho from the Proposed Project. There is a wealth of downstream migrant trapping data for Chinook and Coho from the mainstem Klamath River that could be used to improve this analysis and connect the impacts of the Proposed Project to actual numbers of fish. These two tables and the two tables associated with Chinook would be vastly improved if they were connected to actual fish numbers like was done for the Steelhead tables (see Table E-12, for example).

Response to Comment ORG46-504

With respect to the Severity Index (SEV) results under the Proposed Project in comparison to Existing conditions (EC), the apparent contradiction was the result of a minor calculation error in the SEV in Table E-4 for age 1 juvenile coho salmon outmigrants under existing conditions, Volume II Appendix E Section E.3.1.3 *Results – Existing Conditions – Coho Salmon* Table E-4 has been revised to correct the estimates. The corrections do not change any significance determinations. Please refer to Volume III Attachment 1 Appendix E Section E.3.1.3 *Results – Existing Conditions – Coho Salmon* for the revisions.

With respect to the suspended sediment concentration (SSC) impact assessment and the assessment of juvenile coho salmon outmigration timing, as discussed in Volume II Appendix E Section E.3.2.3 *Results – Coho Salmon* (page E-38), numerous field and laboratory studies have shown that juvenile salmonids actively avoid exposure to high (greater than 150 milligrams per liter [mg/L]) SSCs, including altering migratory patterns to seek lower turbidity (Bisson and Bilby 1982, Berg and Northcote 1985, Redding et al. 1987, Servizi and Martens 1992, Bash et al. 2001, Carlson et al. 2001, Kemp et al. 2011, Kjelland et al. 2015). Therefore, the EIR analysis assumes that coho salmon outmigration during dam removal year 2 would occur within the period of typical outmigration with the lowest predicted SSC. The amount of “delay” that occurs within tributaries prior to outmigration is not possible to predict. Some juveniles may migrate downstream during period of low SSC and experience no delay at all, whereas others may rear for additional days or weeks within tributaries to avoid poor water quality, as occurs naturally. Most outmigration occurs after April (Courter et al. 2008), when SSCs are predicted to be low enough to avoid lethal impacts.

With respect to reporting numbers of juvenile coho and Chinook salmon in the analysis, as summarized in Volume II Appendix E Section E.3.2.4 *Results – Steelhead* (pages E-40 to E-42), potential mortality is predicted for a substantial portion of the juvenile steelhead rearing population under the Proposed Project, owing to their multiple life stages (age 0, age 1, age 2) that rear for prolonged periods within the mainstem Klamath River. Existing monitoring data were available to estimate the number of steelhead individuals that would potentially suffer lethal impacts under the Proposed Project. In contrast, mortality is not predicted for significant portions of rearing coho salmon or Chinook salmon juveniles, and existing data are not sufficient to estimate the potential mortality to these small (less than 1 percent) proportions. In the cases where data are sufficient (e.g., impacts to redds for both species), estimates of mortality are provided, as shown in Volume II Appendix E Table E-8 (page E-32) and Table E-10 (pages E-36 and E-37).

Comment ORG46-505

This figure (and all of the following ones) have the wrong date range on the x-axis. Drawdown and removal is scheduled for 2021 under the currently Proposed Project.

Response to Comment ORG46-505

The projected year of primary drawdown (i.e., dam removal year 2) was revised by Klamath River Renewal Corporation (KRRC) from 2020 to 2021, and subsequently to 2022. However, it is not necessary to change the figures in Appendix F in response to this change. The figures referred to in the comment show forecast reach-averaged particle size (D_{16} and D_{50}), and simulated bed composition, in potential dry, median, and wet years. Given that the expected sediment deposition between 2020 and 2022 would be an order of magnitude less than the total range of sediment volume estimates (see Volume III Attachment 1 *Executive Summary – Reservoir Sediment Deposits and Erosion During Drawdown* and Volume III Attachment 1 Section 2.7-3 *Proposed Project – Reservoir Sediment Deposits and Erosion during Drawdown*), changing the date range on the figures in Appendix F is not expected to provide meaningfully different information and is therefore unnecessary.

Comment ORG46-506

The DEIR states that "Spring-run Chinook salmon would likely extend their range in response to dam removal and benefit from this action in the same manner as fall-run Chinook salmon." This statement is completely unsupported and unlikely to occur because the population of spring-run Chinook in the Salmon River is extremely small and strays are unlikely to occur in sufficient number to colonize habitat upstream of Iron Gate Dam. The Salmon River is also about 124 river miles downstream of Iron Gate Dam, further reducing the likelihood of straying. See comments 3.3-93 and 4.4-36.

Response to Comment ORG46-506
Regarding spring-run Chinook salmon recolonization of historical habitat following dam removal, please see response to comment ORG46-440.

Comment ORG46-507
The DEIR states that summer Steelhead would recolonize the areas upstream of Iron Gate Dam and that juvenile Steelhead could benefit from improved pool habitat downstream of Iron Gate Dam. These statements are made without considering the time of year at which Steelhead may be using this habitat, the potential effects of water temperature, streamflow, or gravel and sediment deposition on habitat suitability for Steelhead. The DEIR should be revised to more accurately present the range of conditions faced by summer Steelhead in the upper Klamath River after implementation of the Proposed Project.

Response to Comment ORG46-507
With regard to the benefit of dam removal for summer steelhead, the critical influence of dam removal is the reconnection to substantial amounts of historical habitat within tributaries and the mainstem. Summer steelhead typically spawn in tributaries, and the relative effect of increased access to tributaries would have a greater effect on the population than increased access to mainstem habitat. Volume III Attachment 1 Appendix F Section F.5.1.2 *Proposed Project – Changes in Bed Substrate – Summer Steelhead* has been revised to clarify the discussion on summer steelhead to reflect increased access to historical habitat. Please refer to Volume III Attachment 1 Appendix F Section F.5.1.2 *Proposed Project – Changes in Bed Substrate – Summer Steelhead* for the revisions.

Comment ORG46-508
While stream power increases downstream of Cottonwood Creek (Figure F-10) this logic also indicates that material transported past Cottonwood Creek would remain in transit until stream power declined (perhaps between Horse Creek and the Scott River) or in smaller areas (backwaters, eddies, etc.) that are not represented in the DEIR discussion. This deposition further downstream is not discussed in this appendix nor is the impact evaluated in the DEIR.

Response to Comment ORG46-508
Please refer to Master Response GEO-1.

Comment ORG46-509
The discussion surrounding the impacts of fine sediment on Chinook underestimates the importance of the reach downstream of Iron Gate Dam for spawning Chinook. By equating this 8-mile reach to only 4 percent of the total Klamath River length, the reader is led to believe that because the Proposed Project only affects 4 percent of the spawning habitat, impacts to Chinook are small. The only way this oversimplification is accurate is if the entire Klamath River is suitable spawning habitat, which it is not. An accurate analysis would

quantify the spawning habitat in this reach and compare that to the spawning habitat in the area used by Chinook in the Klamath River.

Regardless of this scenario, 2 years of fine sand deposition on what is known to be Chinook spawning habitat would eliminate a 1-year class of mainstem spawners (those Chinook that spawn in fall 2020) and possibly those that spawn the following fall (2021). Add the fine sand deposition to the downwelling and entrainment of suspended sediment into spawning riffles (see Major Issue 2.4), and impacts to mainstem spawning Chinook habitat become even more substantial and extend for a longer period of time because it will take a period of years with suitably high flows to wash the accumulated fine material out of the spawning gravels.

As part of their proposed action for the reconsultation that they are undertaking for operations of the Klamath Irrigation Project, USBR is including a release of just over 6,000 cfs (see USBR 2018a). The DEIR should include an analysis of this event because it is likely to occur and would affect bedload transport under the Proposed Project and all alternatives.

Response to Comment ORG46-509

The analysis in Appendix F has been updated to quantify impacts of fine sediment on Chinook spawning based on the proportion of fall-run Chinook salmon potentially affected by sediment release from dam removal, rather than on the percentage of total channel length. Please refer to Volume III Attachment 1 Appendix F for the revisions. Please also refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 for further analysis of potential impacts to Chinook spawning under the Proposed Project. The analysis remains that one-year class of fall-run Chinook salmon will be impacted by this loss of mainstem redds in the short term but does not indicate that mainstem spawning fall-run Chinook salmon would be eliminated, as the comment asserts. Further, there is no indication that salmon would choose to spawn in the same reach as in prior years if the habitat is unsuitable, and therefore the commenter’s assertions regarding a second year of impact are unsubstantiated. For information on fine sediment erosion, transport, and deposition, including potential for sediment downwelling and remobilization, please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 and to Master Response GEO-1. Most fine sediment is expected to be transported downstream to the Pacific Ocean during and following drawdown. As explained in Potential Impact 3.11-5 and in Master Response GEO-1, within the reach from Bogus Creek to Cottonwood Creek where most sediment deposition is expected during and following drawdown, some initiation of sediment remobilization is predicted with flushing flows of approximately 6,000 cubic feet per second (cfs), which have a return period recurrence interval of approximately two years based on historic conditions (USBR 2012).

Regarding the Klamath Irrigation Project, Volume III Attachment 1 Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project* provides background information on the approach to considering Klamath Irrigation Project flows throughout the EIR, and the flows are further discussed in Volume III Attachment 1 Section 3.3 *Aquatic Resources;* Volume III Attachment 1 Section 3.11.4.1 *Geology, Soils, and Mineral Resources – Impacts Analysis and Approach – Flows;* Volume I Section 3.24 *Cumulative Effects*, which is partially modified in Volume III Attachment 1; as well as in Master Response GEO-1. Considering the Klamath Irrigation Project, including the 2019 BiOp flows, the impacts of the Proposed Project on Chinook spawning are not significant in the short term and beneficial in the long term (see Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7).

Comment ORG46-510

All sensitive plant communities should be converted to Sawyer alliances (Sawyer et al. 2009). Use of the Holland standard does not meet current national vegetation analysis standards and does not allow the reader to understand how to identify sensitive natural communities.

Response to Comment ORG46-510

The online edition of *A Manual of California Vegetation* (MCV) is the most recent standard for California vegetation classification and supersedes the Sawyer et al. (2009) edition. Vegetation alliances documented during CDM Smith's 2018 surveys, including those that are considered rare natural communities, are noted as part of Volume I Section 3.5.2.1 *Terrestrial Resources – Environmental Setting – Vegetation Communities* of the EIR (pages 3-457 to 3-472). Appendix H provides a list of rare natural communities (sensitive natural communities) by Holland type classification because this is how the types were recorded in the California Natural Diversity Database (CNDDB). Appendix H has been revised to provide a conversion between the Holland and MCV classifications. Please refer to Volume III Attachment 1 Appendix H for the revisions.

Comment ORG46-511

Regarding the model used in USBR (2012), the complete range of fine sediment (<63 micron) is represented in the model by only a single representative particle and the properties of that representative particle are not listed. This is a coarse representation of how the complete range of fine particles behave. In reality, very small particles like clay, behave much differently than larger silt particles but they are treated the same in the model. This model simplification may affect the sediment transport results described in USBR (2012) and as relied upon in the DEIR and in prior analyses to characterize sediment transport and associated impacts to aquatic resources.

Response to Comment ORG46-511

Although there are sixteen sediment size classes included in the USBR (2012a) model parameters, the comment is correct that one size class is used to represent the cohesive silt/clay fractions (< 0.0625 millimeter [mm]) in the SRH-1D model (USBR 2012a, page 9-4). This is because the surficial forces between particles result in the silt/clay fractions < 0.0625 mm behaving as one cohesive unit. Thus, separating out the sediment size classes that are represented by the < 0.0625 mm class is not expected to improve the accuracy of sediment model results, nor would it affect the EIR analyses as they relate to sediment erosion, transport, and deposition, and potential impacts to aquatic resources. Please refer to ORG46-8 for further information regarding the incorporation of cohesive sediment properties into the models referenced in the EIR. Please refer to Master Response GEO-1 for further information relating to fine sediment erosion, transport, and deposition.

Comment ORG46-512

The cohesive erosion function in the USBR (2012) model assumes linear rates of erosion. Field measurements of cohesive erosion rates typically show nonlinear behavior. The cohesive erosion rate exponent is typically between 1.2 and 1.4.

Response to Comment ORG46-512

USBR (2012a) considers cohesive and non-cohesive sediment transport processes within the limits of industry standard numerical sediment transport modeling. The data supporting the cohesive model parameters were taken from jet tests described in Appendix D of USBR (2012a). Including a non-linear erosion rate for cohesive sediment is not expected to change the USBR (2012a) model results because the sediment in the Klamath Basin reservoirs is highly erodible (i.e., the sediment would rapidly erode as soon as velocity increases during drawdown and thus can be described using a linear erosion rate). Please refer to ORG46-8 for additional information on incorporation of cohesive sediment properties into the models referenced in the EIR.

Comment ORG46-513

The USBR (2012) model does not include slump failures of the bank sediments that could be a first-order erosion process, potentially contributing equal or greater sediment mass to suspended sediment concentrations compared to direct erosion. This is especially important because reservoir drawdown rates under the Proposed Project are twice those used in the model, likely increasing the rate of bank failure. Related to this, the use of sediment jetting to mobilize sediments in the reservoirs during drawdown is likely to increase the potential for slump failures and increase overall amount of sediment delivery to the river, and these impacts have not been assessed.

Response to Comment ORG46-513

USBR (2012a, page 9-70) recognizes that the inability to capture bank erosion processes contributes to the uncertainty associated with the output of the SRH-

1D sediment transport model. However, the upper limit of the drawdown rate (5 feet per day) proposed would only increase water discharge by 1–7 percent of the 2-year peak flow (see Volume I Section 2.7.2 *Proposed Project – Reservoir Drawdown* [pages 2-54 to 2-60]); therefore, there would not be any substantial increase of bank erosion, including slumping. Please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-6 (pages 3-775 to 3-776), which concludes that bank erosion in downstream reaches due to reservoir drawdown would be a less than significant impact because total water discharges would be similar to, or less than, the historical seasonal 10-year flood.

Regarding sediment jetting, please refer to comment response LA9-69. Sediment jetting would be conducted in a manner that does not promote bank slumping.

Comment ORG46-514
The USBR (2012) report does not describe model validation, or any form of a reasonableness check on the model predictions.

Response to Comment ORG46-514
For the SRH-1D model applied in USBR (2012a), please refer to Huang and Gerimann (2010), which includes a description of the limits of model application, as well as descriptions of the governing equations for the model. Please also refer to the model sensitivity analyses in USBR (2012a, pages 9-18 to 9-32) and in Appendix K of USBR (2012a, pages 23-39 to 23-40). The SRH-1D model has previously been validated in applications to numerous projects throughout California and globally (see USBR 2018b for general information).
For the SRH-2D v3 model applied in USBR (2012a), please refer to Section 9.2.2 of USBR (2012a) and associated references.

Please also refer to ORG46-8 in relation to model uncertainty.

Comment ORG46-515
The cohesive and noncohesive load are simulated separately in the USBR (2012) model without any consideration of the interaction between the type classes of sediment. In reality, the erosion of noncohesive sediment, which is bound in the cohesive sediment, would be controlled by the behavior of the cohesive fraction.

Response to Comment ORG46-515
USBR (2012a) considers cohesive and non-cohesive sediment transport processes within the limits of industry standard numerical sediment transport modeling.

<u>Comment ORG46-516</u>
The DREAM model only simulates noncohesive sediments, which comprise just 15 percent of the sediments in the reservoir. The DREAM model also assumes that the presence of fines would have no impact on noncohesive transport. In reality, the abundant presence of cohesive sediment would have a strong influence on the behavior of the noncohesive fraction, and the effect of this interaction is not modeled or evaluated in the DEIR.

Response to Comment ORG46-516
USBR (2012a) considers cohesive and non-cohesive sediment transport processes within the limits of industry standard numerical sediment transport modeling.

Patagonia Works, Thomas R. Wilmoth, Kennon Meyer

<u>Comments ORG42-1 and ORG45-1</u>
This firm represents Patagonia Works, a certified B-corporation incorporated in the State of California. Attached please find Patagonia Works' comment in response to the Draft Environmental Impact Report for the Lower Klamath Project License Surrender Federal Energy Regulatory Commission Project No. 14803. If you have any questions about this comment, please contact me using the contact information provided on this letterhead.

Patagonia Works ("Patagonia") appreciates the opportunity to provide comments on the Draft Environmental Impact Report ("DEIR") for the Proposed Lower Klamath Project License Surrender Federal Energy Regulatory Commission ("FERC") Project No. 14803 for water quality certification pursuant to section 401(a)(1) of the Clean Water Act ("CWA") for the removal of the J.C. Boyle, Copco No. 1, Copco No. 2 and Iron Gate dams (together, the "Dams").

Patagonia is an outdoor apparel company with a 40-year history of environmental activism. Protecting and preserving the environment is a core business tenet as reflected in the Company's mission statement: "Patagonia is in business to save our home planet." In 2012, Patagonia became a California benefit corporation, enshrining its blended goals of business and conservation into its Articles of Incorporation. Patagonia believes deeply in the urgent shared responsibility to protect the environment. The future of Patagonia's business depends on the health of the wild places that its customers explore.

Patagonia has been involved with dam removal efforts since 1993. The company has dedicated substantial time and resources to promoting the restoration of watershed ecosystems. The contribution of dams to fishery deterioration, declines in water quality, and the impoverishment of adjacent native communities have all inspired Patagonia to encourage the removal of hydropower dams and diversions. Patagonia has donated millions of dollars to over 3,000 groups fighting to protect America's rivers. Patagonia has also invested company resources to amplify its grantees' message, using its own *marketing platforms and employee time to advocate for the health of river ecosystems.*

In 2014, Patagonia released a feature length film entitled "Damnation", highlighting the destructive effect of obsolete dams on healthy river ecosystems and fish populations that are cut off from native spawning habitat. On May 7, 2014, Patagonia's founder, Yvon Chouinard, wrote an op-ed in the New York Times entitled "Tear Down 'Deadbeat' Dams" arguing that "[d]ams degrade water quality, block the movement of nutrients and sediment, destroy fish and wildlife habitats, damage coastal estuaries and in some cases rob surrounding forests of nitrogen. Reservoirs can also be significant sources of greenhouse gas emissions."

Response to Comments ORG42-1 and ORG45-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comments ORG42-2 and ORG45-2

Patagonia supports the DEIR decommissioning and removal of the Dams because it will improve water quality, benefit threatened native fish species, eliminate a major source of greenhouse gases ("GHG"), and help return these stretches of the river to their natural conditions. However, the DEIR fails to adequately address the negative impacts of hatcheries on wild fish populations, and more broadly the Klamath River Basin. The California State Water Resources Control Board ("State Water Board") has failed to properly consider the full removal of hatcheries from the Lower Klamath River, which would ultimately benefit the project's objective of advancing the long-term restoration of the native fish populations in the Klamath Basin. The overwhelming evidence, as is broadly summarized within this comment, demonstrates that hatcheries have negative impacts on native fish populations in addition to a number of other negative environmental impacts. In fact, the DEIR analysis itself sets forth evidence establishing that the No Hatchery Alternative provides more benefits to native fish species than an 8-year ongoing operation of hatchery facilities. For the reasons set forth below, Patagonia asks that the State Water Board reevaluate the Proposed Project's hatchery analysis within the DEIR to include sufficient consideration of all potential environmental impacts and to adopt the No Hatchery Alternative.

Response to Comments ORG42-2 and ORG45-2

Operation of the Iron Gate Hatchery is part of the existing condition in the Klamath River Basin (Volume I Section 2.3.4 *Proposed Project – Existing Lower Klamath Project Features – Iron Gate Dam and Associated Facilities* [pages 2-13 to 2-15]).

The EIR does consider the full removal of hatcheries in the EIR; one of the six alternatives to the Proposed Project is the No Hatchery Alternative. The EIR indicates that while this alternative would reduce construction-related impacts associated with the reopening of Fall Creek Hatchery (FCH) and modifications to Iron Gate Hatchery, in the short-term the No Hatchery Alternative would represent a material impairment of the Klamath Riverscape as a resource and a substantial restriction of tribal access to the fishery relative to existing conditions (please refer to Volume I Section 4.7.12 *Alternatives – No Hatchery Alternative – Historical Resources and Tribal Cultural Resources* [pages 4-318 to 4-319]. As stated in Volume I *Executive Summary* (page ES-20) the No Hatchery Alternative would not meet Objective 2 (to timely advance the long-term restoration of the natural fish population in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation) as quickly as under the Proposed Project.

Additionally, please refer to the response to comment ORG34-8 for additional discussion regarding the EIR's analysis of the No Hatchery Alternative.

Comments ORG42-3 and ORG45-3
The State Water Board is tasked with preparing basin plans that designate the beneficial uses of waters to be protected and establish water quality objectives necessary to protect those uses. The California Environmental Quality Act ("CEQA"), Cal. Pub. Res. Code § 21000 et seq. and the CEQA Guidelines, 14 Cal. Code Regs. §15000 et seq. require that the State Water Board prepare an EIR that evaluates potential impacts of proposed modifications and continued operation of the Dams to water quality and other resources within California. In drafting the EIR, the State Water Board is responsible for considering both the short-term and long-term effects of the proposed action. Further, the CEQA guidelines mandate that the lead agency balance the social and environmental benefits of a proposed project with the unavoidable adverse environmental effects. The State Water Board is not permitted to carry out a project for which an EIR was prepared unless the project will not have significant effects on the environment or the agency has eliminated or substantially lessened all significant effects on the environment where feasible. Procedurally, with respect to the proposed dam removal, the current DEIR satisfies the CEQA requirements by sufficiently considering the long-term and short-term environmental benefits of dam removal on the Klamath. However, as explained further below, the DEIR falls short of the CEQA standard by failing to sufficiently consider and mitigate all adverse effects of continuing hatchery operations.

Removing dams is a helpful tool to combat river ecosystem deterioration. "Aging infrastructure coupled with growing interest in river restoration has driven a dramatic increase in the practice of dam removal." The average age of dams in the United States according to the National Inventory of Dams, is 57 years and eventually by the year 2030, over 80 percent of dams in the United States will be at least 50 years old. Research and actual experience demonstrates that the removal of dams is a viable option when the cost of keeping a dam in place is higher than the expense of the dam's removal, particularly when the possibility for river restoration is high. According to the organization American Rivers, *however, only 1,384 dams have been removed since 1912 out of the 90,000 estimated dams in the United States.*

Additionally, the full removal of all four Dams and their associated facilities most adequately satisfies the State Water Board's Proposed Project Objectives as set forth in the DEIR. The removal of the Dams will improve the long-term water quality conditions in the Klamath River, assist in advancing the long-term restoration of the native fish populations in the Klamath Basin, begin to restore volitional fish passage to viable habitat, and combat high disease rates among Klamath River salmonids. However, as developed further below, removing hatcheries from the Klamath more completely achieves the Proposed Project Objectives.

Response to Comments ORG42-3 and ORG45-3

Operation of the Iron Gate Hatchery is part of the existing condition in the Klamath River Basin (Volume I Section 2.3.4 *Proposed Project – Existing Lower Klamath Project Features – Iron Gate Dam and Associated Facilities* [pages 2-13 to 2-15]).

The EIR considers the potential for feasible mitigation to address significant impacts due to construction and operation of the reopened hatchery under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-17 for discussion of mitigation that was considered to reduce the impacts of Fall Creek Hatchery (FCH) on water temperature in Fall Creek and the reasons that these options were determined to be infeasible. Additionally, the EIR evaluates the potential impacts of reducing hatchery production goals under the Proposed Project through continued hatchery operations for eight years following dam removal in the following sections:

- Volume III Attachment 1 Section 3.2 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-17;
- Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries;*
- Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 through Potential Impact 3.3-10, Potential Impact 3.3-23, and Potential Impact 3.3-24;
- Volume I Section 3.5.5 *Terrestrial Resources – Potential Impacts and Mitigation* Potential Impact 3.5-25 through Potential Impact 3.5-27 (pages 3-752 to 3-574);
- Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-1 (pages 3-676 to 3-678) with revisions in Volume III Attachment 1 Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation*;

- Volume III Attachment 1 Section 3.12 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* Potential Impact 3.12-9;

With respect to the comment's assertion that removing the hatcheries from the Proposed Project more completely achieves the Proposed Project objectives, please refer to responses to comments ORG42-4 through ORG42-18.

Comments ORG42-4 and ORG45-4

A No Project Alternative would result in a denial of certification of license surrender, which would then return the Klamath Hydroelectric Project Dams to the relicensing proceedings. However, PacificCorp has already withdrawn its request with FERC for certification of a new license application and, as such, this result would be problematic. The DEIR specifically identifies that the Dams currently do not have operating licenses and the proposal to decommission the Dams has already been submitted to FERC. Further, the Klamath Hydroelectric Settlement Agreement requires the deconstruction of the Dams, adding another layer of complexity with the No Project Alternative. For these reasons, the State Water Board should reject the No Project Alternative, as it is inherently insufficient.

Response to Comments ORG42-4 and ORG45-4

Please refer to Volume I Executive Summary page ES-16, which summarizes the EIR's consideration of the No Project Alternative. This summary discussion states that in the short term, the No Project Alternative would not meet the Proposed Project's underlying objectives, while in the long term, the impacts and ability of the No Project Alternative to meet project objectives and purposes are speculative, but they would be within the range of the alternatives and the Proposed Project evaluated in this EIR.

Comments ORG42-5 and ORG45-5

The Klamath River watershed once produced large runs of Chinook salmon and steelhead in addition to significant runs of other anadromous fish, including coho salmon, green sturgeon, eulachon, coastal cutthroat trout, and Pacific lamprey. Accounts of early explorers, images from turn-of-the-century photographers, historical newspapers, and information from archaeologists indicate that salmon historically migrated to the Klamath Upper Basin. "Prior to dam construction, anadromous fish runs accessed spawning, incubation, and rearing habitat in hundreds of miles of river and stream channel above the site of Iron Gate Dam." Now, this dam is the current limit of upstream passage.

Currently, the Klamath River Basin supports Chinook salmon, coho salmon, and steelhead populations. However, the anadromous fish populations have declined substantially in abundance. Significant habitat still exists upstream of the Iron Gate Dam that is not being utilized. The Dams act as an unnatural barrier to *these valuable but unreachable habitats. Today, all anadromous runs of salmon and steelhead, once abundant in the upper basin, cannot pass Iron Gate Dam. There has been a decrease in fish populations in the Klamath River Basin from the numbers of fish that were first observed in the early 1900s. Steelhead populations that were thought to exceed one million fish prior to the 1900s fell to 400,000 by 1960. Similarly, coho salmon returns declined by 70% since the 1960s according to National Resource Council research conducted in 2008. As a result of these dwindling numbers, coho salmon in the Klamath River Basin were listed as threatened under the Endangered Species Act ("ESA") in 1997 and then were listed as threatened under the California Endangered Species Act in 2004.*

"Once spring-run Chinook salmon disappear, they are not likely to re-emerge," but prompt conservation action "could preserve spring-run Chinook, as well as their evolutionary potential." There are a number of factors that are currently contributing to the decline of anadromous fish populations on the Klamath River, including blockage of upstream migration by dams, rampant disease due to poor water quality, and dangerously high water temperatures.

Response to Comments ORG42-5 and ORG45-5

Comment noted. This comment pertains to the historical abundance of fish populations in the Klamath River Basin, and asserts that removal of the Lower Klamath Project dams would support those fisheries.

Comments ORG42-6 and ORG45-6

Currently, the Dams block access to hundreds of miles of migration, spawning, and rearing habitat for native steelhead, Chinook salmon, and coho salmon. The Dams attempt to mitigate these losses by offering assistance through the use of fish passage facilities such as fish ladders, which are currently located at Iron Gate and J.C. Boyle dams. However, fish ladders are often an inadequate tool to assist salmonids migration. Fish have difficulty utilizing the infrastructure, and the success rates of fish that do navigate their way through the facilities are typically low. Finally, the fish that do successfully utilize the infrastructure do so in much lower quantities than historic abundances. A free flowing river without the physical barriers of dams would allow the fish to repopulate upstream of the current dam blockage.

Second, both adults and out migrating juvenile anadromous fish in these reaches of the Klamath River are suffering as a result of increased disease and parasites that are currently plaguing the populations. "Severe infection by the myxozoan parasite Ceratomyxa shasta has, in large part, been responsible for the declining numbers of juvenile Klamath River fall Chinook and coho salmon and subsequent impacts on later adult returns." Over the past decade, as many as half of the juvenile Chinook salmon migrating annually toward the ocean through the Klamath River have suffered from severe infections by the myxozoan Ceratomyxa shasta. Additionally, as identified in the DEIR, algae produced in *the Upper Klamath reservoirs may be deleterious to the health of aquatic organisms in the Klamath River. Stagnant reservoirs are the leading cause of these high concentrations of toxic parasites. Allowing the Klamath River to run naturally free by removing the cesspool-creating Dams will assist the resurrection of native fish populations.*

Rampant infection of disease was especially apparent during the Klamath River Fish Kill of 2002. In 2002 a relatively robust run of adult fall Chinook entered the Klamath at a time of low flow rates and volume. The combination of crowded river conditions and warm water temperatures created a situation in which parasites and bacterial pathogens spread rapidly. Fish became infected at alarming rates. In the end, the California Department of Fish and Game estimated that more than 65,000 fish died. Researchers have demonstrated that low flow from Iron Gate Dam was a substantial causative factor in this historic fish kill.

Finally, the Dams have increased water temperatures in the Klamath River. Alterations to natural river flows through dam construction and water diversions have altered seasonal temperature patterns in the Klamath River, which ultimately result in harmful elevated temperatures during the crucial fall spawning season. Water temperature associated with multiple mainstem hydropower facilities might be one of many factors responsible for depressing Klamath salmon stocks.

The DEIR itself identifies that the North Coast Regional Water Quality Control Board has determined that existing receiving water temperatures in the Klamath River are already too warm to support migration of aquatic organisms and cold freshwater habitats. Higher water temperatures, especially during the summer months, will likely postpone spawning migration which will then hinder egg development. In addition, elevated water can increase adult fish mortality through stress and crowding. As such, the removal of the Dams will allow the river to self-regulate temperature control rather than heat and cool at the mercy of hydropower facilities.

Response to Comments ORG42-6 and ORG45-6

Please note that Iron Gate Dam does not currently have any fish passage facilities. Comment noted.

Comments ORG42-7 and ORG45-7

Not only do dams and their reservoirs create hazards for fish and other species, there is growing evidence that dams and reservoirs are also a hazard to the earth's climate. Studies show that large amounts of GHG emissions come from reservoirs. In fact, some studies estimate that as much as 7% of anthropogenic global warming equivalents come from methane emitted from man-made reservoirs alone. These emissions are then further provoked in hotter climates.

Human alterations of the aquatic landscape, which occur directly through the construction of large hydroelectric reservoirs, contributes to carbon emissions.

These emissions come from the impoundment of water, the plant matter decay in and around the artificial bodies of water, and the high concentrations of algae accumulating in stagnant reservoirs. Methane produced by the decomposition of organic materials bubbles to the surface of the water emitting GHG into the atmosphere. Additionally, the fluctuations in water level that reservoirs experience also exacerbates the emission production. The drops in hydrostatic pressure during water level drawdowns enhance methane bubbling. Emissions can also be released via degassing at turbines and spillways.

GHG from human activities are the most significant driver of observed climate change since the mid-20th century. As such, it is critically important to analyze the GHG emissions from hydroelectric technology and the associated reservoirs.

As identified in the DEIR, the power plant operations and maintenance of the Lower Klamath hydroelectric facilities are no exception, as they also act as a source of GHG emissions. Specifically, using estimates presented by the Karuk Tribe, the DEIR establishes that the reservoirs behind the Lower Klamath Project dam facilities and developments emit 4,000 to 14,000 metric tons of methane annually. "With the removal of the Lower Klamath Project reservoirs, this source of methane emissions would be eliminated."

A recent study assessed the potential climate change impacts to recreational freshwater fishing across the coterminous US and found that the resulting higher air temperatures, and to a lesser extent changes in streamflow, will alter fish habitat. Patagonia's business depends on its customers having access to wild places to pursue outdoor activities such as fishing. Additionally, Patagonia's mission to save our home planet demands that the company dedicate itself to fighting the climate crisis, including by providing financial support to grassroots environmental groups seeking to protect these fish habitats, and using the company's own platform to amplify their issues. A decline in more desirable recreational fish species as a result of climate change will directly harm Patagonia through both its customer base and its organizational conservation mission. As such, Patagonia again encourages the removal of the dams to eliminate GHG emissions.

Response to Comments ORG42-7 and ORG45-7

Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Comments ORG42-8 and ORG45-8

While Patagonia supports the DEIR's full removal and decommissioning of the Dams and their facilities, the company also simultaneously contends that the

DEIR unreasonably relies on the artificial production of fish through the use of hatcheries. Patagonia strongly opposes the DEIR's proposal to maintain the Fall Creek and Iron Gate Hatcheries. A strong scientific consensus shows that hatcheries create significant risks to wild fish species, rather than help supplement dwindling populations as initially thought- a proposition supported by the DEIR itself.

Further, although the CEQA requires that the DEIR include a detailed analysis of the environmental impacts of the proposed project, the DEIR fails to consider the full extent of the environmental impacts of the hatchery operations. Instead, the DEIR fails to recognize the benefit of the No Hatchery Alternative.

Response to Comments ORG42-8 and ORG45-8

The State Water Board is not the project proponent. The Klamath River Renewal Corporation (KRRC) has applied to the Federal Energy Regulatory Commission (FERC) to decommission and remove the four Lower Klamath Project dams and associated facilities. The KRRC's Proposed Project includes continued operation of the Iron Gate Hatchery and reopening of Fall Creek Hatchery (FCH) for eight years following the decommissioning of Iron Gate Dam, as discussed in Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (pages 2-77 to 2-84). It is therefore appropriate for the EIR to evaluate this proposal.

The EIR neither fails to consider the full extent of the environmental impacts of hatchery operations, nor does it fail to recognize that the No Hatchery Alternative would reduce some of the impacts of the Proposed Project. Please note that the EIR considers impacts using the CEQA baseline of existing conditions, which includes Iron Gate Hatchery operating at a greater capacity than it would under the Proposed Project. Please refer to Volume I *Executive Summary* (page ES-20) for a summary of the analysis of the No Hatchery Alternative and Section 4.7 *Alternatives – No Hatchery Alternative* (starting on page 4-301) for a detailed analysis of this alternative; for Greenhouse Gas Emissions and Energy and Air Quality, please see the portion of the Draft EIR that was recirculated on December 21, 2019.

<u>Comments ORG42-9 and ORG45-9</u>

As previously set forth, the Klamath River Basin was historically home to a number of wild fish species. Starting in the early 1990s many Pacific salmon populations in the United States were listed as threatened or endangered species under the ESA. In response to the rapid declines of these native fish species, hatcheries began popping up in river basins all over the Western United States. Originally, scientists thought this artificial supplementation of fish would assist to increase wild fish populations to mitigate for the loss of spawning grounds upstream of dams. However, studies show that anadromous salmonid populations in the Klamath River Basin are becoming increasingly dependent on hatchery propagation, a pattern that can threaten population persistence. This *includes the Iron Gate Hatchery in the Klamath River Basin which produce spring and fall-run Chinook salmon, coho salmon, and steelhead. With the removal of the Dams, there is a unique opportunity to regain these historical spawning grounds, lessening the need to use hatcheries to supplement Klamath fisheries.*

The DEIR provides that while some of the Iron Gate Hatchery facilities would be removed along with the dam, its operational components would be retained and modified to continue operation at a reduced rate for Chinook salmon. Additionally, the Fall Creek Hatchery would be reopened and maintained.

The Iron Gate Hatchery currently releases close to 8 million hatchery salmon and steelhead annually to mitigate the habitat lost between the Iron Gate and Copco dams, which doesn't take into consideration the hundreds of miles of upstream habitat that will be available when those dams are removed. While the Proposed Project would lower the existing production goals at the hatcheries, there would still be another eight years of hatchery production dumped into the Klamath causing irreversible damage to the native populations. Further investment into this hatchery is a waste of both time and resources. Given the overwhelming scientific data that shows native fish populations fare better without hatcheries, the DEIR is falsely premised on the necessity of these structures.

Response to Comments ORG42-9 and ORG45-9
The comment states that the Iron Gate Hatchery produces fall-run Chinook salmon, spring-run Chinook salmon, coho salmon, and steelhead. Please note that as described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries*, under existing conditions the Iron Gate Hatchery only produces fall-run Chinook salmon and coho salmon.

In this comment, and in comments ORG42-10 to 15 the commenter includes an assessment of the potential negative impacts of fish hatcheries on salmonids, including referencing several research articles. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* includes an analysis of the effects of the Iron Gate Hatchery, including referencing research articles and studies specific to the Klamath River Basin. The analysis in the EIR includes consideration of research indicating potential positive and negativeeffects of hatcheries, including consideration of research consistent with the research cited by the comment, which has been included in the record. Consideration of the additional research referenced by commenter does not alter the analysis or conclusions reached by the EIR.

The Proposed Project includes a reduction of hatchery production in the short-term, and a elimination of hatchery production after eight years. The Proposed Project, specifically including eight years of hatchery production, implements a multi-party agreement to fund and implement dam removal (the Klamath

Hydroelectric Settlement Agreement [KHSA]). Both federal and state fisheries agencies deliberated over and signed the agreement, along with other entities, including a number of affected tribes, the dam owner, and commercial fishing organizations. Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* assesses the effects of hatchery operation and production on aquatic resources under the Proposed Project. This assessment includes disclosure and consideration of the central tenants of the concerns regarding hatcheries expressed in the comment.

In addition, all production of coho salmon is guided by a Hatchery Genetic Management Plan (HGMP) for the Iron Gate Hatchery (CDFW and PacifiCorp 2014), which redefined the operation of this hatchery from a fishery mitigation hatchery to one now operated to protect and conserve the genetic resources of the Upper Klamath population unit of the Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU). Included in the HGMP are defined monitoring and evaluation activities to evaluate effects of the hatchery activities on the abundance, productivity, spatial structure, and diversity of the SONCC coho salmon and the magnitude or relative impact of the hatchery program on other actions that influence SONCC coho salmon. This management is proposed to continue at the Fall Creek Hatchery (FCH) facility. The research and information cited by the commenter is not based on hatchery programs that are guided by an HGMP.

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* – Potential Impact 3.3-7 finds no significant impact of the Proposed Project, including eight years of reduced hatchery production, on fall-run Chinook salmon. In addition, Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* – Potential Impact 3.3-9 finds no significant impact of the Proposed Project, including eight years of continued hatchery production of coho salmon under the existing hatchery genetics management plan, on coho salmon. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-2 for additional discussion of the future operations of hatcheries under the Proposed Project.

Comments ORG42-10 and ORG45-10

These traditional mitigation policies of replacing wild populations with hatchery fish are not consistent with modern conservation goals, environmental values, and scientific theories. While hatcheries are capable of temporarily maintaining higher numbers of fish populations, they are incapable of replacing lost habitat and the natural populations that historically rely on it. "The optimism of early salmon hatchery practitioners to increase abundance has been tempered in recent decades by studies indicating unintended negative effects hatcheries can have on wild Pacific salmon and steelhead."

Hatcheries jeopardize threatened and sensitive populations of native fish species, including the once-abundant salmon species. It is now clear that the widespread use of traditional hatchery programs has actually contributed to the overall decline of wild populations. "The historical use of artificial propagation for harvest mitigation has frustrated the successful integration of management directives and created regional economic inefficiencies." Scientists across the globe have studied the impact of hatchery fish on native populations and continually discover the negative impacts of hatcheries. The following are a few conclusions from studies conducted involving hatchery implications:

- *Hatchery coho salmon 14 months after release into a stream did not reach the body composition of the wild salmon in time for downstream migration and had lower ocean survival.*
- *Available data suggest progressively declining fitness for natural rearing with increasing generations in the hatchery. The reduction in survival from egg to adult may be about 25% after one generation in the hatchery and 85% after six generations. Reduction in survival from yearling to adult may be about 15% after one generation in the hatchery and 67% after many generations.*
- *Hatchery production has been reduced to a small fraction of the natural-origin production. Nickelson (2003) found that reduced hatchery production led directly to higher survival of naturally produced fish, and Buhle et al. (2009) found that the reduction in hatchery releases of Oregon coast coho salmon in the mid1990s resulted in increased natural coho salmon abundance.*
- *Hatchery fish reproductive success is poor; there is a large-scale negative correlation between the* presence of hatchery fish and wild population performance; hatchery fish reproductive success is lower than for wild fish and this is true for both supplementation and production hatchery programs…

As such, according to the Hatchery Scientific Review Group, scientists and policymakers have identified a need to reform the hatchery system based on growing concerns about the potential effects of artificial propagation on the viability of salmon and steelhead in their natural habitats. "The combined effects of large-scale hatchery programs, habitat loss and degradation and high harvest rates have replaced historically abundant wild salmon with hatchery-produced salmon in many areas." This includes the Klamath River Basin. Domestication in hatchery facilities alters predator avoidance, feeding behavior, genetics, and physiology. The DEIR should be focused on avoiding these well documented negative impacts rather than voluntarily submitting the river and its inhabitants to another eight years of ecology deterioration.

Response to Comments ORG42-10 and ORG45-10
With respect to the comment's general discussion of the negative effects of hatcheries on native fish populations, please refer to response to comment ORG42-9.

With respect to the comment's cited conclusion that hatchery produced coho smolts did not reach the same size as naturally produced fish and had lower ocean survival, please refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* and specifically to Potential Impact 3.3-9 for a discussion of the smolt-to-adult survival and lower fitness of hatchery produced smolts relative to naturally produced smolts in the Klamath River. Please also note that unlike the cited study regaridng hatchery operations in the 1950s, coho salmon hatchery operations under the Proposed Project are guided by a Hatchery Genetic Management Plan (HGMP) informed by modern fisheries management (please also refer to response to comment ORG42-9).

The comment cites data that suggest declining fitness level with increasing generations in hatcheries; please refer to Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* for a disussion of the relativley poor fitness of hatchery-reared fish. However, the declines presented in the data stopped falling after approximately six to nine generations of hatchery production. After nearly 100 years (generations) within hatcheries for fish produced in the Klamath River, the reductions in survival cited by the comment have likely already occurred, and additional declines in survival as a result of continued hatchery rearing are unlikely. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With regard to data cited in the comment that suggest that reducing hatchery production of coho salmon can increase survival and abundance of natural populations, please refer to Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources* and specifically Potential Impact 3.3-9 for a discussion of the benefits of reduced hatchery production on the fitness and abundance of the natural coho salmon population. Please also note that unlike the cited studies, coho salmon hatchery operations under the Proposed Project are guided by a HGMP (please also refer to response to comment ORG42-9).

The comment asserts that the Draft EIR should be focused on avoiding the potential impacts of hatcheries. Please refer to Section 4.7 *Alternatives – No Hatchery Alternative* for a complete evaluation and analysis of an alternative to the Proposed Project that does not include hatchery production.

Comments ORG42-11 and ORG45-11
"Ecological risks occur when the presence of hatchery fish affects how wild fish interact with their environment or with other species." There are a number of detrimental ecological interactions that can take place between hatchery and wild fish. These include competition for food and territory, predation by larger

hatchery fish preying on smaller wild cohorts, and negative social interactions when large numbers of hatchery fish are released on top of small numbers of wild fish.

Hatchery fish typically have short-term physical advantages over wild fish that disrupt the natural interactions of wild fish. Larger sized juveniles, more aggressive and dominant juveniles, and different spawning times by adults all contribute to the ecological risks to native populations. Larger hatchery juveniles tend to win more competitions by virtue of their size, which then places naturally proportional wild juveniles at a disadvantage. As previously pointed out by the Native Fish Society in their comments on the draft water quality certification for the Klamath River Renewal Corporation's Lower Klamath Project No. 14083, due to the food distribution and rearing strategies necessary to make artificial production cost effective, hatchery fish become surface oriented, causing them to become more susceptible to predators. Releasing young hatchery fish into a wild stream could result in their domination of wild fish, which would then leave wild fish reduced to less favorable rearing habitats.

Further, a number of studies have demonstrated that hatchery juveniles can show more aggressive behaviors than wild juveniles. This aggression then leads to decline in native fish population only to be replaced by hatchery fish that have a lower overall survival rate. "Therefore, while hatchery juveniles released into natural streams have a competitive advantage over wild fish due to increased aggression, size, or sheer number, their impaired ability to survive to adulthood and breed successfully can translate into an overall reduction in salmon population size." While some short-term advantages may initially benefit the hatchery fish, in the long-term they will eventually lead to poorer survival or lower reproductive success in the hatchery fish themselves. This creates precisely the opposite impact intended by hatcheries in the first place.

Response to Comments ORG42-11 and ORG45-11

Regarding the comment's general discussion of the negative effects of hatcheries on native fish populations, please refer to response to comment ORG42-9.

With respect to social interactions and potential agression between hatchery and naturally produced fish, the comment does not provide any Klamath River-specific data supporting these concerns. In some cases, hatchery-released fish are in poorer health upon release than their naturally-spawned counterparts, and levels of agression appear related to size at emergence, rearing density, and food availability (Berejikian et al. 1996). Any such interactions would fall under the larger umbrella of competition that was acknowledged in Draft EIR Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comments ORG42-12 and ORG45-12</u>

Genetic risks occur when hatchery and wild fish interbreed. Studies show that hatcheries can cause genetic changes in salmon populations after just a single generation. Research and experimental studies conducted across the years have demonstrated that artificial breeding will likely reduce genetic diversity and cause higher rates of genetic drift as a result of small effective population sizes. Wild fish have diverse genetic variances while hatchery fish have very limited genetic variances, which then yields limited genetic diversity. Continued interbreeding with hatchery-origin fish of lower fitness can lower the fitness of the wild population.

Hatchery fish that do not return to the hatchery but instead spawn naturally may potentially transfer maladaptive genetic changes into the wild population. "Generally, large, long-term hatchery programs that dominate production of a population are a high-risk factor for certain viability criteria and can lead to increased risk for the population." The Iron Gate Hatchery is no exception. Genetic variation and uniqueness are key to the success of fish populations. As previously identified by the Native Fish Society and Patagonia, the ability of salmon to migrate to the ocean and return to their natal stream has profound implications on population structure and has encouraged fine scale genetic adaptations to specific habitats used throughout their lifecycle and geographic range. As such, it is essential that these fish populations are able to maintain their authentic genetic variations.

"There is about a 40% loss in reproductive fitness for each generation of fish that spend their lives in a hatchery." Hatchery fish produce fewer returning adults when they spawn with one another compared to more successful wild fish, or when a hatchery fish spawns with a wild fish. As one study succinctly summarized:

The implication is that hatchery salmonids could be gradually reducing the fitness of the wild populations with which they interbreed. Those hatchery fish provide one more hurdle to overcome in the goal of sustaining wild runs, along with problems caused by dams, loss or degradation of habitat, pollution, overfishing and other causes. Aside from weakening the wild gene pool, the release of captive-bred fish also raises the risk of introducing diseases and increasing competition for limited resources."

Wild salmon species must preserve their genetic diversity if they are going to maintain their ability to adopt to changing environmental pressures. Hatcheries undermine this goal.

Response to Comments ORG42-12 and ORG45-12

Regarding the potential effects of hatchery production on the genetics of natural populaitons, please refer to Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* for a discussion of this topic. After nearly 100 years (generations) within hatcheries for fish produced in the Klamath River, the reductions in survival cited by the comment have likely already occurred; additional declines in survival as a result of continued hatchery rearing are unlikely. Please also note that specific percentages regarding fitness cited in the comment are for hatchery fish and are not data on reductions in fitness among the natural population resulting from intermixing. Further, please note that coho salmon hatchery operations under the Proposed Project are guided by a Hatchery Genetic Management Plan (HGMP) informed by modern fisheries management practices (please also refer to response to comment ORG42-9).

Comments ORG42-13 and ORG45-13

While there are undoubtedly genetic and ecological effects on native species as a result of artificial hatchery fish, the physical infrastructure of the hatchery operations harm wild fish populations. "The physical existence of the factory represents a permanent, negative impact on the surrounding environment and can also pose serious harm to fish populations both in and outside of the facility."

Currently up to 50 cfs of water is diverted from the Iron Gate reservoir to supply the fish ladder and raceways that operate at the Iron Gate Hatchery. Water that is withdrawn from the river's flow and then utilized by hatcheries in turn reduces river flow and causes water temperatures to fluctuate unnaturally. In addition to flow reductions, these withdrawals displace other stream-dwelling organisms that are crucial to the aquatic food web and dewater natural spawning and rearing areas. Further, as admitted in the DEIR itself, "Hatcheries potentially alter water temperature through increasing exposure to direct sunlight (e.g., in raceways or settling ponds) and ambient air temperatures. Hatcheries also potentially increase suspended material, turbidity, and nutrients in streams by discharging water containing organic solids from uneaten commercial pelletized feed and fish waste."

Hatcheries are also susceptible to technical difficulties that leave millions of hatchery fish at the mercy of unreliable modern technology. Power outages, machinery malfunctions, and human error are a few of the risk factors that hatcheries pose to reared fish populations. Most recently, in December 2018, more than 6.2 million Chinook salmon died when a power outage occurred at Minter Creek Hatchery in Gig Harbor, Washington. Deadly hatchery power outages as a result of storm power line damage or faulty electric problems is not uncommon. Spending eight years putting financial resources into a facility that is susceptible to extreme technical difficulties, potentially leading to mass fish casualties, is a poor investment of time and capital.

Additionally, large releases of hatchery fish have been associated with decreases in fish survival as a result of increased predation by piscivorous fish, birds, and mammals. These predators are attracted to the high concentrations of fish that are released from hatcheries. "Not only is there an increased number of prey available to attract predators, but hatchery fish also tend to out-migrate in *unnatural, concentrated groups compared to the more dispersed and variable behavior of wild fish." Further, the carrying capacities of rivers is often exceeded during outmigration of hatchery smolts, which causes a decrease in food availability.*

Response to Comments ORG42-13 and ORG45-13
Please refer to response to comment ORG42-9. With respect to the comment's concern that the existing 50 cubic feet per second (cfs) diversion of water from Iron Gate Reservoir to supply Iron Gate Hatchery reduces river flows and causes unnatural fluctuations in water temperatures in the Middle and Lower Klamath River, please note that the diversion is non-consumptive and occurs directly from the reservoir itself. Please see Volume I Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery* Figure 2.7-13 (page 2-79). The point of return to the river is the settling pond outfall at the base of Iron Gate Dam where water temperatures are influenced by the presence of the dam itself. For a discussion of the temperature influences of the Proposed Project, please see Volume III Attachment 1 Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature*. Separate discussion of any influence from hatchery operations is not requried to adequately describe the current condition, particularly as the current diversion is proposed to change.

The commenter notes that there is potential for malfunctions at hatcheries to affect the fish being raised within the hatchery. Comment noted. Commenter has not asserted, and it would be speculative to assume, that such a malfunction would be likely to occur in the next eight years at Fall Creek or Iron Gate hatcheries. There is no evidence that the technological risk to fish is increasing under the Proposed Project relative to existing conditions. To the contrary, the Definite Plan includes upgrades to hatchery facilities designed to improve their functionality, and distributing the fish populations between two hatcheries creates redundancy in the event of a malfunction.

The comment's assertions regarding predation are noted. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* has been revised to cite Kostow (2009) to note that large releases of hatchery fish have been shown to increase predation on natural populations of juvenile salmonids. Please refer to Volume III Attachment 1 Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for the revisions.

Comments ORG42-14 and ORG45-14
Finally, the physical presence of hatchery infrastructure along the river creates an aesthetically displeasing and unnatural disturbance to the historic natural beauty of the Klamath River Basin. Hatchery buildings, tanks, and filters insert an artificial presence in what should be a peaceful wilderness environment. Patagonia's customers are deeply interested in the preservation of wild spaces,

as it is the area they utilize for their recreational, spiritual, and personal needs. The removal of the hatcheries along with the Dams will help preserve the original natural wonder of the area.

Response to Comments ORG42-14 and ORG45-14

From an aesthetics standpoint, the continued presence of Iron Gate Hatchery under the Proposed Project would result in no change from existing conditions. Construction activities at Fall Creek Hatchery (FCH) would result in improvements to existing infrastructure under the Proposed Project, but since Fall Creek Hatchery already exists and the proposed improvements are generally in line with existing infrastructure size and placement (Volume I Section 2.7.6.2 *Proposed Project – Hatchery Operations – Fall Creek Hatchery* Figure 2.7-15 [page 2-83]), there would be little if any long-term aesthetics effect. Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-5 has been revised to clarify that the removal of the dam complexes and the associated Iron Gate and Fall Creek hatchery modifications would not result in a significant long-term (permanent) impact because there would be no degradation of the designated view class for the surrounding landscape (i.e., Bureau of Land Management's [BLM's] Visual Resource Management [VRM] class) at a key observation point and because no scenic vista in areas that were not assigned a VRM class would be adversely impacted. Please refer to Volume III Attachment 1 for the final Section 3.19 *Aesthetics*. Please also refer to responses to comments ORG46-321 through ORG46-331.

As stated in Section 4.7.19 *Alternatives – No Hatchery Alternative – Aesthetics*, the portion of the Limits of Work containing the Iron Gate Hatchery footprint (Volume I Section 2 *Proposed Project* Figure 2.7-13 [page 2-79]) would undergo a similar degree of construction activities and associated short-term impacts related to aesthetics as the Iron Gate Hatchery modifications (i.e., relocation of fish trapping and holding facilities, relocation of the cold-water supply) under the Proposed Project. Section 4.7.19 *Alternatives – No Hatchery Alternative – Aesthetics* has been revised to clarify that the removal of Iron Gate Hatchery and the lack of construction/upgrading activities at Fall Creek Hatchery under the No Hatchery Alternative would not, as described for the Proposed Project, cause the VRM class to be degraded at a key observation point, would not adversely impact a scenic vista for those areas that were not assigned a VRM class, and would not result in a significant long-term (permanent) impact. Please refer to Volume III Attachment 1 Section 4.7.19 *Alternatives – No Hatchery Alternative – Aesthetics* for the revisions.

Comments ORG42-15 and ORG45-15

Although the Proposed Project would remove the cold-water supply and aerator for the hatchery, the operational components of Iron Gate Hatchery would still be retained and modified to continue operations in addition to the reopening of Fall Creek Hatchery for eight years following the dam removal. If the Dams are being removed to benefit the health of the Klamath River, the continuation of hatchery *operations stands in direct contrast to that objective. Although the proposed plan will lower hatchery production over the eight-year period, the mere reduction of total hatchery production goals is not enough to mitigate the damage hatchery operations will continue to have on the Klamath.*

In addition to the continued operation of the hatcheries, the Definite Plan authored by the Klamath River Renewal Corporation proposes the construction of additional hatchery facilities, including a new spawning facility, circular tanks, and a UV treatment system. Additional expenditures on hatchery infrastructure stands in bold contrast to the proposed plan's objective of advancing the long-term restoration of the native fish populations. Instead of dedicating resources to the unnatural and ultimately destructive operation of hatcheries, the DEIR should reallocate these resources to the restoration of native fish populations.

The DEIR identifies that reopening the Fall Creek Hatchery will increase hatchery-related discharges which would potentially alter water temperature downstream. In fact, the DEIR provides a list of "potential negative effects" that include genetic risks, competition and predation, hatchery facility effects on water quality, effects of weirs and other hatchery infrastructure, masking of current wild population status due to the presence of large numbers of hatchery-origin fish, incidental fishing pressure, and disease transfer from hatchery to wild fish. This direct recognition of the negative impacts of hatchery operations demonstrates that the State Water Board has not properly considered the full range of environmental impacts associated with hatchery removal.

Response to Comments ORG42-15 and ORG45-15
Allocation of resources to hatchery reconfiguration and operation is described in the Definite Plan, and are part of the Proposed Project. Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC).

The EIR adequately considers the potential water quality impacts of the continued operation of Iron Gate Hatchery and the reopening of Fall Creek Hatchery (FCH) under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.2.5.8 *Water Quality – Potential Impacts and Mitigation – General Water Quality* Potential Impact 3.2-17 for this analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

With respect to the EIR analysis of the potential impacts on anadromous fisheries due to the continued operation of Iron Gate Hatchery and the reopening of Fall Creek Hatchery under the Proposed Project, please refer to Volume III Attachment 1 Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries*. Please also refer to response to comment ORG42-9 and Master Response AQF-2.

<u>Comments ORG42-16 and ORG45-16</u>

The DEIR does indeed provide a No Hatchery Alternative which would result in the permanent removal of the Iron Gate Hatchery and avoid the refurbishing and reopening of the Fall Creek Hatchery. However, this alternative is falsely caveated by the assertion that these actions would fail to meet the Proposed Project's Objective 2, to "advance the long-term restoration of the natural fish population in the Klamath Basin with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation" as quickly as under the Proposed Project.

This conclusion stands in bold contrast to the analysis of the No Hatchery Alternative, which actually reveals that the No Hatchery Alternative will be beneficial for coho salmon and fall-run and spring-run Chinook salmon populations in the long term. The DEIR states, "The Chinook salmon released to the Klamath River annually also likely result in deleterious effects on natural-origin populations, including competitive pressure between hatchery-derived and natural-origin fish in the limited habitat areas (e.g., thermal refugia) used by rearing juveniles in the Klamath River (NMFS 2010a)." Further, "Negative hatchery effects due to competition, leading to displacement and lower growth, are well documented (Flagg et al. 2000, McMichael et al. 1997)." As a result, the DEIR itself asserts that the removal of hatcheries "could increase survival of natural-origin Chinook salmon at a faster rate than with continued hatchery operations under the Proposed Project" and "ending hatchery operations under this alternative may result in a more rapid increase in the spring-run Chinook salmon adult population as a result of dam removal than under the Proposed." Thus, it's difficult to comprehend how the No Hatchery Alternative would "fail to meet Objective 2" when the DEIR provides ample evidence that hatchery removal will advance the long-term restoration of native fish populations – the very purpose of Objective 2.

Response to Comments ORG42-16 and ORG45-16

The EIR differentiates between an increase in abundance of naturally produced fall-run Chinook salmon, and an increase in total adult returns (which could include adults produced from either hatchery or natural production). The elimination of hatchery produced fall-run Chinook salmon and coho salmon under the No Hatchery Alternative is characterized as having the potential to result in a faster increase in survival of *naturally* produced fall-run Chinook salmon, mostly because there would be no competition or other impacts from hatchery produced fish (although, as noted in Goodman 2011, the degree to which this potential is realized depends on characteristics of the hatchery stock and of the existing mixed hatchery and natural-origin population). This means that, in any given year, the naturally spawned fall-run Chinook have the potential to survive better without competition or other impacts from hatchery releases. However, under the Proposed Project, both hatchery returns *and* natural returns from newly accessible habitat would occur in the short-term. Thus, the *total* adult returns from naturally produced and hatchery released production will be greater in the short-term than natural production alone. The combined production under the Proposed Project is anticipated to increase the rate of reintroduction of fall-run Chinook salmon and coho salmon into newly accessible habitat, with the hatchery-origin strays into the new habitat becoming part of the new natural fish population. This increase in population as well as the hatchery production itself are anticipated to provide increased resiliency to unforeseen environmental disturbance or other threats to the populations (NMFS 2017b), and more rapid realization of the other benefits of increased habitat access to these populations. Further, it is worth noting that the coho salmon hatchery is managed under an Hatchery Genetic Management Plan (HGMP) to address any potential negative genetic impacts of hatchery operations and has been deemed necessary to protect the remaining genetic resources of the Upper Klamath River Population unit (PacifiCorp and CDFW 2014). Both naturally produced and naturalized hatchery strays will increase the natural population available to recolonize newly accessible habitat following dam removal.

The EIR notes that spring-run Chinook salmon do not benefit from hatchery production in the same way as fall-run and coho salmon (Potential Impact 3.3-8). However, in light of the population and resiliency benefits to the other anadromous salmonids, and in light of the fisheries emphasis in Objective 2 – which highlights the importance of fall-run Chinook salmon – the findings regarding Objective 2 remain appropriate.

A greater total number of adult salmon available for harvest in the short term meets the emphasis of the Proposed Project Objective 2, "In a timely manner, advance the long-term restoration of the natural fish populations in the Klamath Basin, *with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation*" as quickly as possible.

Thus, while both the Proposed Project and the No Hatchery alternative are projected to increase natural fish populations in the long term, the Proposed Project is projected to do so more rapidly, and to better meet the fisheries emphasis of Objective 2.

Please also refer to responses to comments ORG42-9.

Comments ORG42-17 and ORG45-17

In addition to the benefits to native fish populations, the DEIR also directly identifies that the No Hatchery Alternative will result in lower GHG emissions than the Proposed Project. "[U]nder the No Hatchery Alternative, operational emissions from the hatcheries would be lower (zero) than those under existing conditions." Moreover, the DEIR states that the No Hatchery Alternative "would further the underlying purpose and most of the project objectives" and "reduce construction-related impacts of reopening Fall Creek Hatchery and making modifications at Iron Gate Hatchery." The full removal of the hatcheries in *conjunction with the dam removal, as opposed to waiting eight years, would save time and resources by eliminating the need to engage in two different deconstruction phases. Instead of expending energy relocating fish trapping and holding facilities and balancing the repurposing of the facilities, the dam and hatchery deconstruction activities can occur simultaneously so to eliminate a second wave of construction activities. This would eradicate the need for a subsequent disruption of the aquatic habitats rehabilitating in the river post-dam removal.*

The No Hatchery Alternative provides more environmental benefits to native fish populations, results in overall less GHG emissions, eliminates aesthetically displeasing infrastructure, and thus undoubtedly meets the Project objectives. As such, Patagonia strongly urges the State Water Board to consider adopting the No Hatchery Alternative in the long-term interest of native fish populations.

Response to Comments ORG42-17 and ORG45-17

With respect to the potential for future hatchery operations beyond eight years following dam decommissioning, demolishing of hatchery structures, or decommissioning of the hatchery in place, the EIR is not required to speculate (CEQA Guidelines section 15145). If the hatchery were to be demolished following the eight years of continued operations analyzed in this EIR, those deconstruction activities, or any other hatchery-associated actions not analyzed in this EIR, would be subject to separate environmental review.

With respect to the comment's concern about greenhouse gases, this portion of the Draft EIR was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

With respect to aesthetics, please refer to response to comment ORG42-14.

Comments ORG42-18 and ORG45-18

While Patagonia supports the removal of the Dams from the Klamath River Basin, the company also strongly opposes the continued operation of the Iron Gate and Fall Creek Hatcheries due to their detrimental impacts on native fish populations. Patagonia urges the State Water Board to adopt the No Hatchery Alternative to better protect the ecological health of the Klamath River Basin and fully embrace the project's objective of restoring native fish populations, particularly the restoration of salmonid fisheries used for subsistence and recreation. The State Water Board should reconsider and reevaluate the impact of hatcheries on the Proposed Project in an attempt to benefit the longevity of all anadromous fish species and restoration of viable river habitat.

Response to Comments ORG42-18 and ORG45-18

This comment is noted as a summary conclusion of prior comments. Please refer to prior responses.

Save California Salmon, Save the Klamath Trinity Salmon, Regina Chichizola

<u>Comment ORG41-1</u>

Please accept the following comment letter from Save California Salmon on the the current application to provide a 401 certification to take down four of the Klamath River dams and transfer the license for the dams from PacifiCop to the Klamath River Renewal Corporation. We support this permit and transfer and urge the water board to process and approve a final license for the removal of four Klamath River dams.

We thank you for producing a well supported and thorough CEQA document, and for your professionalism and commitment in providing for public comment opportunities and to creating a final 401 permit that protects, and restores, the Klamath River. We support the conclusion that the removal of four of PacifiCorp's dams is the only way to restore water quality in the Klamath River. We also wish to apologize for the disinformation campaigns, and at times poor treatment, the board and staff has had to deal with throughout this process. Your commitment to civility, ahearance to state laws and water quality standards, and use of the best available science is commendable. We thank you for this commitment.

At this time we wish to incorporate by reference the comments of the Karuk Tribe, the Yurok Tribe, the Klamath Tribes of Oregon, the Pacific Coast Federation of Fishermen's Associations, The Institute for Fisheries Resources, the Klamath River Renewal Corporation, California Trout, and the California Hydropower Reform Commission.

Years of studies and peer reviewed science surrounding these dams operations have been exhaustive and have proven that the only legal alternative pursuant to state law, is dam removal of four Klamath dams. All other possible alternatives and mitigations have been explored and found unachievable or to be too expensive to be attainable. We feel that the application from the Klamath River Renewal Corporation is thorough and supported by science and their plan for removal is achievable and provides for the best possible mitigations for any short term adverse impacts to water quality. These impacts are minimized to the level of an foreseeable winter storm events and this is amazing considering that this is the largest river restoration project even planned.

We are also incorporating by reference our January 29th, 2016 comment letter, which gives a much more detailed argument for taking down, rather than permitting, the Klamath Dams.

The remainder of this comment letter will be focused on the impacts from dam removal only and will mainly consist of quotes from dam removal studies or science magazines. Links to referenced studies will be included. They will show that even the fears of short term impacts are overblown and the actual impacts of *dam removal and been very short term and less than significant even in dam removal projects with extremely high levels of PCBs and sedimentation.*

Short term impacts verse. Long term benefits of dam removal

There has been much negative misinformation shared in the public hearings on the dam removal that is easily disproved. The impacts and toxicity from sediments behind the dams and flood control are the most common talking points used for misinformation campaigns be dam removal opponents. In truth the movement of sediments and a dynamic river system is absolutely necessary for healthy river and fishery, and multiple studies have been done to show that the sediments that can be mobilized are non-toxic.

Sediments from dam removal which may have a short lived negative impact, will likely provide for new, and needed in river and estuary habitat, and deposit sediments that will allow for streamside restoration. In the Klamath where much of the habitat in river is starved for gravel and much of riverbars have been heavily mined and grazed leading to lack of streamside vegetation, this sediment could actually provide much needed habitat in the long term. The positive impacts of increasing habitat, when coupled with the reduced temperatures and fish diseases that will come with dam removal can not be overstated.

Many studies speak to the short term impacts and long term benefits of dam removal and impacts of sediment. The most recent is in Volume 69 Issue 1 of BioScience Magazine at:

https://academic.oup.com/bioscience/article/69/1/26/5285462

"Although sediment deposition may initially perturb aquatic organisms and riparian vegetation, it is also a resource for ecological recovery. Sediment-starved river channels downstream from dams can become incised, armored, and disconnected from their floodplains (Ligon et al. 1995). Deposition and subsequent redistribution of reservoir sediments create new gravel bars, a more heterogeneous streambed, and more suitable spawning habitats for nest-building fishes (Kibler et al. 2011) Entrained reservoir sediments can also aggrade downstream channels and reconnect lateral floodplain habitats (East et al. 2015, Magilligan et al. 2016). Increased channel migration, creation of new gravel bars, and sediment deposition on floodplains provide new surfaces for colonization by pioneer plant species and potentially restore a shifting riparian habitat mosaic (Shafroth et al., 2002, 2016).

https://academic.oup.com/bioscience/article/69/1/26/5285462

"In the past there have been concerns about the short term impacts from sediment plumes as a result of dam removal. Dam removals on the Elwha and White Salmon River, along with dam removals in Florida, Wisconsin, Maine, and

Arizona provide a wealth of information on methods to minimize this risk. Studies and observation have shown that rivers have been extremely efficient at moving fine sediments. Related water quality studies have shown temperature and Dissolved Oxygen improvement almost immediately following dam removal, which in turn can have a positive impact on fish disease and attached algae composition.

There are several approaches to sediment mitigation during dam removal. They can range from slow drawdown and complete sediment removal to a quick removal allowing sediment to be washed down river." A discussion of these methods can be found at:"

http://repository.usfca.edu/cgi/viewcontent.cgi?article=1137&context=capstone

Until large scale dam removal was initiated in the Pacific Northwest, physical sediment removal was a preferred method of sediment management. This was true until the Condit dam removal in Washington, where a "blow and go" method was used due to monetary concerns. This proved very effective with minimal impacts at the Marmot Dam.

"The results were impressive—but very different at the two sites. At Marmot, the sediment contained an equal mixture of sand and gravel. Once exposed to river action, it eroded out relatively quickly but sedately, with about half of it gone within 8 months. Researchers were surprised to find that the fish seemed little affected—the first curious salmon poked its nose back towards the former dam site within a day. At Condit, the sediment contained a higher proportion of fine-grained material: 35% mud, 60% sand and just 5% gravel. The result was predictable in retrospect, but nobody anticipated it.

When engineers blew open a hole at the bottom of the dam, a jet of black liquid shot out as if from a giant fire hose. Instead of the expected flood of water, what came out was more like a mudflow, as waterlogged sediment from the reservoir slumped into the rapidly dropping water, then blasted downriver in a slurry that was as much as 28% sediment by volume. The reservoir lost its water and much of its sediment load in three hours. "It was almost like a volcanic event," says Jon Major, a geomorphologist at the USGS's Cascades Volcano Observatory in Vancouver, Washington. The 5-kilometre-long stretch of river between the dam and its confluence with the Columbia River temporarily became a muddy wasteland. With this kind of approach, says East, the slug of sediment wipes out everything, but the river can start recovering much sooner."

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636

In the Elwha Dam removal, a more conservative approach was used "Unwilling to risk the blow-and-go approach on both dams, engineers opted for a compromise. They quickly removed the lower, 32-metre-high Elwha Dam, which contained *only about one-sixth of the total sediment. But the upstream Glines Canyon Dam, which is twice as big, came out in a series of steps that have so far lowered it to a 9-metre stub of its former self. East compares the method to deciding whether to uncover a wound quickly or gradually. The approach on the Elwha, she says, is like "pulling the Band-Aid off slowly, over the course of three years".*

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636

Initial findings on sediment movement during dam removal have shown that gravel has migrated slowly, while silt coming out of the Olympic Mountains tended to move quickly downstream and into the Strait of Juan de Fuca. This fine sediment has thus far been found to be beneficial to river mouths. In the removal of the dams from the Elwha River in Washington new sandy beaches were found to be prime habitat for shellfish, which could greatly benefit the commercial and subsistence fisheries in this area. Though benefits of sediment recruitment are already occurring, there are short term impacts to kelp and shellfish beds. As far as short term sediment release, the rivers have proved unexpectedly efficient at flushing the worst of the mud downstream towards the sea, rather than letting it accumulate in river-choking mudflats. It is important to note that the Klamath reservoirs and Klamath River have less sediment-related issues then the sediment-impaired rivers that were removed in Washington. Reports regarding sediment behind the Klamath dams can be found in the Klamath River dams secretarial determination record.

Impacts to Fisheries

We believe that this dam removal project will have limited to no negative impact on endangered, subsistence, commercial and threatened fisheries in the short term because the removal is well planned. This dam removal has been planned mimic a large flood event, which often actually benefit fisheries by scouring out fine sediments and attached algae, and providing new habitat. The long term positive impacts of restoring water quality and fisheries populations can not be overstated. This is a rare opportunity to restore a watershed that is climate change adaptable and delist a river for many water quality impairments. "Data on the recent dam removals suggest that the fish are now coming back to the unfettered rivers. At Condit, fish were seen returning within weeks of the explosion. Two years later, the total exceeded 5,500, including steelhead and spring Chinook (Oncorhynchus tshawytscha), which had been effectively extirpated from the river," said Jody Lando, a quantitative ecologist with Stillwater Sciences in Portland, Oregon, who reported her results in May at an aquatic-sciences meeting in Portland."

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636

"Furthermore, observations have shown that benefits have been almost immediate, with salmon spawning in above-dam tributaries within the first two

years that dams were removed for fish entering the river, researchers can barely contain their excitement about last fall's migration of chinook, coho and pink salmon, along with steelhead trout. At least some of every species made it past the spot where the Elwha Dam stood just two years ago."

http://www.kitsapsun.com/news/environment/dramatic-changes-following-elwha-dam-removal-ep-416589177-356243611.html/

For salmon and insect-dependent species, such as the dipper recovery was also almost immediately.

"In one study, the researchers documented that American dippers with access to salmon were in better physical condition and more likely to attempt multiple broods of offspring in a season. They also produced larger female offspring and were more likely to stay in breeding territories year-round. The research, published early online, will appear in an upcoming issue of the journal Ecography"

(https://news.osu.edu/news/2015/12/28/river-ecosystems/)

"Returning steelhead are not the only signs of success. Just above the old dam site, Coffin winds his way through patches of alder trees that were planted after the dam was removed, then crosses a rocky beach to the river. The rounded stones range from the size of potatoes to loaves of bread, and make for tricky footing. But Coffin is thrilled to see them because none of these ankle-breakers was here when the dam was first taken out. "All of this washed in," he says.

The cobbles provide nesting spots for the trout and a habitat for the insects that the fish eat. "People pay attention to the big animals," Coffin says, "but the bugs are an important part of the system." Reaching into the water, he plucks out a couple of rocks, turns them over and points out six types of insect clinging to the underside, including caddisfly larvae and a stonefly. "The year after the dam was removed, these wouldn't have been here," he says with satisfaction."

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636

The lack of water quality impacts and immediate fisheries restoration are not specific to Northwest Rivers. "other parts of the United States have also seen dramatic fish returns. On south-central Wisconsin's Baraboo River, the removal of a string of dams has allowed sturgeon to reach their former spawning grounds. And in New England, the destruction of two dams 7–9 metres high on Maine's Kennebec River and one of its tributaries has allowed Atlantic alewives (Alosa pseudoharengus) to repopulate 100 kilometres of previously blocked-off river. In 1999, before the first dam was taken out, no alewives were recorded in the upper part of the watershed, says Serena McClain, head of river restoration for American Rivers. By 2013, the annual run had rebounded to around 3 million."

http://www.nature.com/news/dam-removals-rivers-on-the-run-1.15636

Thank you for the opportunity to comment and for coming to Siskiyou and Humboldt Counties so we could provide verbal testimony.

Response to Comment ORG41-1
Comment noted. Please refer to Master Response GEN-1. With respect to the Lower Klamath Project Draft EIR comment letters incorporated by reference, please refer to responses to comments TR-18 (Karuk Tribe), TR-19 (Yurok Tribe), ORG-29 (Pacific Coast Federation of Fisherman's Association and the Institute for Fisheries Resources), ORG-47 (Klamath River Renewal Corporation), ORG-27 (California Trout) The Klamath Tribes of Oregon and the California Hydropower Reform Commission did not submit comments on the Lower Klamath Project Draft EIR.

Thank you for the additional references regarding the beneficial effects of dam removal in other river systems. Ligon et al. (1995) and Shafroth et al. (2002) are cited in the EIR and the other references listed on page 3 of the comment have been added to the administrative record for the Lower Klamath Project EIR.

Sierra Club, John Livingston

Comment ORG43-1
The Shasta Group of the Sierra Club has approximately 1200 members who live between the Oregon Border and the City of Red Bluff in California and who reside in the Klamath River area. Our review of the DEIR indicates that very significant benefits will occur with adoption and implementation of the proposed project which includes removal of dams and appurtenant facilities to allow unrestricted flow of the Klamath River in California.

Response to Comment ORG43-1
Thank you for your comment. Please also refer to Master Responses GEN-1 and GEN-2.

Comment ORG43-2
We support the proposed project and look forward to implementation at the earliest possible time. Additionally, we hope that the State Water Resources Control Board will work with the State of Oregon to improve water quality and remove any barriers in Oregon that continue to impair water quality and fish habitat.

Response to Comment ORG43-2
Comment noted. Please refer to Master Response GEN-1.

Siskiyou County Water Users Association, Richard Marshall, Rex Cozzalio

Comment ORG30-1

Attached is part 1 of 2 submittal by Siskiyou County Water Users Assoc. in the matter of the response to 401 Water Certification EIR for the Klamath Dam project. Part 2 will be submitted forthwith. We look forward to any response that the Water Board may make.

Response to Comment ORG30-1

The State Water Board received the comments attached to this email and designated by Siskiyou County Water Users Association as "part 1" of their submittal. Please note that comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board's Water Quality Certification Program following the instructions provided at https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html.

Comment ORG30-2

The Siskiyou County Water Users Board of Directors hereby submits their review, analysis, and attachments relative to our response to the proposal by the California Water Board of conditions relative to the proposed destruction of four Hydro-electric generation facilities and resultant release of contaminated sediment laden waters into the Klamath River, a federally designated "Wild and Scenic and Recreational River".

Response to Comment ORG30-2

The Proposed Project is not a proposal of the State Water Board. As stated in Volume I *Executive Summary* (page ES-1) and Section 1.1 *Introduction – Authorization, Purpose, and Use of EIR* (page 1-1), the Klamath River Renewal Corporation (KRRC) applied to the California State Water Resources Control Board (State Water Board) on September 23, 2016, for water quality certification for the Proposed Project, which involves removal of the Lower Klamath Project and associated facilities, pursuant to section 401 of the Clean Water Act. The State Water Board is the lead agency under the California Environmental Quality Act (CEQA) for water quality certifications. The State Water Board prepared this EIR to conform with CEQA, which requires a lead agency to analyze the environmental impacts of projects that may affect the environment. The EIR focuses primarily on impacts related to actions proposed for the California portion of the Proposed Project, including potential impacts related to releases of sediment-laden water in the mainstem Klamath River downstream of Iron Gate Dam designated as a wild and scenic river segment by both the State of California and the federal government. For information on potential impacts to the wild and scenic river segments of the Klamath River associated with the Proposed Project, please refer to Volume III Attachment 1 Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-7. Further, all potential impacts associated with sediment releases under the Proposed

Project would be short term (1-2 years post dam removal) and would not compromise the wild and scenic designation. Additional information regarding sediment-related impacts is included in responses ORG30-9, ORG30-23, ORG30-60, ORG30-64, ORG30-65, ORG30-66, and ORG30-87 below.

For information on sediment erosion, transport, and deposition associated with the Proposed Project, please refer to Volume I Section 3.11.2 *Geology, Soils, and Mineral Resources – Environmental Analysis* and Section 3.11.4 *Geology, Soils, and Mineral Resources – Impacts Analysis Approach.* Additionally, please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* for an updated Potential Impact 3.11-5. Please also refer to Master Response GEO-1 for an in-depth discussion regarding sediment modeling.

For information on potential sediment-related impacts to water quality please also refer to Master Responses WQ-3 and WQ-7.

Comment ORG30-3

Not only will the destruction of these facilities cause widespread contamination of the Klamath but will result in a potential long term extirpation of numerous endangered aquatic species besides the Salmon which are claimed to be benefited by the proposed destruction.

Response to Comment ORG30-3

The available science and evidence supporting predictions of the effects of the Proposed Project on aquatic resources are described for each aquatic species in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Volume I Section 4.4 *Alternatives – Continued Operations with Fish Passage Alternative* includes an evaluation of the potential effects on aquatic resources of maintaining the Lower Klamath Project facilities using fish ladders or trap and haul as fish passage in Volume I Section 4.4.3 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources* (pages 4-125 to 4-162).

Please also refer to Master Responses AQF-1, 11, and 12.

Comment ORG30-4

We have suggested previously as has the County of Siskiyou and other groups that before destruction of the clean energy producing hydro facilities that "truck and haul", a viable and inexpensive process be conducted to physically demonstrate the likelihood of the claimed production capability beyond the Hydro facilities. There has never been a scientific analysis which *supports the creation of additional viable habitat beyond Moonshine Falls area.*

Response to Comment ORG30-4

The scientific analysis in the EIR that supports the production capability of fall-run Chinook salmon upstream of Iron Gate Dam is presented in Potential Impact 3.3-7. Please also refer to Master Response AQF-4 for a discussion of the historical abundance of salmon upstream of Iron Gate Dam, indicating that salmon use of this habitat would be "restored," and not "created."

Comment ORG30-5

We represent Siskiyou County citizens who indicated by voting nearly 80%, their desire to keep the Klamath Dams in place. We would hasten to add that a recent vote in Klamath County, Oregon, produced approximately the same result. Our concern which should be the concern of all citizens and agencies in California and Oregon is that once the hydro facilities are lost ***there will be no ability to replace them****.*

Response to Comment ORG30-5

Thank you for your comment. Please also refer to Master Response GEN-1.

Comment ORG30-6

Before such a step is taken and what will be a irretrievable condition resulting therefrom i.e. extirpation of numerous endangered species, loss of water storage for fires, loss of control of instream flow, loss of view, loss of recreational opportunities, loss of a valuable hatchery, loss of property values, and loss of lake fishing opportunities amongst other beneficial qualities.

Response to Comment ORG30-6

Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-1 for an analysis of the potential loss of open water vistas. Please also refer to Section 5.4.2 *Other Required CEQA Discussions and Considerations of Social and Economic Factors – Social and Economic Factors Under CEQA – Real Estate and Property Taxes* (pages 5-7 to 5-11) and Master Responses TER-1, HAZ-2, FLD-1, REC-1, and AQF-1.

Comment ORG30-7

It should also be noted for example that the long nose and short nose sucker fish which are considered an endangered species and are a cultural value to the Klamath Tribe are planned to be nearly exterminated according to the ODEQ study (JC Boyle Dam). They report that the sucker fish population will be reduced by 90%. We also know that a very fragile and unique fresh water trout will be eliminated by the loss of their current habitat at the edge of Copco I, II and Iron Gate.

Response to Comment ORG30-7

As described in Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* Potential Impact 3.3-13, the Proposed Project would not exterminate the Lost River and shortnose sucker populations; rather it would eliminate reservoir habitat in which some individuals of the population currently reside. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-1.

The commenter also expresses concern for the elimination of habitat for a, "very fragile and unique freshwater trout," from the loss of reservoir habitat. State Water Board assumes that the commenter is concerned about impacts to redband trout. As described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* Potential Impact 3.3-14, redband trout are highly adapted to riverine habitat, and is anticipated that this species would benefit from the conversion of the Lower Klamath Project reservoirs to riverine habitat. Removal of the reservoirs would not eliminate or harm the overall redband trout population, but rather it would convert habitat from lacustrine to riverine, and it would not impact the proportion of the population already residing in mainstem and tributary riverine habitat. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-8 and ORG30-9

Our first issue with the project proposal is that this proposed project requiring an environmental study is not properly done by using CEQA. The Klamath River is a federally designated "Wild and Scenic River" and also qualifies under the navigable river federal waterway. The project as proposed impacts two states, Oregon and California. This alone demands that an environmental analysis concerning the destruction of the hydroelectric and associated storage capabilities; the destruction of environmental protected fish species not the least of which includes the Coho Salmon and the Green Sturgeon; as well as the short and long nosed suckerfish; and much of the aquatic life in the river system; together with the pollution of the riverine system by toxic sediment demands that the EIR/ EIS be done under NEPA rules and prepared by the ***US Commerce Department and the Department of Interior.***

Response to Comment ORG30-8 and ORG30-8

Please refer to Master Response CEQ-1 for a discussion of the general application of CEQA and the relationship between CEQA and National Environmental Policy Act (NEPA), and Volume I Section 1.1.1 *Introduction – Authorization, Purpose, and Use of the EIR – CEQA Guidance Regarding State Boundaries* (page 1-2) for a description of how CEQA Guidelines apply to projects that may have effects in other states. For information on potential impacts to the wild and scenic river segments of the Klamath River associated with the Proposed Project, please refer to Volume III Attachment 1 Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-7.

The potential effects of the Proposed Project are discussed in the EIR for coho salmon in Potential Impact 3.3-9, for green sturgeon in Potential Impact 3.3-12, and for Lost River and shortnose suckers in Potential Impact 3.3-13. The potential effects of reservoir sediment released under the Proposed Project are analyzed in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediment*. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

<u>Comment ORG30-10 and ORG30-11</u>

Furthermore, one can't study just part of the Klamath River system in California especially when it comes to sediments and pollution. One must look to the headwater source of the Klamath in Oregon. The production of nitrogen and microcystin which is wrongly attributed to the presence of the hydroelectric facilities occurs naturally and by way of the byproduct of farming operations and particularly the bird life in the Oregon side of the River system. The studies done previously by the Bureau of Reclamation make this point very clear. Among others they concluded that the pollution problems could be substantially reduced or even eliminated by the ***installation at Keno Dam of a water quality treatment facility****.*

Response to Comment ORG30-10 and ORG30-11

Please refer to Master Responses WQ-1 and PAP-1 for a discussion of the role of the Lower Klamath Project facilities with respect to overall water quality and the influence of upstream sources of algae and associated toxins on conditions in the Hydroelectric Reach, the Middle and Lower Klamath River, the Klamath River Estuary, and the Pacific Ocean nearshore environment. As explained in those master responses, the EIR acknowledges upstream sources of pollutants, and the potential impacts of the Proposed Project were analyzed with that context.

<u>Comment ORG30-12</u>

Within this same study the removal of the hydro facilities and storage capability will dramatically impact the ability to modulate the river flow especially in low water times. The BOR estimates that replacing this in stream flow capability may cost upwards of ***Eight Billion*** *dollars. This would require the placement of significant water storage facilities in the upper Klamath Basin.*

Response to Comment ORG30-12

As described in Volume I Section 3.8.1 *Water Supply/Water Rights – Area of Analysis* (pages 3-667 to 3-669), there would be no water supply impact to the mainstem Klamath River from implementation of the Proposed Project. The United States Bureau of Reclamation (USBR) maintains its biological opinion obligations on operations of the Klamath Irrigation Project which require water to be released to the mainstem Klamath River regardless of the existence of the Lower Klamath Project, such that dam removal would not alter the amount of water available for environmental purposes, or the source of that water, for the mainstem Klamath River or the tributaries. Please also refer to Master Response HYD-1 for a discussion of how the EIR considers Klamath River flows under the 2019 BiOp operations criteria for the Klamath Irrigation Project.

As described in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impacts 3.8-1 and 3.8-2 (pages 3-676 to 3-680), during the extreme drought of 2014-2016, PacifiCorp coordinated late-2014 releases from Iron Gate and Copco No. 1 dams which resulted in a small degree of flexibility for managing irrigation water in the Upper Basin by allowing USBR to postpone releasing water for irrigation purposes at Keno Dam. A comparable water borrowing agreement between PacifiCorp and USBR for approximately 20,000 acre-feet also occurred in 2018. It is unclear if further water borrowing would occur in the future due to the multiple constraints detailed by USBR and discussed in Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-2 (pages 3-679 to 3-680). The EIR's assessment of the unlikelihood of future water borrowing is further bolstered by USBR's elimination of this alternative from further consideration as part of its environmental assessment of the Klamath Irrigation Project operations (USBR 2019). Removal of the Lower Klamath Project dams would not affect USBR's central role in providing flows to the Klamath River as required by the current biological opinion.

Please also refer to Master Response WSWR-3, which explains that the Lower Klamath Project reservoirs hold approximately two percent of the active water storage in the Klamath River watershed, and Master Response WSWR-1 for a discussion of potential effects on water supplies for the USBR Klamath Irrigation Project.

Comment ORG30-13

*Therefore we object strenuously to the proposed actions which absent a thorough analysis of t**he Pacific Decadal Oscillation (Exhibit A)**, as well as all **seven reaches of the Klamath** cannot determine the full impact of the effort to remove the hydroelectric facilities.*

Response to Comment ORG30-13

The analyses in the EIR do not dispute the importance of ocean conditions for anadromous salmon, nor do they contradict studies that focus on the population-level effects of large-scale variability in the ocean environment that occurs over decades or longer, such as the Pacific Decadal Oscillation (PDO) and/or the El Niño/Southern Oscillation (ENSO). Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species* provides analyses based on historical and current data for salmon run sizes (e.g., Table 3.3-2, and data analyzed in Appendix E) and juvenile production numbers. The data for juvenile production typically occurs as ranges or as average values that have a high standard deviation (or indicate high variability across years using another standard measure of variation from the mean). Using either run sizes or juvenile production acknowledges the inherent variability in salmon populations that results from numerous factors that influence them at different points in their life cycles, including time spent in the ocean. For further consideration of ocean conditions, please refer to Master Response AQF-13.

The analysis of fall-run Chinook salmon summarized in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 considered the predictions of the Hendrix (2011) population dynamics model, which explicitly addressed the Proposed Project, used stock-recruitment data from the Klamath River, explicitly incorporated variability in watershed and ocean conditions, and presented variance estimates of uncertainty.

The Lower Klamath Project EIR explicitly addresses impacts to aquatic resources in all relevant reaches of the Klamath River, as described in detail in Section 3.3.1 *Aquatic Resources – Area of Analysis*. The EIR primarily focuses on population-level effects of the Proposed Project and the alternatives on salmonid life-history stages that are associated with the mainstem Klamath River, the Klamath River Estuary, and the Pacific Ocean Nearshore Environment, as the dams and associated facilities are located on the river and are upstream of the estuary and the nearshore environment. However, the analyses also include consideration of conditions in tributaries to the mainstem Klamath River, since salmon species that use habitat in the tributaries must access that habitat via the mainstem river, and conditions in much of the Upper Klamath Basin in Oregon, to the extent to which the upper basin areas affect California aquatic resources.

Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-14

The study should further include an examination of the impact of the destruction of the facilities will have on the economic well- being of the counties which are impacted. For example there will be an immediate destruction of property values particularly at Copco Lake where owners have already experienced a loss in value.

Response to Comment ORG30-14

Please note that CEQA documents analyze significant effects on the physical environment and does not require analysis of potential effects from implementing a project that are solely social or economic in nature. However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I includes Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S.

Department of the Interior (DOI) to characterize potential effects on property value.

Comment ORG30-15

Finally in this section we raise an objection to the State of California spending tax payer dollars to benefit a private 501 (3c) non- profit corporation, the KRRC, which although filed as a California Corporation was conceived and developed in New York City. It is bad enough that we ratepayers have been forced to pay an electric surcharge to remove the hydro facilities for many years now against our will and best interest for Siskiyou County. Either KRRC or PacifiCorp should be paying for the studies to be submitted to the State for review, analysis and potential approval.

Response to Comment ORG30-15

Thank you for your comment. Although statements expressing a project or policy preference are noted, a response is not required under CEQA in the absence of a comment on a significant environmental issue.

Comment ORG30-16

The KRRC has not been recognized by either the FERC or the CPUC to carry out the proposed activity. In fact the FERC raised an objection to the KRRC both filing simultaneously the license transfer from PacifiCorp to KRRC and filing to terminate the license and remove the hydro power facilities. Before going into detail we would like to point out that right at the beginning of the Draft report in section 1.0 your author has misstated an important point that the project has been split into two elements by FERC. Our understanding is that shortly after the request was submitted and FERC proposed the split it was countered by PacifiCorp and their subordinate KRRC. Therefore the project is still under license to PacifiCorp and has not yet been split into two pieces. The FERC has never before approved a license transfer and immediately authorized a termination of an existing productive carbon free hydro -electric facility.

Response to Comment ORG30-16

Comment noted. Please see Master Response GEN-2.

Comment ORG30-17

We have not seen any public hearings with the Siskiyou County Water and Flood Control who by statute have control over all waters in Siskiyou County including surface and subterranean waters. Prior to any actions which will impact the Klamath River and or its tributaries in Siskiyou County permits will have to be obtained from the Siskiyou County Water and Flood Control Agency.

Response to Comment ORG30-17

The Siskiyou County Flood Control and Water Conservation District is one of the several flood control and water conservation districts created by a special act of the California Legislature. The District's enabling act, set forth in Chapter 89 of the California Water Code Appendix, designates the Board of Supervisors of Siskiyou County as the board of directors for the Siskiyou County Flood Control and Water Conservation District. (Wat. Code App. § 89-9.)

Volume I Section 1.5 *Introduction – Public Involvement and Agency Consultation in Preparing Draft EIR* (pages 1-4 to 1-8) describes the State Water Board's outreach efforts, including consultation with Siskiyou County. In addition to the public scoping meeting held in Yreka in January 2017, which any local elected official could attend, State Water Board representatives met with the Siskiyou County Supervisors on July 2017, attended an in-person meeting with the County's designated contact and consultants on August 19, 2018, and gave a presentation at the August 14, 2018 meeting of the Siskiyou County Board of Supervisors. These outreach efforts exceeded CEQA's requirements and provided the Siskiyou County Board of Supervisors with ample opportunity to raise concerns or request additional meetings on behalf of the Siskiyou County Flood Control and Water Conservation District.

The comment that permits from the Siskiyou County Flood Control and Water Conservation District will be required to carry out the proposed project is noted.

Comment ORG30-18

Over the years there have been numerous studies of the science of the river yet one of the most significant items which has been completely overlooked is the historic conditions of the Klamath River prior to the construction of any of the Dams. The earliest history of the Klamath River argues against the concept that removing the dams will somehow create more water or more Salmon. Instead the recorded information from eyewitness accounts shows that the Klamath River has historically evidenced cyclical periods of high and low water and an inability to provide enough water for Salmon in the late summer months. In addition it is well established fact that the River is impacted by algae blooms along with little water. We have included in the attached documents a letter dated January 27, 2017 from Glen Briggs, a retired engineer from the US Bureau of Reclamation, whose family has lived on the Klamath for generations. This letter is attached as ***Exhibit B****. In addition we have included an early report from Commissioner of Indian Affairs Moneypenney in 1855. This report was also published as House Executive Document 1, Vol. 1 pp 321576, 34th Congress Seral Set no 840. The report indicates the earliest recorded history showed that there was a scarcity of fish in the Klamath. In addition we have included a selection from Reddick McKee's travel through the Klamath country in 1851. This report indicates the lack of water in the Klamath and lack of Salmon.*

Response to Comment ORG30-18
Section 3.3.2.1 *Aquatic Species – Environmental Setting – Aquatic Species* and Table 3.3-2 sets forth data regarding the historical abundance of salmon in the Klamath River watershed prior to construction of the Lower Klamath Project. In addition, Master Response AQF-4 notes disagreement among commenters regarding the historical abundance of salmonids in the Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Regarding historical hydrology in the Klamath River, please refer to Section 3.6.2.1 *Flood Hydrology – Environmental Setting – Historical Hydrologic Conditions* (page 3-589).

Comment ORG30-19
*On April 6, 2016 after the resounding failure of the previous KBRA and KHSA agreements, which had been pursued for many years by the Department of Interior, State of California, State of Oregon and numerous agencies and NGO'S, and ultimate rejection by Congress, the States of California and Oregon reconstructed the previously failed KHSA calling it the **amended KHSA**. This is the underpinning of your organizations efforts to legitimatize the effort to destroy the hydro-electric facilities. It is our opinion that this document is illegal as the Governor of California had no legislative authority to bind the State in a potentially super fund project without the benefit of appropriate studies and deliberations by the State Legislature. In short Governor Brown of California had no authority to enter into an abortive attempt to create a Federal Interstate Compact without Congressional approval.*

Response to Comment ORG30-19
This comment provides the commenter's account of and opinion regarding the formation of the amended Klamath Hydropower Settlement Agreement (KHSA). Comment noted.

Comment ORG30-20
The Klamath Basin is governed by the 1957 Compact between the States of California, Oregon and the Federal Government. This governing doctrine is referred to as "the law of the River". It is a Federal Statute enacted by both legislatures of Oregon and California and codified by U.S. Congress by Statute enacted on August 30, 1957 (71 Stat. 497). This document was developed after many years of negotiation between the States and their representatives and set forth the process for prioritization of beneficial uses of the Klamath River including the hydropower element which was negotiated at the time by COPCO, the predecessor to PacifiCorp. The negotiating team included officials from both Oregon and California and the Federal government. The Compact is still in effect and is still the "law of the River". This magnificently versatile agreement arrived at through earnest and considerate negotiations over five years included, a right to 60,000 acre feet

of water for the benefit of Siskiyou's Shasta Valley to be taken from behind Iron Gate Dam and an additional 200,000 acre feet from behind Keno Dam for the Butte Valley area. Amongst those at the table were members of the Siskiyou County Board of Supervisors under the guidance of Senator Randolph Collier. It also resulted in the development of the very successful fish hatchery at Iron Gate which draws cold water to stimulate the development of SIX MILLION FINGERLINGS (6,000,000) per year to keep the Salmon population well stocked. This process if the dams were destroyed would go with them. There will be no way to make up the difference.

Response to Comment ORG30-20
Please refer to Master Response CEQ-4.

Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* and Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7 provide a detailed analysis of the effect of ending hatchery production for fall-run Chinook salmon after eight years under the Proposed Project. As described, available information indicates that the benefits from dam removal and cessation of hatchery operations would increase adult returns by more than the loss of hatchery progeny.

Please also refer to Master Response AQF-2 for a discussion of the fate of Iron Gate Hatchery under the Proposed Project.

Comment ORG30-21
*A unique piece of legislation flowed from the adoption of the Compact to the benefit of Siskiyou County. Assemblywoman Pauline Davis, authored AB 1592 through the legislative process in California,. This was further codified under the **California Water Code as Section 89-1**. This unique piece of legislation blessed the **County of Siskiyou with special water rights to govern all waters of Siskiyou County including subterranean and surface water excluding the water controlled by the upper basin federal project**. This was intended to insure that Siskiyou County would be the master of its own fate to provide for development of hydropower and water usage to benefit industry, agriculture and domestic development. Again we would postulate that this unique water right conferred on the County of Siskiyou by the State of California trumps the efforts of the Water Board. These were "quid pro quo" for the County's spearheading the effort to develop the Federal Interstate Klamath Compact.*

Response to Comment ORG30-21
The comment provides the commenter's interpretation of the enabling legislation that formed the Siskiyou County Flood and Water Conservation District, which is codified in Chapter 89 of the California Water Code Appendix. The comment is noted.

Comment ORG30-22

Although the 401 Report by the Water Board contractor states the parameters of the different rules which they expect KRRC to follow, there are no sanctions for failure to comply. Who we ask will pay the bills for damages done after the fact? Biological damages from dam removal as well as ongoing water quality problems are a most likely scenario yet there really is no provision to cover these costs. The insurance provided by KRRC mostly covers only KRRC officers. An example of potential damage includes besides those mentioned above a potential diminution in land values in Siskiyou County alone of perhaps ONE BILLION dollars. This is really not acceptable stewardship by the State by leaving unprotected the County of Siskiyou as well as other Counties both in California and Oregon. There is no evidence that removing the dams is anything other than a political event that will not benefit the Salmon or any other aquatic organisms or any other dependent animals that depend on the river for their needs. The Water Board needs to take cognizance of the Federal Laws relative to the Klamath and take int o consideration as well the citizens who will be directly impacted by dam removal.

Response to Comment ORG30-22

Analyses of the potential impacts of the Proposed Project on water quality and biological resources are provided in Sections 3.2 (*Water Quality*), 3.3 (*Aquatic Resources*), 3.4 (*Phytoplankton and Periphyton*), and 3.5 (*Terrestrial Resources*), among others. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality* and Section 3.3 *Aquatic Resources*.

With respect to the concern regarding non-environmental impacts of the Proposed Project, please note that the EIR evaluates the potential environmental impacts of the Proposed Project, and it evaluates feasible measures to mitigate those impacts and alternatives to the Proposed Project. The statements regarding land value do not relate to the potential physical impacts of the Proposed Project. While CEQA does not require analysis of a project's purely social or economic effects, Volume I Section 5.4.1 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

To the extent the comment raises concerns about the enforceability of requirements that the applicant address the environmental impacts of the Proposed Project, and of the ability of the applicant to do so, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of FERC proceedings. As noted in the comment, the State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related potential impacts. These requirements would become enforceable through incorporation into any Federal Energy Regulatory Commission (FERC) surrender license, as well as under the Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

Comment ORG30-23

We reiterate our concerns over the legitimacy of the Draft Report by the Water Board, firstly because the study period was exceedingly short and begs the question of the intent of the board with respect to the group most impacted by the potential destruction of the hydro facilities i.e. Siskiyou County in which three of the four facilities to be destroyed are located and which has the greatest river frontage to be impacted by the release of contaminated sediment and opening up the prospect of flooding and resultant damage.

Response to Comment ORG30-23

Please refer to Volume I Section 1.4 *Introduction – EIR Process Overview* (pages 1-3 and 1-4) and Section 1.5 *Introduction – Public Involvement and Agency Consultation in Preparing Draft EIR* (pages 1-4 to 1-8) for a discussion of activities that have occurred since the State Water Board issued the Notice of Preparation (NOP) on December 22, 2016, to the circulation of the Draft EIR for agency and public review, as well as a review of public stakeholder outreach, scoping meetings, scoping comments, and agency and Tribal consultation during this period.

Please refer to Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-2, which discusses the potential aesthetic impacts from a change in river flow and sediment release during reservoir drawdown (page 3-956 to 3-958), as well as Master Response FLD-1, which address potential flood-related impacts, and Master Responses WQ-3 and WQ-7, which address potential sediment-related impacts to water quality, respectively. Finally, please see Master Response WQ-4 for information regarding the time period of water quality data used in the EIR. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment ORG30-24

Secondly, we object to the use of state funding to conduct the EIR/EIS for the benefit of a private company, the KRRC, which is not a proven entity. The KRRC has no demonstrated capability to manage such a huge undertaking and they have no significant funding of their own.

Response to Comment ORG30-24

The comment states an objection to a state agency preparing an EIR for a project that will be carried out by a private entity and the commenter's opinion regarding the ability and finances of the Klamath River Renewal Corporation (KRRC). Please refer to response to comment ORG30-15.

Comment ORG30-25

Thirdly, we believe that the Governor of the State of California had no authority to enter into the Amended KHSA as it had never been reviewed or approved by the Legislature and by signing the agreement he has put the State of California and the citizens of Siskiyou County at great risk and peril.

Response to Comment ORG30-25

The comment provides the commenter's opinion regarding the legality of the Amended Klamath Hydropower Settlement Agreement (KHSA) and the effect thereof on the State of California and citizens of Siskiyou County. Please refer to response to comment ORG30-15.

Comment ORG30-26

Fourthly, the Water Board planned action violates at least three Federal laws (NEPA, Federal Interstate Compact, Article 1 Sec. 10 Clause 3 of the US Constitution, and Endangered Species Act).

Response to Comment ORG30-26

The comment asserts that the Proposed Project will violate federal laws. Please see Master Responses CEQ-1, CEQ-4, AQF-1, and AQF-9.

Comment ORG30-27

Fifth, the proposed objectives of the project under the KRRC are physically and scientifically unattainable. Sixth, and most importantly the existing Interstate Federal Compact has not been dealt with by Congress and therefore remains the law of the river.

Response to Comment ORG30-27
The comment provides the commenters opinion regarding the attainability of the Proposed Project's objectives and asserts that the Interstate Compact remains the law of the river. Please refer to Master Response CEQ-4 for information regarding the relationship between the Proposed Project and the Compact.

Comment ORG30-28
We will look forward to the next step in the process and would request by submission of this letter that our voice be heard and that the Water ***Board subject itself to a public hearing conducted by the County of Siskiyou and surrounding counties****.*

Response to Comment ORG30-28
The comment and request for the State Water Board to appear at a public hearing conducted by the County of Siskiyou and surrounding counties is noted. Please refer to Volume I Section 1.5 *Introduction – Public Involvement and Agency Consultation in Preparing Draft EIR* (page 1-4 and 1-5), which addresses public meetings of the Siskiyou County Board of Supervisors where the State Water Board presented on the status of the Draft EIR.

Comment ORG30-29
Attached is ***part 2a*** *of 2a,b,c submittal by Siskiyou County Water Users Assoc. in the matter of the response to 401 Water Certification EIR for the Klamath Dam project. We look forward to any response that the Water Board may make.*

Response to Comment ORG30-29
The State Water Board received the comments attached to this email and designated by Siskiyou County Water Users Association as "part 2a" of their submittal. Please note that comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board's Water Quality Certification Program following the instructions provided at
https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html.

Comment ORG30-30
That Klamath Hydroelectric Settlement Agreement (KHSA) was created to implement the destruction of Klamath water storage and hydroelectric production facilities (Project) and place the cost of that destruction on the backs of ratepayers and taxpayers. The intrinsically connected Klamath Basin Restoration Agreements' (KBRA) was intended to provide funding for 'mitigation' of those rewilding damages and authority to force reallocation of Upper Klamath Basin property rights without compensation. Both 'Agreements' were created in secret by regionally exclusionary special interests under Secretary of Interior direction. Those 'Agreements' were rejected by Congress multiple times before resulting in the termination of both the KBRA and KHSA. In continued pursuit of

facilities destruction, again funding and directing a portion of prior special interest KHSA signatories, the Secretary of Interior and the governors of Oregon and California secretly created a new contract with 'revised' decision to strip away 'restoration' funding and accountability in order to sidestep Congressional approval. Consistent with previously failed versions conceived in secret between selective benefitting special interests, those revisions seek imposition of politically derived destructive agenda and environmental damage upon the most affected and unrepresented majority in opposition. After public release, the KHSA created the Klamath River Renewal Corporation (KRRC) nonprofit to carry out the objective while effectively shielding KHSA signatories from any associated liability. The KRRC and PacifiCorp then submitted applications to FERC for 'Transfer' and 'Surrender' approval of that destruction to bypass both Congressional approval and the most affected majority in opposition. Throughout the multiple attempts to superimpose a predetermined agenda, the rationalized rhetoric justifying political imposition and uncompensated resource confiscation have been entirely based upon prior perceived hypothetical benefit to two, and only two, selected environmentally incompatible species (coho and sucker fish). Hypothetically based special interest 'agreed' biological opinions regarding those two species, imposed without accountability or consequence, and regulatory repetitive created regional crises, have engendered extensive Klamath regional loss and suffering. The following is an evolving paper with description of agenda history, followed by agenda signatory claims and the regional history, documentation, conditions, and emerging data refuting those claims of significant destruction benefit.

Response to Comment ORG30-30

Please refer to response to comment ORG30-15. These comments provide the commenter's overview of aspects of the background of the Proposed Project and underlying agreements. Comments noted.

<u>Comment ORG30-31</u>

recommendation for Klamath precedent rewilding. Focused rewilding organizations selected sucker fish and Upper Klamath Lake algae blooms as the Upper Klamath Basin point of environmental pressure, and coho and dams as the target for downstream attention. In Agency directed support, Biological Opinions were created to accommodate those concerns. The subsequent acknowledged 'limited data' modeled Biological Opinions resulted in the 2001 regulatory shutdown of water for Klamath Basin irrigators, which shutdown provided NO identifiable targeted species benefit. That action alone caused financial devastation for over 1,200 Klamath Basin family homes and livelihoods. Subsequently, the same agenda proponents who created policies withholding vested surface waters from agricultural use instead encouraged farms to invest in costly wells to pump from the aquifer for irrigation. 'Emergency loans' were made available for drilling to be secured against the properties, whether adequate water was later found or not. In addition to agriculture paying continued fees for 'vested' surface water they were not receiving, surviving farms struggled to pay *for far more expensive, energy consumptive, and hydrologically altering aquifer pumping. Once regulatory recommended pumping began drawing down the aquifer, the regulatory response was to assert further authority over the 'crisis' of groundwater reduction.*

Response to Comment ORG30-31

The comments provide the commenter's description of events that occurred in the Upper Klamath Basin. Please refer to response to comment ORG30-15. Please also refer to Master Response GEN-2.

Comment ORG30-32

Thereby, local agriculture has often been left bearing the carrying costs for wells and surface water rights they are not even allowed to use. In the meantime, the Klamath Working Group, later renamed Klamath Basin Restoration Agreement or KBRA, was formed in sworn secrecy by 26 largely non vested personally benefitting select Agency, environmental Non-Governmental Organizations (NGOS), and Tribal seated 'members'. Many of those members were the same previously instrumental in bringing about the Biological Opinions implementing both the 2001 water shutdowns crisis and the compounding 2006 Federal Energy Regulation Commission (FERC) approved 'mitigation costs' for Klamath dams relicensing having an apparent intention of making PacifiCorp facilities' relicensing options economically untenable.

Response to Comment ORG30-32

Please refer to response to comment ORG30-15. The comment provides the commenter's description of the Klamath Working Group. Comment noted.

Comment ORG30-33

Using the threat of continuing lawsuits against Upper Basin water right holders to force struggling farmer/rancher participation, KBRA 'members' demanded agreement to, and promotion of, two predetermined scientifically unsupported objectives. 'Sitting at the table' required acceptance to supporting dams' removals and KBRA tiered hierarchal beneficial water use reallocation of represented and unrepresented private property rights. Those original and irrevocable 'member' requirements were accepted by a minority of regional land owners in exchange for KBRA promised preferential water allocations over and above their unrepresented neighbors. Given the KBRA 'agreed upon' policy premise of removals, the Secretary of Interior, in cooperation with the same exclusive KBRA compliant special interests, compelled PacifiCorp 'participation' in a separate 'stakeholder working group' to create the Agreement in Principle (later named Klamath Hydroelectric Settlement Agreement or KHSA).

Response to Comment ORG30-33

The comment provides the commenter's description of the implementation of the Klamath Basin Restoration Agreement (KBRA). Comment noted.

Comment ORG30-34

At the same time, California official 'agreement' participants orchestrated a 'revision' to California Water Resources 401 permit objectives 'coincidentally' precluding acceptance of previously permissible hydroelectric facilities water quality.

Response to Comment ORG30-34

The comment provides the commenter's description of revisions to California water quality certification objectives. Comment noted.

Comment ORG30-35

Facing the prospect of 401 permit non-compliance should PacifiCorp pursue FERC relicensing; assured threat of additional seated KHSA member lawsuits if PacifiCorp failed to comply with removal agreements; and give the Secretarial promises of liability indemnification from removal damages, the transference of costs to ratepayers, and apparent preferential consideration regarding other PacifiCorp interstate projects, the new owner Warren Buffet directed PacifiCorp to acquiesce.

Response to Comment ORG30-35

The comment provides the commenter's description of PacifiCorp's decision to enter into agreements regarding the Lower Klamath Project. Comment noted.

Comment ORG30-36

That compelled 'agreement' set the scenario for appropriating ratepayer funds to further propagation of seated Agency's 'biological opinions' consistent with preexisting agenda requirements.

Response to Comment ORG30-36

The comment provides the commenter's description of the intent of the Agreement in Principle. Comment noted.

Comment ORG30-37

The Secretary of Interior then appointed their USGS representative KHSA consultant previously advocating dams destruction, Dennis Lynch, to act as the 'Lead' for creating agenda defined KHSA Environmental Impact Statement (EIS) 'science' justifying a 'Secretarial Recommendation' in favor of the 'Agreements' and dams removals. Utilizing Agency administratively defined 'study' parameters; limited selective 'peer review'; shelving of studies incompatible with agenda premise; extensive 'computer modeled' assumptions; administrative 'final report' parsing of study cited risks and limitations; and 'negotiated' suppression of multiple exposed scientific corruption cases; the KHSA EIS 'opinions' were created advocating for the predetermined recommendations of dams removals and confiscatory resource reallocation. During the agenda defined 'scientific *reviews' and 'Environmental Impact Statement' required 'comment' period, truly regionally experienced and affected resident produced alternatives were repeatedly presented. Presented alternatives integrated non-attrition holistic actions allowing multiple optimized benefit and facilitation of species throughout their naturally conducive environment at a FRACTION of proposed removals and 'mitigation' costs. Though alternate options previously proven components were assessed practical and effective, they were routinely rejected in favor of the hypothetically based and cost ineffective agenda exclusively for the reason that 'alternatives did not advance the position of dams removals'.*

Response to Comment ORG30-37

The comment provides the commenter's description of the development and contents of the Klamath Hydropower Settlement Agreement (KHSA) Environmental Impact Statement (EIS). Comment noted.

Comment ORG30-38

In creating those 'Agreements', the Secretary of Interior 'intrinsically linked' the KBRA and KHSA 74, publically declaring that one could not exist without the other, all the while anticipating the Congressional approval of facility removals and funding for special interest KBRA participating member financial benefit. Upon the first Congressional submission of 'Agreements', the KBRA member attached 'mitigation costs' of 1 Billion Dollars for 'restoration' which their own initially contracted study estimated at 1-6 BILLION Dollars. That legislation failed to gain approval. At that point, the Secretary expended efforts to conceal KBRA/KHSA costs within other 'alternative' public sources of funding, altered the 'Agreement', and 'reduced costs' on paper to ensure congressional passage on the next submitted iteration. 'Cost reductions' occurred in part through the Secretary's lead KBRA/KHSA EIR director unilaterally 'determining' a 'blow and go' dam removal along with unbridled release of fisheries toxic sediments into the Klamath as environmentally acceptable, even though against warnings from his own administered 'studies'.

Response to Comment ORG30-38

The comment provides the commenter's description of efforts to address costs of agreements related to the Lower Klamath Project. Comment noted.

Comment ORG30-39

Upon the second submission of that altered 'Agreement' to Congress, the concurrent exposure of special interest KBRA member benefits; multiple instances of exposed scientific corruption including firing the Nation's lead Science Integrity Officer Dr. Paul Houser for objecting to the flawed and biased 'science' regarding the Secretary's own Department of Interior produced Klamath Secretarial Recommendation; documented resident coercion; revealed hidden studies refuting the 'endangered' sucker numbers and coho flow mandates; Agency manipulation of public survey results; the Secretary's attorney authored *exclusionary 'Secretarial Recommendation'; and the 80% majority vote of the most affected region against facility removals; once again resulted in Congressional House rejection and admonition. With the KBRA time frame for Congressional approval having expired, that 'Agreement' also officially ended.*

Response to Comment ORG30-39

The comment provides the commenter's description of context related to Lower Klamath Project agreements. Comment noted.

During the Lower Klamath Project Notice of Preparation public comment period, the State Water Board heard concerns regarding the whistleblowing accusations of Dr. Paul Houser as related to the 2012 KHSA EIS/EIR. After hearing these concerns, the State Water Board staff reviewed the independent investigative panel report regarding Dr. Houser's whistleblower complaint, which indicates that the concerns were related to disagreements on how to present uncertainty in scientific data, rather than about the data or scientific analysis itself. (RESOLVE, 2012 - *Independent Investigation of the Scientific Record Pertaining to the Allegations of Dr. Paul Houser.*) Ultimately, the panel determined that Mr. Houser's complaint did not have merit.

Volume I acknowledges in *Executive Summary* Table ES-2 on page ES-23 and in Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* (page 2-21) that during the Siskiyou County Advisory Election Vote on November 2, 2010 (Measure G), approximately 79 percent of voters expressed their opinion and voted "No" to dam removal, while 22 percent voted "Yes".

Comment ORG30-40

However, originating KBRA/KHSA interests and the Secretary still continued working behind closed doors, further obfuscating, partitioning, and integrating a new secured secret 'Agreement' to obtain the exact same original objectives for benefitting participants but stripped of identifiable 'mitigation' funding which required Congressional approval. Since the KBRA had legally expired, any KHSA constructed 'biological opinions' based upon those KBRA undeliverable resource allocations, implementations, and 'mitigations', also became scientifically invalid. However, all KBRA policies mysteriously appeared to remain in full force by Department of Interior Agencies pursuing a new dams-removal-only 'Agreement'; Secretarial marshalling of participating State and Federal Agencies to 'recommend' for FERC determination of facilities' removals; and 'alternative' paper trail funding appropriations for seated members. Following that final Congressional rejection of KHSA Klamath reservoir and hydroelectric removals, benefitting 'Agreement' participants sought to evade representation of the most affected regional majority through a convoluted and contradictory 'division' of 'intrinsically connected' agenda parts. Using now defective expired EIS, the same special interest policies were again inextricably mandated within the newly (2016) 'revised' KHSA and two interdependent *secretly created 'agreements', the Upper Klamath Comprehensive Agreement (UKCA), and the Klamath Power and Facilities Agreement (KPFA), all three orchestrated and funded by the Secretary of Interior with support from KHSA signatories. However, as of 2019 the UKCA was terminated and the KPFA had still failed its 'promises in exchange for compliance' provisions to date both eliminating even the reduced vestige of essential elements formerly considered necessary for environmental benefit.*

Response to Comment ORG30-40

The comments provide a description of the formation and status of additional agreements related to the Lower Klamath Project. Comments noted. Please refer to response to comment ORG30-15.

Comment ORG30-41

By placing one of the most environmentally destructive components, facilities removals, under a FERC determination inundated with conjunctive Secretary of Interior and Governors directed KHSA seated Agency endorsement; given the FERC exemption from public NEPA process; given the lack of FERC resources to adequately evaluate the current science contradicting agenda premise; and considering the relative lack of FERC decision consequence for damages; an inherent conflict of interest was created fomenting significant potential for FERC to abrogate its public trust in favor of 'sister agency' agenda policy compliance. Many of the recently revealed 'opinion' inconsistencies and empirically evidenced failures can only be effectively addressed in an environment of inclusion, accountability, and transparency. That environment to date has not occurred, and upon submission to FERC for approval of an executive policy endorsed Dam Removal Entity request for transfer of Klamath hydroelectric facilities, that representation will likely never occur.

Response to Comment ORG30-41

The comments present a description of circumstances affecting Federal Energy Regulatory Commission's (FERC's) role regarding the Lower Klamath Project dams and assert a lack of local representation in the decision-making process. FERC's role in the dam removal process is addressed in Volume I Section 1.1 *Introduction – Authorization, Purpose, and Use of EIR* (page 1-1) and Section 2.6.2 *Proposed Project – Project Background – Relationship with Klamath Hydroelectric Project* (page 2-22) through Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (page 2-25).

Comment ORG30-42

The facilities' water storage, flood damage reduction power generation increased downstream water quality, fire protection, recreation, fisheries improvements, and habitat enhancements have demonstrated the dams' benefits to a unique regional ecosystem for over a hundred years. In essence, those facilities currently constitute environmentally optimized natural edifices within a historically inconsistent transitional zone.

Response to Comment ORG30-42

The comment provides the commenter's summary of the benefits associated with the Lower Klamath Project dams and the risks of dam removal. Comments noted. For information regarding the asserted benefits of the Lower Klamath Project dams raised in the comment, please see Master Responses GRW-1, FLD-1, ENR-1, WQ-1, WQ-2, HAZ-2, REC-1, AQF-10 and TER-1.

Comment ORG30-43

According to one of the world's leading experts on earthen dams construction, removal of Iron Gate in the 'cost effective' manner described by proponents in reality presents one of the greatest disaster risks in modern times through the uncontrollable and nearly instantaneous potential for collapse of an otherwise well-constructed virtually indestructible asset.

Response to Comment ORG30-43

Information regarding the risks of dam failure during removal of the Lower Klamath Project is provided in Volume I Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 (page 3-635). Dam embankment excavation would not take place until the associated reservoir is completely drawn down, and so the suggestion that removal will result in a catastrophic and uncontrolled failure of Iron Gate Dam is speculative.

Comment ORG30-44

As predicted by local residents citing historical documentation and current empirical science, hypothetically conceived 'experiments' targeting two species to the detriment of nearly all others have consistently resulted in little except repeated environmental, social, and economic damages. Despite comprehensive regional losses, the 'Agreements' continue to utilize the same rewilding 'theoretical science' now evidenced in the years since as biased, erroneously 'modeled', and failed in every significant assertion. Those same 'agreement' based biological opinions are compounding regional and environmental disaster through unaccountable 'requirement for dam removals'. Even though the theories have been seen to be defective in both premise and projected outcome those continuing imposed 'opinions' will conveniently NOT be subject to 'review' until AFTER the dams are scheduled for removal.

Implementation of the biological opinions used to authorize Agency created regional crisis seeking Hydroelectric Facilities removals are based entirely on two determined 'endangered species', Klamath sucker fish in the Upper Klamath Basin and coho salmon in the Klamath River. Listed below are:

KHSA special interest 'Biological Opinion' arguments used to 'support' Hydroelectric Facilities removals, followed by the actual current known

science, results from prior regulatory 'experimental' implementations, and the related implications regarding the two 'Agreement' considered species.

A. Upper Klamath Basin Sucker fish:

Originating biological premise: *'Klamath suckers are near extinction obviously due to anthropogenic causes affecting water quality, likely primarily associated to Project development, agriculture, municipalities, and reduced marshlands. Even though data and biological information are largely unavailable, dire circumstances require immediate drastic theoretically based environmental enhancements including water quantity and quality improvement primarily through massively decreased Project agricultural water use and agricultural production, increased land retirement, increased marshland development, raising of Upper Klamath Lake levels far above historically known levels, and reduced Municipality, Forestry, and Industrial use impacts'.*

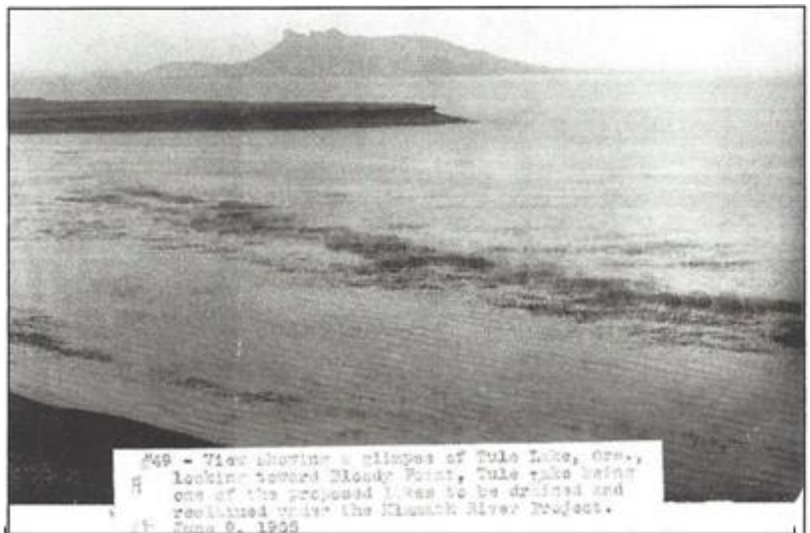
Current known standing*: Historically, due to Agency considered excessive numbers of suckers and low economic value compared to imported species, multiple government attempts were made to eradicate Klamath sucker fish up to the 1960s in different locations to no significant protest or success. Suckers had coexisted and reproduced for over 70 years subsequent to the Klamath Project. Since that time, reduced juvenile survival was the reason for recent Agency experimental 'biological opinion' confiscatory impositions which appear to have negatively impacted sucker populations more than any 'anthropogenic cause' which preceded them. Millennia of sucker fish adaptation to the historically naturally high nutrient, shallow, warm water, and drought prone region allowed it to continue surviving even when faced with newly imported predatory and competitive species adapted to less extreme conditions. New agenda-determined effective 'confiscation without compensation' policies creating unsustainably 'enhanced' environmental conditions have instead proven detrimental to 'protected' suckers advantage in competitive survival. Even though the failed results have now been definitively seen, the 'policies' still fail to change, confirming a political agenda of regulatory rewilding rather than the professed objective of environmental benefit. The following are a few of the major points addressing the present results of originating biological premise:*
Extinction: *The current 'endangered' status is based largely upon USFWS computer modeled predictions. That flawed model cited relatively few and regionally limited sucker expected numbers. A more effective survey later found that those numbers were grossly underestimated. Even though the actual numbers and range would have never supported the original listing, the listing continues. Another primary USFWS 'modeled' impetus for listing was the determination that Lake Ewauna at Klamath Falls was a 'dead zone', not only barren of suckers, but acting as an impenetrable toxic barrier to spawning passage. This was presumed by USFWS due to the 'toxic' proximity of Klamath Falls, agricultural inputs, and logging mills. In 2012, BOR Klamath Area Office resident scientists performed a study in Lake Ewauna identifying not only*

presence of suckers, but a thriving multi-generational population. Those studies surfaced due to complaints by both USFWS and NMFS against BOR for challenging their agenda 'basis', resulting in the BOR firing of those scientists and the scientists' public release of information and subsequent retaliatory lawsuit.

Facing public awareness and solid studies (including another study the scientists performed and described below under coho), BOR rehired the scientists, prohibited them from performing any additional studies, shelved their prior peer reviewed studies from public access, promoted their supervisor who had defended the agenda stance by firing the scientists, sealed the court documents, and placed a nondisclosure clause as a condition of the agreement. At present, sucker populations in Lake Ewauna are known to be some of the strongest in the region, and are actively being 'transported' in large numbers to other locations. Once again, the 'endangered' status, the resultant biological opinions, and their attendant impacts did not change.

In order to 'restore' sucker fish, over 15 years of regulatory imposed suffering and loss reigned within the Klamath Basin from water restrictions based upon the hypothetically based 'Biological Opinion' (BO) that Upper Klamath Lake levels should be higher than had ever naturally occurred, even though the original Project had already raised historically shallow UKL levels substantially with Link Dam nearly 100 years earlier. That hypothesis was and remains unsupported by historical documentation, local experience, or empirical science.

*After approximately 10 years of increased lake levels, **a 2012 DOI study cited the DECREASE of lake sucker populations ranging from 38-86%68 and overall UKL sucker decrease of 75% from 2001 to 2016**. Despite those losses and extensive unbiased expert conclusions challenging lake level benefits notwithstanding, the 2013 'programmatically' revised Biological Opinions continue to escalate water confiscations to support UKL elevated lake levels and already failed theoretically based 'restoration'.*



Note what appears to be macrophytes and periphyton (algae) in the large, shallow, solar exposed, evaporating, nutrient laden, lake, historically known for the poor quality of water. Those conditions are now being forcibly recreated by dam removal benefitting proponents as 'marshlands' touted as theoretically 'treating' water quality. Those same benefitting proponents seek to forcibly REMOVE downstream smaller surface area, deep water, large volume reservoirs actually PROVEN currently REMOVING nutrient loads and DIRECTLY enhancing salmonid conducive water quality on the Klamath River at the point of greatest benefit.

Required reductions in irrigation withdrawals from reservoirs are promoted as part of the 'opinions', based upon the supposition that fluctuating lake levels are certainly detrimental to sucker habitat and spawning. Actual studies at the shallow John Boyle Reservoir have revealed that supposedly 'detrimental' DECREASED water quality and INCREASED fluctuation of reservoir water levels directly correlated to one of the HIGHEST most robust sustainable populations of suckers. Targeted for removal, John Boyle Reservoir was presumed by removal proponents' biological opinions to be incompatible to suckers by virtue of its 'worst' water quality and greatest fluctuations. Instead, that empirical study demonstrated that ***John Boyle sustains one of the strongest and most life stage diverse populations of suckers found in the region****. Downstream Copco, with its increased water quality and lesser fluctuations sustain larger adult suckers but less generational diversity and population. Significant listed sucker numbers are cited as non-supported in current Iron Gate and downstream Klamath River conditions, likely due to facilities' progressive water quality enhancements more conducive towards both natural and invasive predatory species. Prior to Iron Gate, typical area river conditions were tangentially conducive to both warm and cold water species, presenting mixed marginal fisheries dominated by massive populations of undersized warm water species (i.e. perch, suckers, and bullhead catfish).*

Response to Comment ORG30-44

The comments provide the commenter's summary of and objections to aspects of the development of and basis for removal of the Lower Klamath Project dams, particularly with respect to the biological opinions regarding the Upper Klamath Basin sucker fish. Comments noted.

Please refer to Volume III Section 3.1.6 *Introduction – Flood Hydrology – Summary of Available Hydrology Information for the Proposed Project* for a general summary of biological opinion flows considered in this EIR. However, please also note that comments on the biological opinions for the Klamath Irrigation Project should be directed to the United States Fish and Wildlife Service (USFWS) the National Marine Fisheries Service (NMFS), and the United States Bureau of Reclamation (USBR).

Please also refer to response to comment ORG30-15.

Please also refer to Master Responses AQF-1, WQ-1, and WQ-2.

Comment ORG30-45

With Iron Gate construction, nutrients and warm water fish were sequestered; area 'unnatural' lake cold water was made available for Hatchery and Klamath River use; and increased downstream water quality improvements occurred respective to salmonids. In the case of John Boyle and Copco reservoirs, targeted removals will in fact impair and kill listed suckers by removing an empirically proven sucker conducive habitat, subjecting such removals to potential liability for endangered sucker take.

Response to Comment ORG30-45

Please refer to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Quality* for a summary of the effects of the Lower Klamath Project on water quality conditions downstream of Iron Gate Dam in regard to salmonids. Please also refer to Master Responses WQ-1 and WQ-2. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources* and Section 3.2 *Water Quality*.

The commenter also expressed concern for the take of suckers from elimination of Lower Klamath Project reservoirs. Please refer to Master Response AQF-1.

Comment ORG30-46

Consistently inconsistent, in frantic pursuit of facilities removals, the 2018 KRRC 'Definite Plan' submitted to FERC called for the effective eradication of those viable populations in John Boyle and Copco, citing an unproven 'disconnect' of suckers from Upper Klamath Lake and an also unproven 'possibility' of 'hybridization' to justify destruction of the endangered species and supporting habitat.

Response to Comment ORG30-46
Please refer to Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-13 for a discussion of potential impacts to sucker populations. As noted in comment response ORG30-EMAIL-7, the Proposed Project would not exterminate the Lost River and shortnose sucker populations; rather it would eliminate reservoir habitat in which some individuals of the population currently reside. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-1.

Comment ORG30-47
To eliminate KRRC liability, KHSA signatories sponsored California legislation to specifically allow them to kill an endangered species based upon the 'unbiased' sole signature of Department of Fish and Game Chuck Bonham, former attorney for Trout Unlimited paid to compel Klamath Dams removals as an author and signatory of the KBRA/KHSA. Ironically, as discussed below, with the removal of the facilities, associated removal of the lakes' progressive water quality improvements will also significantly degrade downstream coho conditions.

Response to Comment ORG30-47
Comment noted. Please refer to Master Responses AQF-1, AQF-9, and AQF-10. Please also refer to response to comment ORG30-44.

Comment ORG30-48
All recent data supports the conclusion that sucker fish endangered status and concurrent failed 'adaptively managed' policies were based upon fabricated and defective premise from the start, challenging the very validity of the endangered listing determination. Subsequent policy directed failed experiments and 'discovered' sucker numbers have only served to confirm that conclusion.

Response to Comment ORG30-48
Please refer to response to comment ORG30-44.

Comment ORG30-49
Marshes, Nutrients, and Agriculture: *Historically Tule Lake Lost River closed loop marshlands were reduced in order to diminish prevailing disease potentials; increase water quality; enhance Klamath River fisheries late summer low flows which often receded subsurface in upper Klamath locations; synergistically create more reliable downstream flows for fisheries and provide dependable renewable electricity for the region while sustaining BOR integral Upper Basin Project pumping electrical needs; better optimize utilization of precious water; increase fertile agricultural production using less water than previously lost within the formerly inundated marshland; and continue to provide wildlife benefit through both retained habitat and increased agricultural provisional feed sources. All improvements were made possible and essentially paid for by the agricultural*

production provided through the optimized exposed lands of the Project. The symbiotic benefits were recognized as a major success throughout the region for over 70 years. Locals had long cited the naturally occurring geology and climate as the primary factor for historically eutrophic conditions and experienced the consequent holistically enhanced environment as a result of the Project's optimization. Despite that local knowledge, recent rewilding promoted 'theories' demanded re-creating marshes. 'Reassigned' agricultural lands were removed from production and inundated. Just regarding lands above Upper Klamath Lake, out of 150,000 formerly irrigated acres,97,160 acres were converted into marsh between 1960 and 2006. Research has confirmed that not only is the water exiting those marshes often higher in nutrients (particularly phosphorous) than those entering, overall water loss per acre is also far greater through absorption and evaporation than when used for irrigation further exacerbating eutrophic resident conditions. The 'restored' Wood River Wetland has easily absorbed and evaporated 100% of the water entering. Interestingly, marshland 'restoration' proximal to Upper Klamath Lake for the purpose of REDUCING biomass occurring from the 1960's and greatly accelerating after the 1980's instead appears to correspond to a perceived INCREASE of Upper Klamath Lake algae blooms. Regardless, the agenda of sacrificing agricultural lands to ever increasing marshes continues.

Response to Comment ORG30-49

The comments provide background and historical information regarding the Upper Basin Project, marshland restoration projects in the Upper Klamath Lake area, and their effects. Please also see Master Response GEN-2.

Comment ORG30-50

Agricultural lands, including those created by the Project, have repeatedly been accused responsible for the predominant nutrient contributions to eutrophic waters. The National Research Council has determined that the naturally occurring phosphorous in Upper Klamath Lake (UKL), and specifically within the top 1" of sediment alone, is sufficient, even with a presumed physically impossible cessation of nutrient addition, to drive the algae/biological mass/dissolved oxygen cycles for a minimum of decades to come. Only a minority of the 40% of phosphorous estimated entering UKL annually to existing lake resident amounts is claimed identifiable to agricultural use, and a majority portion of that has been cited likely from the transitory decomposition of resident phosphorous laden peat. Paleolimnological evidence within UKL indicates a major shift to Aphanizomenon flos aquae dominance over the last century. That study reveals Pediastrum, a non-nitrogen fixing green algae, was dominate prior to Aphanizomenon flos aquae (AFA). Pediastrum is an extremely heavy nutrient dependent feeder found commonly in sewage ponds. Gas fixation by AFA is currently the primary provider of nitrogen to UKL, apparently replacing the nitrogen naturally available to Pediastrum prior to 150 years ago. However, total overall late summer cyanobacteria, biomass, and nutrients have remained nearly the same, with only the significant concurrent DECREASE in N:P ratios over *time, potentially from the transitional organic decomposition of drained former marshes. Microcystis aeruginosa (MA) has historically been a present, active, and productive participant in UKL bloom cycles throughout the entire study, both before and after area development and the subsequent Project. With decreasing springtime N:P ratios, MA development in UKL depends on the nitrogen provided by AFA through its initial bloom senescence release, typically occurring in mid to late summer. AFA is phosphorus driven and UKL contains high levels of regionally natural resident phosphorous with greatest turbulence induced water column resuspension in UKL occurring in spring/early summer. Agricultural lands actually offer the ONLY currently known cost effective long term Upper Basin method of reducing eutrophication-driving phosphorous from the ecosystem. That reduction occurs through phosphorous uptake by plant crops and livestock with their subsequent productive physical removal from the region. Studies have also indicated waters contributed to the Klamath from Lost River Project lands are actually 'cleaner' of nutrients than would 'naturally' exist without agriculture.*

Response to Comment ORG30-50
The comments relate to the relationship between agricultural activity and nutrient loads in the Upper Klamath Basin area. Comments noted. Please also see Master Response GEN-2.

<u>Comment ORG30-51</u>
Tens of thousands of acres of agricultural lands in the region have already been forced into permanent fallow based upon the 'theory' that land retirement and reduced irrigation would increase surface water flows. The National Research Council model shows that an INCREASE of Basin agricultural irrigation use actually INCREASES contributed flows to the Klamath River at Keno, but the agenda push for increased land and water 'retirements' continue.

Response to Comment ORG30-51
Comment noted. A summary of historical effects of irrigation, power generation, and environmental requirements on hydrology in the Area of Analysis is provided in Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* (pages 3-590 through 3-621).

<u>Comment ORG30-52</u>
Originating Biological premise: *Agricultural usage of the upper basin water reduces flows previously available downstream for chinook and endangered coho salmon during migration, thereby reducing spawning habitat, increasing water temperatures, increasing disease, and killing downstream salmon.*

Response to Comment ORG30-52
The comments provide a summary of biological premises that have been relied upon with respect to coho salmon. Comments noted.

The EIR provides a summary of existing conditions in the Klamath Basin with regard to salmonids in Section 3.3.2.2 *Aquatic Resources – Environmental Setting – Physical Habitat Descriptions*, and provides a summary of the effects of the Lower Klamath Project on conditions downstream of Iron Gate Dam as relevant to salmonids in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project*. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-53

Klamath water storage and hydroelectric facilities degrade water quality; contribute organic toxins; increase water temperatures to the coast; create the most salmon disease conducive reach in the river; provide no flood prevention or useable storage benefits; retard the flushing of sediment; fail to provide 'natural' gravel recruitment for spawning salmon; reduce salmon populations by blocking the historical access to millions of salmon from hundreds of miles of pristine spawning habitat; and destroys the health and wellbeing of Upper Basin Klamath Tribes who depended on the salmon since time immemorial.

Current known standing: *Local experience and historic documentation have consistently asserted regional water quality and environmental improvements as a result of the dams compared to pre- dam conditions. Throughout the special interest agenda of Klamath hydroelectric and water storage facilities removals, that information has been completely disregarded by personally benefiting KBRA/KHSA seated largely nonresident removal proponents. As a part of the agenda 'process', a KHSA Klamath Interim Monitoring Agreement demanded there be PacifiCorp ratepayer funded payments made prior to dams' removals for various removal proponent 'stakeholder' benefiting administered 'projects and data acquisition'. Ironically, that site collected data, discussed in further detail below, now confirms the continuing resident stated beneficial importance of the reservoirs and Klamath flow control in enhancing natural background environmental conditions, along with the minimal negative environmental impacts produced in exchange for those major benefits received. However, removal proponent 'analysis' of that data does not appear to be forthcoming and the current 'Biological Opinions' of removal assumptions are not 'scheduled for review' until AFTER dams are slated for removals.*

Response to Comment ORG30-53

Comments noted. Please refer to Master Responses WQ-1 and WQ-4.

Please also note that State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement.

Comment ORG30-54

An originating biological premise of removal proponents has been:

'Agricultural usage of water in the upper basin reduced the Klamath River flows previously available downstream for chinook and endangered coho salmon during migration, thereby reducing spawning habitat, increasing water temperatures, increasing disease, and killing downstream salmon.'

Prior to the Klamath Project, the Upper Basin closed loop Lost River system rarely delivered waters to the Klamath River, and never during the period of lowest Klamath River flows. Evaporation from the massively exposed and shallow Lost River and Upper Klamath Lake marshlands was and is far greater than any equivalent area agricultural use. With the preponderance of existing Project agricultural lands located within previous marshlands, the net effect struck a balance between marshland habitat; reduction of detrimental Upper Basin disease conducive conditions; agriculturally produced supplemental migratory avian feed sources; and hydrologic gain for Klamath River system use. The Project stored excess waters in deepened reservoirs allowing controlled and optimized productive water usage, reduced evaporation, and increased water quality through limiting exposure to naturally endemic nutrient sources. National Research Council models show that increasing agricultural irrigation within the Upper Klamath Basin actually results in INCREASED flows entering the Klamath River at Keno. History and research support that net gains to critical late summer/fall flows were made to the Klamath River from the Project's Upper Klamath Lake storage and the Lost River additions, gains which would disappear with Upper Basin 'rewilding'.

Response to Comment ORG30-54

Comment noted. The Proposed Project does not propose reductions of agricultural water use in or “rewilding” of the Upper Klamath Basin, though it would restore the area inundated by J.C. Boyle Reservoir to free-flowing river conditions.

Please also refer to Master Responses, WQ-1 and WSWR-1.

Comment ORG30-55

Water quality has long been demonstrated 'cleaner' coming out of the Upper Klamath Basin agricultural areas compared to that entering. Marshlands being re-created in the Basin have been shown to degrade intended water quality conditions and reduce water quantities available downstream. Naturally occurring, and according to the National Research Council un-ameliorable resident phosphorous in Upper Klamath Lake has been shown to compound and feed 'current salmon objective' biodegraded conditions downstream. It is now apparent that naturally occurring upstream UKL nutrients, biomass, and dissolved oxygen impacts are sequestered, ameliorated, and detained by the downstream facilities. The downstream deep water reservoirs have been shown to provide the only effective evidenced improvement towards current downstream objectives, consistently providing 'cleaner' water below the dams and delaying *release of the worst seasonal water quality which, prior to the dams, historically occurred concurrent with the most vulnerable initial salmon runs.*

Response to Comment ORG30-55

Comment noted. Please refer to Master Responses GEN-2, WQ-1, WSWR-1 WSWR-3.

Comment ORG30-56

Present data indicates that existing potential microcystin development and impacts may actually be reduced both quantitatively and temporally as a result of the dams. Considering recent better understanding of cyanobacteria life cycles, particularly Aphanizomenon flos-aquae (AFA) and Microcystis aeruginosa (MA), potential toxins originating in Upper Klamath Lake or added through nutrient uptake biological process within immediately downstream reservoirs are diluted, sequestered, and delayed past the period of greatest potential harm. MA's recently identified characteristics include in-river competitive advantages of adaptive flotation and tolerance to shade and cooler temperatures; toxicity production potential appearing greater in cooler and shadier surface (River) conditions than in stratified warmer high light surface (Lake) conditions; and much greater potential harm from any toxicity occurring through direct cellular food chain ingestion as opposed to ingestion of or exposure to instream dissolved microcystins. Microcystin has an approximate half-life of 1 day in precipitated sediment and 6 days in suspended water column, which combined with the much greater potential toxicity impacts from direct cellular instream ingestion, indicate the undisturbed sediment deep water lakes provide far less toxic potential than instream combined cellular and water column suspended microcystin. HIGHER microcystin concentrations have been shown to occur in downstream Klamath River locations than from water exiting Iron Gate reservoir even under Iron Gate's existing reduced downstream nutrient conditions, evidencing MA's instream opportunistic competitive advantage. However, 'modeled' KHSA 'expert opinion' using over 80 subjective qualifiers in one section alone (eg. could, may, possible) to proclaim removal related 'instream improvements' state that NO marcrophyte/periphyton instream empirical study was or would be performed. Considering MA's described and newly identified biological characteristics, containment, growth, and cellular senescence within the reservoirs, Project lake conditions likely produce far less potential for toxicity development, and reservoir released nutrient reduced instream waters likely result in far less potential for instream direct toxicity harm to all species, including coho and human, than will result from higher nutrient loads carried directly instream without Project deep water lakes. This 'new' regional data evidenced biological assessment is further supported by the historical fact that not a SINGLE cyanobacteria toxicity related health case was EVER reported on the dams affected Klamath region in over a hundred years of hydroelectric storage facilities' operations. The facilities sequester and delay water transport downstream approximately 2 months during late summer flows. The estimated 2 day transport time delivered from concurrent UKL MA senescence nutrient *release without facilities in place would produce significantly higher nutrient loads directly downstream during the lowest flows, highest temperatures, and initiated salmon runs. Those high instream nutrients would support extensive downstream macrophyte and perphyton densities, salmon disease potential, and drastically increased risk of directly ingested cellular MA toxicity development throughout the Klamath River to the estuary during the time of year having the greatest impact to all species, including spawning salmon. Further supporting this, pre and post Iron Gate area residents have repeatedly asserted the directly experienced improvements that Iron Gate made towards downstream salmonid conducive conditions. With virtually all other 'dam impacts' having been discredited, the primary water quality 'impairment' still claimed by hydroelectric storage reservoir removal proponents still focuses on 'toxicity', despite the current compelling evidence demonstrating a high likelihood that the Project actually REDUCES the potential for downstream microcystin toxicity.*

Response to Comment ORG30-56

Comment noted. Please refer to Master Response WQ-7 and Master Response PAP-1.

Comment ORG30-57

Initially without site specific study, Agency and NGO Klamath dam removal proponent contracted 'computer generated water temperature models' described dam influenced temperature increases all the way to the coast. Those 'studies' were used to 'justify' Department of Water Resources (DWR) expanded authority for amending the 401 permit, supporting KHSA agenda objective to compel 'negotiation' and preclude feasible continuation of the facilities. Using the word 'impairment' based solely upon hypothesis acknowledging little to no regional empirical data at the time, DWR codified 'administrative' language solidifying Agency power, 'procedural' agenda of removals, and regional 're-wilding'. With several subsequent expanding empirical studies attempting to prove temperature influence, each instead increasingly exposed the opposite. Going from a hypothesized opinion of dams' temperature influence to the ocean, even removal proponent's own modeled study 'opinions' begrudgingly now admit minimal dam impacts for 7 - 15 miles; a margin of error nearly equaling any projected affects; 'benefits' which can only occur with 'fully implemented restoration' as promised by a KBRA that no longer exists; and the continued failing to acknowledge that 'impacts' may actually provide potential overall temperature fisheries benefits for that short distance affected.

Response to Comment ORG30-57

Comment noted. Please refer to Master Response WQ-2 and response to comments ORG46-127, ORG46-128, and ORG-129 for a discussion of the potential for releases from the Lower Klamath Project dams/reservoirs cool the Klamath River and the extent of water temperature impacts from the Lower Klamath Project dams under existing conditions.

Please note that the Department of Water Resources (DWR) does not issue or amend Clean Water Act (CWA) section 401 certifications.

Comment ORG30-58

From the removal agenda's beginning, facilities benefits have been cited by residents experiencing the before and after of Iron Gate, but even now those realities are still ignored by removal proponents. The consequential conclusion of current data supports residents' long held experience that the river very quickly assumes an average of day and night temperatures, with any minor temperature effects seen immediately downstream often found by locals as positive for fisheries. Even with the reversal of the underlying agency 'hypothesis' claiming significant reservoir 'temperature impairment' as justification for authority, the authority granted itself by Department of Water Resources (DWR) still remains. To further assure regulatory determined dam removal, removal proponents concurrently approached EPA to reverse EPA's prior position by adding 'microcystin' to DWR Klamath 'impairment' mandate. To achieve that reversal, EPA 'determined' to NOT consider UKL delivered contributions and based their decision to list Copco to Iron Gate NOT on actual 'impairment', but rather on the site POTENTIAL for impairment. Based on their created authority, DWR began 'amending' policy 'interpretations' to allow subjective DWR Board unelected ability to assure the impossibility of achieving facilities 401 (or potentially any other) 'permit' compliance. One of those 'permit' changes involved creating a computer modeled naturally unattainable Klamath dissolved oxygen requirement. Perhaps unintentionally revealing the true Agency objectives, in typical response to public comment, DWR sub agency North Coast Regional Water Quality Control Board (NCRWQCB) staff wrote the following: "The Regional Water Board cannot establish life cycle-based water quality objectives for the mainstem Klamath River because the DO (dissolved oxygen) concentrations associated with salmonid life cycle requirements cannot be met even under natural conditions- conditions in which there are no anthropogenic influences. As such, the Regional Water Board staff has proposed water quality objectives that protect natural [modeled pre-anthropogenic estimated background] DO conditions from further degradation (underlines and bracket explanation added). In other words, NCRWQCB acknowledges the upstream Klamath is a naturally non-conducive salmon environment, but that even though actual salmon returns have shown no overall declines directly resulting from current vested 'anthropogenic' riparian use; and even though any pronounced isolated detriment to salmon has generally been a confluence of natural and/or transient uncontrollable environmental events; and even though by their own admission salmon should not even exist in the upper middle Klamath under their utilized NCRWQCB computer modeled tolerance assumptions; and even though the computer modeled 'natural background conditions' bear no resemblance to regional Klamath history or experience; DWR still imposed naturally unattainable administrative ever expanding regulatory policy mandates inescapably continuing even AFTER elimination of ALL anthropogenic impacts.

Response to Comment ORG30-58
Comment noted. Please see Master Responses AQF-4 and AQF-8 for discussions of historical abundance of salmonids in the Klamath River and uncertainty in fall-run Chinook salmon production and recolonization. Please see Master Response WQ-5 for discussion of the inclusion of Klamath River Total Maximum Daily Load (TMDL) models in the EIR analysis.

Please note that the North Coast Regional Water Quality Control Board is not a sub-agency of the Department of Water Resources, but a semi-autonomous agency supported and subject to oversight by the State Water Board.

Comment ORG30-59
The dam removal proponents' adamant claim of 'no flood protection' provided by the facilities, without any admitted prior studies, have again been proven wrong following their original disparaging of local experience. Locals, who historically sought the dams in large part for that very reason, subsequently experienced the dramatic reduction in local flood damage that resulted. It took regional residents providing their own mathematical proof before removal-promoting lead Agencies were finally forced to officially acknowledge flood protection, but then marginalized those immediate downstream dramatically experienced benefits within their own buried documents.

Response to Comment ORG30-59
Comment noted. Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* (pages 3-590 to 3-593) describes the history of flooding and alterations to the natural hydrograph in the Area of Analysis, including discussion of the effects of Copco No. 1, Copco No. 2, and Iron Gate dams on Klamath River flows. Please also refer to Master Response FLD-1.

Comment ORG30-60
The attenuation of ramping and delay of flood maximums in excess of 9 hours have resulted in a fraction of the damages to the immediate downstream reaches from high flow events relative to regular extensive riparian, fisheries habitat, and asset losses experienced prior to the dams. Citing KHSA generated one dimensional computer flood modeling 'proving' minimal Project flood damage benefit, KRRC staff admitted those models do not include provisions for historically known experienced factors affecting regional flooding. Those 'models' do not include real world realities of pre dams unchecked upstream annual Upper Klamath Canyon flash flooding avulsing unstable saturated clay based soils and riparian vegetation, forming functional 'battering rams' moving downstream in progressive destruction. With debris lodging into and backing up against any narrowing river channel area, bedrock dikes, or infrastructure, upstream water levels raise, additionally eroding higher elevated banks and vegetation until either the 'dam' itself, the bank supporting the debris dam, or the infrastructure bracing the dam collapses and carries on downstream to repeat at the next impediment. Since Project completion, the downstream affected area

has experienced a fraction of riparian erosion, avulsion, vegetation, and public/private infrastructure loss. Immediate downstream attenuated areas have also benefitted salmon conducive fisheries habitat by minimizing consequent sedimentation of spawning beds and polychaete salmon disease vector habitat, evidenced by LESS disease infection rate and HIGHER salmon survival rate immediately below Iron Gate than at downstream tributary reaches.

Response to Comment ORG30-60

The analysis of the Proposed Project relies on flood frequency analyses and hydraulic and sediment transport modeling conducted by the Klamath River Renewal Corporation (KRRC) (Volume II Appendix B: *Definite Plan*) and USBR (2012a). These analyses evaluated hydraulics and sediment transport during various reservoir drawdown and dam removal scenarios, as well as the potential future condition following removal of the Lower Klamath Project dams. See Master Response FLD-1 for further discussion of flood hydrology downstream of Iron Gate Dam. See Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-1 (page 3-626 to 3-630) for further discussion of reservoir drawdown and dam removal details and Potential Impact 3.6-6 (page 3-635) for further discussion of risks of dam failure.

Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project* includes an assessment of the effects of Lower Klamath Project on salmonid habitat under existing conditions and concludes that the Lower Klamath Project dams have degraded conditions for salmonids - notably by reducing access to suitable habitat upstream of Iron Gate Dam. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* discusses the effects of Lower Klamath Project on disease dynamics and concludes that disease risk is increased as a result of the Lower Klamath Project under existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please refer Volume I Section 3.11.5 *Geology Soils and Mineral Resources – Potential Impacts and Mitigation* Potential Impacts 3.11-4 (page 3-765) for discussion of dam embankment instability, 3.11-5 (pages 3-765 to 3-775) for discussion of sediment deposition, and 3.11-6 (pages 3-775 to 3-776) for discussion of bank erosion; as well as Master Response GEO-1 for discussion of sediment modeling and deposition. Additionally, bedload and suspended load are the dominant sediment transport processes on the mainstem Klamath River, not debris flows. Please also refer to Volume I Section 3.5.5.1 *Terrestrial Resources – Potential Impacts and Mitigation – Vegetation Communities* Potential Impact 3.5-4 (pages 3-522 to 3-523) for discussion of the potential effects of sediment deposition on riparian vegetation.

<u>Comment ORG30-61</u>

To this day, 'Agreement' Agencies never significantly include facilities' flood damage prevention findings in their 'conclusions' or public media, and NO WHERE do they ever consider mitigations for those damages to the affected downstream resident majority resulting from their decisions. Indirectly applicable to the 'no flood protection' argument, Removal Proponent claims of 'no useable reservoir storage' benefits have been repeatedly contradicted by KHSA members' own multiple demands for Project stored water releases used exclusively for experimental supplemental environmental fisheries coastal benefit, utilizing stored water that will not exist if Dams destruction occurs. Ironically, although Removal Proponents claim already paid for EXISTING provided water storage is of no beneficial consequence, a Bureau of Reclamation study describing the vital need for ANY storage, evaluated additional Upper Basin storage opportunities as having total cost estimates exceeding 10 billion dollars and delivered water costs as high as $44,000 per acre foot.

Response to Comment ORG30-61

Please refer to the response to comment ORG30-84 and Master Response WSWR-1.

Please also note that the State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement.

<u>Comment ORG30-62</u>

A contradiction of claims often emerges with removal proponent assertions, depending upon the momentary rewilding purpose and audience served. Cited on the one hand is a 'need for undammed flood flows' to 'flush' sediment and periphyton for salmon disease control and expansion of spawning habitat. On the other hand they simultaneously proclaim the 'benefits' from undammed accretion of sediment for mollusks, macrophyte/periphyton food sources, and salmon parasite (lamprey) habitat. In reality, while those simultaneous claims are logically incompatible and reveal agenda intent rather than consistent environmental objective, the removal of facilities within the areas affected will certainly cause damages to both.

Response to Comment ORG30-62

Comment noted. Please see Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* (pages 3-433 through 3-440) for a discussion of potential impacts of the Proposed Project on periphyton in the Area of Analysis. Section 3.3.5.9 *Aquatic Resource – Potential Impacts and Mitigation – Aquatic Resources Impacts* provides a discussion of potential impacts of the Proposed Project on aquatic resources in the Area of Analysis. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-63

Since Copco and Iron Gate have been in place, reservoirs warmer water resident species benefitted, and formerly degraded proximal downstream river reach conditions shifted dramatically towards salmon conducive objectives.

Response to Comment ORG30-63

Comment noted. Please see Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Quality* for a summary of the effects of the Lower Klamath Project on water quality conditions downstream of Iron Gate Dam in regard to salmonids. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-64

Attenuated flood events have allowed existing immediate downstream aggregate appropriate salmonid spawning beds to remain friable and clean without uncontrolled riparian erosion that loaded those beds with basalt clay sediment prior to the dams.

Response to Comment ORG30-64

For information on future flood flows and hydrological data input for sediment modeling, please refer to Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, Volume III Attachment 1 Section 3.11.4.1 *Geology, Soils, and Mineral Resource – Impacts Analysis Approach – Flows*, Volume III Attachment 1 *Aquatic Resources*, and to ORG46-203. Post dam removal, flows would continue to be controlled by Keno Dam and the United States Bureau of Reclamation (USBR) Klamath Irrigation Project 2019 BiOp, or future BiOps, such that flood flows would be expected to be within the range of historical flood conditions.

As described in Section 3.3.2.3 *Aquatic Resources –Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project*, sediment disruption by Lower Klamath Project dams has resulted in a reduction of spawning gravels downstream of Iron Gate Dam, and this has been identified as one of the causes of the decline in salmonid fry production in this reach of the Klamath River (Buer 1981). Removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams as part of the Proposed Project would enable more natural sediment transfer downstream as part of the natural river dynamics, which would have beneficial effects for salmon in the long term. Most fine sediment eroded during drawdown would be transported in suspension to the Pacific Ocean, and any spatially discrete fine sediment deposition would be transitory, mobilizing in future flood events (see Master Response GEO-1). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-65

Recent 'experiments' of water wasting releases intended to discredit that experience and 'prove' proponent contentions have in fact proven the opposite. Original computer modeled predictions of 5,000 cubic feet per second flows from Iron Gate for the exclusive purpose of 'flushing' sediments and periphyton immediately downstream instead produced the reverse effect, eroding fragile banks, depositing large amounts of sediment in gravel beds, and compounding the periphyton and salmon disease potential conditions for the following year as predicted by local residents. Rather than acknowledge 'modeled' inconsistency which would reverse removal proponent assertions and relieve regional regulatory imposed 'water crisis', the choice was instead made to 'double down' on required flows.

Response to Comment ORG30-65

Flow releases, including flushing flows, are determined by the United States Bureau of Reclamation (USBR) Klamath Irrigation Project, which is currently required to operate flows in accordance with the 2019 BiOp (USBR 2018; NMFS 2019; USFWS 2019a), and is independent of the Proposed Project. Implementation of the Proposed Project, including removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams, does not impact flows required for the USBR Klamath Irrigation Project, including flows for management of *C. shasta*. For information on the flow releases under the 2019 BiOp, please refer to Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* and Volume III Attachment 1 Section 3.11.4.1 *Geology, Soils, and Mineral Resource – Impacts Analysis Approach – Flows.* Note that the 2019 BiOp does not require flows equivalent to the 2017 court-ordered flushing and emergency dilution flows, which included flow releases averaging 11,250 cubic feet per second (cfs) for 24-hours downstream of Iron Gate Dam, that were in effect in the interim prior to the 2019 BiOp. For informational purposes, we also note that Hillemeier et al. (2017) demonstrates that flushing flows of specific magnitudes reduce *C. shasta* and salmon disease.

For information on sediment erosion, transport, and deposition associated with the Proposed Project, please refer to Volume I Section 3.11.2 *Geology, Soils, and Mineral Resources – Environmental Analysis*, Section 3.11.4 *Geology, Soils, and Mineral Resources – Impacts Analysis Approach, and* Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5, which are partially modified in Volume III Attachment 1, as well as to Master Response GEO-1.

Comment ORG30-66

A 2016 contrived flood event released over 11,000 cfs from Iron Gate Dam illegally increased more quickly and greater in volume than any actual known natural flood event occurring through recorded history for that date. Long accumulated Upper Klamath Basin water was, with premeditation suddenly and without public warning 'triggered' for 'flood protection' during dry weather and no *forecasted weather events. That event compared to the prior 5,000 cfs 'flush' predictably produced tremendously greater riparian erosion, loss of trees, killing of nested wildlife, and deposition of even greater amounts of sediment within affected river refugias than the previous flush. Exclusively considering only the water quantity exceeding already high flows at the time, the water wasted to the ocean within a 7 day period alone would have provided enough water for over a half million people for a year.*

Response to Comment ORG30-66
The comment refers to downstream flow effects of a flood control release associated with Upper Klamath Lake, as stipulated by the 2013 National Marine Fisheries Service and United States Fish and Wildlife Service's joint Biological Opinion (2013 BiOp). The 2013 BiOp has been superseded by the 2019 BiOp. BiOp flow requirements are determined regardless of the existence of the Lower Klamath Project dams. If the Lower Klamath Project dams were removed, the BiOp flow requirement compliance point would move from Iron Gate Dam to Keno Dam.

As discussed in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-Status Species and Rare Natural Communities* Potential Impact 3.5-4 (pages 3-522 to 3-523), under the Proposed Project sediment deposition associated with peak flow events would result in no significant impact on riparian habitat in the Middle and Lower Klamath River in the short-term and a beneficial effect in the long-term. Anticipated peak flow hydrology under the Proposed Project would be similar to existing conditions, and therefore no significant impacts on riparian habitat would be anticipated. Similarly, due to similar peak flow hydrology between the Proposed Project and existing conditions, impacts on nesting habitat are not likely to occur. For other nesting wildlife, please refer to Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-Status Species and Rare Natural Communities* Potential Impact 3.5-18 (pages 3-560 to 3-561) which discusses potential impacts on amphibian and reptile breeding in riverine habitats due to sedimentation under the Proposed Project.

Please refer to Master Response FLD-1 for a summary of potential flooding impacts associated with the Proposed Project. Please refer to Master Response GEO-1 for discussion of sediment mobilization and deposition associated with reservoir drawdown as part of the Proposed Project.

Comment ORG30-67
*Attached is **part 2b** of 2a,b,c submittal by Siskiyou County Water Users Assoc. in the matter of the response to 401 Water Certification EIR for the Klamath Dam project. We look forward to any response that the Water Board may make.*

Response to Comment ORG30-67
The State Water Board received the comments attached to this email and designated by Siskiyou County Water Users Association as “part 2a” of their submittal. Please note that comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board’s Water Quality Certification Program following the instructions provided at https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html.

Comment ORG30-68
Though the results completely discredit proponent 'undammed' assertions, as typical throughout this 'process' those results, riparian damages, and even the event itself, have received NO public release of information or acknowledgement. Instead of intended proponent objectives, the results actually demonstrate the balanced sediment control benefits that the dams and reservoirs provide. That demonstration, despite being within the most climatically salmon non-conducive region of the historically accessible river, explains how the immediate downstream dam influenced 'most impaired' river reach actually provides one of the highest salmon survival rates of any reach to the coastal influence.

Response to Comment ORG30-68
Please refer to Volume I Section 3.11.2.4 *Geology, Soils, and Mineral Resources – Environmental Setting – Sediment Load* (pages 3-748 to 3-753), which indicates that Upper Klamath Lake traps most sediment entering the lake, and therefore little sediment is supplied to the Klamath River from the watershed upstream of Keno Dam. Additionally, please refer to Section 3.3.2.3 *Aquatic Resources –Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* for a summary of the effects of water quality and fish disease on survival of salmonids downstream of Iron Gate Dam under current conditions. Please also refer to Beeman et al. (2007), who reported “lower survival in the most upstream reach than in those farther downstream.” Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-69
As to 'gravel recruitment' for potential salmon spawning beds, the agenda proponents' own 'expert panels' have acknowledged that regional geomorphology provides little appropriate materials or structure to significantly provide increased spawning habitat within the VERY limited area above dams that salmon were previously known to reach, leaving the amount of spawning beds that exist downstream threatened with sediment loading from facilities removals. Ironically, paid Klamath River Renewal Corporation proponents citing removal benefits of Project area habitat restoration, in their own 'Definite Plan' for facilities destruction, detail the later ongoing unfunded need for annual placement

of gravel and 'large woody debris' typically flushed out every winter in the affected area in order to increase any chance of significant anadromous benefit.

Response to Comment ORG30-69

The commenter is incorrect in asserting that there is very limited spawning habitat upstream of Iron Gate Dam. As described in Volume III Attachment 1 Section 3.3.5.8 *Aquatic Habitat*, there is ample evidence that under the Proposed Project salmon would have access to substantial amounts of historical spawning and rearing habitat. The EIR discusses the potential for impacts to spawning habitat downstream of Iron Gate Dam following dam removal. As described in Volume II Appendix F.5.2.3 *Changes in Bed Substrate*, the Proposed Project could have short-term effects on spawning habitat downstream of Iron Gate Dam. The proportion of sand in the channel bed would likely be higher during the first four months following dam removal than under existing conditions. More interstitial sand in the Klamath River channel upstream of the Cottonwood Creek confluence could reduce embryo survival-to-emergence in these reaches (Chapman 1988). The approximately eight miles of potentially affected channel length encompasses only four percent of the current total Klamath River channel length. These effects would be most apparent in successive median or dry years following dam removal, and less apparent in successive wet years. Within a year these effects are predicted to be ameliorated, and in the long term no impacts to spawning habitat downstream of Iron Gate Dam are predicted. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

With regard to the Proposed Project plan to augment gravel and large woody debris, the Aquatic Resource Measure AR-1 is an appropriate measure to ensure that the potential for short-term impacts to spawning habitat discussed above are addressed and mitigated for. No impacts are predicted in the long-term, and the aquatic resource measure is not proposed to be implemented indefinitely.

Comment ORG30-70

Considering the mounting evidence against prior removal claims, with typical 'adaptive management' agility, the prior rationale advocating water confiscation for 'flushes' has now shifted more towards polychaete reduction in the river reach below Iron Gate.

The revised claim is that the dams create elevated salmon disease conditions (polychaete habitat infected with ceratomyxa shasta delivering actinospores downstream in turn infecting salmon). Emerging evidence and inconsistencies now highly challenge that hypothesis and infer a much GREATER potential for salmon infection with removal of the facilities.

Polychaete has now been found to withstand and mobilize against high flow events. Active and large populations of Polychaete have been observed in the sediments at the mouth of the Williamson River entering Upper Klamath Lake. As the life cycle vector for ceratomyxa shasta, the polychate worm (Manayunkia *speciose) is in turn infected from the myxospores released from decaying C. shasta infected salmon carcasses. Those majority infected carcasses contribute an estimated 89% of myxospores to the Klamath River estimated in the billions, which settle in downstream sediments. High flow events have been found to distribute myxospores great distances. The higher Klamath concentrations of spores are typically found at or below Beaver Creek, substantially downstream of Iron Gate and the Shasta River confluence. Instances of highest spore densities have been tested in Orleans and Tully far downstream of Iron Gate. There is greater connectivity of salmon mortality to temperature and spore density than to low water flows. Spores LOSE viability at HIGHER temperatures, with far greatest salmon infection potential in the winter/spring. 'Interim Klamath Monitoring Agreement' data regarding 'sentinel fish testing' expose susceptible juvenile fish to various locations throughout the Klamath watershed and assess for disease infection. Recent data has revealed that infection rates are generally LESS within the Iron Gate river reach than BELOW the Shasta River confluence, with the highest zones of infection below Iron Gate varying from Beaver Creek downstream, at times occurring nearly to the ocean within the coastal influence. However, comparatively by far the most LETHAL zone of infection potential has consistently been in the Williamson River ABOVE Upper Klamath Lake and UPSTREAM of the Klamath Dams. Current DNA testing for instream monitored spore concentrations detect ALL arbitrary forms and portions of spores, whether viable, degraded, decomposed, or non-infective. Misleading or not, those figures are used to trigger prescribed 'flushing' experiments utilizing narrowly considered 'negative theory' (if nothing bad happens, it must be effective) assessment of benefit, selectively chosen data points, and unsubstantiated regional assumptions concluding potential disease 'reduction' from historically unnatural flows, which even study authors acknowledge will likely become even more necessary AFTER dams destruction, but which will realistically become impossible to achieve with reduced storage. The above has numerous implications. Polychaete vectors already exist upstream in abundance and are well adapted to ALL encountered environments. Any disease susceptible salmon surviving introduction to the Upper Basin would bring infection of polychaete with more lethal ceratomyxa genotypes into increasingly unconducive anadromous conditions, resulting in a consequent compounding of infection for all downstream fish. It is also clear from those referenced 'flushing' experiment results and much higher spore concentration rates downstream than exist below Iron Gate, that the dams are NOT indicated as a primary factor in downstream infection. It has been shown that sedimentation of the river downstream of Iron Gate by resident clay soils will destroy existing salmon redds, fill in deep water instream refugias, and increase potential disease conditions. Facilities destruction will therefore provide for degraded downstream anadromous conditions, upstream actinospore and myxospore migration, and increased risk within upstream conditions compromising multiple species as far as the acknowledged infected majority of salmon are pushed beyond limits they were naturally and historically known to ascend.*

Response to Comment ORG30-70
Please refer to Master Response AQF-5 for a discussion of disease risk upstream of Iron Gate Dam.

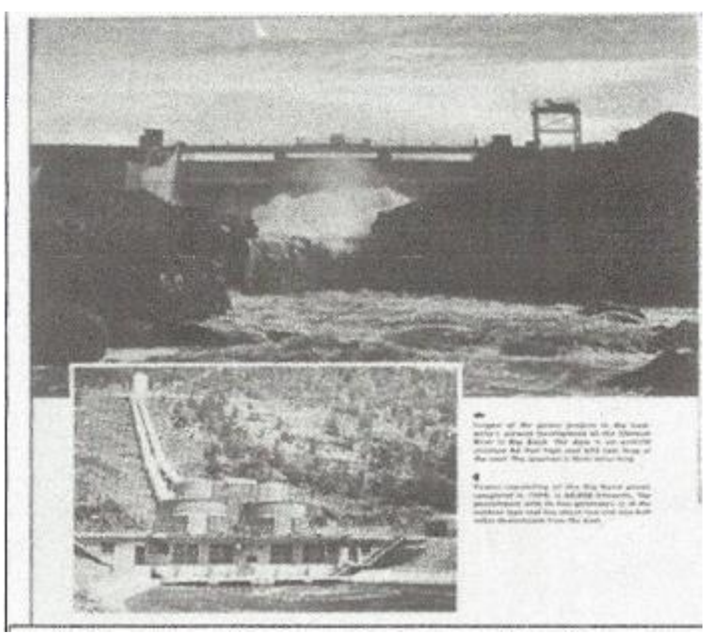
Please refer to Master Response AQF-7 for a summary of the analysis on impacts to habitat downstream of Iron Gate Dam, and Master Response AQF-6 for summary of the analysis on conditions for polychaetes downstream of Iron Gate Dam.

With respect to the commenter's assertion that anadromous salmonids did not historically access habitat upstream of Iron Gate Dam, please see Master Response AQF-4.

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>**Comment ORG30-71**</u>
'Salmon access for 'millions of salmon' to 'hundreds of miles of historical habitat' providing food for the upper basin Klamath Tribe from time immemorial':

This is perhaps the most egregious, erroneous, and continually cited proponent argument for Klamath hydroelectric and reservoir facilities' removals. Like many of the other claims made by financially benefitting removal proponents, this 'rewilding' assertion is purposefully constructed to sound reasonable to the uninformed. In fact, those assertions are completely contradicted by Regional experience, documentation, and historical current studies.



History reef at present location of John Boyle Reservoir

Not a single certain reference from the 1820's to original Klamath dam construction ever asserted anadromous salmon in any known identified numbers within the upper Klamath basin. In a region frequently subject to pre-european settlement Tribal food shortages, Sucker fish were revered as a 'sustenance' food for the Klamath and Modoc Tribes specifically due to adapted ability to survive in the Upper Basin's predominately naturally high nutrient shallow warm waters. Dried salmon were commonly known traded by coastal tribes to the Klamath and Modoc in exchange for obsidian and other goods. Klamath Tribal guides informed early travelers that salmon were never known farther upriver than Spencer Creek, near the location of present day John Boyle Dam. In 1896 biologist Barton Evermann, and in 1897 Dr. Gilbert separately caught, identified, categorized, and documented Upper Basin fisheries. In both cases, NO inclusion of anadromous salmon was ever made.

Around 1900, Link River, between Upper Klamath Lake and Lake Ewauna, occasionally went dry before the Klamath Project was built. There was no hydropower, no hatcheries, occasionally no fish (fish need water), no artificially-raised river flows or lake levels.

Response to Comment ORG30-71
Please refer to Master Response AQF-4 for information regarding the historical abundance of salmonids in the Klamath River.

Comment ORG30-72
Water quality in the entire Klamath was frequently reported as 'feted', undrinkable, and highly organic long before ***the influence of settlers. The Klamath is unique in being an 'upside down' river and watershed, with naturally high nutrients and little precipitation at the upper end, with increasing quantity and salmon conducive quality nearer the coastal influence****.*

Response to Comment ORG30-72
Comment noted. Please refer to Master Response WQ-1.

Comment ORG30-73
*With all the 'critical' emphasis on removing facilities and elimination of agriculture in the upper Basin, the actual historical amount of water exiting Iron Gate comprises an average of approximately **12%** of the quantity occurring at the estuary. At least 3 natural upriver impediments in the present location of dams, reefs presently inundated by reservoirs or formerly physically removed, were considered virtually impassable to salmon by all regional accounts. Prior to reservoir's added storage; Lost River water addition; and regulated flows; it was common late summer for the river in the Klamath Canyon (area of current dams) and directly below to go entirely subsurface in cobble riverbed. **Even IF those historically known pre-facilities conditions of water quality, quantity, and access had NOT been present, by the time spawning salmon reach the present location of dams near the upper limits they were historically known to travel, they are largely depleted, injured, and dying.** Prior to dams, Shasta tribal members were known to avoid eating any salmon taken above the Shasta River confluence due to their 'unpalatable' condition. The Shasta Indian Tribe occupied a massive region of the Klamath Basin which encompassed current dams location and extended far downstream near present day Happy Camp. Shasta verbal history describes an 'agreement' with lower river Tribes even ensconced in lore. Any Shasta member could take as many salmon as they could carry from downstream weirs put in yearly by lower river Tribes, blocking upstream salmon migration to trap salmon for their own use, preservation, and trade. The Shasta being a very powerful Tribe encompassing a massive area, the only reasonable answer they would have tolerated such an arraignment is their belief that the downstream salmon were in a more palatable condition.*

Response to Comment ORG30-73
Hydrologic and hydraulic modeling results described in Volume I Section 3.6.2.3 *Flood Hydrology – Environmental Setting – Flood Hydrology* indicate that because of the influence of the tributaries entering the Klamath River downstream from Iron Gate Dam, the flow changes for the Proposed Project would not substantially affect the flows entering the estuary. Specifically, Volume I Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – Flood Hydrology* Potential Impact 3.6-1 (pages 3-626 through 3-630) and Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-3 (pages 3-630 through 3-633) provide further discussion and information on this effect.

The Klamath River and tributaries: (1) are contiguous with documented historical salmon rivers and streams both north and south of the Klamath River; (2) contain no natural barriers that would prevent salmon migration into the upper reaches and tributaries such as the Scott and Shasta rivers; (3) have physical attributes that would have produced suitable salmon habitat in the past (e.g., gradient, morphology, and, in some cases like the Shasta River, spring sources that provide perennial flow); and (4) still contain suitable salmon habitat, providing evidence that native salmon inhabited the Klamath River and its tributaries prior to any stocking. Please also refer to Master Response AQF-4 for a discussion of historical salmon abundance.

In addition, and as described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, it appears that there was no "reef" forming a barrier to fish migration at the time Copco No. 1 was built. With regard to salmon becoming depleted upon reaching upper watershed habitat, it is the documented life history of anadromous salmonids to become depleted during migration, spawn, and die (Moyle 2002). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-74

The longtime manager and fisheries historian, Kurt Hiser, of the Iron Gate Fish Hatchery estimated the maximum unimpeded potential range for the majority of salmon if allowed to travel above the current hatchery would be approximately 30 miles. *That assessment of potential endurance supports the same approximate range in which salmon were historically known to be found.*

Response to Comment ORG30-74

Comment noted. As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, under the Proposed Project anadromous fish (Chinook salmon, steelhead, coho salmon, and Pacific lamprey) access would be restored to an estimated 80 miles of habitat within the mainstem Klamath River and tributaries upstream of Iron Gate Dam and downstream of Keno Dam (DOI 2007, Cunanan 2009). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Additionally, please refer to Master Response AQF-4.

Comment ORG30-75

Pre-dams local knowledge was a significant factor in the choosing of site locations for the original Klamath Project and Dams being built in the effort to improve regional environmental conditions. No small part of that investigation was based upon research by an already active and influential California Fish and Game Commission. Known limits of Klamath salmon was the reason that mitigating hatcheries were only deemed necessary to compensate for the few known marginal spawning streams affected. It was only upon Iron Gate dam's created 'unnaturally' cold water, water profoundly more conducive for salmon incubation and rearing, that the ability was achieved to contribute FAR more towards salmon numbers and fisheries sustainability than was EVER regionally known to occur naturally in the upstream region prior to dams. So successful were the improvements, that media, agencies, and sportsmen continually printed their praises for decades afterwards. In fact, the indisputable statistics of salmon returns to the dams' region from records beginning with the first dam (Copco) *before the dams full effect on salmon returns are proof alone of salmon benefits of the facilities. No reduction of upper Klamath salmon returns were evident except for one period during the 1930's, which upon investigation at the time was found caused by Yurok tribal gill netting near the estuary and which resulting sanctions saw an immediate salmon population recovery. Compared to Copco consistent returns, the construction of Iron Gate demonstrated even GREATER salmon benefit, with an increase of over 20% returns above pre-Iron Gate numbers. When compared to the period since the late 1980s to the present, constantly cited as the period of 'precipitous collapse threatening salmon extinction' and somehow attributed to historic dams 'requiring their immediate removals', the returns of salmon to Iron Gate Hatchery during that period averaged over 200% greater than pre-Iron Gate. If DNA identical so-called 'wild' salmon occurring in downstream tributaries are made the exclusive indicator for removals, then the constant century long presence of the hydroelectric facilities upstream CANNOT be the causative factor of claimed declines. However,* ***it IS significant, if seldom cited, that physically unregulated Yurok Tribal gill net harvests, after approximately 40 years of restriction, resumed on the lower river during the exact same period 'coincidentally' corresponding to so-called 'salmon collapse'.***

Response to Comment ORG30-75

Please refer to Master Responses AQF-4 and WQ-1.

<u>Comment ORG30-76</u>

Regarding the 'threatened' designation of coho used as the justification to grant 'authority' for demanded facilities removals, coho were never historically locally known native to the upper Klamath River region. Coho are predominately a coastal fish found spawning 'within 20 miles ofthe ocean' according to CA Dept. of Fish and Game documentation. Initial plantings of coho made in the upper Klamath beginning in 1897 and repeated numerous times over the next 60 years failed every time, apparently due to continued unsuitable upstream natural conditions present both prior to and after the initial Klamath Project. Only after the third attempt in the 1960's using the imported Cascadia strain of coho, and AFTER Iron Gate Dam's further improved downstream anadromous conditions, was a 'marginal return' declared and regular rearing commenced. Over 58% of untagged coho entering and rereleased from Iron Gate Hatchery spawning runs have been shown to repatriate and spawn in alternate tributaries. ***However, since the 1990's ALL coho entering the hatchery have by 'policy' been and as of this date continue to be euthanized; coho that under normal circumstances would be considered 'endangered' wild stocks****. Being DNA identical to 'wild' coho and with current studies proving the high percentage of spawning straying in the Klamath, it becomes difficult to deny the high probability that upper Klamath 'wild' returns of coho are a derivative of those prior plantings. That fact alone raises the specter of likely future upper mid stem Klamath coho decline or 'extinction' following the loss of Iron Gate Hatchery and Dams removal degraded water conditions. Despite acknowledged awareness, NO KHSA* *alternative to replace the loss of Iron Gate artificially generated cold lake water conducive for salmon rearing has been found. As such, the only options left for cited 'adaptive management' would be frantic costly reconstruction of abandoned local hatchery sites using known inadequate and inconsistent confiscated water sources, or construction of a non-resident replacement hatchery at an as yet undiscovered equivalent alternative site, and the immediate imposition of even greater regional regulatory oppression. With hatcheries cited by facilities removal proponents as 'necessary' for coho survival, even their own paid 'expert panel' questioned any significant known benefits to coho from facility removals. However, that same panel repeatedly admonished the extreme risks to existing coho populations if ALL of the promised but unknown, undefined, and unfunded Upper Klamath Basin KBRA concurrent 'habitat improvements' failed fruition. Those panels frequently expressed their doubts that such functionally and/or cost effective unknown 'mitigations' could or would occur.*

Response to Comment ORG30-76

Please refer to Master Responses AQF-11 and WQ-2.

Comment ORG30-77

Despite all of the prior information, the removal proponents' assertion of previous 'millions of salmon in the upper basin' extrapolates primarily from a mere handful of unsupported, regionally contradicted, and logically ambiguous references in a 'synthesis 'presented by a paid seated Agency employee. Massively refuted by historical documentation, in the later attempt to seemingly solidify that singular opinion with proponent agencies' paid for 'scientific verification', an archeological study was contracted to examine historic fish bones in Upper Klamath Basin Klamath Tribal middens. Out of over 15,000 bones spanning over 8,000 years being analyzed, 8 specimens were confidently determined to be anadromous. Even though authors acknowledged those numbers may actually be skewed in favor of salmon, as typically salmon bones are much larger and thereby more durable than the other species they examined, they none the less definitively concluded that anadromous salmon MUST have been resident to the upper basin. Their rationale was that the otolith (Jaw) bones tested could NOT have been from traded salmon as Alaska Tribes were never known to preserve salmon with the heads on. Since they determined 'no records exist' of Klamath estuary Tribal salmon preservation methods, there was 'no reason to believe they [Klamath coastal tribes] would be different in salmon preservation'. Therefore, those 8 bones could NOT exist unless from volitional arrival. ***In fact, in the 1851 report by George Gibbs of the Reddick McKee expedition on one of the earliest documented forays in the lower Klamath River, Mr. Gibbs reported in extensive detail the cultural fishing habits of the lower river Tribes, INCLUDING details of salmon preservation 'in their entirety' (heads on). The net effect of that information renders their conclusions unsubstantiated and instead actually supports the opposite historically consistent regional experience and Tribal references citing salmon trading and NO known significant numbers of salmon reaching the Upper Klamath***

Basin. *If salmon had been the primary food for Klamath Tribes, it is unlikely that the less palatable suckers would have been such a revered food source, and it is virtually certain that Upper Basin middens would have represented FAR more than 8 longer lasting anadromous bones in relation to 15,000 others found spanning a period of 8,000 years. However, considering the present control of water resources, payments, and land grants being obtained by Klamath Tribes and agenda proponents as a result of facilities removal 'agreements', it may not be entirely unreasonable that a historically unsupported claim of pre-dams dependence on 'salmon' is now 'remembered to time immemorial'.*

Link (Klamath) River flowing out of Upper Klamath Lake over the reef at what is now Putnum's Point before the Link River Dam was built.

Response to Comment ORG30-77
Comments noted. Please refer to Master Response AQF-4.

Comment ORG30-78
With the Project combined facilities providing increased late summer Klamath River augmented flows, river segments going subsurface rarely occurred again.

Response to Comment ORG30-78
As described in Volume I Section 3.8.1 *Water Supply/Water Rights – Area of Analysis* (pages 3-667 to 3-669), there would be no water supply impact to the mainstem Klamath River from implementation of the Proposed Project. The United States Bureau of Reclamation (USBR) maintains its biological opinion obligations on operations of the Klamath Irrigation Project which require water to

be released to the mainstem Klamath River regardless of the existence of the Lower Klamath Project, such that dam removal would not alter the amount of water available for environmental purposes, or the source of that water, for the mainstem Klamath River or the tributaries. Please also refer to Master Response WQ-2.

Comment ORG30-79

Flow continuity allowed fish consistent migratory mainstem access to any available habitat-compliant tributary. However, beyond providing post dams unbroken water connection below the facilities, the 'amounts' of water released from Iron Gate have shown little correlation to returning salmon populations. Many instances of drought induced low flows to 395 cfs revealed NO apparent deviation in subsequent life cycles for returning salmon numbers. In fact, in one of the studies performed by the BOR Klamath Area Office scientists, for which studies they were fired, was the conclusion that increased Klamath River flows provided NO equivalent benefit for coho. Scientifically solid, that conclusion conflicted with 'Agreement' seated NMFS demands for confiscated appropriations to increase downstream flows as 'necessary' for coho. Although NMFS retaliation was swift and angry, causing the relevant BOR study to be shelved, over 15 years of mandated increased flows resulting in ZERO statistically attributable benefit for coho further substantiates the scientist's study.

Response to Comment ORG30-79

Please refer to Master Response HYD-1 for a discussion of how the EIR considers Klamath River flows under the 2019 BiOp operations criteria for the Klamath Irrigation Project. Please also see response to ORG30-EMAIL-39, above. Dam removal would not alter the amount or source of water available for environmental purposes for the mainstem Klamath River.

Comment ORG30-80

As repeated by regional residents and contradictory to the 1 dimensional 'predictive models' utilized by removal proponent agencies, the river is multidimensional and complex in its 'non conducive' allowance of salmon transport to the reaches historically known. The river responds primarily to average day/night temperatures and macrophyte/periphyton aided recurrent deep water refugias, allowing salmon migration movement during biologically induced dissolved oxygen supersaturated periods, holdover resting in deep water during less salmon conducive conditions. Regionally seasonal short term late summer warm day /night temperatures creating endemic disease conditions randomly occur coincident with heavy migrating salmon populations. Those conditions appear the FAR more consistent predictor of any salmon infection and mortality than flow variations from Iron Gate.

Response to Comment ORG30-80

Comment noted. Please refer to Master Response AQF-5 and AQF-6 for a discussion of disease dynamics upstream and downstream of Iron Gate Dam.

Comment ORG30-81

The lower Klamath below the Trinity confluence has historically been the predominant location of rare significant fish mortalities. Compared to coastal influence flows to the estuary, and considering the 150+ miles of largely bedrock canyon channelized solar absorbing riverbed, the greatest potential increase from Iron Gate, to the sacrifice of all else above, represents an extremely small thermal impact upon any 'habitat' within the coastal influenced reach. It is that rationale by which the National Research Council declared the 2002 fish mortality was NOT caused by low flows from Iron Gate Dam. However, in 2002 ALL of the prior listed conditions exacerbating endemic disease occurred, plus the simultaneous chemical dump cited above. Though removal proponents are 'certain' in their assumptions, neither fish nor water were tested for transient causes until long AFTER the reported kill and existing water conditions dissipated. Also conflicting with continuing proponent claims of Iron Gate release association, the kill was relatively brief and NO identified kills occurred within the 150 miles of upstream diminishing flows to Iron Gate during or after that incident. Despite the 'fish kill' which ended as abruptly as it started, with the simultaneous decrease in night temperatures and passage of possible chemical laden water, the salmon run was still one of the largest realized returns upriver, a fact to date seldom heard included in dam removal proponent media.

Response to Comment ORG30-81

Comment noted. Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites.* Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. In addition, please see response to comment ORG46-174 for a description of minor modifications made to the EIR that further clarify the generally understood causes of the 2002 fish kill.

Comment ORG30-82

Site specific Klamath science, historic documentation, and regional experience confirm the hydroelectric facilities with their water reservoirs enhance known affected beneficial uses. Their impacts are in optimizing, segregating, and improving both warm and cool water conditions for fisheries in a region previously marginal for each, and providing consistent water resources for sustaining both. Those consistent resources were not known to exist prior to the dams.

Response to Comment ORG30-82

Comment noted. Please refer to Master Response AQF-4 for a discussion of the historical abundance of salmonids, Master Response WQ-2 for a discussion of the Lower Klamath Project facilities' effects on water temperature, and Master Response WQ-1 for a more general discussion of the effect of Lower Klamath Project facilities with respect to overall water quality.

Comment ORG30-83

At the onset of removal proponent Klamath targeted 'rewilding' agenda, Pacific Power and Electric (PP&L) had long owned and operated the Klamath hydroelectric and water storage facilities. Up until that time, PP&L agreed with the regional experienced holistic environmental benefits the facilities have provided to a unique multifaceted watershed. At that time the removal proponent benefitting Agencies, Tribes, and NGO's insisted that PP&L was a 'public entity' and, using their own convoluted special-interest concept of 'public trust' negating private ownership, concluded PP&L MUST succumb to removal 'determinations'. After PacifiCorp fell under Warren Buffet ownership and was compelled to take a KHSA 'seat at the table', his representatives encountered the removal proponent members extorting 'agreement' threats and benefits directed at his company and shareholders. Those rewards, threats of litigation, and lack of allowed options forced PP&L position towards removals. Those same KHSA proponent groups now proclaim the 'constitutional right of a private company to make a business decision'. That 'decision' was to sign an 'agreement' between PacifiCorp and the removal proponent entities in an illegally executed exclusionary 'process' which placed the burden of removal costs, losses, 'mitigation', and risk upon the unrepresented ratepayers, taxpayers, regional residents, and particularly the vested riparian owners. In doing so, the benefitting 'agreement' signatories conveniently authored themselves confiscatory authority; self-benefitting 'agreed' rewards of land and money; funneled 'administration' of billions of future dollars; and protection from any accountability for damages caused.

Response to Comment ORG30-83

The comment provides an account of factors that contributed to decisions to pursue options for the removal of Project facilities and is noted.

Please note that the State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement.

Comment ORG30-84

In reality, PacifiCorp is a quasi-public entity, subject to certain limitations and obligations to regulators, ratepayers, and the affected public in exchange for enjoying a regional monopoly. It is the regionally affected residents and ratepayers vested with the area's history and environmental needs that were instrumental in the initial development, support, construction, and funding of the regional facilities. It was the regionally affected residents who in their participation and sacrifice were willing to suffer either the benefits or the hardships of Klamath facilities construction upon their property and lives. By virtue of those presently integrated property value impacts the affected residents continue to hold a significant vested interest in the proposed unaccountable imposed physical losses to their functional survival and operational environment. Theirs is a vested interest and voice which benefitting and largely non-vested *'agreement' removal proponents have unilaterally dismissed or ignored within KBRA/KHSA exclusionary 'process'.*

Response to Comment ORG30-84
Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment. Please also refer to Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Please also refer to response to comment ORG30-17.

Comment ORG30-85
Renowned United Nations Earth Dam trained engineer and former Deputy Director of Earth Dams for India, Stephen Koshy, has independently evaluated and expressed extreme concern for the high odds of collapse of Iron Gate Dams upon attempted removal. His assessment of internal core pore pressures for an otherwise virtually indestructible configuration indicates likely catastrophic core collapse and loss of life upon attempted withdrawal and excavation, a conclusion offhandedly dismissed by policy directed removal advocate Agencies.

Response to Comment ORG30-85
Potential for flooding due to dam failure is addressed in Volume I Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 (page 3-635). The analyses in the EIR refute the contents of the dam collapse component of Stephen Koshy's November 18, 2011 comment letter.

Please also refer to response to comment IND272-18 in relation to the potential for dam collapse.

Comment ORG30-86
If the theoretical benefits promised by removal proponents were so certain, then proponents would not hesitate to simply indemnify all affected public against consequential losses to their lives and property relative to facilities' benefits and conditions currently enjoyed, as was required with Iron Gate construction. They do not. In the original KHSA Environmental Impact Statement (EIS) 'evaluation', only a few affected entities having financial or political power were able to gain 'report' inclusion of recognized potential damages. All other inescapable downstream and Project resident losses, including many known and stated in public comments, were just simply ignored.

Response to Comment ORG30-86
Comment noted. Please refer to response to comment ORG30-85.

Comment ORG30-87
Conservatively, over 20,000,000 cubic yards of sediment will be released to the Klamath with removals, enough bumper to bumper dump trucks to extend half way around the world, altering channels, killing wildlife, filling refugias, damaging fisheries, and destroying diversions and irrigation assets. Routinely experienced present sediment blockages to salmon passage at the Klamath estuary will be drastically compounded.

Response to Comment ORG30-87
SRH-1D model simulations (USBR 2012a) estimated that between 5.4 and 8.6 million yd^3 [1.2 to 2.3 million tons], or 36 to 57 percent of the total reservoir sediment volume, is expected to be eroded and transported downstream during the drawdown period (see Table 3.11-7 in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (page 3-765 to 3-775)).

The potential impacts of sediment erosion, transport, and deposition are discussed in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), which is partially modified in Volume III Attachment 1, as well as in Master Response GEO-1. For related assessments of potential water quality, aquatic, and infrastructure impacts, please refer to Section 3.2 *Water Quality* and Master Response WQ-3, Section 3.3 *Aquatic Resources* and Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-5 (pages 3-634 to 3-635). The Proposed Project would not cause salmon passage to be blocked within the mainstem Klamath River or in the Klamath River Estuary (see Volume II Appendix F, Section 3.11.5.4 *Channel Morphology and Substrate*). Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality* and final Section 3.3 *Aquatic Resources.*

Comment ORG30-88
Reduced flood control will see a return to still remembered pre-dam repetitive devastation to environment, property, assets, and infrastructure.

Response to Comment ORG30-88
Comment noted. Please refer to Master Response FLD-1.

Comment ORG30-89
Given the fact that the original KHSA EIS recognized potential liability for associated damages to a relative handful of influential interests for the removals' resultant sediment, flood, infrastructure, and value losses, then it is inescapable that those same potential losses MUST exist for EVERY riparian or river related

vested interest in the over 200 river miles affected. In spite of that massive impact, NONE of the 'agreements' signatories either accept such accountability or even recognize the most affected majority non-proponent existence. Ironically, under the 'new' (amended) KHSA, few interests formerly recognized as affected by removals receive any assurance of being kept whole.

Response to Comment ORG30-89
Comment noted. Please refer to Master Responses FLD-1 and WQ-3, and response to comment ORG30-115.

Comment ORG30-90
It is obviously apparent to anyone reading the proponent crafted, parsed, and exclusionary 'agreements' with constructed 'supporting' documentation, that the intrinsic intent is the inevitable created condition of regional 'rewilding'. Proponents' orchestrating effective 'condemnation without compensation' utilize imposed 'biological opinions' to empower the regulatory taking of property use and resources, thereby driving the economic attrition of vested residents. To those who have been living it, the proposed amended 'agreement' legislation will, if ratified, permanently codify unaccountable proponent agenda tactics. Those same tactics have already devastated thousands of vested family homes and futures for over 17 years of premised 'biological opinions'.

Response to Comment ORG30-90
The comment presents the commenter's description of the reasons for and effects of studies and planning efforts related to the Proposed Project and is noted.

Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment. However, to inform the public and decisionmakers, Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Comment ORG30-91
During the time of the KBRA/KHSA agencies' Memorandums of Understanding imposed agenda-defined rewilding, there has been ZERO statistically attributable 'restoration' increase to coho populations, and sucker fish have experienced up to an 86% DECREASE in the most 'restoration enhanced' region. Those environmentally unbalanced hypothetically based 'adaptively managed' demands, intentional or not, have forced the least efficient, most expensive, and

environmentally irresponsible possible management of water for the Klamath Basin.

Response to Comment ORG30-91
The comment presents the commenter's opinion regarding the cost, efficacy, and utility of the Proposed Project and is noted. Please refer to Master Response GEN-1.

Comment ORG30-92
Given the policy driven uncompensated economic push for additional agricultural decommissioning regardless of statistical benefit, the inescapable logical conclusion is that the 'rewilding' objective was the original intended agenda. Were 'rewilding' not the intent, proponents would extensively assess salmon ocean based life cycle and decadal oscillation impacts; salmon escapement/return relationships; the approximately %'s of identified salmon unutilized 'ideal' coastal influence spawning tributaries; present agenda statement inconsistencies compared to historical documentation of pre-existing conditions; the lack of facilities' attributable connection to cyclic salmon numbers; the present physically impossible ability to produce 'agreement' required 'beneficially contingent' upstream enhancements; the impacts of facilities removal upon all affected species; the impossibility of achieving 'agreement' defined 'programmatic' objectives without massive regional attrition; the complete dismissal of locally presented PROVEN far more cost effective nondestructive alternatives; or the legal basis for imposing the unaccountable 'taking' of property, assets, and value from affected, unrepresented, and uncompensated interests. They have not. Instead, proponents actually set predefined agenda objectives of compelled facilities removals and water resource confiscated tiered hierarchy reallocation, and then proceeded to force, bend, and/or buy the result.

Just a few of the tactics utilized to date in the compulsory 'process' towards 'removal determination', with each item alone sufficient to prove biased agenda intent, include; the evidenced oppression of multiple whistleblowers; the suppression of science that contradicts removal premise; the illogical frenetic 'urgency' for irreversible removals prior to empirically proven benefit; the refusal to address 'agreement' statistical and environmental objective conflicts; the strategically self-designed parameters administratively allowed for 'consideration'; utilization of deficient data and intentionally misleading assumptions; the concealment of publicly exposed removal proponent corruption; administratively manipulated paid peer review outcomes by limiting allowed 'science' sources; review 'determination' restricted to two predefined options; locally unsupported proponent constructed 'problems' and 'solutions' specifically generated to compel rewilding agenda objectives; the unaccountable tolerance of, or feigned obliviousness to, the 'risks' of imposed consequential major loss to others; and that only proponent selectively-chosen allowed 'impacts' can be considered in any 'evaluation' for removals. As such, much of the historical information and recent empirically pertinent science is banned; alternatives *banned; 'expert opinion' being portrayed as proven science encouraged; risks of loss imposed upon others easily dismissed as 'unavoidably unmitigated'; unsupported 'causes' directing regulatory imposed involuntary 'mitigation' without compensation; and the irresponsible ignoring of impacts to all other holistic beneficial uses, human attrition, and ecosystem species in favor of single species based agenda- engineered rewilding. Given past KHSA/KBRA agenda; failed beneficial performance; non- representative 'process'; lack of accountability; and current known standing, any FERC determination based upon 'Agreement' participating 'recommendations' will unquestionably end in irreversible devastation both to the environment and to the most affected and knowledgeable regional majority opposed to removals.*

Response to Comment ORG30-92
The comments present reasons for the commenter's beliefs regarding the intent and effects of the Proposed Project and are noted. Please refer to Master Response GEN-1.

Comment ORG30-93
Currently known sucker numbers existing at the time of listing would not have qualified for listing of sucker fish as endangered, and repeatedly planted coho were never known native to the upper Klamath River reaches. Nonetheless, all prior KBRA/KHSA premise exclusively centers on those two species.

Response to Comment ORG30-93
Comments on the species listing should be submitted to the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). Additionally, the State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement. Please also refer to Master Response AQF-11.

Comment ORG30-94
Many documented Upper Klamath Basin fish deaths occurred prior to the Klamath Project.

Response to Comment ORG30-94
Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* states that, "For adult salmon, Ich and columnaris have occasionally resulted in substantial mortality, particularly when habitat conditions include exceptionally low flows, high water temperatures, and high densities of fish (such as adult Chinook salmon migrating upstream in the fall and holding at high densities in pools)." The EIR does not infer that the most severe documented disease outbreaks were caused by the Klamath Hydroelectric Project (KHP) or imply that the Proposed Project would eliminate fish mortality in the Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. In addition, please see Master Response AQF-4.

<u>Comment ORG30-95</u>

Over 15 years and hundreds of millions of dollars implementing the KHSA entrained hypothetically based policy 'experiments' have more than sufficiently PROVEN the failure of 'rewilding' promised benefit. Increased Upper Klamath Lake levels, fluctuating lake levels, agriculture, and municipal use have NOT shown any regional definitive direct causative significant link to sucker numbers. During the time of the KBRA/KHSA agencies' Memorandums of Understanding imposed agenda-defined rewilding, there has been ZERO statistically attributable 'restoration' increase to coho populations, and sucker fish have experienced up to an 86% DECREASE in the most 'restoration enhanced' region.

Response to Comment ORG30-95

Contrary to the assertion in the comment, the Klamath Hydropower Settlement Agreement (KHSA) has not been implemented over the past 15 years. Please see Volume I Section 2.6.3 *Proposed Project – Project Background – Klamath Settlement Agreements* (pages 2-23 and 2-24), which presents a summary of the KHSA along with other settlement agreements for the Klamath Basin. Pursuant to the KHSA (as amended April 6, 2016), the Klamath River Renewal Corporation (KRRC) has been formed as a non-profit organization that would, upon approval by Federal Energy Regulatory Commission (FERC), receive ownership of the Lower Klamath Project facilities and undertake the necessary steps to remove the facilities. The KRRC’s Proposed Project involves dam removal and includes the objective of advancing the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation, along with improvements to water quality, restoring volitional anadromous fish passage, and reducing fish disease for Klamath River salmonids (please refer to Volume I Section 2.1 *Proposed Project – Project Objectives* [page 2-1]). No comprehensive effort similar to the Proposed Project has been implemented on the Klamath River since the Lower Klamath Project facilities were constructed.

<u>Comment ORG30-96</u>

Historically unprecedented currently increased UKL water levels favoring native and introduced predatory competition presently appear to have exerted far greater present contributory factors detrimental to immature sucker fish.

Upper Klamath Lake (UKL) elevated lake water levels appear to have NO positive influence on sucker fish survival or prevalence, and in fact are indicative of an inverse relationship to declines.

Response to Comment ORG30-96

The comments present speculation regarding the influence of water elevations in Upper Klamath Lake on juvenile suckers. Please note that water elevations in Upper Klamath Lake are managed under the biological opinion for the United

States Bureau of Reclamation's (USBR's) Klamaath Project, rather than in relation to the Lower Klamath Project. This management would not be affected by the Proposed Project. Please refer to Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Lost River and Shortnose Suckers* for a discussion on existing threats to sucker populations in the Upper Klamath Basin.

Please also see Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Critical Habitat* for additional information regarding predominant threats to Lost River and shortnose suckers as cited by USFWS (2012b). Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-97

According to the National Research Council, UKL resident phosphorous levels, as the primary biological driver, present NO currently known viable means for substantively altering outgoing Upper Klamath Basin water quality, even with a TOTAL and unaccountable cessation of ALL Upper Basin agriculture. As it stands, long term agricultural production absorbing and physically removing naturally occurring phosphorous is the ONLY known permanently effective option to reduce nutrient contributory conditions within the Upper Klamath Basin. As a secondary benefit, agricultural irrigation utilizes less water than was previously lost through marshland evaporation and absorption.

Response to Comment ORG30-97

It is not clear from the comment which National Research Council (NRC) document is being cited with respect to Upper Klamath Basin phosphorus levels. The following NRC report is cited multiple times in the Lower Klamath Project EIR:

NRC (National Research Council). 2004. Endangered and threatened fishes in the Klamath Basin: causes of decline and strategies for recovery. The National Academies Press, Washington, D.C. http://www.nap.edu/openbook.php?isbn+0309090970.

The focus of the Lower Klamath Project EIR is on existing and potential future conditions related to water quality within the California portion of the Hydroelectric Reach, where three of the four dams included in the Proposed Project are located, and in downstream reaches of the Klamath River, which could be affected by the Proposed Project. Upper Klamath Lake is upstream of the Hydroelectric Reach. In some instances, the EIR discusses information concerning the Oregon portion of the Proposed Project and/or conditions further upstream in Oregon (e.g., Upper Klamath Lake) in order to provide context and because some Proposed Project impacts or actions in the Oregon portion of the Hydroelectric Reach could significantly impact the California environment. For example, Section 3.2.2.4 *Water Quality – Environmental Setting – Nutrients* presents a discussion of major upstream sources of nutrients to the Hydroelectric Reach, including Upper Klamath Lake. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Additionally, Volume I Section 3.4 *Phytoplankton and Periphyton* (specifically pages 3-389 to 3-342) detail the Area of Analysis for the EIR and discuss different species of blue-green algae found in the Klamath River, including species that are found in Upper Klamath Lake when doing so is relevant to the discussion of potential impacts further downstream. Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach – Phytoplankton* Figure 3.4-10 (page 3-406) and the associated text indicate that blue-green algae are transported from the Upper Klamath Lake into the Upper Klamath River, where some die and settle out in the Keno Impoundment, and some are exported into the Upper Klamath River downstream of Keno Dam.

Please refer to Master Response WQ-1 for a discussion of the role of Lower Klamath Project dams/reservoirs with respect to overall water quality, and to Master Response PAP-1 for information regarding the influence of upstream sources of algae and algal toxins.

Comment ORG30-98

Upper Klamath Basin cyclic seasonal biomass senescence and associated short term oxygen depletion is a historically recurrent condition.

Upper Klamath Lake naturally prevalent background nutrients and particularly resident lake sediment phosphorous loads will drive currently un-ameliorable Biological cycles for the foreseeable future, even without any additional naturally occurring inputs.

Currently seasonally dominate cyanobacteria Aphanizomenon flos aquae, a nitrogen fixer, was not present in UKL until modern times, prior to which time the green algae Pediastrum was dominate.

Pediastrum, the predominant Upper Klamath Lake species prior to the Klamath Project is a non-nitrogen fixing alga, and an extremely heavy nutrient feeder most commonly found in sewage ponds.

Microcystis aeruginosa was fully present and active in UKL prior to the 1850s, producing the same biomass.

Current limnologic data shows the only significant UKL change over the 150 years including 'settlement' is a DECREASE of spring/early summer N:P (nitrogen) ratios.

Aphanizomenon currently dominates in Upper Klamath Lake in spring to early summer, supporting that a shift in dominance from Pediastrum may be due in *large part to those presently REDUCED UKL early spring nitrogen levels favoring Aphanizomenon's nitrogen fixing ability.*

Blooms of Aphanizomenon occur concurrently with humic acid levels input from springtime Klamath Marsh flows, and both tend to diminish in late spring/early summer, inferring a causative connection.

Senescence of Aphanizomenon releases large amounts of nitrogen into the water column allowing for competitive dominance from alternate species dependent upon available nitrogen, such as Microcyistis aeruginosa, as occurred when nitrogen was historically available.

Naturally available UKL nitrogen may have shifted to lower N:P ratios over the past 150 years, but Aphanzomenon fixated replacement of available nitrogen has resulted in essentially the same overall late summer total cyanobacteria, nutrient loads, and biological mass production available for downstream transport.

Senescence of the secondary Aphanazomenon and Microcystis blooms in later summer re-release those nutrients, with unsettled and un-gassed remaining dissolved amounts becoming available along with undecomposed biomass in outflowing UKL waters delivered to the Klamath Hydroelectric Project.

Response to Comment ORG30-98
The comments relate to conditions in the Upper Klamath Lake and the Upper Klamath Basin upstream of the Hydroelectric Reach. Please refer to response to comment ORG30-97.

Comment ORG30-99
Regardless of initial bloom species, limnologic assessment of sediment indicates the overall biomass and nutrients entering the Klamath from UKL are essentially unchanged from 150 years ago. With the present day inclusion of increased Lost River and Upper Klamath Lake available stored water plus the gains from historically reduced evaporation augmenting the late summer Klamath River flows, even when INCLUDING current agricultural usage, it is probable that present late summer flows are seasonally substantially GREATER than occurred pre-Project, a scenario coinciding with historical accounts and documentation. Even if that were NOT the case, NO attributable statistical benefit for downstream Klamath fisheries has been empirically shown to exist from 'naturally' unsustainable increased UKL levels and flows discharged in over 15 years of implemented and regionally destructive 'Biological Opinions'.

Response to Comment ORG30-99
Please refer to response to comment ORG30-97.

Please note that the Proposed Project does not involve removal of Klamath Irrigation Project Facilities. Please refer to Master Response WSWR-1.

Additionally, comments on the biological opinions for the Klamath Irrigation Project should be submitted to the United States Fish and Wildlife Service (USFWS) the National Marine Fisheries Service (NMFS), and the United States Bureau of Reclamation (USBR).

<u>Comment ORG30-100</u>

With historically similar UKL endemic high biomass and nutrients, including nitrogen, released to the Klamath River Hydroelectric Project during late summer low water flows, conditions are conducive for renewed downstream biological growth, including by Microcystis aeruginosa.

Recent investigation revealing Microcystis characteristics include the potential to: outcompete other species through changing light levels by its ability to adjust float height within the water column; tolerate shadier and cooler conditions; generate LESS toxicity in warmer higher light conditions than in shadier cooler conditions; and create a greater potential for realized toxicity in the food chain from direct cellular ingestion rather than from contact with microcystin dissolved in the water column.

Response to Comment ORG30-100

The comments relate to concerns regarding nutrients, algae growth (e.g., *Microcystis aeruginosa*), and microcystin. Please refer to Master Responses PAP-1 and PAP-2.

<u>Comment ORG30-101</u>

Any subsequent blooms, including Microcystis, occurring in John Boyle, Copco and Iron Gate Reservoirs sequester entering nutrients and delay water and nutrient transport downstream for up to two months during the warmest, lowest Klamath flows, and generally concurrent time of most susceptible salmon entry to the Klamath.

Response to Comment ORG30-101

Please refer to Master Response WQ-1.

<u>Comment ORG30-102</u>

Waters released to the Klamath River from Iron Gate during the time of lowest, warmest incoming UKL flows are of higher quality relative to salmon downstream salmon objectives. Any temperature 'modeled' impacts from Iron Gate released waters have been shown to be minor, ameliorated within 7 to 15 miles, and has demonstrated NO adverse consequence within the limited reach theoretically affected but rather has demonstrated LESS salmon infection rates and GREATER survival than further downstream. Additionally, with the new cost effective 'curtain wall' in place, those downstream releases can now even release historically UNNATURAL cool water at the critical times of salmon migration.

Response to Comment ORG30-102
Please refer to Master Response WQ-2 for a discussion of the potential for releases from the Lower Klamath Project dams/reservoirs cool the Klamath River, and response to comments ORG46-127, ORG46-128, and ORG-129 for a discussion of the distance water temperature impacts from the Lower Klamath Project dams extend downstream of Iron Gate Dam under existing conditions. Please also refer to Volume I Section 4.4.2.1 *Continued Operations with Fish Passage Alternative – Water Quality – Water Temperature* (pages 4-102 to 4-108), Volume III Attachment 1 Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature*, and response to comments ORG46-91 and ORG46-92 for a discussion of the influence of the intake barrier/thermal curtain on water temperature in the Klamath River downstream of Iron Gate Dam. Please refer to Master Response AQF-6 for a discussion of the disease risk downstream of Iron Gate Dam. Furthermore, Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Water Temperature* and Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* provides a discussion of how the Lower Klamath Project dams affect water temperature and fish disease under existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-103
Upon senescence of hydroelectric facilities blooms, decomposed biomass and nutrients are partially precipitated, out-gassed, and permanently sequestered within the deep reservoir non turbulent depths before any amounts remaining in the water column are transported downstream.

Higher concentrations of microcystin have been known to occur under instream conditions in the ***lower*** *Klamath River than within the region released from Iron Gate, confirming a* ***naturally*** *compatible Microcystis river habitat.*

Response to Comment ORG30-103
Comments noted. Please refer to Master Responses PAP-1 and WQ-1 for discussion of the role of the Lower Klamath Project dams/reservoirs on water quality and variations in algae and associated algal toxins in the Klamath River.

Comment ORG30-104
Due to the delay of up to two months of UKL incoming highest nutrient loads through the deep water lakes, eventual releases from the facilities reservoirs will effectively deliver those remaining nutrients during the less detrimental time of year bypassing early salmon runs and experiencing lower ambient temperatures, potentially increased available water flows, and conditions less conducive to development of downstream macrophyte/periphyton/polychaete/ceratomyxa salmon disease potential.

Response to Comment ORG30-104

Please refer to Master Responses WQ-1, WQ-2, and PAP-2 for discussion of the role of the Lower Klamath Project dams/reservoirs on water quality, the potential for the dams/reservoirs to cool river water during summer and fall, and the phytoplankton and periphyton response to nutrient alterations under the Proposed Project. Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites* provides a discussion of how the Lower Klamath Project dams affect fish disease under existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG30-105

Removing the Hydroelectric facilities would allow the high nutrient UKL biomass to be delivered downstream to the Iron Gate location within 2 days. Delivered directly instream at the time of highest ambient temperatures and lowest water flows will return the river to experienced pre-dam historical conditions of decomposing biomass and high macrophyte/periphyton salmon disease conducive conditions at the most detrimental time of initiated salmon runs. Nutrient conditions and the instream competitive characteristics of microcystin allow the potential for heavy algae production throughout the entire river length. Without dams, any microcystis growing under in-river cooler shadier locations has a far greater likelihood of toxicity production, direct cellular ingestion, and thereby greater toxicity consequence throughout the entire food chain.

Response to Comment ORG30-105

Comment noted. Please refer to Master Responses PAP-1, PAP-2, and AQF-6 for a discussion of variations in algae and associated algal toxins in the Klamath River, the phytoplankton and periphyton response to nutrient alterations under the Proposed Project, and the disease risk downstream of Iron Gate Dam.

Comment ORG30-106

Rhetoric claims of 'possible salmon disease reductions' with dams destruction fails to comply with current sentinel fish, ceratomyxa shasta, and manayunkia speciose (polychaete) studies.

Polychaete has been shown in 'ideal' habitat and dense populations in the Upper Klamath Basin, typically resulting in 100% lethal rates of exposed sensitive fish from resident ceratomyxa shasta. The river reach immediately below Iron Gate consistently has lower infection and death rates than downstream reaches, with some of the highest having occurred a 150 miles away from dams.

Studies indicate that Upper Basin dense populations of polychaete do not currently harbor the most anadromous lethal genotypes of ceratomyxa.

Polychaete has been demonstrated prevalent in multiple habitats from sediment to bedrock, and able to resist pulse flows and move to protected locations.

Infected salmon transport and release billions of ceratomyxa myxospores upon death, in turn infecting polychaete, which in turn release actinospores to infect ALL susceptible exposed fish species.

In the dams and Upper Klamath Basin region non-conducive to salmon and conducive to increased fish disease exposure with symbiotic infection vectors already in place, lower flows providing greater disease exposure, and given the data-confirmed reduction of disease potential provided by the dams, removing the only barriers to more lethal disease genotypes upstream will virtually guarantee transport of disease as far as salmon are forced to travel, compounding exposure and disease for multiple susceptible and protected species down the entire Klamath, including the very salmon intended to benefit.

Response to Comment ORG30-106

The comments relate to concerns regarding fish disease. Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-5 and Master Response AQF-6.

Comment ORG30-107

Mandated experimental Klamath 'pulse flows' have been shown inconsistent, conflicting, life threatening, and cost ineffective either for original theorized 'sediment and periphyton flushing' or the later substituted 'polychaete disease potential reduction'. Enough 'added' water wasted to the ocean in one pulse alone would have provided for the needs of a half million people for a year, with no demonstrable significant fisheries benefit. Temporary reductions in acknowledged flawed 'indicator' methods during brief high flows often 'rebounded' with even higher potentials afterwards. Failed theorized premise has resulted in 'doubled down' flow demands providing even less positive returns. Regardless, those climatically unsustainable pulses could not have even occurred were it not for stored water behind the dams targeted for destruction. Further claims that pulse requirements 'may' cease subsequent to dams removals contradicts their own studies citing a likely INCREASED need for pulses to reduce disease AFTER the dams are out. After dams destruction, any required additional flows would only be available through confiscation from all other Upper Klamath Basin beneficial uses.

Response to Comment ORG30-107

Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-5 and Master Response AQF-6.

The United States Bureau of Reclamation (USBR) maintains its biological opinion obligations on operations of the Klamath Irrigation Project, which require water to be released to the mainstem Klamath River, regardless of the existence of the Lower Klamath Project. Dam removal would not alter the amount or source of water available for environmental purposes, including management of the potential for fish disease, for the mainstem Klamath River.

Comment ORG30-108

Historical returning salmon counts to the dam facilities region reveal NO perceptible negative pre-dams correlation to facilities existence; an overall 20% average INCREASE of returning salmon numbers realized through the later addition of Iron Gate Reservoir and Hatchery; and a 100% INCREASE in returns to Iron Gate during the so-called 'salmon collapse'. Regional historical documentation, geological impediments, salmon return counts, the archeological Upper Basin midden fish bone study, and the depleted condition of returning salmon to the dams reach conflict with the assumption of pre-dam 'significant salmon numbers' extending far beyond existing facilities reach into the Upper Klamath Basin.

Response to Comment ORG30-108

Please refer to Master Responses WQ-1 and AQF-4.

Comment ORG30-109

Over 15 years of hypothetical KHSA defined 'Biological Opinions' demanded the naturally unsustainable forcefully appropriated increase of flow releases from Iron Gate. Conjectured solely for the advantage of 'endangered' coho, those flows mandated to continue within KRRC amended KHSA policy have clearly demonstrated ZERO proven attributable statistical coho or any other salmon benefit. Even so, 'programmatically', those 'opinions' will receive NO reversionary review until AFTER intended facilities removals occur.

Response to Comment ORG30-109

The United States Bureau of Reclamation (USBR) maintains its biological opinion obligations on operations of the Klamath Irrigation Project, which require water to be released to the mainstem Klamath River, regardless of the existence of the Lower Klamath Project. The biological opinions do not implement the Klamath Hydropower Settlement Agreement (KHSA).

Comments on the biological opinions for the Klamath Irrigation Project should be submitted to the United States Fish and Wildlife Service (USFWS) the National Marine Fisheries Service (NMFS), and the United States Bureau of Reclamation (USBR).

Comment ORG30-110

Removal of the Hydroelectric Facilities will destroy existing optimized and otherwise unavailable environmental habitat for multiple listed KHSA dismissed *species. It also imposes the functionally unsustainable, biologically incompatible, historically unsupported, and regionally devastating regulatory enforced environmental mandate of 'salmon habitat' upon the Upper Klamath Basin. The already failed unfunded, undefined, irreversible, and unaccountable special interest administrative policies entailed within the KHSA logically allow NO possible outcome besides predefined 'adaptively managed' regional attrition and media managed inevitable return to 'rewilded' pre-Project degraded conditions.*

Response to Comment ORG30-110
Comment noted. Please note that the State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement.

Please refer to Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-13 for a discussion of potential impacts to sucker populations from removal of reservoir habitat. As noted in comment response ORG30-7, the Proposed Project would eliminate reservoir habitat in which some individuals of the Lost River and shortnose sucker populations currently reside. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-1.

Please also refer to Master Response GEN-1.

Comment ORG30-111
As current data reveals, the Klamath Hydroelectric facilities cause NO significant regionally substantiated negative impacts, and provide the ONLY known cost effective substantial improvement of naturally occurring Klamath River conditions towards agenda 'agreement' stated objectives.

Response to Comment ORG30-111
Summary comment noted. In addition to the responses above to points mentioned in this comment, please refer to Master Response WQ-1 for a discussion of the role of the Lower Klamath Project Dams/Reservoirs with respect to overall water quality. Please also refer to Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat* for a discussion of how the Lower Klamath Project blocks access to a substantial quantity of historical habitat for anadromous fish (Chinook salmon, steelhead, coho salmon, and Pacific lamprey) within the mainstem Klamath River and tributaries upstream of Iron Gate Dam. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Additionally, please see Volume III Attachment 1 *Executive Summary* for a table of all potential impacts due to the Proposed Project and the alternatives.

<u>Comment ORG30-112</u>

The above facts and implemented results conflict with agenda proponent assumptions regarding facilities removals and endangered species theoretical benefit. A large part of the agenda-refuting evidence has been unintentionally provided by rewilding and removal proponents themselves. With the demise of the KHSA's 'intrinsically linked' KBRA, upon which exact 'agreement' terms the Department of Interior based its entire EIR/EIS 'peer reviewed' science, the KHSA EIS/EIR became functionally void. No part of the prior KHSA EIR/EIS is still applicable and under the 'amended' KHSA no part of the science-dependent 'agreement' proclaimed 'mitigations' necessarily occur.

Response to Comment ORG30-112

Comment noted. Please refer to Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a brief discussion of prior environmental documents related to the Lower Klamath Project, including the 2012 KHSA EIS/EIR. Please note that the State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement or the Amended Klamath Hydroelectric Settlement Agreement.

<u>Comment ORG30-113</u>

Similarly, the previous 2006 FERC considered options are ALSO currently invalid, as the intervening new data, studies, and proven science in the years since now refute prior predicating FERC EIS assumptions and limitations.

Response to Comment ORG30-113

Please refer to Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a brief discussion of prior environmental documents related to the Lower Klamath Project, including the 2007 FERC EIS. Please refer to Master Response WQ-4 for information regarding the water quality data relied upon by the EIR.

<u>Comment ORG30-114</u>

The current 'amended' KHSA desperately seeks FERC to force the immediate irreversible agenda defined objective of facilities removals with NO functional assurances, protections, or provisions in place. Even though the KBRA has NO legal standing or structure, it is the same continuing concealed process and benefiting 'agreement' affiliated individuals who have been exclusively 'appointed' to the unaccountable Dam Removal Entity (DRE) Board now called the KRRC. As a 'private' 501(c)3 'non-profit', the KRRC seeks to use unrepresented ratepayer and public funds to facilitate the political agenda of rewilding and removals under the self-created bylaws provision of secrecy and non-disclosure. Using those public funds, that special interest 'appointed' KRRC Board seeks to secure 'indemnification', NOT for consequential damages resulting from removals imposed upon the majority of regional residents, but ONLY for 'agreement' participating entities' protection from legal liability. That 'indemnification' for benefitting seated participants provides no accountability for policy based failed *decisions to the environment or region, leaving the unrepresented regionally affected residents no reasonable redress for realized damages. Whether pursued under FERC or EPA, ANY consideration of advancing facilities removals going against the most affected regionally opposed supermajority DEMANDS a new and transparent NEPA EIR/EIS. That EIR/EIS MUST be without pre-condition; holistically inclusive of ALL species and habitats; fully accountable for damages and losses to ALL directly impacted vested interests; substantively address ALL relevant information and alternatives; preferentially pursue the LEAST detrimental and most HOLISTICALLY beneficial regional options; and effectively resolve and indemnify ALL identified social, economic, and environmental consequential impacts prior to ANY publically imposed 'determination'. The KHSA established non-representative KRRC has the single professed purpose of unaccountable Klamath dams removals.*

Response to Comment ORG30-114

The statements made in the comment provide a summary of other comments provided in the comment letters and are noted. In addition to the responses set forth above, please refer to Master Responses GEN-1 and CEQ-1.

Comment ORG30-115

Given past KHSA/KBRA agenda, performance, non- representative 'process', lack of accountability, and current known standing, any FERC determination based upon 'Agreement' participating 'recommendations' will unquestionably end in irreversible devastation both to the environment and to the most affected and knowledgeable regional supermajority opposed to removals. Approval by FERC for any transfer of assets to the KRRC prior to a full and open EIS/EIR effectively constitutes administrative authorization of that singular defined outcome. Such authorization would allow only minor ineffective amendment to the original agenda outcome of environmental and regionally devastating attrition.

Response to Comment ORG30-115

Comments noted. Comments regarding Federal Energy Regulatory Commission (FERC) decisions that do not relate to the State Water Board's CEQA process should be directed to FERC. Please also refer to Master Responses GEN-1 and CEQ-2.

Comment ORG30-116

At best, removal of those proven facilities threatens a return to historically known downstream flood damage and drought prone degraded environment, including salmon habitat. At worst, removals have the potential of eradicating entire species. The 'expert panel' cited potential of downstream fisheries extirpation resulting from removals extends to the intended 'protected' coho.

Response to Comment ORG30-116

Please refer to Master Responses FLD-1, WSWR-1, and WSWR-3. Additionally, the EIR includes a comprehensive analysis of the effects of dam removal on aquatic resources, including salmonids, in Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation*. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Based on this analysis the EIR finds that dam removal under the Proposed Project would not increase the risk of salmonid species extirpation, but rather is predicted to result in increased abundance of the populations. Further, the Coho Salmon and Steelhead Expert Panel did not conclude that coho salmon extirpation was a likely outcome of dam removal as asserted by the comment. As discussed in Potential Impact 3.3-9, the conclusion of the Coho Salmon and Steelhead Expert Panel was that, in the short term, the difference between the Proposed Project and existing conditions is expected to be small. The Coho Salmon and Steelhead Expert Panel stated that larger (moderate) increases in abundance are possible under the Proposed Project if additional restoration actions are implemented, and mortality caused by the pathogen *C. shasta* is reduced. The Coho Salmon and Steelhead Expert Panel predicted a small increase in the population from a modest increase in habitat area usable by coho salmon, small changes in conditions in the mainstem, and positive but un-quantified changes in tributary habitats where most coho spawn and rear. The Coho Salmon and Steelhead Expert Panel also noted the potential for increased disease risk and low ocean survival to offset gains in production in the new habitat, although no evidence for either increased disease risk or reduced ocean survival was presented. For additional discussion please refer to Master Response AQF-12.

<u>Comment ORG30-117</u>

Removals will also bring inescapable Upper Klamath Basin devastation from forced imposition of now evidenced defective 'objectives' demanding that the same habitat support two incompatible 'endangered' species (suckers and coho). That seems a drastic price to pay when the primary impacts to salmon have long been associated to their majority life ocean based residence subject to cyclic conditions, including decadal oscillations progressively moving food sources and salmon up and down the coast. That association is supported by studies showing the relative lack of upper Klamath marginally conducive riverine importance when compared to the 75% of 'ideal' coastal influenced Klamath tributary spawning habitat that has gone unused. It is further supported by the fact that millions of salmon annual escapement out of the Klamath estuary can result in a fraction of one percent returns from the ocean.

Response to Comment ORG30-117

Comment noted. Please refer to response to comment ORG30-13 and Master Response AQF-4.

<u>Comment ORG30-118</u>

Consequently, to protect the public interest and insure environmental compliance, it is vital to evaluate proposed environmental, social, and economic impacts through an open NEPA public forum encompassing a holistic watershed-

wide multi-species environmental review which includes anadromous ocean interrelated impacts.

Response to Comment ORG30-118

Please refer to Master Response CEQ-1.

Comment ORG30-119

Any proposed Project involving a change of ownership with intended major revisions to the operational function of the facility demands a complete and UNBIASED FERC process and affected public inclusion prior to authorization. In making any subsequent decision, it MUST require provision and capacity that ALL damages to those affected are compensable WITHOUT encountering exhausted ratepayer/taxpayer funds or unending obstructive insurance legal conflict. FERC policy has previously publically proclaimed their internal requirement to perform a complete, open, inclusive, and transparent public EIR/EIS for any significant project. ***The largest dam removal in world history would likely qualify as a significant project. Anything less than FERC requirement for a full and complete EIS/EIR prior to approval of license transfer would abrogate the constitutional, scientific, ethical, and public trust obligations incumbent upon ANY regulatory Agency seeking to exercise subjective agenda authority, and NO FERC approval should be allowed to occur without COMPLETE mitigation for ALL damages imposed upon the affected.***

Response to Comment ORG30-119

The EIR evaluates the potential impacts of the Proposed Project that are recognizable under CEQA and includes mitigation measures for any significant impacts of the Proposed Project. Comments regarding the FERC process should be directed to Federal Energy Regulatory Commission (FERC). Please also refer to Master Response CEQ-1.

Comment ORG30-120

Attached is part 2c of 2a,b,c submittal by Siskiyou County Water Users Assoc. in the matter of the response to 401 Water Certification EIR for the Klamath Dam project. We look forward to any response that the Water Board may make.

Response to Comment ORG30-120

The State Water Board received the comments attached to this email and designated by Siskiyou County Water Users Association as “part 2c” of their submittal. Please note that comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board’s Water Quality Certification Program following the instructions provided at https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html.

Trout Unlimited, Cindy Noble, Jason Lindberg, Michael Caranci, Patrick Kallerman, Charlie Schneider, Christy Fischer, Erik Young, Bob Blankenship, Trevor Fagerskog, James Polfer, Sam Davidson

This commenter provided the same set of comments twice. Please see below responses for the first set of comments 1-2.

Comment ORG38-1

This letter transmits the comments of the California Council of Trout Unlimited and various California chapters of Trout Unlimited on the Draft Environmental Impact Report (DEIR) for the Lower Klamath Project License Surrender (FERC Project No. 14803).

Trout Unlimited (TU) is the largest and oldest sportsmen's organization dedicated to the conservation of trout and salmon and their habitats in North America. TU has some 14,000 members in California and Oregon who rely on the Klamath River for sportfishing opportunities and as vital habitat for listed salmonid species, including Coho and winter- and spring-run Chinook salmon. The Klamath River, historically, was the third most productive watershed for salmon and steelhead on the West Coast.

Response to Comment ORG38-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comment ORG38-2

The undersigned strongly support the Proposed Project to remove the Copco Number One and Two and Iron Gate dams located in Siskiyou County, California. Removing these dams is the key to re-establishing a free-flowing Klamath River, and will dramatically improve water quality in the lower watershed and re-open more than 400 stream miles of historic habitat for salmon and steelhead. Our support for other measures in the Klamath Basin to improve water quality and security for both people and fish, including collaborative water supply, economic redevelopment and habitat restoration projects in the upper basin – is just as strong.

The environmental analysis of this project required under the California Environmental Quality Act (CEQA) underscores the scientific rationale for dam removal on the Klamath. Numerous fish species—some of which are listed under federal or state Endangered Species Acts—use the California portion of the Klamath Basin during all or phases of their life histories. The dams harm river ecosystems and aquatic life and provide little or no benefit in terms of water supply or power generation. They block passage to upstream tributaries and mainstem habitat that salmon, steelhead and other native fishes require for population recovery and for sustaining now at-risk recreational, commercial and tribal fisheries.

The draft EIR confirms that the Proposed Project will have long-term beneficial impacts by improving water quality in the river as well as fish migration and riverine and riparian habitat. Removing the Klamath dams will also improve spawning opportunities and reduce the incidence of fish disease that has resulted in massive fish die-offs in some years. Moreover, per the DEIR, impacts related to release or migration of sediment will be temporary while the benefits long-term for improved water quality are considerable. The costs to consumers of power provided by PacifiCorp will be lower if the dams are removed rather than repaired and retrofitted for fish passage. And removing the Klamath dams will not affect summer flows or provision of water use for agriculture.

Returning the Klamath River to a free-flowing state could help facilitate resolution of long-term water conflicts in the Klamath Basin and watershed-scale environmental and habitat restoration. Implementing the Proposed Project will also deliver a beneficial ripple effect for fisheries in both the river and marine environments—recovering the Klamath's legendary runs of salmon and steelhead is key to revitalizing fishing-based communities and cultures in this region and to bolstering the regional economy more broadly.

In summary, we concur with the key findings of the DEIR that the Proposed Project is "the environmentally superior alternative." We urge the Water Board to certify the findings of the DEIR and issue the water quality certification required under Sec. 401 of the Clean Water Act for the Proposed Project.

Response to Comment ORG38-2
Please refer to Master Response GEN-1.

Whale and Dolphin Conservation, Colleen Weiler

Comment ORG28-1
Whale and Dolphin Conservation (WDC) is the leading global charity dedicated to the conservation and protection of whales, dolphins, and their habitats worldwide. We are writing in support of the Lower Klamath Project License Surrender (Proposed Project) to improve water quality conditions in the Klamath River and advance the long-term restoration of Klamath River salmon and recovery of the Southern Resident orca population.

We appreciate the opportunity to provide comments on the Environmental Impact Report (EIR) and the detailed information included in the EIR. We urge the State Water Board to continue its thorough and timely review of the Proposed Project and issue the final certification in time for the Proposed Project to maintain its current schedule of drawdown and full dam removal, to be completed in 2021.

Response to Comment ORG28-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG28-2

In previous comments, we have noted the potential beneficial impact to the endangered Southern Resident orca population from this Project, through an increase in prey stocks that these fish-eating orcas rely on. We appreciate the inclusion of the Southern Resident orcas in this EIR and wish to note some corrections that should be made in the analysis.

Southern Resident distribution

The EIR notes that the Southern Resident orca DPS "primarily occurs in the inland waters of Washington State and southern Vancouver Island" and "(d)uring most of the year Southern Residents are present in Washington inland waters" with "occasional and short-duration winter visits" to the California Coast. However, data from the National Marine Fisheries Service (NMFS) shows that the orcas spend well over 50% of their time on the outer coast[1]. The inland waters of the Salish Sea are historically where the orcas spend time and forage in the summer and early fall months[2], but coastal waters are critical for their survival in the late fall through late spring – particularly for K and L pods, which travel more widely than J pod[3]. The EIR itself also contradicts this information by later noting that K and L pods frequent the outer west coast in the winter, a more accurate statement given the information about Southern Resident coastal distribution.

The coasts of Washington, Oregon, and Northern California are currently under consideration for critical habitat designation for Southern Resident orcas due to the acknowledged importance of this area to the orcas and the significant time spent in coastal habitat. The deadline for a draft revision by the end of 2017 already passed, and NMFS is currently facing litigation over the delay[4]. We urge the State Water Board to acknowledge the importance of Northern California coastal waters to the Southern Resident orcas and consider the area as pending critical habitat.

Importance of Klamath River salmon

We also wish to clarify the importance of Klamath River Chinook and what their recovery could add to the prey supply of the Southern Resident orcas. We have noted in previous comments that the primary threat to this orca population is a lack of their preferred food, Chinook salmon, and that the orcas also consume other types of salmon (chum and Coho), particularly when in coastal habitat[5]. While the EIR states that the very limited information available for the overall composition of the orcas' winter diet indicates a small (<1%) contribution of Klamath River salmon, we wish to note that this information is based on very few samples and likely reflects the small run sizes of salmon in the Klamath Basin, particularly of spring Chinook[6].

Klamath Basin salmon are available in a lower proportion overall in coastal waters, and Klamath spring Chinook are estimated to be reduced by 98% from their historic levels, although it is difficult to determine the size of historic runs[7]. An annual NMFS report to Congress on the status of the Klamath River Basin notes that dam construction eliminated a "substantial amount" of the historical spawning and rearing habitat for spring Chinook salmon, and at least seven spring Chinook populations have been extirpated from the Klamath Basin[8]. The run has further declined in recent years, with three of the six worst years on record occurring in the past decade[9]. In addition, fishing on the fall run has been restricted and the stock determined to be "overfished" in the fall of 2018[10]. The relatively low proportion of Klamath River salmon sampled in Southern Resident orca diet – and again, we note the small dataset available to determine the composition of coastal diet – is likely due to the unnaturally low abundance of Klamath salmon in the ocean.

The Klamath River was once home to the third-largest run of Chinook salmon on the west coast[11], and the Southern Resident orcas have evolved over millennia to specialize on these large and fatty salmon. They rely on Chinook from large watersheds including the Columbia, Central Valley, and Klamath systems, as well as from smaller coastal rivers. Even the level and ratio of contaminants (DDT, PCBs, and PBDEs) measured from individual orcas indicates a "California signature" for K and L pods[12]. This unique signature of contaminants comes from consuming prey that has higher levels of DDT, found in California Chinook runs[13], and indicates regular foraging on salmon from California rivers.

The travel patterns of the Southern Resident orcas also overlap with areas where salmon from the Klamath River and other areas are distributed in the ocean, as noted in the priority stock report from NMFS and the Washington Department of Fish and Wildlife[14]. Different runs of salmon have specific ocean distribution patterns, with fall Chinook generally having narrow distributions closer to natal rivers, and spring Chinook traveling widely north or out to the continental shelf[15]. Klamath fall Chinook tend to distribute between Cape Falcon, Oregon and Point Sur, California, and spring Chinook to the outer coastal waters[16]. The path of tagged Southern Resident orcas and detection on acoustic recorders indicates movement throughout this area, suggesting the orcas are foraging on these widely distributed salmon (Figure 1)[17].

Historical information on the orcas' range and diet, as well as the former abundance of Klamath Chinook, indicates that this run was once very important to the orcas, and might be again if the Proposed Project proceeds. Removing the four Lower Klamath River dams is expected to restore Chinook populations by up to 81% - a significant boost to the coastal food supply of the Southern Resident orcas[18].

Increasing importance of coastal salmon abundance

The dependence of Southern Resident orcas on coastal food sources, such as the Columbia, Klamath, Central Valley, and coastal rivers, may increase in the near future as salmon runs in the Fraser River, their primary source of food in the summer, continue to decline[19]. The orcas are spending less time in Salish Sea waters and are consistently arriving later each year, spending more time on the outer coast[20]. With this shifting distribution and possible increased reliance on prey in coastal waters, removing the four Lower Klamath River dams may be more important than ever to restore a once-abundant Chinook run in the region.

Response to Comment ORG28-2

Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Southern Resident Killer Whale* has been revised to clarify the seasonal migration patterns of Southern Resident Killer Whales. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Southern Resident Killer Whale* for the revisions.

Additionally, Potential Impact 3.3-2 has been revised to clarify how the Klamath River Chinook Salmon could become a larger contributor to the diet of Southern Resident Killer Whale Distinct Population Segment (DPS) under the Proposed Project. Please refer to Volume III Attachment 1 Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* for the revisions.

Comment ORG28-3

Removing dams is an option increasingly applied to restore rivers and ecosystem processes. Examples in the Pacific Northwest and California provide proof of concept that the long-term benefits of dam removal outweigh the short-term impacts to river systems, wildlife, and fish, including changes in sediment flow and water quality. Research into the response of rivers to dam removal indicates that even considering the unique conditions of each river and dam, the ecological responses after dam removal follow similar general patterns, such as the temporary downstream flow of sediment[21]. The Proposed Project follows similar successful dam removal in the Elwha, White Salmon, Sandy, and Carmel Rivers in Washington, Oregon, and California – all projects intended to recover salmon populations and restore river systems[22]. These examples highlight the rapid ecosystem response of rivers and the return to healthy conditions, often faster than originally anticipated, following major dam removals[23].

We urge the State Water Board to approve and certify the Proposed Project for full removal of all three Lower Klamath River dams in California, and to support removal of the J.C. Boyle Dam in Oregon. With continued habitat loss and climate change, salmon and orcas will continue to struggle in the Pacific Northwest and California. Restoring rivers and giving salmon their best chance to survive helps the more than 130 other species who depend on salmon, including the Southern Resident orcas. Extensive analysis has already been done on the benefits of restoring the Lower Klamath River to a free-flowing condition, and what the ecosystem will gain from dam removal – clean water, stronger salmon runs, and more food for endangered Southern Resident orcas.

Thank you for the opportunity to provide comments, and please do not hesitate to reach out with questions or for additional information.

Response to Comment ORG28-3

Comment noted.

2.3.5 Individuals

This section presents written comments received on the Draft EIR from individuals and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by last name, first name. To determine whether your comment is associated with an affiliation type other than individuals, please refer to Table 2-1 or Table 2-2.

Table of Written Comments and Responses from Individuals

[No last name given], Aaron

<u>Comment IND63-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND63-1
Thank you for your comment. Please also refer to Master Response GEN-1.

[No last name given], Barry

Comment IND82-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND82-1
Thank you for your comment. Please also refer to Master Response GEN-1.

[No last name given], Dennis

Comment IND163-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND163-1
Thank you for your comment. Please also refer to Master Response GEN-1.

[No last name given], Trinity, Ari, and Adam

Comment IND198-1
Hi my name is Trinity, I am 10 and I have lived at Copco my whole life. If you take the dams out how are we going going to fight the fires and how can we get food, we fish in that lake and many animals feed, live and swim in that lake. If you take this lake you will be killing many species and taking our food supply. Let me ask you this how would you feel if people took away you food, water, and animals habitat. But, of course you don't care, about how this will affect kids younger, such as my friends who are 5, 6, 7, 8, or lower. Also every year my family who lives in the city, they come up to rest, fish, and to spend time swimming in this lake. This will also affect elders who love to fish and swim in the lake. There are fish, swans, pelicans, geese, otters, and many other animals that depend on the water supply. This lake has provided many things for us such as, teaching your kid or dog to swim. You are supposed to work with our well being. My mom has been fighting this for many years. My dad has been fighting this for many years also. Last year I walked with my friends in the 4 Of means so much to me, my family, my friends, my animals, and all the trees and wildlife. I July parade, the day after, the beautiful Hornbrook caught on fire and my friends had to let all the R-Ranch horses out and had to go miles out of their way to get far away from the fire. There is only 1 road in and out. If you were really a good person you would work with us. My best friends hated the idea of the lake turning into a creek, my parents hated the idea of the wildlife not being able to eat or swim or fish. This lake hate this idea of the lake coming out. BUT YOU DON'T LISTEN TO THE PEOPLE!!!!!!!! The people have told you NO DAM

REMOVAL! I am a very kind kid this is the first time a kid has probably ever told you this. This hurts me, and my friends who are little. I don't want them to feel the same anger and sadness my parents go through and I go through. As a 10 year old I demand that all people young and old should be heard. Do you listen? NO. Do you care about how this affects the people? NO! You just care about the money and how poor you make people feel! This makes me really sad, not just me, but all the kids who live here at Copco. My friend Adam, a few months ago I told him about this and he said " No that means I can't go fishing or swimming during the summer" tell me how do think my friends feel about this. Are you even human? God made people to be kind and nice. But your rude and disrespectful. That not what God wanted when he created people. Don't want to listen to me, listen to my friends. They'll tell you how bad this makes them feel. Before I have them tell you how bad this makes them feel, I have a few words for you. NO DAM REMOVAL!!!!!! One more thing my friends, Allie and Will like to tube and swim and fish in this lake. Tell me, how will they do this and the things they love? Tell me, how will I swim, fish, and teach my dog to swim? Tell me, how are we going to fight fires if the dams come out? Tell me this, what will happen to the wildlife that live in the lake? Sure there could be trout, but what about the bass, the perch, the otters, the turtles, and all the other creatures that live in this lake. Why do you want to make all the wonderful things at Copco go away?

Response to Comment IND198-1
Thank you for your comment. Please refer to Master Responses GEN-1, GEN-2, TER-1, and HAZ-2.

Comment IND198-2
I want to tell you something, Imagine this your favorite place to fish, swim, and to play, like a lake, and people want to take it out what would you do? Do you really think Copco is that bad? What about all the wildfires and the ancestors that lived and fought for us?

Response to Comment IND198-2
As discussed in Section 3.20.5 *Recreation – Potential Impacts and Mitigation*, no significant loss of flatwater recreation is anticipated under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*. Please also refer to Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* (pages 3-676 to 3-683) where the EIR indicates that no significant impacts to water rights or water supplies are anticipated under the Proposed Project. Additionally, please refer to Master Response HAZ-2.

Comment IND198-3
The blue green algae lie makes me mad. Last year I was at my favorite spot and the guy said " stay away from the water. It has poisonous blue green algae!" Yet I ignored him and went back to what I was doing. We have picnics down by the water, if you take that away we won't be able to do that. My told me about how

the europeans took away the indians rights. This is what the whole dam thing reminds me of.

Response to Comment IND198-3

Please refer to Master Response GEN-2. Please also refer to Master Response WQ-7 for a discussion regarding algal toxicity in the Lower Klamath Project reservoirs.

Comment IND198-4

Hi I am Ari, I am 5 years old. I have lived here since I was 4, and I want to swim, fish, and play here. I have lived here for a little while and really enjoy living and playing here. If the dams come out I will not be able to do the things I love to do. I want to play in the lake with my brother and my family. I will protect the lake. I love it here.

Response to Comment IND198-4

Please refer to Master Response GEN-2.

Comment IND198-5

Hi my name is Adam. I hope you understand that taking the dam out is very bad. You probably won't listen to us but I hope you do. This will affect the environment and the wildlife. You will be destroying many places that have dams. I know I am a kid and you won't listen to us, but please do. :((sad face)

Response to Comment IND198-5

Please refer to Master Response GEN-2.

Abidi, Shayda

Comment IND255-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND255-1
Thank you for your comment. Please also refer to Master Response GEN-1.

About, JR

Comment IND434-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND434-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Adams, Robert

<u>Comment IND293-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND293-1
Thank you for your comment. Please refer to Master Response GEN-1.

Adler, Marjorie

<u>Comment IND358-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND358-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Allen, Thomas

Comment IND231-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND231-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Alsop, Stewart

Comment IND236-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements
.
I have toured the dams on the Klamath in person and believe that removal satisfies the interests of all the communities on and around the river: tribes, farmers, fisherpeople, and local residents.

Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

Please support this proposal.

Response to Comment IND236-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Anderson, Glen

Comment IND446-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND446-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Anderson, Nicholas

<u>Comment IND328-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND328-1
Thank you for your comment. Please refer to Master Response GEN-1.

Anderson, Ni-Galth

Comment IND324-1
I support the removal of the Klamath river dams

Response to Comment IND324-1
Thank you for your comment. Please refer to Master Response GEN-1.

Andrus, Matt

Comment IND349-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND349-1
Thank you for your comment. Please refer to Master Response GEN-1.

Antoniw, Brittany

Comment IND92-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND92-1

Thank you for your comment. Please refer to Master Response GEN-1.

Apodaca, Jacob

Comment IND432-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND432-1
Thank you for your comment. Please refer to Master Response GEN-1.

Armstrong, Chris

Comment IND115-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND115-1
Thank you for your comment. Please refer to Master Response GEN-1.

Arnold, JoEllen

Comment IND409-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND409-1
Thank you for your comment. Please refer to Master Response GEN-1.

Arnold, Stephen

Comment IND251-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND251-1
Thank you for your comment. Please refer to Master Response GEN-1.

Asel, Josh

<u>Comment IND398-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND398-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ashmun, Craig

Comment IND127-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND127-1
Thank you for your comment. Please refer to Master Response GEN-1.

Babb, Brian

Comment IND89-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

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Response to Comment IND89-1

Thank you for your comment. Please refer to Master Response GEN-1.

Bacigalupi, Jerry

Comment IND269-1

THE KLAMATH RIVER HYDROELECTRIC FACILITIES (FERC Project No. 2082) have been requested for Decommissioning by PacifiCorp (Surrender of License #20160923-5370) for Iron Gate Dam, Copco No. 1 Dam, Copco No. 2 Dam, J.C Boyle Dam, and appurtenant hydroelectric works and to be transferred to a dam removal ("shell") corporation (KRRC).

Klamath River information: 1. The Klamath Basin is the only upside down basin on the west coast (warm poor water quality above J.C. Boyles Dam), with water temperature and quality improving as it travels to the ocean. 2. Moonshine Falls, directly below J.C. Boyles Reservoir, is cited by CFW to be the upper most habitat for anadromous fish.

Response to Comment IND269-1
Thank you for your comment. Please refer to Master Responses WQ-1 and PAP-1. Please also refer to Section 3.2.2 *Water Quality – Environmental Setting* and Appendix C *Water Quality Supporting Technical Information* (pages C-1 to C-119) for further information about the water quality variations in the Klamath River from J.C. Boyle Reservoir to the Pacific Ocean. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and Appendix C *Water Quality Supporting Technical Information*.

As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, there is no evidence of an impassible barrier at the location of J.C. Boyle Dam that historically blocked upstream migration of salmonids. Please refer to the available data on historical abundance of salmon in the Klamath River watershed prior to Lower Klamath Project construction, as summarized in the Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species* and Table 3.3-2. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND269-2
3. The downstream Dams have absolutely nothing to do with the Upper Basin water wars. They improve the DOI Klamath Project regulated flows to farmers and ranchers by providing required minimum instream flows. 4. The California dams have been recently inspected by the Division of Dam Safety and are in good condition. 5. These dams provide a 25+% down river flood and surge protection, based on the 1964 flood hydrograph measured at the gage below Iron Gate Dam, and provides an average yearly water quality improvement.

Response to Comment IND269-2
Please refer to Master Responses WSWR-1, WSWR-2, WSWR-3, FLD-1, and WQ-1**.** The comment regarding the safety inspection of the dams does not focus on the sufficiency of the EIR in identifying and analyzing the possible impacts of the Proposed Project on the environment and ways in which the significant effects of the project might be avoided or mitigated (CEQA Guidelines section 15204(a)).

Comment IND269-3
6. Given the condition of a complete Klamath River cutoff by the DOI or a severe drought, the dams can also provide CDFG/CFW's 700 cfs minimum instream river flows for a three-month period with adequate storage retained for Lake Habitat.

Response to Comment IND269-3
Please refer to Volume I Section 3.6.2.2 *Flood Hydrology –Environmental Setting – Basin Hydrology* (pages 3-590 to 3-621) for a description of hydrology in the Klamath Basin. Klamath River flows are defined by the current operational

standard for the U.S. Bureau of Reclamation's (USBR's) Klamath Irrigation Project, the 2019 Biological Opinion (NMFS 2019).

Comment IND269-4

It is within the SWRCB & FERC's responsibility to consider the public interest to retain and pursue the relicensing of the hydroelectric facilities to a "responsible" entity. Siskiyou and Klamath Counties, and the Cities within, have the statutory responsibility to provide and protect the public's interest and safety to all citizens and protect the environment for present and future generations. Through proper and legal voting procedures in 2010, the voting populous of Siskiyou Co. (79.04%), and in 2016 Klamath Co. (72%), OVERWHELMINGLY voted to retain the Klamath River Dams and Hydroelectric Facilities.

Response to Comment IND269-4

Please refer to Master Response GEN-1.

Comment IND269-5

STOP the largest Proposed Dam Removal Project in the World and preserve the Klamath River Basin economy and ecosystem. It HAS NOT been established that anadromous fish habitat exists above J.C. Boyles Reservoir or that any other listed benefits justify Dam Removals.

Response to Comment IND269-5

Please refer to Master Response GEN-1. As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, there is no evidence of an impassible barrier at the location of J.C. Boyle Dam that historically blocked upstream migration of salmonids. Please refer to the available data on historical abundance of salmon in the Klamath River watershed prior to Lower Klamath Project construction, as summarized in the Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species*, and Table 3.3-2. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND269-6

As a Registered Engineer and former State Employee with Caltrans Hydraulics and Hydrology Section and the Resources Agency and in private practice, I was responsible for drainage analysis and designs, the preparation and analysis of Environmental Impact Reports (EIRs) and Storm Water Pollution Prevention Plans(SWPPPs). The Department of Interior(DOI) and States of Calif. and Oregon have failed to prepare and complete 401 Clean Water Act and environmental studies to legal and acceptable standards that support Dam Removals for the following reasons:

1. Coho Truck and Haul Studies above J.C. Boyle Dam were demanded but refused by the DOI, probably because they realized anadromous habitat did not exist. A common analogy is that the only way Coho juveniles can get back from *the tributaries of Upper Lake to the ocean is to become flying fish. This study must be completed to support Dam Removals. Without this study the environmental documents fail and <u>will initiate MAJOR LAWSUITS</u>.*

Response to Comment IND269-6

Trap and haul is considered as a potential means of providing fish passage at the Lower Klamath Project facilities in Section 4.4 *Continued Operations with Fish Passge Alternative* (pages 4-99 to 4-180).

<u>Comment IND269-7</u>

2. The environmental documents are incomplete. (<u>Fail to analyze alternatives with Dams in place</u>). (<u>Fail to provide a Cost Benefit Analysis</u>). Including substantial crop and property value losses to Farmers and Ranchers due to <u>unjustified</u> DOI water cutoffs.

Response to Comment IND269-7

Lower Klamath Project EIR presents a reasonable range of alternatives to the Proposed Project. Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment.

<u>Comment IND269-8</u>

3. The release of 20 +/- million cubic yards of toxic sediments retained behind the Dams down river is <u>irresponsible</u>, <u>violates the 401 Clean Water Act</u>, and requires the preparation of a <u>"Storm Water Pollution Pretention Plan"</u>. It will decimate river habitat for decades. It is irresponsible that sediment removal by dredging has been <u>abandoned because of cost!!</u>

Response to Comment IND269-8

The Klamath River Renewal Corporation (KRRC) proposes to implement a Stormwater Pollution Prevention Plan (SWPPP) to prevent construction materials (fuels, oils, and lubricants) from spilling or otherwise entering waterways or water bodies during construction activities associated with removal of the Lower Klamath Project dam complexes. As described in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-4, Mitigation Measure WQ-1 requires additional protection of water quality by requiring that all potentially affected waterbodies within the Limits of Work be protected during all ground-disturbing activities occurring for the Proposed Project and that best management practices required under the Construction General Permit be implemented throughout the construction period. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The EIR analyses do not find that the release of sediments would decimate river habitat for decades. Please refer to Master Responses AQF-7 and AQF-10.

As stated in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, physical removal of reservoir bottom sediments prior to drawdown is not feasible because dredging would remove only a maximum of 43 percent of erodible reservoir sediment, would only provide a marginal benefit to fish during drawdown with 57 percent of erodible sediment remaining, and would have a large environmental impact on terrestrial resources and possibly cultural resources (Lynch 2011). Slower drawdown to potentially mobilize less sediment or altering the timing of drawdown to lessen the potential of precipitation after drawdown and before plantings have stabilized sediments have also been suggested as potential approaches to reduce sediment impacts. However, both of these alterations would increase the time elevated suspended sediment concentrations (SSCs) would occur during sensitive fish life-stages, resulting in greater adverse impacts to designated beneficial uses and/or fish (see Volume I Section 4.1.1.4 *Alternatives Selection/Overview – Alternatives Selection Elimination of Potential Alternatives that Would Not Avoid or Substantially Lessen Significant Environmental Effects of the Proposed Project* [pages 4-13 to 4-14]). Thus, the short-term significant impact of increased suspended sediment concentrations due to dam removal in the Hydroelectric Reach cannot be avoided or substantially decreased through feasible mitigation.

Comment IND269-9

4. The Calif. Division of Dam Safety under existing law requires that Dam Removal Plans be submitted and approved, and verify Dam Removal Plans and Conditions are followed.

Response to Comment IND269-9

Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation. Additionally, please refer to Volume III Attachment 1 Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 for a discussion of the potential for dam failure to flood areas downstream of the Lower Klamath Project during reservoir drawdown and dam removal and following dam removal.

Comment IND269-10

5. Siskiyou and Klamath Counties have and are mandated (within their existing regulations and public safety authorities) to require and approve Klamath River

Dam Removal Permits (They are not preempted by State and Federal Governments)

Response to Comment IND269-10
Please refer to Master Response CEQ-2.

Comment IND269-11
6. The DOI and State Agencies have circumvented State and Federal Laws by certifying bogus scientific studies to justify dam removals, commonly cited by recognized professional Biologist, Scientist and Engineers as SWAGs (Scientific Wild Ass Guesses)

Response to Comment IND269-11
This comment raises a concern that the U.S. Department of the Interior (DOI) and state agencies have circumvented state and federal laws by certifying "bogus" scientific studies to justify dam removals. Comment noted.

Comment IND269-12
7. The Flood Control provided by the Dams proposed for removals is substantial: My comments on the Klamath Facilities Removal Final EIS/EIR to the BOR is attached for your review showing that my 100 yr. flood calculation of 37,000 cfs below I.G. Dam, based on the 1964 flood hydrograph, reduces peak flow by 26%. My 100 yr. peak flow should be much lower than what is being used for the Klamath River flows for the Lower Klamath Project. (Table 3.6-9 shows that the Dams only provides a 6.9% reduction in flood attenuation). See Attachment #1. I expect a response.

Response to Comment IND269-12
The comment asserts that the Lower Klamath Project reservoirs provide substantially greater flood attenuation than what is reported in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Table 3.6-12 (page 3-631). The comment provides results from an independent calculation of Iron Gate and Copco No. 1 reservoirs' 100-year flood attenuation capacity. Note that the analysis of flood attenuation reported in Table 3.6-12 and USBR (2012a) uses a standard level-pool routing approach to estimate the attenuation effects of Iron Gate and Copco No. 1 reservoirs, as described in the following equation:

$$\frac{S_{n+1} - S_n}{\Delta t} = \frac{I_{n+1} + I_n}{2} - \frac{O_{n+1} + O_n}{2}$$

where:

S_n = storage within reservoir at time n
I_n = inflow to reservoir at time n
O_n = outflow from reservoir at time $n = CWH^{1.5}$
W = width of spillway
H = depth over spillway
C = discharge coefficient

The above level-pool routing equation is applied to each reservoir in series to provide the combined flood attenuation capacity, and this method assumes that the reservoir water surface elevation remains level throughout the flood period. USBR (2012a) used the above equation to estimate flood attenuation for a synthetic 100-year flood event by applying the December 1964 hydrograph, as well as hydrographs for multiple other smaller flood events. As noted by USBR (2012a), the flood attenuation values calculated by United States Bureau of Reclamation (USBR) are overestimates of the actual attenuation because a substantial portion of the peak flow that would occur in the Hydroelectric Reach is from Jenny Creek, which enters Iron Gate Reservoir downstream of Copco No. 1 Reservoir. While Copco No. 1 Reservoir does not affect flows from Jenny Creek, the level-pool routing method assumes both reservoirs attenuate the entire flood flow from this creek and thus overestimates the flood attenuation of these reservoirs (i.e., flood attenuation of Copco No. 1 and Iron Gate reservoirs is actually less than reported in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Table 3.6-12 [page 3-631] and USBR [2012]).

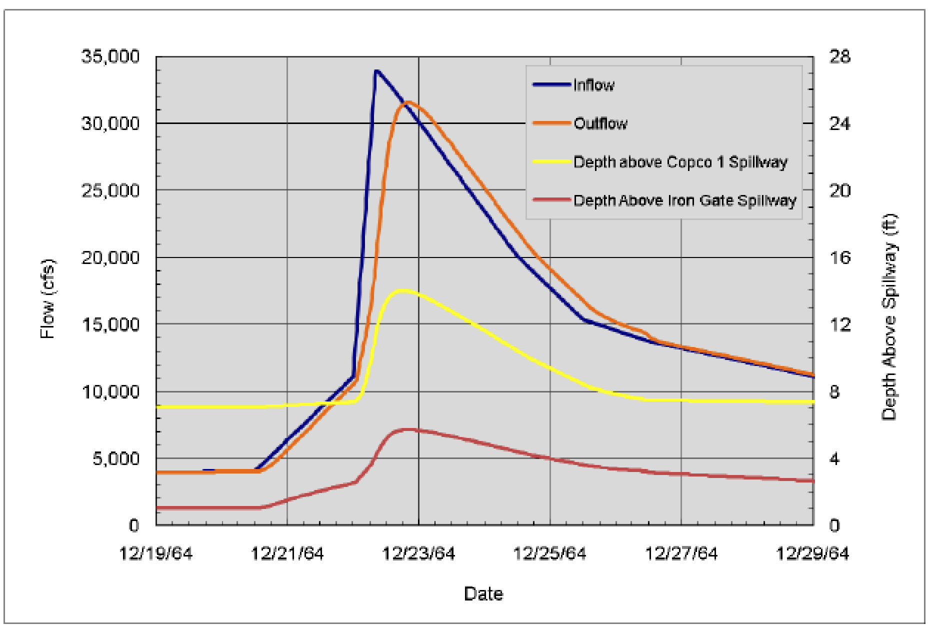

Figure IND269-12-1. Inflow into Copco No. 1 Reservoir and outflow from Iron Gate Dam for December 1964 flood. Source: USBR 2012a.

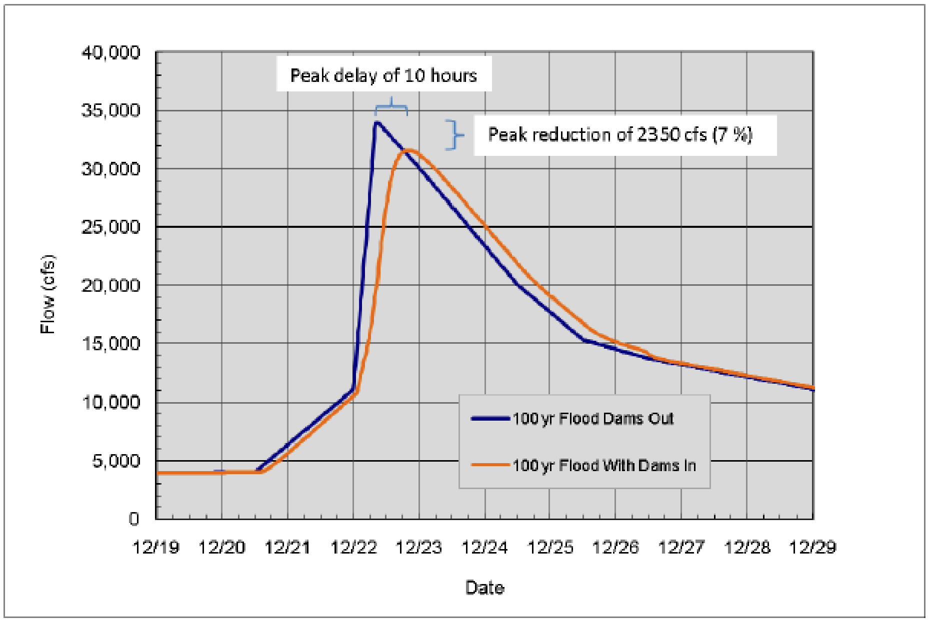

Figure IND269-12-2. Difference in modeled 100-year flood between the Proposed Project (i.e., "Dams Out") and Existing Conditions/No Project Alternative (i.e., "Dams In"). Source: USBR 2012a.

Based on the limited information provided in this comment letter and its attachments (which are copies of comment letters submitted by Mr. Bacigalupi in response to the 2012 KHSA EIS/EIR), it is not possible to evaluate the validity of the independent calculation. Thus, in order to provide a more complete response to this comment on the Lower Klamath Project Draft EIR, the State Water Board obtained a letter from USBR that was submitted to the Siskiyou County Board of Supervisors by Mr. Bacigalupi on April 1, 2010; this letter appears to contain the original calculations referenced in this comment. Based on the State Water Board's review of the April 1, 2010 letter, the original calculations provided by Mr. Bacigalupi do not appear to use a standard level-pool flood routing approach through the reservoirs and no explanation or rationale for the selected variables listed is provided to estimate the flood attenuation in a reservoir. More specifically, it is unclear why the change in reservoir storage appears to be calculated as the net flow (Q) times a factor of 0.25 ("VOL. net = Q(0.25)"; whether these calculations use a hypsographic relationship between reservoir elevation, area and volume, as would be expected. That is, the rate of stage increase should decrease with elevation in the reservoir. Additionally, the spillway dimensions for each reservoir, which control the rate of flow out of each reservoir, do not appear in the calculations. While the response from USBR to the related comment on the 2012 KHSA EIS/EIR suggested reducing the calculation time step from 3 hours to 15 minutes to improve accuracy, that suggestion does not address the multiple non-standard variables included in the original calculations, interim computations with little to no rationale, an oversimplification of the reservoirs as a single, combined waterbody, and the lack of consideration for spillway controls on outflow and hence flood attenuation capacity.

As discussed in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* (pages 3-630 to 3-635), J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams are not designed or currently operated for flood control purposes. Please refer to Master Response FLD-1 and Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-3 (pages 3-630 to 3-633) for discussion of flood hydrology and attenuation related to the Proposed Project.

Comment IND269-13

8. The Draft EIR fails to consider feasible and public supported Alternatives with the Dams remaining in place.

9. My comments on the Klamath Facilities Removal EIR Public Draft EIS/EIR are also attached to address deficiencies and failures in the EIS/EIR process that need addressing. See Attachment #2.

10. Failure to address the above listed deficiencies, documentations, studies and permits WILL INVOLVE MAJOR LAWSUITS.

Response to Comment IND269-13

With respect to whether the EIR considers alternatives to the Proposed Project that leave dams in place, please refer to response to comment IND269- 7.

Please refer to Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a brief summary of past environmental documents associated with Klamath River dam removal, including the 2012 KHSA EIS/EIR, as well as a list of the reasons that the State Water Board determined it should develop a separate EIR, rather than adopting one of the existing environmental reviews.

The final comment in the commenter's list (Item No. 10) is noted.

Comment IND269-14

THE FOLLOWING PROJECTS (ALTERNATIVES WITH DAMS IN PLACE) HAVE BEEN PROPOSED TO FACILITATE "FERC" RELICENSING, PROMOTE THE PUBLIC AND ENVIRONMENTAL INTEREST, COMPLY WITH THE BI-STATE COMPACT, AND PRESERVE THE KLAMATH R. BASIN

1. Implement the Shasta Nation Tunnel Unassisted Anadromous Fish Passageway around Iron Gate, Copco 1 and Copco 2 Dams at a cost of $50 million (1/6th the $300 million cost estimated for installing fish ladders and 1/20th the $1+ billion estimated for dam removals and restoration). This will provide *anadromous fish passage around Iron Gate, Copco 1, and Copco 2 reservoirs to the pre-dam 20 miles of native river habitat above Copco 1 Reservoir. This proposal has a very positive write up in the DOI's EIR. (It was not considered because it required retaining the Dams). A former DFG official stated that he could not support this alternative. He also stated that he could not support proposed fish ladders either because there is no habitat above the Dams to warrant the expense of either.*

2. Implement the 60,000 ac.ft. Klamath River/Shasta Valley Reserved Water Right (A0169580), transfer canal and storage facilities to supplement Montague Irrigation District's irrigation water with Klamath R. water (poor water quality containing high nutrients). This project augments current irrigation supplies, allows for additional land to become irrigated, and replaces naturally impaired Upper Klamath R. water with higher quality water. A portion of the reduced water demands (good water quality) can be released by the District from Lake Shastina or from their wells into the Shasta River, improving the water quality in both the Shasta River and in the Klamath River below Iron Gate Reservoir per FERC recommended requirements for relicensing. The Shasta Valley RCD & CDFG contracted a similar augmentation study in 2007 that has since been politically shelved. (Because it depends on retaining the dams scheduled for removals) Ref: (CDFG Project No. P0310329) I recommend combining Alternatives 1 & 2

3. Establish additional reliable storage facilities within the Klamath River Basin, including increasing storage capacities of high-elevation lakes as recommended in the October 1991 Department of Water Resources Study: SCOTT RIVER FLOW AUGMENTATION STUDY, and introduce juniper removal projects. Added storage facilities and juniper removals projects will provide thousands of ac-ft. of additional surface and ground water storage, provide additional wildfire protection, increase late summer and fall instream flows, and augment irrigation waters.

4. Establish a Public Utility District within Siskiyou and Klamath Counties to take possession of the hydroelectric facilities and pursue FERC re-licensing. Note: This process is underway in Siskiyou Co. and planned to involve Klamath Co. and the Shasta Nation in the future.

<u>These proposals will:</u>

- *Save the Hydro-electric Dams which generate <u>clean, green, renewable</u> power to 70,000 homes and protect the lake habitat and homes in and around the reservoirs by removing dam removals from the proposed Lower Klamath Project and the Klamath Basin Restoration Agreement (KBRA), and eliminating the Klamath Hydroelectric Settlement Agreement (KHSA).*
- *Save Iron Gate Fish Hatchery, which is dependent on cool low level water releases from Iron Gate Reservoir, which releases over six million salmon and steelhead fingerlings per year into the Klamath River. Note: A former Ca. DFW Game Warden stated, "It is impossible for the Klamath River*

Habitat above Iron Gate Dam to duplicate the production of fish generated from the Iron Gate Hatchery."

- *Save future impacts on the Fall Creek Hydro-electric Facilities and Yreka City Fall Creek water supply.*
- *Save the Klamath River from complete destruction by eliminating the proposed and irresponsible releasing of 20 million cubic yards of sediments and pollutants retained behind the dams down river. This equates to sediment 3ft. thick all the way to the estuary, assuming that the River is 150ft. wide & 190 miles to the ocean. (Violates Clean Water Act Section 401)*
- *Save future Klamath River water demands from the Scott R. and Shasta R. by State and Federal Agencies to satisfy requirements proposed in the KBRA for Environmental Waters.*
- *Preserve the sacred Shasta Nation Villages and Burial Sites beneath the waters of Iron Gate and Copco Reservoirs.*
- *Provide additional storage facilities and instream flows which will enhance fisheries and benefit the Tribes, NGOs and fishing interests, and improve Klamath River water quality.*
- *Eliminate increased electricity rates for On and Off Project irrigators and all ratepayers and provide substantial power rate reductions with the establishment of a PUD.*
- *Provide Governmental Agencies common sense and professionally supported and engineered alternatives.*

Response to Comment IND269-14

As discussed in response to comment IND269-7 above, the Lower Klamath Project EIR presents a reasonable range of alternatives to the Proposed Project. Volume I Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Please refer to Volume I Section 4.1 *Alternatives Selection/Overview* pages 4-7 to 4-8 for a discussion about why a potential bypass tunnel around Iron Gate, Copco No. 2, and Copco No. 1 dams was not analyzed further. Please also refer to pages 4-10 to 4-11 for a discussion of both the Scotts/Quarts Valley water storage alternative and the Shasta River water transfer alternative and why they were not analyzed further. Additionally, transferring the Lower Klamath Project facilities to a Public Utilities District potentially would change the applicant but it is not clear that any other project details would change. Please refer to Volume I Sections 4.2 *No Project Alternative* (pages 4-15 to 4-74) and 4.4 *Continued Operations with Fish Passage Alternative* (pages 4-99 to 4-180) for a detailed analysis of these alternatives. There are potential impacts and beneficial effects identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment IND269-15

My final recommendation as a Professional Engineer, if overseeing the Lower Klamath Project, which is very controversial, does not have local public support, and is flawed with questionable environmental documents, is to implement the following study to justify that Dam Removals:

If Dam Removals are selected as the preferred alternative and prior to any decommissioning or work on Dam Removals, perform the following: 5-year study:

1. Remove plugs on bypass tunnels to allow maximum flows through the existing tunnels.

2. Plan controlled plug removals to sequence with anadromos fish runs and weather conditions.

3. Perform a 5yr. study to determine if anadromous fish can or will utilize the upper Klamath Basin tributaries and their juveniles return to the estuary.

4. Study the impacts of sediment release down the K. River.

5. Study the impacts on the Iron Gate Fish Hatchery.

6. Study the impacts on ground water recharge.

7. Study the impacts on the Upper Klamath Basin agricultural water availability without Dam storage for minimum flow releases.

8. Study the impacts from the release of lake aquatic life to the K. River.

9. Study the impacts on lake fishing and recreation.

Note:

During this study period the Dams will provide flood control and the Fish Hatchery can be shut down to study the benefits of the Hatchery.

After the study period, when it is determined that anadromous fish habitat does not exist in the Upper K. Basin and other studies support retaining the Dams and hatchery, the bypass tunnels can be re-plugged and the Hydro-electric Facilities can be put back into normal operation.

Response to Comment IND269-15

The comment suggests drawing down the reservoirs without removing the dams and associated facilities to allow the potential environmental impacts of the reservoir drawdown to be studied (i.e., Item No. 4 sediment release; Item No. 6 groundwater recharge; Item No. 7 agricultural water supply; Item No. 8 release of aquatic species in the reservoirs to the Middle and Lower Klamath River; Item No. 9 impacts on reservoir fishing and recreation) and the potential for environmental benefits of dam removal to be studied (i.e., Item No. 3 habitat expansion for anadromous fish in the Upper Klamath Basin associated with upstream and downstream volitional fish passage), while the dams remain in place and provide interim flood control. The comment also suggests that Iron Gate Hatchery be shut down as part of the proposed 5-year study to assess the benefits of the hatchery. The comment then states that the 5-year study will show that anadromous fish habitat does not exist in the Upper Klamath Basin.

Please note that for each of the suggested study items listed in the comment and discussed in more detail below, the EIR relies upon numerous scientific studies and analyses, based on environmental sampling and/or modeling, that are sufficient to provide decision makers with information that accounts for environmental consequences of the Proposed Project and the alternatives (CEQA Guidelines section 15151), such that the studies and interim operations suggested in the comment are unnecessary, and in some cases, may result in greater environmental impacts than the Proposed Project.

With respect to Item No. 1, please note that simply removing plugs on the Lower Klamath Project diversion tunnels (referred to as “bypass” tunnels in the comment) would draw down the reservoirs in an uncontrolled manner in the first year of the 5-year study proposed by the comment. Please refer to Volume II Appendix B: *Definite Plan* – Section 4.2.2 *Reservoir Drawdown and Diversion Plan – Copco Lake,* Section 4.2.3 *Reservoir Drawdown and Diversion Plan – Iron Gate Reservoir,* and Section 4.2.4 *Drawdown Controls* (pages 84 to 89) for discussions of the diversion tunnel modifications proposed by the Klamath River Renewal Corporation (KRRC) to draw down the reservoirs in a controlled manner. Further, the Lower Klamath Project dams were designed for hydropower operations, which support primarily full pool conditions with relatively small variations in water level for power generation, and any proposal to undertake fully drained reservoir conditions for long periods of time (e.g., five years) would require dam stability investigations to ascertain the potential effects that prolonged exposure and changes in pore pressures could have on the dams.

With respect to Item No. 2, other than the mechanisms for controlling flows that move through the diversion tunnels (see Item No. 1 above), it is not clear how the study suggested in the comment (i.e., planning controlled plug removals of the diversion tunnels sequenced to occur with anadromous fish runs and weather conditions) is different from the Proposed Project, which would undertake reservoir drawdown at a period when winter flows and levels of suspended sediment are naturally high in the river and only a portion of fish populations are likely to be present in the mainstem Klamath River immediately downstream of the Hydroelectric Reach. As discussed in Volume I Section 2.7 *Proposed Project* (page 2-26), drawdown timing for J.C. Boyle, Copco No. 1, and Iron Gate reservoirs was selected to minimize impacts to salmonids and other aquatic species. Based on the distribution and life-history timing of aquatic species in the Klamath Basin, only a portion of fish populations are likely to be present in the mainstem Klamath River during the periods of greatest sediment transport between January and March (please refer to Volume III Attachment 1 Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* – Potential Impact 3.2-3). Most species are in tributaries which would be unaffected by the Proposed Project or are further downstream during this time where river conditions would be less influenced by sediment transport by the Proposed Project due to dilution by tributary inflows. Additionally, the timing of drawdown coincides with periods of naturally high suspended sediment in the Klamath River, to which aquatic species have adapted through avoidance and tolerance.

The EIR relies upon a number of detailed studies, an analysis by the Federal Energy Regulatory Commission (FERC), and two scientific expert panel reports to assess the amount of potential anadromous fish habitat that is located upstream of Iron Gate Dam and that would be utilized by the various freshwater life history stages of anadromous fish under the Proposed Project (please refer to Volume III Attachment 1 Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*). Performing a 5-year study to determine if anadromous fish can or will utilize the Upper Klamath Basin tributaries, and if juveniles would return to the Klamath River Estuary, as suggested by Item No. 3 in the comment, would require the implementation of volitional upstream and downstream fish passage at the Lower Klamath Project facilities for the period of the proposed study, where the comment assumes that the dams and other hydropower facilities would remain in place. It is not clear that the diversion tunnels, modified as described in the comment, would provide volitional passage. Please note that implementation of upstream and downstream fish passage for the Lower Klamath Project facilities is analyzed in the EIR as an alternative to the Proposed Project (please refer to Volume I Section 4.4 *Alternatives – Continued Operations with Fish Passage Alternative* [pages 4-99 to 4-180]).

With respect to Item No. 4, the EIR also relies upon the results of detailed sediment sampling and modeling efforts to assess the potential for environmental impacts due to the release of sediment deposits from behind the Lower Klamath Project dams. Please refer to Master Response GEO-1 for a discussion of the EIR's overall approach to sediment modeling and analysis for the Proposed Project and alternatives, the downstream extent of potential fine sediment impacts during and following dam removal, and the analysis approach for addressing spatially discrete fine sediment impacts. Please also refer to Master Response WQ-3 for a discussion of the adequacy of modeling for sediment deposits and suspended sediments during reservoir drawdown and Master Response WQ-6 for a discussion of potential contaminants in sediments. Please note that the Proposed Project includes a Reservoir Area Management Plan that would provide for restoration of reservoir sediments remaining on the floodplain and the surrounding slopes during and immediately following drawdown to stabilize the sediments (Volume I Section 2.7.4 *Proposed Project – Restoration Within the Reservoir Footprint* [pages 2-69 to 2-76] and Volume II Appendix B: *Definite Plan – Appendix H: Rare Natural Communities in the Area of Analysis*). Simply drawing down the Lower Klamath Project reservoirs for the duration of a 5-year study would not control the frequency and duration of elevated suspended sediment impacts on fish and other aquatic organisms in the Klamath River, such that the study suggested in the comment would likely result in greater sediment-related impacts than the Proposed Project.

Regarding Item No. 5, Iron Gate Reservoir currently provides the water supply for Iron Gate Hatchery. Any study of the impacts of drawing down the reservoirs on Iron Gate Hatchery, as suggested in the comment, would necessarily conclude that the hatchery could not be operated without an alternate water supply.

With respect to Item No. 6, please refer to Master Response GRW-1 for a discussion of the effects of the Proposed Project on groundwater wells. Please note that the study suggested in the comment would not avoid any potential impacts to groundwater wells in the vicinity of Iron Gate and Copco No. 1 reservoirs due to reservoir drawdown, and it does not propose mitigation for those potential impacts during the 5-year period of the study. In contrast, the Proposed Project proposes mitigation for potential impacts to groundwater wells.

With respect to Item No. 7, please refer to Master Response WSWR-1 for a discussion of the potential effects of the Proposed Project on agricultural water supply for California water users in the United States Bureau of Reclamation (USBR) Klamath Irrigation Project.

Regarding the comment's suggestion to study the impacts from the release of lake aquatic life to the Klamath River in Item No. 8, please refer to Volume III Attachment 1 Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* Potential Impact 3.3-17 for the analysis of potential interactions between introduced reservoir fish species, including largemouth bass, yellow perch, bluegill, and brown bullhead, and the native aquatic species in the Klamath River downstream of the Hydroelectric Reach. This analysis determines that there would be no significant impact due to the Proposed Project. Please also refer to responses to comments ORG46-14 and ORG46-260. Please note that the study suggested in the comment would not avoid any potential interactions between introduced reservoir fish species and native aquatic species in the Klamath River due to reservoir drawdown.

Regarding the comment's suggestion to study the impacts of reservoir drawdown on lake fishing and recreation in Item No. 9, please refer to Volume III Attachment 1 Section 3.20.9 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-2 and Potential Impact 3.20-3 for the EIR's analyses of long-term adverse changes to or loss of reservoir-based recreation activities and facilities due to removal of Iron Gate and Copco No. 1 reservoirs, and the potential for a significant increase in the use of regional recreational facilities due to loss of Iron Gate and Copco No. 1 reservoirs, respectively. Please note that both of these analyses determined that there would be no significant impact of the Proposed Project. The study suggested in the comment would not avoid any potential impacts on recreation due to reservoir drawdown during the 5-year study.

With respect to the comment's assertion that the Lower Klamath Project dams would provide flood control during the 5-year study period, please refer to Master Response FLD-1 for a summary of the key points from the EIR concerning the potential impacts related to the Proposed Project's changes to downstream flood hydrology, as well as the Proposed Project's proposal to reduce or avoid such impacts. As noted above, it is not clear how fully drained reservoir conditions for long periods of time (e.g., five years) would affect dam stability and, as such, the comment's assumption that the dams would provide flood control under conditions of prolonged exposure is not supported by substantial evidence.

Lastly, with respect to the comment's suggestion to study the benefits of the hatchery by ceasing hatchery operations for the 5-year duration of the proposed study, please note that Volume I Section 4.7 *Alternatives – No Hatchery Alternative* analyzes the potential elimination of hatchery produced fall-run Chinook salmon, and explains that it would delay the attainment of one of the Project Objectives, namely the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation.

As discussed in Volume I Section 4.7.12 *Alternatives – No Hatchery Alternative – Historical Resources and Tribal Cultural Resources* (pages 4-318 to 4-319), elimination of hatchery produced fall-run Chinook salmon under the No Hatchery Alternative would likely result in a reduction (averaging 35 percent, potentially ranging from 19 to 50 percent based on existing conditions) in adult returns in the fall beginning in post-dam removal year 3 and continuing for an indeterminate period of perhaps one to five years (i.e., short-term), before the benefits of dam removal are realized (please also refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources*, Potential Impact 3.3-7 [pages 4-306 to 4-308]). The elimination of hatchery produced coho salmon would likely result in a reduction in adult returns for a period of one to five years before the benefits of dam removal are realized (please also refer to Volume I Section 4.7.3 *Alternatives – No Hatchery Alternative – Aquatic Resources*, Potential Impact 3.3-9 [pages 4-310 to 4-313]). This potential impact to the fishery would be greater under the No Hatchery Alternative than under the Proposed Project, because under the Proposed Project the hatcheries would continue to supplement natural adult returns (albeit at a reduced rate of production) until after seven generations or cohorts of fish have been hatched with the benefit from expanded habitat and improved water quality conditions. The short term reduction in the fishery due to elimination of hatchery-produced fall-run Chinook and coho salmon under the No Hatchery Alternative would represent a material impairment of the Klamath Riverscape as a resource and a substantial restriction of tribal access to the fishery relative to existing conditions. As noted above, the comment suggests ceasing hatchery operations for the 5-year duration of the proposed study without ensuring volitional fish passage around the Lower Klamath Project dams and associated facilities, such that the study suggested in the comment would likely result in substantially greater impacts to salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation than would the Proposed Project.

Bailey, Michael

Comment IND345-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND345-1

Thank you for your comment. Please refer to Master Response GEN-1.

Baker, Carli

Comment IND105-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND105-1

Thank you for your comment. Please refer to Master Response GEN-1.

Ballinger, Doug

Comment IND191-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND191-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ballinger, Scott

Comment IND263-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND263-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bamberger, Cole

Comment IND124-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.
Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND124-1
Thank you for your comment. Please refer to Master Response GEN-1.

Barger, Christian

Comment IND116-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND116-1
Thank you for your comment. Please refer to Master Response GEN-1.

Barlow, Kelly

Comment IND383-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND383-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bartlett-Ré, Stephen

Comment IND250-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steel11ead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to free the Klamath! We need to improve the future of the fisheries and the water.

Response to Comment IND250-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bauer, Nick

Comment IND326-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND326-1

Thank you for your comment. Please refer to Master Response GEN-1.

Beardsmore, Loy and John

Comment IND368-1

We believe that the SWRCB's Draft EIR is grossly deficient and should be redone due to many factors, such as incomplete/omitted/obsolete data within the studies, and the report is based on biased studies and opinions skewed towards dam removal without adequately exploring other alternatives. Much of the DEIR, like the KRRC's Definite Plan, is based on the 2012 Detailed Plan, and is a cut-and-paste document with outdated, as well as, inaccurate information. After reading through what the KRRC calls their "Definite Plan" we find it to be far from definite! They have taken much of the 2012 USBR Detailed Plan and pasted it into their own document. The SWRCB has done the same. We are not alone with that line of thinking as FERC has said the same to the KRRC asking for more specifics, studies, etc. The KRRC claims they will perform various *mitigation measures where significant impacts occur, IF it can be shown to be a result of the project, but there is no direct accountability, and no certainty that the funding necessary for mitigation will be there. The KRRC, as well as the SWRCB's data/plans, are filled with errors, incorrect facts, lacking information, and they are grossly deficient in specificity. The Water Board has not concluded enough new studies to make the DEIR more definitive and specific. They are also ignoring pertinent studies, both past and current, that refute their science. They lack local information, or don't want to make the effort to seek it. Parts of the report, that didn't meet their needs, were ignored and left out.*

The Proposed Project and the DEIR is based entirely upon the Definite Plan submitted last year which FERC has requested a revision. How can the SWRCB present its EIR based on a document that is being revised since the original plan was considered lacking in technical adequacy? Since the Definite Plan is inadequate, by definition, the SWRCB's EIR is inadequate.

Response to Comment IND368-1

Thank you for your comment. As stated in Volume I Section 2.7 *Proposed Project – Proposed Project* (page 2-25), the Detailed Plan (USBR 2012c) and the Definite Plan (AECOM et al. 2018) constitute the applicant's Proposed Project. To the extent that there is conflicting information in the Definite Plan relative to the Detailed Plan, the Klamath River Renewal Corporation (KRRC) has indicated that information in the Definite Plan supersedes the information in the Detailed Plan.

Consistent with CEQA Guidelines section 15126.6 (a), the Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *Alternatives – Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

The EIR evaluates the potential environmental impacts of the Proposed Project and evaluates feasible measures to mitigate those impacts and alternatives to the Proposed Project. The concerns regarding KRRC's accountability and liability for other problems are general and not related to the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384). For information on this non-CEQA issue, please refer to KRRC (2019b) here: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf. Briefly, in its 2019 update to the Definite Plan, KRRC explains that the states of California and Oregon and PacifiCorp must be assured that sufficient funding is available to successfully implement the Proposed Project and that risks of the Proposed Project have been mitigated. Through the process stipulated in the Klamath Hydroelectric Settlement Agreement (KHSA) Section 7.1, the States would affirmatively endorse the license transfer, assuring the Federal Energy Regulatory Commission (FERC) of the sufficiency of resources to protect the States' interests.

To the extent the comment raises concerns about the enforceability of requirements that the applicant address the environmental impacts of the Proposed Project, and of the ability of the applicant to do so, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of FERC proceedings. The State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related requirements as a condition of certification. These requirements would become enforceable through incorporation into any Federal Energy Regulatory Commission (FERC) surrender license, as well as under the Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

The comment does not specify which past and current studies it is concerned are being ignored in the EIR or other types of local information that it asserts are missing from the EIR. In general, the EIR includes the best available information to support the analyses contained within, and it recognizes that there are a number of areas of controversy associated with the Proposed Project (Volume I *Executive Summary – Areas of Controversy* Table ES-2 [pages ES-22 and ES-23]).

Comment IND368-2

There are many sections of the Definite Plan that refer to future studies in the project impact areas. Again, one of these are the Groundwater wells. The data *in the Groundwater section of the DEIR is inadequate. We could ascertain that a minimum of 4 wells around Copco 1 were NOT studied in the BOR report in 2012, nor were any studies done since. The Water Board has performed a "cut and paste" exercise, similar to what the KRRC has done, rather than perform new studies or collect available data.*

The KRRC has not obtained their stated number of sentinel wells around Copco, through resident volunteers, nor have they drilled any wells, and we doubt they have done this at Irongate as well. They have done absolutely no public outreach to do that. In fact, the KRRC saying they are doing community outreach is an outright lie. They have not performed the work or studies that they say they will do. Again, a study with incomplete data is not usable.

Without this data to allow for baseline well conditions and data within the area, any analysis is not reliable. This pertains not only to groundwater data, but sediment studies, and all areas of environmental concerns. There have not been enough studies to give a baseline to compare to after the project is implemented. How else can the environmental impacts of this project be determined? We need adequate studies and those have not been performed.

Response to Comment IND368-2

Please refer to Master Responses GRW-1 and GRW-2.

Comment IND368-3

With the DEIR Groundwater data studies, thirty-four studies are from 1973-2002, and ninety-six are from 2004-2011. Only twenty-two cited documents are from 2012-2018. We believe these studies are considerably outdated. We asked Parker Thaler, of the SWRCB, about the studies of the wells around Copco saying that they did not use all the well logs in their studies, but Mr. Thaler said they were not available from DWR. This is patently NOT TRUE, as they were available, and we could obtain them. In a conversation with Parker Thaler, we pointed out the lack of a complete study, but was told that it "didn't matter, that our well was within the 2.5 miles of the reservoir and therefore would be "covered" under the KRRC's Groundwater Well Management Plan." Thaler saying it was unimportant and didn't matter because our well would be mitigated by the KRRC is absurd! Is incomplete data now the norm for the SWRCB? This is just one section of the Draft EIR!! How can the DEIR base any report based on such incomplete, out-of-date data?

If one were to use an analogy of someone needing surgery, would doctors consider using CT scan, X-rays, or lab results that are 8-15+ years old and only those results that supported the surgeons reason for surgery?? If the surgery was not necessary or successful, the doctor would surely be faced with a malpractice lawsuit. How is this DEIR any different? Obviously past studies can be helpful, but an informed report must be performed using the most current, unbiased studies.

Response to Comment IND368-3
Please refer to Master Response GRW-2.

Comment IND368-4
While the Water Board assumes Resident's wells affected would be mitigated by the KRRC, they would not be responsible for making certain that this happens. The Water Board shifts this responsibility to FERC to enforce. The SWRCB also states in the Executive Summary, "State Water Board cannot ensure implementation of good neighbor agreements" so what certainty will the KRRC's plan be for mitigation? The KRRC states in their literature that "IF wells were to be adversely affected and IF it can be shown to be due to reservoir drawdown, then they would mitigate." What proof will a resident need to show to the KRRC to have their wells made 'whole' again, and in what time period would the KRRC mitigate? Who will make sure that the KRRC does what they say they will? In the meantime, a resident's home will be uninhabitable and yet the SWRCB claims that there would be "No significant impact" because of mitigation measures!! This statement is based on nothing, but the KRRC's claim of a "Groundwater Management Plan". This is a document that is based on incomplete data, no specificity, inadequate funding numbers, and a claim of instituting a "good neighbor" policy. While the SWRCB may trust the KRRC, residents have seen and heard little to instill that trust. If wells go dry, do residents call FERC to be certain that the KRRC will do what they say to make residents whole again? Will the KRRC still have the funds necessary to make residents whole again? For the Water Board to say that mitigation measures will be implemented to prevent or avoid significant environmental impacts is a false statement because the Board cannot guarantee that those actions will occur.

Response to Comment IND368-4
Volume I Section 3.7.5 *Environmental Setting, Impacts, and Mitigation Measures – Groundwater – Potential Impacts and Mitigation* Potential Impact 3.7-1 (pages 3-663 to 3-665) discusses the potential adverse effects to water levels in groundwater wells adjacent to the Lower Klamath Project reservoirs and how the Groundwater Well Management Plan would address potential impacts. The Groundwater Well Management Plan describes how impacts would be determined and the short- and long-term measures to address them. As a condition of the project being submitted to the Federal Energy Regulatory Commission (FERC) for its approval, the Groundwater Well Management Plan would also become a condition of FERC's approval. The State Water Board's draft water quality certification also details the monitoring and reporting requirements associated with the Groundwater Well Management Plan. Please also refer to Master Response CEQ-2.

Comment IND368-5
Section 15126.4(a) of the CEQA Guidelines states "(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project,

as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant."

As we stated above there are many parts of the plan that have yet to be studied. There are habitats in the area that require more study and yet the SWRCB is making a report based on inadequate and incomplete information. The KRRC is currently conducting sediment studies, so that data is NOT in the DEIR. How can the Water Board issue a draft report on the impact of the project based on studies that are currently being done or have yet to be performed?

Response to Comment IND368-5

With respect to sediment studies being conducted by Klamath River Renewal Corporation (KRRC), please refer to response to comment ORG46-57.

With respect to habitat-related studies, the EIR analysis incorporates 2017 and 2018 data collected and provided by KRRC (e.g., western pond turtle, bat, and eagle surveys). Additional surveys conducted by KRRC include special-status wildlife surveys (2018, 2019), bat surveys (2019), and eagle surveys (2019).

The State Water Board has included Mitigation Measure TER-6 Gray Wolf to assess known wolf activity every six months, and further coordinate with California Department of Fish and Wildlife (CDFW) to identify appropriate measures if Project activities pose any potential impact on gray wolves. The State Water Board has also included Mitigation Measure Mitigation Measure TER-7 Bald and Golden Eagle to conduct surveys, including a pre-construction survey within two weeks prior to commencing ground-disturbing activities, and if eagle nests are documented, a restriction buffer shall be identified in coordination with the United States Fish and Wildlife Service (USFWS) and CDFW and established around the nest to ensure that nets are not disturbed. Please refer to Volume III Attachment 1 Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* for the full TER-6 and TER-7 mitigation measures.

As identified in Volume I Section 3.5.5.3 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities*, Mitigation Measure TER-3 Western Pond Turtle Pre-construction Surveys would occur (pages 3-530 and 3-531), and Mitigation Measure TER-4 incorporates western pond turtle rescue after reservoir drawdown operations (pages 3-569 and 3-570). KRRC proposed a pre-construction nesting bird survey, in which the State Water Board incorporated additional components under Recommended Terrestrial Measure 9 Nesting Birds to reduce impacts to less than significant (pages 3-536 538 through 3-540). The State Water Board Recommended Terrestrial Measure 7 General Special-status Wildlife Surveys and Pre-construction Surveys would include a pre-construction survey for all special-status species with the potential to occur (page 3-531), to reduce potential impacts to less than significant. The State Water Board Recommended Terrestrial Measure 3 On-site Biologist/Construction Monitoring Plan to conduct a pre-construction clearance of the work area prior to implementing construction activities (page 3-532), and Recommended Terrestrial Measure 7 General Special-status Wildlife Surveys and Pre-construction Surveys to conduct a general special-status wildlife survey within 24 months of initial habitat modification for all-special status species with the potential to occur (Page 3-535). As identified in these recommended measures, if special-status species are documented, a biologist may implement a buffer, delay construction, or contact agencies to discuss further measures.

Comment IND368-6

Under Public Resources Code section 21104, "[p]rior to completing an environmental impact report, the state lead agency shall consult with, and obtain comments from, each responsible agency, trustee agency, any public agency that has jurisdiction by law with respect to the project, and any city or county that borders on a city or county within which the project is located unless otherwise designated annually by agreement between the state lead agency and the city or county, and may consult with any person who has special expertise with respect to any environmental impact involved." I do not believe that the Water Board has done this. Did the board meet with Siskiyou County Board of Supervisors, and what about other agencies that are direct stakeholders?

Did the Water Board meet with the Copco Fire Department, Montague Fire Department, Cal Fire, and the USFS Fire personnel to discuss how the loss of the reservoirs would affect their ability to fire wildfires? After the deadly wildfire season, we just experienced last year, the significant impact to Public Services, aka Fire Protection, has been downplayed in this DEIR. Stating that the impact is unavoidable is not true, because if you leave the reservoirs in place, the impact IS avoidable!! The Water Board did NOT meet with the Copco Fire Department, nor did it meet with the Montague Fire Department. These are two of the foremost agencies that respond initially in case of fire near Copco and yet they were not consulted!! This is a travesty!

Cal Fire officials I spoke with are seriously concerned with losing these reservoirs for firefighting. Although Cal Fire does not have water scooping fixed wing aircraft, they can call upon these resources and this type of aircraft cannot be used on a river. All firefighting agencies, including the USFS, have expressed serious concerns over loss of these resources. The KRRC's Fire Management plan is grossly deficient in a deadly way because it increases fire response time! Ask the families of those that have suffered the loss of a family member due to wildfire, what an increase in response time means to them! Beyond the reservoirs providing a water resource, they also provide a significant fire break as well as a refuge for those that might not have time to evacuate. The river cannot *provide either of these resources, nor can this loss be mitigated. Some residents have only been able to obtain homeowner's insurance, living in a fire high danger area, because they were able to document that they lived near a lake. The KRRC's plan of mapping of deep water pools is insufficient, IF they will even exist in times of drought, low seasonal flows, as well as sediment deposition after dam removal. The dry hydrants are laughable as firefighting agencies do NOT all possess the connections, equipment, and engines needed to utilize these hydrants, therefore making them ineffectual. These are not mitigation measures, just meaningless words on paper! The loss of the reservoirs for firefighting cannot be mitigated, nor are there any mitigation measures that would come close to comparing to what water resources these reservoirs provide for public safety!*

Response to Comment IND368-6

Please refer to Master Responses HAZ-2 and CEQ-2. Please note, on December 3, 2019, the Klamath River Renewal Corporation (KRRC) submitted to the State Water Board an updated water quality certification application in which KRRC stated its intent to avoid a material net increase of fire risk as compared to baseline conditions in the Project Area as defined in the Definite Plan. The KRRC further explained that it is developing an updated Fire Management Plan that will include effective and feasible strategies and concepts to enhance both short-term and long-term fire prevention, detection, and suppression in the Klamath River Basin, and will submit the updated Fire Management Plan to Federal Energy Regulatory Commission (FERC) in support of the pending surrender application. The updated Fire Management Plan is being developed in consultation with federal, California, Oregon, and local fire agencies. During construction, these measures include, but are not limited to meeting or exceeding federal, Oregon, and California requirements for fire prevention and suppression during construction activities; implementation of best management practices following National Fire Protection Association standards; and the designation of a safety officer on site that is responsible for overseeing fire responsibilities for construction operations 24 hours a day, seven days a week. The Fire Management Plan will also address long-term fire management to ensure that the Klamath River Basin's fire-fighting resources are not diminished due to the implementation of the Project, including the potential deployment of technology that will rapidly detect wildfire ignitions in the Basin allowing fire agencies to respond quickly to fire ignitions. KRRC is also consulting with fire agencies on identifying replacement water sources and access, including identification of aerial river access points.

Comment IND368-7

Section 2.1 of the DEIR, Project Purpose and Objectives, outlines the SWRCB identified objectives of the Proposed Project as well as the underlying purpose. The purpose is "timely improving water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and restoring anadromous access upstream of Iron Gate Dam." This purpose does not take *into consideration the citizens of Siskiyou county, but more specifically the residents that live near and around Copco and Irongate. The SWRCB should consider the them in their project objectives. How does the objective, "Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams" but, does not specifically address improving water quality, nor does it specifically address upstream access. Wouldn't fish ladders, trap and haul or other methods of assisting the fish past the dams, meet the same objectives and yet we do not see those options discussed.*

Mitigation Measures Proposed to Mitigate Significant Impacts Section 15126.4(a) of the CEQA Guidelines states:

(1) An EIR shall describe feasible measures which could minimize significant adverse impacts, including where relevant, inefficient and unnecessary consumption of energy.

(A) The discussion of mitigation measures shall distinguish between the measures which are proposed by project proponents to be included in the project and other measures proposed by the lead, responsible or trustee agency or other persons which are not included but the lead agency determines could reasonably be expected to reduce adverse impacts if required as conditions of approving the project.

(B) This discussion shall identify mitigation measures for each significant environmental effect identified in the EIR.

(2) Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally-binding instruments. In the case of the adoption of a plan, policy, regulation, or other public project, mitigation measures can be incorporated into the plan, policy, regulation, or project design.

In the Draft EIR, the SWRCB refers to "measures that would be not be considered feasible for the purposes of CEQA because the SWRCB cannot ensure that they would occur." In these cases, recommended measures are provided that would reduce potential impacts <u>IF</u> implemented by KRRC. However, the impact analysis herein cannot rely on the implementation of these measures. In many of these cases the DEIR concludes that a significant and unavoidable impact would result.

We have serious concerns over the above statement. If the SWRCB cannot hold the KRRC accountable to perform mitigation measures, then the SWRCB should have serious concerns about such significant environmental impacts! These significant environmental impacts and any mitigation measures should be <u>definitively outlined</u> BEFORE the project is approved. It seems that the SWRCB is exempting itself from making any mitigation measures enforceable because *they cannot be certain that they would occur and cannot require the KRRC to comply with regulations. We were told by the Water Board that FERC would be the responsible party in regulating compliance. We believe that the SWRCB should revise the DEIR to definitively state these mitigation measures as they apply to state and federal law as well as the ESA. If the SWRCB does not think this is possible, then they should explain the reasoning behind this lack of specificity.*

Response to Comment IND368-7
Please see Master Response CEQ-2.

Comment IND368-8
The Executive Summary to the DEIR states:

Below is a summary, by resource area, of impacts found to be 'significant and unavoidable' with or without mitigation (Table ES-1). Please note, the KRRC proposes to further develop Proposed Project actions relating to certain state and local regulatory requirements for several resource areas that fall outside of State Water Board's water quality certification authority. The State Water Board anticipates implementation of additional measures (e.g., good neighbor agreements between the KRRC and relevant state or local agencies, recommended measures in this EIR, and any modifications developed through the FERC process that provide the same or better level of protection for the resource in question) would reduce impacts. The EIR notes where such protection would eliminate the potential for a significant impact. However, the State Water Board cannot ensure implementation of good neighbor agreements, recommended measures included in this EIR, or modifications anticipated to be developed through the FERC process. Therefore, the State Water Board has identified impacts that rely on implementation of such agreements or recommended measures in this EIR as significant and unavoidable."

We find the above statements very concerning and disturbing. This is the SWRCB exempting itself from any liability claiming that it cannot ensure that anything in the KRRC's Definite Plan will be implemented. Furthermore, by such a statement, the Water Board is underestimating the significant environmental impacts!

This section included significant and unavoidable impacts on the following resources: Water Quality, Aquatic Resources, Phytoplankton and Periphyton, Terrestrial Resources, Flood Hydrology, Air Quality, Historical Resources and Tribal Cultural Resources, Public Services, Aesthetics, Recreation, Hazards and Hazardous Substances, Transportation and Traffic, and Noise. Most of the resource areas also included recommended mitigation measures that the SWRCB states are not enforceable and therefore cannot be relied upon. In other words, the SWRCB is relying on other agencies for enforcement rather than *ensuring that any mitigation measures would be implemented to lessen the significant impacts.*

Response to Comment IND368-8
Please see Master Response CEQ-2.

Comment IND368-9
Impacts to aquatic life cannot be underestimated and dam removal would have a significant impact and yet we see nothing in the DEIR about alternatives. In addition, the Endangered Species Act was founded to protect species that are endangered of extinction. This project contends that the salmon and other aquatic life (not ESA listed species) take precedence over the ESA Lost River and Shortnose Suckerfish. This project also contends that salmon take precedence over bass, perch, sunfish, and catfish. We have yet to see the list of "preferred species" that declares a rank of importance for non-ESA listed aquatic species. Where does it state that one species should be placed above another with regards to their importance with environmentalists and fisherman? In addition, there is lack of scientific studies that are required by ESA law to study the Suckerfish. Some members of the California state legislature are so determined to remove these dams that they are willing to sacrifice these suckerfish species in favor of others by passing legislation overriding ESA law. What gives any governmental agency the right to do this? There are no laws authorizing the government to decide which species survive and those that should not. Many fish protectionist groups are claiming that dam removal is essential for the survival of the salmon, while never addressing the gill netting of the Klamath River by the tribes, rising ocean temperatures, and commercial over-fishing.

In addition, dam removal will likely endanger the very existence of salmon, and other species by inundating their spawning beds with sediments. Salmon need deep, cool water pools to survive and thrive! The KRRC states this about pool depths, "KRRC does not propose mechanical intervention in the main channel of the Klamath River at any substantial scale because the disturbance of the bed could cause more ecological impact than the sediment in the bed. Moreover, as mentioned above, KRRC does not believe that it is reasonable or prudent to want to recover pre-removal pool depths downstream of the dam. " We believe this would further endanger the salmon, yet little is said about this.

Response to Comment IND368-9
The Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each

will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

The EIR does not make determination of the importance of any listed species over another listed species. Each of the focal species are assessed independently, without comparison of relative harm or importance. However, federal Endangered Species Act (ESA) law mandate the protection of native listed species, whereas there is no such protection for introduced exotic non-native fish species, such as bass.

The EIR is required to fully analyze the Proposed Project based on best available and most current scientific and factual data. The effects of other actions that may impact aquatic focal species are discussed in Section 3.3.2 *Aquatic Resources – Environmental Setting*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Effects of sediment on aquatic resources are fully analyzed in the EIR. Please refer to Master Response AQF-10.

Comment IND368-10

Sediment sampling has been inadequate both with the 2012 Detailed Plan and with the KRRC's Definite Plan. The sediment sampling done in the past has not gone deep enough to be accurate. Without a complete, thorough study of the sediments to be released by dam removal, there is no clear picture if the KRRC will be able to meet the 401-water certification. We are concerned with PCBs as well as lead, mercury, DDT, and many other contaminants. We believe the discharge from the dams will not meet the levels necessary to comply with California laws despite the KRRC stating otherwise. We are very concerned with water quality after all these sediments have been released downstream. We contend that all of this has not been adequately studied as to the significant and potential major environmental damage that may ensue if dam removal is permitted to occur. When the lake is drained, we question how this will affect the underground aquifers.

Response to Comment IND368-10

Please refer to Master Response WQ-6 for a discussion of inorganic and organic contaminants in reservoir sediments, including references to the various EIR sections that summarize of the inorganic and organic contaminants measured in the Klamath River waters, reservoir sediments, and aquatic biota along with analysis of the potential impacts from these inorganic and organic contaminants under the Proposed Project.

Please refer to Volume I Section 3.7.2.1 *Environmental Setting, Impacts, and Mitigation Measures – Groundwater – Environmental Setting – Regional Groundwater Conditions* (page 3-641 to 3-644) and Section 3.7.2.2 *Environmental Setting, Impacts, and Mitigation Measures – Groundwater –*

Environmental Setting – Local Groundwater Conditions (page 3-644 to 3-661) for a summary of the existing groundwater conditions. Regional groundwater mapping and the presence of numerous groundwater springs in the Groundwater Area of Analysis indicate that regional conditions support a groundwater table that is near the ground surface, and also suggest that local groundwater systems are not likely to be receiving water directly from the reservoirs (USBR 2012a). That is, at the regional scale, groundwater and water discharging from groundwater springs in the Area of Analysis are not likely to be reservoir water (USBR 2012a).

Please also refer to Volume I Section 3.7.5 *Environmental Setting, Impacts, and Mitigation Measures – Groundwater – Potential Impacts and Mitigation* Potential Impact 3.7-1 (page 3-663 to 3-665) and Potential Impact 3.7-2 (page 3-665) for analysis of the potential impacts to groundwater following drawdown of the reservoirs under the Proposed Project.

Comment IND368-11

We have concerns with the release of 20-30 million cubic yards of estimated sediments to be released. As with past dam removals, estimated sediments have been grossly underestimated and we do not expect any differences with this dam removal project. The Condit Dam sediments amounts were estimated to be 1.7 million cubic yards. The reality was it was <u>three times that amount</u>. If the sediments to be released are underestimated with Klamath River Dams to the extent as with the Condit Dam removal, the proportional release of sediments could be as much as 60 million cubic yards of sediment!

After the millions of cubic yards of sediment are released, just where are they proposing to get the deep, cool water pools that the fish will need to survive and propagate? Are they not planning any mechanical intervention because they do not have the funds to do so? Are they planning to create this disaster and then hope that state and federal funds will mitigate this problem they have created? Where is the KRRC's liability in this? Do they have the proper liability insurance to fund any lawsuits that may arise out of these proposed actions? We contend that dam removal will further hurt the salmon rather than help them! Dam removal is an experiment at the costs of millions of dollars with no certainty of a positive outcome for fish. Do we believe these studies? Are they adequate? Have their sediment studies gone deep enough?

Even those advocating for dam removal such as Curtis Knight, executive director of the nonprofit California Trout said, "The removal of sediment is one of the biggest wild cards in dam removal. Is there unfound toxicity in there? We haven't found any yet, but that doesn't mean there isn't some there. What is the composition of the sediment really like and how is that going to move itself downriver? What are the impacts on fish? Those are some of the bigger unknowns."

The amounts of sediment have been *<u>estimated</u>* *at 20-30 million cubic yards of sediment. We have no certainty as to the accuracy of this estimate.*

Lynda V. Mapes, of the Seattle Times on 1/2/13 reported on the Elwha Dam removal, "It turns out the dam-removal project on the Elwha River—already the biggest anywhere in the world—is even larger than originally thought. In the project, long predicted to affect more than 24 million cubic yards ment, the amount of sediment once impounded by the dams is actually about 34 million cubic yards, said Barb Maynes, spokeswoman for the National Park Service."

If you look at the amounts of sediment *<u>estimated</u>* *to have been released with the Condit Dam removal, the reality was that it was* *<u>three times the modeled amount</u>!* *Sixty-foot-deep pools were completely filled with sediments, and there are issues at the delta where the White Salmon River meets the Columbia River only 3.3 miles from where the Condit Dam was located. They are currently attempting to clear that delta of all the sediments. The White Salmon River is a clear, cold-water river with temperatures of forty-three degrees. The Klamath River is much shallower, considerably warmer river with historic low flows before the dams were constructed. How can the Water Board consider allowing all this sediment to be released down the river? It will raise the bed height of the river by an unknown number of feet which will negatively raise water temperatures, water quality, as well as decimate fish habitat and spawning beds. With the Condit Dam, the spawning beds have been inundated with sediments, and this will be a certainty with the Klamath River, despite the KRRC claiming this won't occur and by their own admission they will not mitigate this as they are afraid of causing more damage. Does the Water Board have enough assurances from the KRRC to believe they will be able to take mitigation measures to avoid significant water quality impacts?*

Response to Comment IND368-11

For a discussion of sediment erosion, transport, and deposition, associated with dam removal under the Proposed Project, please refer to Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 and to Master Response GEO-1. Uncertainty of the stored sediment quantities has been accounted for in the EIR, as explained in the response to comment ORG46-8. Sediment model sensitivity is discussed in USBR (2012; see pages 9-18 to 9-32).

Note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both sets of SRH-1D simulations that were undertaken by the U.S. Bureau of Reclamation [USBR](i.e., forty eight 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume

III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

Regarding the differences between the Proposed Project and other dam removal projects, please refer to response to comment IND15-ORAL-3.

As described in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, mechanical dredging of reservoir sediments is not feasible. Sediment jetting is proposed by the Klamath River Renewal Corporation (KRRC) as a means to support erosion and transport of the reservoir sediments during reservoir drawdown in particular locations along the floodplain of the original river channel to support restoration of wetland and riparian habitat. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

For information on potential sediment-related impacts to salmonids, including spawning beds, please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impacts 3.3-1, 3.3-4, 3.3-7, 3.3-8, and 3.3-9. Substantial declines in the abundance of coho and chinook salmon population are not expected for more than one year class (i.e., one generation). Removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams as part of the Proposed Project would enable less impeded sediment transfer downstream as part of the natural river dynamics, which would have beneficial effects for salmon in the long term. Please also refer to Master Responses AQF-7 and AQF-10 for additional information on sediment-related impacts to aquatic resources. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Regarding sediment-related impacts to water quality, please refer to Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments*. Water temperature is considered in Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature*, as well as in Section 3.3 *Aquatic Resources*.

To the extent the comment raises concerns about the enforceability of requirements that the applicant address the environmental impacts of the Proposed Project, and of the ability of the applicant to do so, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of FERC proceedings. The State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related requirements as a condition of certification. These requirements would become enforceable through incorporation into any Federal Energy Regulatory Commission (FERC) surrender license, as well as under the

Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

Comment IND368-12

Water quality and sediment sampling issues are also a concern, as in the past and going into the future, the USBR has had to release water to meet seasonal pulse flows to avoid fish disease. With the dams removed, this water must be released from the Upper Klamath Lake where there are well known water quality issues. This will be water that will come into California from Oregon, not meeting our water quality standards, IF there is enough water after meeting wildlife and agricultural needs in Oregon.

Response to Comment IND368-12

Please refer to Master Responses WQ-1 and PAP-1.

Comment IND368-13

Another area of weakness is the fact that the KRRC's plan lacks specificity as to how they intend to do water quality monitoring. How does the Water Board intend to make the KRRC accountable for this monitoring? While it may appear to be technically adequate, without their specific plans to do monitoring there is no way to hold them accountable or no way to be certain that they will follow through and do what they say. We also do not have adequate assurance that they will have the financial capacity to follow through. Aside from the original studies, only an extremely limited section of the Klamath River was evaluated, and not all the creeks and rivers from above and below Iron Gate Dam to the mouth of the Klamath River, that make up the entire river system. The actions of all parties that impact the river, were and need to be taken into consideration.

Response to Comment IND368-13

The State Water Board's draft water quality certification (available online at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/lower_klamath_ferc14803/lkp_dwqc.pdf [Accessed December 11, 2018]) incorporates conditions that require the Klamath River Renewal Corporation (KRRC) to monitor water quality and measures to control erosion and stream sedimentation (Conditions 1, 2, and 9).

Regarding the comment on the KRRC's liability, please note that this issue does not constitute substantial evidence regarding the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384). For information on this non-CEQA issue, please refer to KRRC (2019b) here: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf. KRRC has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs.

Comment IND368-14

There is also the issue of Yreka's water supply. The KRRC is submitting three proposals to meet current water needs of the city of Yreka, but they have not taken into consideration the future growth in water demands. This needs to be addressed prior to dam removal. There is also the additional concern of having piping above ground being more vulnerable. There is also the issue of fish mitigation with Fall Creek and will fish needs trump the City of Yreka's water demand needs. Also, we find it ironic that now the City of Yreka is so concerned with the KRRC's inability to adequately protect the integrity of the City's water supply that they have now filed a request for late intervention with FERC in this process. Does the Water Board believe that the KRRC is capable of mitigating this significant impact?

Response to Comment IND368-14

Please refer to Master Response WSWR-5.

Comment IND368-15

Regarding air quality, the sediments left behind will cause problems for residents around the reservoirs, especially Copco, and yet there is NO mention of this in the DEIR!! Look at the Condit Dam removal when they encountered toxic dusts storms when people experienced Mercury poisoning. What about when these sediments from the Klamath dams become airborne? What about the PCB's, evidence of DDT, etc.? In a recent drawdown of Copco Lake, there were days when dust from the sediments became airborne. Where are the plans to mitigate this for homeowners that live around the lakes? The only mention of dust issues relates to during dam deconstruction, but there are absolutely no plans to mitigate sediment dust issues after dams are removed! Again, the Definite Plan and DEIR are a plan/report that is far from definitive or complete!

Response to Comment IND368-15

With respect to the comment regarding dust during construction activities, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Air Quality*). Please also refer to Master Response R-2.

Comment IND368-16

Regarding soils and geology, an area of concern is slope stability and what slope failure could mean for the reservoir footprint and consequently the river. We see little in the DEIR about slope stability. We are concerned with the KRRC's plan recognizing Instability of the Reservoir Rim. The KRRC states, "Approximately 2,800 linear feet of slope adjacent to private property (approximately 8.7% of south shore length) require additional field investigation and analysis to gain a more refined understanding of slope stability in those areas. Up to eight parcels along the referenced-reservoir rim segments appear to have existing habitable structures that could potentially be impacted." Their plans are: "For segments adjacent to property or structures: a) Move structure or purchase property b) Engineer structural slope improvements (e.g. drilled shafts or other structural elements that could be installed to resist slope movement) " While they have done "field investigation and analysis" we believe that they need to do much more! We believe that their current estimates of only 8 parcels being affected, will be at least twice that number! The KRRC also doesn't know where the septic tanks for these properties are located, nor have they even considered that as a potential problem! Some septic tanks exist between homes and the slopes that are in danger of collapse! How do they intend to mitigate those factors? Are they even aware of that fact? Also, we have looked at the slopes the KRRC has identified as "at risk" and they are not the ones that have had previous slides. There are slopes with a 90-degree incline, to the existing reservoir. These slopes are not even "red-lined" for concern! During previous drawdowns, the slopes have sloughed off. Even when there are no drawdowns, the slopes continually erode into the lake. Trees have fallen into the lake from these slopes, and as the rims have eroded and fallen, some docks have been lost through the years. Does the KRRC even know of these facts? We know of at least one home that has been experiencing foundation cracks, but does the KRRC know which house this is? How can the Water Board begin to believe that the KRRC has the technical ability to take on this project when they have not begun to do adequate studies and are these studies even accurate and reliable? Besides their technical abilities being sorely lacking, do they have the financial capacity to mitigate such problems? The DEIR makes very little mention of slope stability.

Response to Comment IND368-16

Regarding slope instability, please refer to Volume I Section 3.11.5 *Environmental Setting, Impacts, and Mitigation Measures – Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 (pages 3-761 to 3-765) and revisions to this impact in Volume III Attachment 1, as well as to Master Response GEO-2. Please also refer to the geologic assessment and slope stability analysis conducted by the Klamath River Renewal Corporation (KRRC) (Volume II Appendix B: *Definite Plan* – see Appendix E of the *Definite Plan* for the *Reservoir Rim Stability Analysis*). Comments on the *Definite Plan* should be submitted to KRRC.

The analysis of parcels and structures on potentially unstable slopes conducted by KRRC (Volume II Appendix B: *Definite Plan* – see Appendix E of the *Definite Plan* for the *Reservoir Rim Stability Analysis*) identifies approximately 1,780 linear feet of shore-parallel length with potential for failures to impact existing structures outside the reservoir rim. These areas include approximately 430 linear feet of slopes along Copco Road (north shore segment N11a) and approximately 1,350 linear feet of slope adjacent to private property (south shore segments S5, S11a, and S12b). Twelve parcels and four habitable structures in these potentially unstable areas could potentially be impacted by slope failure. An additional five parcels and four habitable structures may experience damage and/or deformation due to nearby slope failure. Therefore, there are a total of 8 habitable structures identified as potentially affected by slope failure during drawdown. It is noted that the funding and actions listed in the third paragraph of Mitigation Measure GEO-1 apply to slope failures (if any) that occur upon implementation of the Proposed Project, regardless of whether they are in areas identified as having potential for instability or not. Additionally, please note that Mitigation Measure GEO-1 requires KRRC to address adverse impacts to “structures,” which include facilities connected to homes, like septic tanks.

Regarding the part of the comment that relates to KRRC’s financial capacity for mitigation, please refer to response to comment IND368-11.

Comment IND368-17

In the DEIR, the report concludes questionable references towards the aesthetics. Aesthetics are a major factor as to why homeowners built homes around the lakes. The report does little to address what will be lost in aesthetics for years looking onto mud flats, etc. Homeowners that live around the Copco 1 Reservoir and others have been grossly overlooked in both the USBR report as well as the KRRC’s plan. We are the most impacted stakeholders and were NEVER represented at any of the meetings with the KHSA, KBRA, state, or any meetings! Our property values have dropped by over half and are continuing to decline in value! Whatever value is left in our homes, becomes almost nothing when we cannot sell our homes, unless we do so at a small fraction of what they were originally worth IF anyone even is interested in buying! The Siskiyou County Assessor-Recorder and Senior Appraiser, have both been quoted as saying there have been noticeable changes in the Copco market, including increased marketing times, much lower sale prices and a refusal by some realtors to list homes in the area, and in calling to get appraisals of our homes have been refused by appraisers! Any homeowner now wishing to sell their home that border the reservoir must disclose dam removal, possible loss of well water, slope instability resulting in foundation movement and loss of property, *and no certainty of river access. Siskiyou County Board of Supervisors, among others, have on multiple occasions, expressed a desire to see mitigations put in place requiring that property owners be reimbursed for lost property value if the dams are removed.*

While the KRRC has said, "KRRC's study and planning will evaluate various ways to mitigate impacts (property values) to landowners." October 2017. Despite the KRRC stating, "Based on this outreach and the information obtained from state and local jurisdictions and other stakeholders, KRRC has made changes or modifications to the Definite Plan to address these agencies' and stakeholders' interests and concerns." We see absolutely nothing about compensation for homeowners in this Definite Plan, despite homeowners having repeatedly asked if and how we will be compensated for our loss of property values! Just where in this DEIR does it address mitigation for lost property values?? We also see absolutely nothing in the Definite Plan to address school funding losses and loss of county funding due to loss of taxes in the Definite Plan. There are no offers of compensation of any type and absolutely no plans to mitigate this loss!

There is a legal position here on a state or federal project for "hardship" loss of value. It is a public project cost. In the KRRC's "cut and paste" from the 2012 Detailed Plan, ironically, they eliminated any mention of lost property values although they certainly added much of the Detailed Plan in their Definite Plan, if it favored their proposed agenda. Although the 2012 Plan was highly deficient, as it didn't take into consideration improved land values, but it did address Property Values and stated, "Kruse and Ahmann (2009) is the only study to model the effects of lot size and proximity to the Klamath River, Copco 1 and Iron Gate reservoirs on private residential property values. The study concluded that <u>lake adjacency does have a positive and significant impact on residential property values</u> and that, all things being equal, properties on a lake, with lake proximity or a lake view are worth more than properties without these characteristics. This group of impacted parcels consists of parcels with views of Iron Gate Reservoir and parcels with views or frontage/access to Copco I in the "before" condition. The value of these properties was deemed to be <u>negatively affected</u> as a result of dam removal. It is important to note that, in addition to examining the potential impacts to private property values from dam removal, the articles reviewed for this research analyzed numerous potential effects that can result during and after dam removal. Some of these other effects include issues related to:

The cost of dam removal and economic impacts on the surrounding areas; Future ownership of reclaimed land following dam removal; Future access to the stream/river compared to lake access with the dams. Lake bottom and flood plain restoration following dam removal; The <u>need to dispose of contaminated sediments; Potential impacts on the water table and corresponding effects on nearby wells; The loss of hydropower; Potential impacts on recreation resources including fishing, canoeing and kayaking. "</u>

"U.S. Department of the Interior, U.S. Bureau of Reclamation. 2008. Evaluation and Determination of Potential Liability Associated with the Decommissioning and Removal of four Hydroelectric Dams on the Klamath River. Prepared by Camp Dresser and McKee. The report found that there could be a loss of property values as a result of dam removal. The potential property value loss and PacifiCorp property reimbursement has the potential to equal $13 million to $27 million. In addition, the report concluded that real estate values could drop in certain areas such as <u>Copco Reservoir where owners "will lose access to a major amenity</u>." Where does the DEIR address loss of property values due to aesthetics, as we could not find it and this is definitely a VERY significant impact that IS avoidable if dam removal does not take place.

Response to Comment IND368-17

Please refer to Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-1 for a discussion of the loss of open water vistas under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.19 *Aesthetics*.

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

<u>Comment IND368-18</u>

We additionally question whether the funds the KRRC claim to have are adequate to cover cost overruns to implement mitigation measures necessary to prevent or avoid significant environmental impacts. As we have stated in numerous instances, we wonder if they won't run out of money before the project is finished. We believe they have underestimated the number of wells that will go dry or be compromised, we are concerned with slope instability and the number of homeowners that will be affected and therefore properties needing to be purchased, and we are concerned with problems with dam removal itself when they say they may have to wait a year if they run into problems. We question if funds will still be available for recreational sites after dam removal. We believe they have grossly underestimated the costs of revegetation and other unforeseen problems and challenges they will be facing. We are also concerned with the lack of number of years that they intend to do monitoring of the many facets of *this project for mitigation measures. This nonprofit will cease to exist just a short time after they achieve their goal of removing the dams.*

To further our concerns with lack of adequate funding, the KRRC is planning to implement a Progressive Design Build Plan for dam removal. In the past, this was referred to as "time and material", a plan that is infamous for cost overruns. The KRRC would have us believe that this is a considerably new way of operating in the industry, but it has no proven record with dam decommissioning and yet the Water Board is trusting that the KRRC can do what it says it can do. The danger of a Progressive Design Build plan is that it is basically a project that has no certainty of having enough funding to complete the project as defined in the KRRC's plan. If they run out of money to complete the project, then what they are claiming they will do in the Definite Plan, will not be a reality and there will be no consequences and no accountability. Their cost overrun statements are less than 10-20%. We would ask you what government projects that you have seen overruns that have ever been so low?? Does Oroville Dam ring a bell? The SWRCB cannot base their DEIR on such a plan that lacks specifics, because we do not know what plan the KRRC will follow if they run out of money to complete the project and meet the stated mitigation plans to prevent or avoid significant environmental impacts.

While we have not addressed such other resources such as Flood Hydrology, Historical and Tribal Resources, Noise, Phytoplanton and Periphyton, Recreation, Terrestrial Resources, Transportation and Traffic, we have considerable concerns for the protection of these resources as well. The significant impacts to all these and other resources are fully avoidable if dam removal does not take place. If fish ladders or some other type of fish passage (trap and haul, etc.) were to take place, the overall environmental impacts would be greatly lessened! We believe other alternatives need to be looked at as there is much more CERTAINTY!

If the Federal Government, through Congress, did not want to underwrite this project, do you confidently believe that a little nonprofit, with no dam removal experience, has the capacity to accept such liability and meet mitigation measures to avoid the significant environmental impacts? It is inconceivable that the SWRCB can trust that its Draft EIR is a reliable, accurate report based on such uncertainty.

Response to Comment IND368-18

Regarding the comment's concern about the Klamath River Renewal Corporation's (KRRC)'s financial capacity to successfully implement the Proposed Project, please refer to IND368-11.

Becker, Stacy

Comment IND254-1

I support removal of all Klamath dams. Analysis shows that dam removal will greatly reduce unhealthy conditions in the Klamath River, and will improve water quality. It will also bring the salmon home to hundreds of miles of habitat and the Klamath Tribes in the upper Klamath basin. This is an environmental and social justice issue of utmost concern.

Response to Comment IND254-1

Thank you for your comment. Please refer to Master Response GEN-1.

Bender, Jerry

Comment IND416-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND416-1

Thank you for your comment. Please refer to Master Response GEN-1.

Benkert, Andy

Comment IND73-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

My personal experience with the Klamath River and its tributaries goes back a couple decades, as I am an avid steelhead angler. Protecting this species, currently threatened under the ESA, is important not only for anglers, but for the ecosystem.

It's time to undam the Klamath!

Response to Comment IND73-1

Please refer to Master Response GEN-1.

Bentz, Keith

Comment IND385-1

I strongly support the removal of the Klamath River dam.

Response to Comment IND385-1

Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND386-1</u>
I strongly support the removal of the Klamath River Dam.

Removing the dam will restore the Klamath to the status of a free-flowing river and open 400 miles of spawning and rearing habit to salmon and steelhead.

And it will improve water quality and comply with the Clean Water Act

Please vole to remove the dam.

Response to Comment IND386-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bernard, Jeffry

<u>Comment IND417-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND417-1
Thank you for your comment. Please refer to Master Response GEN-1.

Beste, David

<u>Comment IND141-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND141-1
Thank you for your comment. Please refer to Master Response GEN-1.

Black, Stephen

<u>Comment IND249-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND249-1
Thank you for your comment. Please refer to Master Response GEN-1.

Blaich, Ryan

Comment IND276-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.
Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND276-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bland, Michael

<u>Comment IND344-1</u>
It's time to get rid of unnecessary dams that are blocking the migration passage of our endangered salmon and steelhead runs. Please support the removal of the 4 dams on the Klamath and let the river run free!

Response to Comment IND344-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bliss, Alexander

<u>Comment IND67-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND67-1
Thank you for your comment. Please refer to Master Response GEN-1.

Boero, Paul

Comment IND313-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND313-1

Thank you for your comment. Please refer to Master Response GEN-1.

Boggess, David

Comment IND142-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND142-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bohannan, Scott

<u>Comment IND262-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND262-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bramley, William

Comment IND197-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complieis with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND197-1
Please refer to Master Response GEN-1.

Bright, Jeff

Comment IND423-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND423-1
Thank you for your comment. Please refer to Master Response GEN-1.

Brink, Diane

Comment IND172-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND172-1
Thank you for your comment. Please refer to Master Response GEN-1.

Briscoe, Laura and Ken

Comment IND382-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND382-1
Thank you for your comment. Please refer to Master Response GEN-1.

Bucklin, Christine

Comment IND120-1
Yes! I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND120-1
Thank you for your comment. Please refer to Master Response GEN-1.

Burdon, Thomas

Comment IND230-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND230-1
Thank you for your comment. Please refer to Master Response GEN-1.

Burnett, Brenda

Comment IND87-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND87-1
Thank you for your comment. Please refer to Master Response GEN-1.

Burton, Don

Comment IND448-1
As a cattle producer who purchases all my winter hay and alfalfa needs from the Klamath basin, I strongly support the full removal of the lower four Klamath River darns. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND448-1
Thank you for your comment. Please refer to Master Response GEN-1.

Callow, David

Comment IND143-1
The lower four Klamath dams produce a limited amount of electricity, no agricultural water, but are very harmful to salmon.

I support progress, which in this case would be removing these dams.

Response to Comment IND143-1
Thank you for your comment. Please refer to Master Response GEN-1.

Campbell, Bruce

Comment IND97-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural di versions.

It's time to undam the Klamath!

Response to Comment IND97-1
Thank you for your comment. Please refer to Master Response GEN-1.

Campbell, Derek

Comment IND169-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND169-1
Thank you for your comment. Please refer to Master Response GEN-1.

Campbell, Don

Comment IND179-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND179-1
Thank you for your comment. Please refer to Master Response GEN-1.

Campbell, Jack

Comment IND433-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND433-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cantwell, Austin

Comments IND79-1 and IND80-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comments IND79-1 and IND80-1
Thank you for your comment. Please refer to Master Response GEN-1.

Carpenter, John

Comment IND274-1
I strongly DO NOT support the removal of the lower four Klamath River dams.

Response to Comment IND274-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND274-2
The Klamath is the third most productive fishery for salmon and steelhead on the West Coast IN LARGE PART DUE TO WATER MANAGEMENT ENABLED BY THE INPLACE DAM SYSTEM. Dam removal is A POOR QUICK FIX TO A COMPLEX WATER MANAGEMENT CHALLENGE.

Response to Comment IND274-2
Please refer to Master Response GEN-1.

Comment IND274-3
Dam removal DOES NOT improve water quality.

Response to Comment IND274-3

Please refer to Master Response WQ-1. Please also refer to Section 3.2.5 *Water Quality –Potential Impacts and Mitigation* for analysis of the variations in water quality resulting from dam removal under the Proposed Project, including the following: 1) short-term and long-term water temperature improvements in the Hydroelectric Reach and the Middle Klamath River to the confluence with the Salmon River; 2) short-term and long-term elimination of summer and fall extremes in dissolved oxygen concentrations in the Hydroelectric Reach and the Middle Klamath River immediately downstream of Iron Gate Dam; 3) short-term and long-term decreases in summer and fall pH and daily pH fluctuations in the Hydroelectric Reach from Copco No. 1 Reservoir to Iron Gate Dam; and 4) short-term and long-term reduction of chlorophyll-a and algal toxins for the Hydroelectric Reach, the Middle and Lower Klamath River, and the Klamath River Estuary. Please see Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment IND274-4

The dams are NOT a leading cause of salmon declines in the Klamath Basin. WITHOUT THE l ABILITY TO CONTROL RIVER FLOWS WE WOULD HAVE MANY ENDANGERED FISH DIE EACH YEAR.

Response to Comment IND274-4

Please refer to Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Fish* for a discussion of the environmental setting and effects of Lower Klamath Project facilities on salmon. Additionally, please see Section 3.3.2.1 *Aquatic Resources – Environmental Setting –Aquatic Species – Fish – Anadromous Fish Species Table 3.3-2 Historical and Recent Status of Klamath River Anadromous Fish* for a comparison of historical run estimates to current run estimates. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

Please refer to Master Responses AQF 3 and AQF 4.

Comment IND274-5

The reservoirs created by these dams host NATURALLY OCCURING blooms of toxic algae FOR A SHORT TIME SOME YEARS. which impairs water quality and poses health risks for people and pets. IF WE WERE TO USE THIS LODGIC STATE WIDE WE'D BE DRAINING THE DELTA AND CHANGING OUR STATE WATER POLICY. THIS IS AGAIN AN OVERLY SIMPLISTIC AND EMOTIONAL ARGUMENT, NOT AN APPROPRIATE SOLUTION.

Response to Comment IND274-5

Please refer to Volume I Section 3.4.2 *- Phytoplankton and Periphyton - Environmental Setting* (pages 3-392 to 3-422) for a summary of the available data on blue-green algae in the phytoplankton and periphyton Area of Analysis for the Proposed Project.

<u>**Comment IND274-6**</u>
IT IS TIME TO IMPLEMENT LONGTERM SOLUTIONS THAT WILL PROTECT THE NEEDS OF THE KLAMATH RIVER STAKEHOLDERS.
DAM REMOVAL IS NOT THE ANSWER.

Response to Comment IND274-6
Please refer to Master Response GEN-1.

Carter, Ken

<u>**Comment IND381-1**</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND381-1
Thank you for your comment. Please refer to Master Response GEN-1.

Casas, Dan

Comment IND135-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND135-1

Thank you for your comment. Please refer to Master Response GEN-1.

Caudana, Nicole

Comment IND325-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND325-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cavellini, Steve

<u>Comment IND246-1</u>
I began fishing the Klamath river with my father in 1956. We would go up to the river for a week or so in late August and stay until my school started right after Labor Day. We would stay at Klamath Glen in a small trailer or camp. We would rent a boat with a small outboard motor. Our normal day of fishing was to fish the riffles in the morning either up or down river in the morning and run down to the mouth to fish for king salmon in the afternoon.

At that time the big Caterpillar tractors were put in the riffles to build wing dams so logs rafts could pull logs down the river being toes by tugs being driven by Yurok Indians. The logs were from upstream logging operations and the logs were removed from the river near the town of Klamath.

The whole area from Klamath Glen to the mouth was bustling with activity with campers, tents house trailers boat and trailers. The Yuroks were busy acting as guides and smoking salmon and steelhead. The economic activity derived by the fishery was substantial.

Now when you go up to the Glen at the same time, the salmon fishery is virtually nonexistent and the steelhead fishery is minimal. The area is virtually deserted. I would think that the economic activity is 10% of it once was.

The river used to be full offish rolling and jumping and now seeing a fish rolling or jumping is a rare occasion.

I visited the dams scheduled to be removed during the recent summers and the lakes are clogged with algae. There is vi1tually no tourist activity or construction activity. i do not think that removal of the dams will do anything but improve the fisheries and economic activity along the whole course of the river.

Electricity can be produced in a number of way, but a fishery and recreation resource like the Klamath need a free flowing river.

The dams should be removed as soon as possible. It will be a boon to the local economy along the whole course of the river, the local towns the ocean fisheries along the north coast.

Response to Comment IND246-1

Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Cederwall, Mark

Comment IND357-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND357-1
Thank you for your comment. Please refer to Master Response GEN-1.

Chacon, Robert

Comment IND295-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND295-1
Thank you for your comment. Please refer to Master Response GEN-1.

Charles, Cindy

Comment IND449-1
i am the Conservation Chairperson for the Golden West Women Flyfishers and I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND449-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cheek, Bruce

<u>Comment IND93-1</u>
I have some concerns about the dam(s) removals. As we all know, the many year drought has caused a large number of California reservoirs to dry up or/and reach dangerously low levels. This has had a detrimental effect on our water usage and caused the local water management company to place our community on water rations..

What will be done if the four dams are removed to improve water storage? How will this additional water storage be financed? Many other questions beyond just better fish habitat.

Response to Comment IND93-1
Thank you for your comment. Please refer to Master Responses WSWR-1 and WSWR-3. Additionally, please refer to Volume I Section 3.8.2.1 *Water Supply/Water Rights – Environmental Setting – Upper Klamath Basin* (pages 3-670 to 3-671) for a more detailed discussion of the Lower Klamath Project's water rights.

Clapp, Heather

Comment IND437-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND437-1

Thank you for your comment. Please refer to Master Response GEN-1.

Clark, Matthew

Comment IND348-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND348-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cohen, Corrina

Comment IND126-1
I am a mother of 3, homeowner and business owner on the Klamath River which flows right below our property. We started and sold an online plant nursery, still raise native plants for restoration work, and have an an online nursery that sells propagation wood. I have lived here with my family for 22 years. Every year we watch the water heat up and the bluegreen algae explode. I support removing all the 4 dams as quickly as possible to improve and save the health of indigenous elders, the river water, the salmon and build resilience for our rural communities. I watched my son get sick when he was young and we were new to the river, after he gulped a bunch of water and then quickly looked sick and in an hour or two spiked a fever I want our children to have a future with fresh clean water and salmon in it. I want them to see that we can make good healthy choices with sound science and indigenous wisdom behind them. That we value the environment and the health of people who live in it. That we cherish clean water as something precious and irreplaceable. That we need healthy fish so we can stay healthy and nourished as the indigenous people here did for centuries. Please continue to work to remove these dams, and quickly. It is the only way, our lives depend on it.

Response to Comment IND126-1
Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Collins, James

Comment IND431-1

I was a commercial fisherman in the late 70's and early 80's out of Crescent City. In those years, the Coho salmon population was massive, but it has declined horribly since then due, in large part, to the bad conditions in the Klamath River. I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

TI1e Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND431-1

Thank you for your comment. Please refer to Master Response GEN-1.

Connolly, Leo

Comment IND371-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND371-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cook, Nathan

<u>Comment IND330-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND330-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cotsirilos, George

Comment IND447-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND447-1
Thank you for your comment. Please refer to Master Response GEN-1.

Counts, Thomas

Comment IND229-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND229-1
Thank you for your comment. Please refer to Master Response GEN-1.

Covault, Jonnel

Comment IND400-1
Thank you for the opportunity to express my full support for removal of all four dams on the Klamath River. The benefits to the vitality of our fisheries and local economy cannot be overstated:

The removal would " ... advance the long-term restoration of natural fish populations in the Klamath Basin, including having a significant beneficial effect on commercial fisheries and associated significant beneficial economic impact on the coastal commercial fishing industry."
(Environmental Impact Report)

The EIR report brings more good news for the Crescent City Harbor. Although dam removal will unlock some sediment trapped in the reservoirs, Crescent City Harbor should not be affected, with the DEIR stating:

" ... it is expected that the amount of sediment released during the year of draw down and dam removal would be similar to that transported by the Klamath River

to the Pacific Ocean in a year with average flow, much less than that transported by the Klamath River in a wet year. ... "

As a former commercial salmon fisher who loves fish, I am alarmed at the dwindling numbers of salmon in the Klamath and it's tributaries. For many years my family owned a home on Copco Lake. We saw first hand how warm and filled with algae the water is. With ranches and piles of manure along its bank we know the water quality was/is bad. No one swims in Copco Lake.

I appreciate all the hard work and persistence by my community to make this dream come true. Many organizations and Tribes are working to save the salmon runs, but they cannot undo the damage caused by these dams. These dams must go ASAP.

Response to Comment IND400-1

Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Crosby, Peter

<u>Comment IND311-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND311-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cuningham, Bruce

Comment IND94-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural di versions.

It's time to undam the Klamath!

Response to Comment IND94-1
Thank you for your comment. Please refer to Master Response GEN-1.

Cunningham, Storm

Comment IND235-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND235-1
Thank you for your comment. Please refer to Master Response GEN-1.

Dana, Mark

Comment IND356-1
Hello. My name is Mark Dana. I would have liked to have been there today, but I got stuck in Friday/holiday traffic in Vacaville coming from Oakland. Then, I couldn't get my Apple to show the webcast when I turned back. Now I'm listening to the webcast but it says it is on break.

Shasta Dam/Lake provides the same benefits as the Klamath Dams/Lakes only Shasta provides them on a larger scale. I am sure you all know that the Sacramento River salmon production was historically second only to the Colombia Riveron the West Coast. Dramatic declines in returning salmon numbers have been experienced over the last century on the Sacramento and were especially disastrous following the construction of Shasta Dam.

Why then, is nobody seriously proposing the removal of Shasta Dam to revitalize the salmon runs on the Sacramento?

It is because it is a stupid idea.

Shasta Dam provides significant hydropower that supplies electrical energy to customers throughout northern California. It provides water storage for drought years and flood control for wet ones. Shasta Lake and the surrounding forest are one of the top recreational areas in California. In addition, recent California fire *events have shown the importance of readily available water sources for fighting wildfires.*

These are the same benefits the lakes on the Klamath River system provide.

Response to Comment IND356-1
Thank you for your comment. As discussed in the EIR, the Klamath River Renewal Corporation (KRRC) applied to the Federal Energy Regulatory Commission (FERC) to remove the dams and associated facilities that together form the Lower Klamath Project (FERC Project No. 14083). As noted in the comment, Shasta Dam and Shasta Lake are a part of the Sacramento River system. The United States Bureau of Reclamation (USBR) operates Shasta Dam as part of the Central Valley Project, which is not connected to the Lower Klamath Project. Please also refer to Master Responses GEN-1, FLD-1, HAZ-2, and ENR-1.

Comment IND356-2
What are the differences between the Shasta Dam/Lake and Copco and other lakes on the Klamath? It is all about size. Shasta Dam and Lake is much larger and provides the same benefits, except that Shasta provides the benefits to a larger population, agriculture, and industrial base.

Guess what though, projections reported by California Department of Finance are that California population growth between 2016 and 2036 will increase by 6.5 million people. While you can expect this to impact already large population centers, it will also have major impacts to infrastructure and resources in the Klamath River Basin.

As with the Sacramento River, the impacts from population growth are much more than just the pressure on salmon numbers, whose importance unfortunately begins to pale in comparison. While hydroelectric is strangely no longer classified as "green energy" any power generation to support the growing demand for power should not be abandoned. The dams/lakes will be needed to control floods and fight wildfires that will threaten increased residential and commercial development in the region.

Response to Comment IND356-2
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*). Regarding flood control, please to Master Response FLD-1. Regarding wildfires, please refer to Master Response HAZ-2.

Comment IND356-3
As more strain from population is placed on the recreational opportunities throughout California, including the Shasta region, the Siskiyou County Lakes that previously were always popular but relatively underutilized for recreation and

commercial development to support those recreational benefits will be a major benefit to the regional economic and societal wellness.

Response to Comment IND356-3
Please refer to Potential Impact 3.20-2 for an analysis of the long-term changes to or loss of reservoir-based recreation activities and facilities due to removal of Iron Gate and Copco No. 1 reservoirs. Potential Impact 3.20-3 (pages 3-1009 to 3-1010) discusses the potential for a significant increase in the use of regional recreational facilities due to loss of Iron Gate and Copco No. 1 reservoirs and concludes that there would be no significant impact of the Proposed Project. The final Section 3.20 Recreation is presented in Volume III Attachment 1.

Moreover, please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a)).

Comment IND356-4
Regrettably, the threat of dam destruction and lake elimination has already impacted the local economy. Less visitors and tourists are returning and with loss of business, the Copco Lake Store that once catered to seasonal tourism has shut its doors. The rafting companies and boaters that had previously enjoyed their stops for supplies and refreshments at the store no longer have it as an option, and have modified their habits to bypass the other amenities that the lake provides.

Response to Comment IND356-4
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment: CEQA does not address potential social or economic effects, such as reductions in tourism revenue, from implementing a project. (CEQA Guidelines, section 15131(a).

Comment IND356-5
Meanwhile, at Shasta Dam, instead of proposing dam destruction, design work is currently in progress to actually raise the height of the dam and increase the storage capacity of theLake. One of the other benefits touted is that this change will improve Sacramento River temperatures and water quality in the Sacramento River for anadromous fish survival.

Response to Comment IND356-5
As noted in response to comment IND356-1, Shasta Dam and Shasta Lake are a part of the Sacramento River system. The United States Bureau of Reclamation (USBR) operates Shasta Dam as part of the Central Valley Project, which is not connected to the Lower Klamath Project. Please also refer to Master Response WQ-1 for a discussion of the role of Lower Klamath Project dams/reservoirs with respect to overall water quality in the Klamath River, and Master Response WQ-

2 for a discussion of the potential for the Lower Klamath Project dams/reservoirs to cool river water during summer and fall.

Comment IND356-6

Which reminds us there are other options available. I have worked with numerous EIR/EIS reports in my career designing and managing large construction projects, but you don't have to have my experience to understand that almost any project can be environmentally cleared if there is enough demand for it and written properly with sufficient mitigations of significant impacts. Instead of removing the Klamath Dams, they need to be made better, like Shasta.

You don't just get rid of a structure that is beneficial in most ways and just scrap the investment. We can keep the benefits of the dan1s and mitigate the impacts to salmon by installing fish ladders or other structures to provide access around the dams to the upper river.

This is already in the EIR and all it takes is a desire and money.

Response to Comment IND356-6

The Lower Klamath Project EIR analysis assesses the potential impacts of the Klamath River Renewal Corporation's (KRRC's) Proposed Project and feasible alternatives against existing environmental conditions, consistent with CEQA Guidelines section 15125 (a). Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *[Alternatives Selection/Overview]* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment IND356-7

Should one assume I am against salmon? Not at all. My father owned a sporting goods store and I have been a fisherman all ofmy life. While I recognize the efforts and the accomplishments of organizations such as Trout Unlimited in protecting habitat for salmon and trout, and promoting benefits for fly-fishermen, I think it is elitist to not respect the other fisherman who still enjoy fishing for what might be viewed as less-prestigious fish species like perch, bass, catfish and other fish species in addition to trout that reside in the lakes.

We appreciate the diversity and beauty and the abundant wildlife at the lakes. We see the destruction of the lakes as a major loss to the region that can't be replaced by additional river frontage. We enjoy the sunset cruises on a patio *boat and the ability to paddle a canoe peacefully on slow moving water but still easily get access to the raging river sections nearby. Lakes offer so much more than the river does, especially when most of the river remains.*

Response to Comment IND356-7

Please refer to Master Responses REC-1, GEN-1, and GEN-2. Please also refer to response to comment IND356-3.

Comment IND356-8

The darns began to be installed on the Klamath about onehundred years ago, and while salmon may not be present in pre-Columbian numbers, they have been shown to be sustainable through the last 100 years. The question really is, would there really ever be enough salmon and eventually won't even these numbers be inadequate to support the population explosion, and how much will be able to be increased given other formidable obstacles that need to be overcome given the need for increased water flows, the pressure from commercial fisheries, and increased predation from protected mammals.

Response to Comment IND356-8

Please refer to Master Response AQF-4 for a brief discussion relating to the historical abundance of salmonids in the Klamath Basin.

Comment IND356-9

Otherwise, the benefits realized by dam demolition, like it would be in the case of Shasta Dam, the demolition project really isn't worth a dam.

Response to Comment IND356-9

Please refer to Master Response GEN-1.

Dau, Bruce

Comment IND95-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The

Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural di versions.

It's time to undam the Klamath!

Response to Comment IND95-1
Thank you for your comment. Please refer to Master Response GEN-1.

Devine, Timothy

Comment IND216-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND216-1
Thank you for your comment. Please refer to Master Response GEN-1.

Dexter-Durham, Robin

Comment IND282-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

Summer water quality along the river has been poisonous to man and beast. The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. I am aware that the dam removal process will create temporary sediment impacts, but the long-term benefits of dam removal far outweigh the shortcomings. The benefits include stronger salmon runs and better water quality. And better quality of life for humans, their pets, and wildlife!

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

Please undam the Klamath!

Response to Comment IND282-1
Thank you for your comment. Please refer to Master Response GEN-1.

Distad, David

Comment IND144-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND144-1
Thank you for your comment. Please refer to Master Response GEN-1.

Douglas, Peter

Comment IND310-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND310-1
Thank you for your comment. Please refer to Master Response GEN-1.

Dow, Gordon

<u>Comment IND444-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND444-1
Thank you for your comment. Please refer to Master Response GEN-1.

Draeger, R.B.

<u>Comment IND300-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND300-1
Thank you for your comment. Please refer to Master Response GEN-1.

Dryg, Edward

Comment IND200-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND200-1
Thank you for your comment. Please refer to Master Response GEN-1.

Durack, Justin

Comment IND390-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND390-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ebert, Carl and Linda

Comment IND178-1

About eighteen and a half years ago, my husband and I came to Copco Lake to settle due to complications of his Parkinsons Disease. If he had to retire early, Steve wanted to be able to fish near his back door. And fish he did – for perch, bass, catfish, crappie and trout, often from his small Boston Whaler. Though the boat now sits idle, he can still fish from our deck when it's warm enough. He can also view the many beautiful woods of the lake from our deck and from his all-terrain scooter.

Many forms of wildlife can be spotted on their excursions, always the inquisitive deer, many timer geese, ducks and occasionally a fox. One time, standing still, a family of coyotes, suddenly moving in water, made it look like the hillside across the road, was moving. We've also seen a bobcat take a goose in our yard, otters throng our deck, ospreys take fish away from bald eagles over the lake, and cougars leap in front of our car near our lakeside home. Herons fish from our shore or sit on our dock watching pelicans find their fish.

Now, dam removal threatens our relatively tranquil existence by polluting our surrounding land with dust, noise, traffic and toxic sediment that will kill fish, mammals and waterfowl.

Response to Comment IND178-1

Thank you for your comment. Please see Master Response GEN-2. With respect to the comment's expressed concerns regarding short-term construction-related impacts of the Proposed Project please refer to Master Response AQF-10, Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (pages 3-1069 to 3-1078), and Volume I Section 3.23.5 *Noise – Potential Impacts and Mitigation* (pages 3-1093 to 3-1101). Please also refer to Master Response TER-1 regarding the wildlife habitat effect of removing the reservoirs. Regarding the comment's concerns about dust during construction, please refer to Master Response R-1.

Comment IND178-2

Our own health and safety will be compromised by the blockage of ingress and egress routes along the lake with heavy machinery that will disallow our passage and that of medical and fire vehicles in times of emergency. We won't have the deep lake for fire suppression in remote areas of the canyon by quick-fill fixed wing planes and helicopters.

Response to Comment IND178-2

Please refer to Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (pages 3-1069 to 3-1078) for a discussion of transportation-related impacts. As noted in response to comment ORG47-56, KRRC has committed to addressing all potential traffic conflicts as part of their Final Traffic Management Plan (TMP). Klamath River Renewal Corporation

(KRRC) states that they are committed to ensuring that the TMP *"will maintain efficient and safe movement of the vehicles through the construction zone covered by activities in the Definite Plan".* KRRC also states that the *"Final TMP would be informed by KRRC's contractor's specific measures and methods for construction and input received from relevant local jurisdictions."* The TMP specifically describes a public input process.

In addition, please see Master Response HAZ-2 for discussion of the potential for increased wildfire risk due to the loss of the Lower Klamath Project reservoirs. For additional information regarding Mitigation Measure TR-1 to address traffic and transportation impacts, please see Master Response CEQ-2.

Comment IND178-3

Should dam removals occur, the heavy toxic sediment discharged from behind the dams will change the river channel bed, destroying spawning habitat for salmon while poisoning the water and the river shelves. The lighter sediment will deoxygenate the water for the fish and other aquatic life dependent upon it.

Response to Comment IND178-3

Information regarding sediment deposition on the channel bed is available in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), which is partially modified in Volume III Attachment 1, and Master Response GEO-1. For the reasons explained in Potential Impact 3.11-5, deposition in the Middle Klamath River between Iron Gate Dam and Cottonwood Creek would be *significant and unavoidable* in the short term, whereas there would be *no significant impact* farther downstream. Long-term sediment deposition effects would be *beneficial* or *no significant impact*.

Note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both sets of SRH-1D simulations that were undertaken by the U.S. Bureau of Reclamation (i.e., forty eight 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

Regarding potential impacts of sediment deposition on salmon redds, please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-9*.* There would be *no significant impact* to coho salmon. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer Master Responses GEO-1 and AQF-7.

Information on the potential impacts of short-term elevated sediment loads on water quality (including dissolved oxygen) and aquatic resources is available in Sections 3.2.5.2 *Water Quality – Suspended Sediments* and 3.3 *Aquatic Resources*. Please refer to Volume III Attachment 1 for final Sections 3.2 *Water Quality* and 3.3 *Aquatic Resources*.

Comment IND178-4

As retirees who live on the lake, we will watch a toxic mudflat appear in place of the lovely reservoir of water we've come to know. Our property values have already been decimated and will plummet in the event of dam removals.

Response to Comment IND178-4

As discussed in Volume I Section 2.7.4 *Proposed Project – Restoration Within the Reservoir Footprint* (pages 2-69 to 2-76), the Klamath River Renewal Corporation's (KRRC) Proposed Project includes establishing native vegetation within the reservoir footprints to stabilize newly exposed reservoir sediments and support a functioning ecosystem. Additional information on planned restoration efforts during and following dam removal can be found in the KRRC's Reservoir Area Management Plan (Volume II Appendix B: *Definite Plan − Appendix H*). Please also refer to Master Response WQ-6 for a discussion of potential contaminants in the reservoir sediments and Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for discussion and analysis regarding visual impacts from the Proposed Project, including, but not limited to, Potential Impact 3.19-1 *Loss of open water vistas and replacement with riverine and canyon vistas* and Potential Impact 3.19-4 *Visual changes resulting from reservoir drawdown and restoration including temporarily bare/unvegetated banks*.

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects, such as reductions in property values, loss of property tax revenues, and increases in energy costs, from implementing a project (CEQA Guidelines, section 15131(a).

Comment IND178-5

The water storage of Copco Lake on the Klamath that has provided clean green energy for man and that has enabled many a fish near to occur in periods of drought, will be destroyed forever with dam removals, much like our retirement dream of living by a lake.

Response to Comment IND178-5

With respect to the comment regarding water storage, please refer to Master Responses WSWR-1 and WSWR-2**.** With respect to the comment about hydropower (energy), this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Eckersley, April

Comment IND153-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND153-1

Thank you for your comment. Please refer to Master Response GEN-1.

Ellis, Lynn

Comment IND365-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND365-1
Thank you for your comment. Please refer to Master Response GEN-1.

Enders, Todd

Comment IND214-1
I am a Moss Beach resident and member of the Pillar Point fishing community of California citizens in Half Moon Bay, whose business and family rely upon a vibrant Pacific Salmon fishery to feed our state and earn a living to pay our taxes, and keep our community strong.

I am also a lifelong recreational fisherman, who wants more wild and undammed rivers in California to create recreation for all.

Finally, I an an American, who wants obsolete destructive dams removed so there is still a planet left for my children.

Please remove the lower Klamath dams.

Response to Comment IND214-1
Thank you for your comment. Please refer to Master Response GEN-1.

Englert, Lissa

Comment IND170-1
PLEASE, PLEASE REMOVE THE DAMS WE DESPARATELY NEED THE FISH!!!

Response to Comment IND170-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND170-2

I'VE BEEN WRITING A VERSION OF THIS LETTER, NOW, FOR ABOUT TEN YEARS. BUT HERE WE GO AGAIN.

I LIVE AT THE CONFLUENCE OF THE CAL SALMON AND KLAMATH RIVERS. I MOVED HERE 20 YEARS AGO FROM THE BAY AREA TO LIVE OUT MY LIFE IN THIS WILDLY BEAUTIFUL PLACE. WHAT I HAVE EXPERIENCED, HOWEVER, IS TO BEAR WITNESS TO THE DEATH OF A RIVER AND THE NEAR EXTINCTION OF AN INCREDIBLY ICONIC SPECIES. THIS ACCELERATED DEGRADATION OF AN ECOSYSTEM IS UNBELIEVABLY SAD.

WHAT HAPPENS HERE AFFECTS THE IMMEDIATE ENVIRONMENT, AN INDIGENOUS PEOPLE AND THEIR CULTURE, A LOCAL COMMUNITY, AND A STATE, NATIONAL, AND EVEN GLOBAL COMMUNITY. THERE ARE MANY ISSUES AROUND THE PROPOSAL TO REMOVE THE DAMS. FOR ME, THE GREATEST REASON IS THE SALVATION OF THE SALMON. I CAN'T EXPRESS HOW IMPORTANT THE MAGICAL, BLESSED EXISTENCE OF SALMON IS. IT IS HARD TO FIND A HEALTHIER PROTEIN IN THIS AGE OF OBESITY AND HEART DISEASE. IMAGE THE SAVINGS IN MEDICAL COSTS IF WE CONSUMED MORE SALMON AND LESS RED MEAT. THIS IS A MAGNIFICENT SPECIES THAT IS DISAPPEARING AND WE MUST DO EVERYTHING TO PREVENT THIS FROM HAPPENING. IT'S A NO-BRAINER!!!

I UNDERSTAND THERE ARE MULTIPLE FACTORS FOR THE DECLINE OF THE SALMON AND DAM REMOVAL IS ONLY ONE OF MANY FIXES BUT IT'S THE ONE ON THE TABLE. WE PUT THEM IN, NOW, WE MUST TAKE THEM OUT.

FOR EONS THIS RIVER RAN WILD AND TEAMED WITH FISH. THE NATIVE PEOPLES TELL US THIS. EARLY SETTLERS TALK OF CROSSING RIVERS ON THE BACKS OF THE SALMON. THERE WERE MILLIONS. NOW THERE ARE NEXT TO NONE. I AM WATCHING EXTINCTION!!! WE MESSED WITH THE RIVER. WE MINED IT. WE LOGGED IT. OUR POPULATION GREW AND WE OVERFISHED. AND WE DAMNED THE RIVER. NOW WE HAVE A CHANCE TO TRY AND UNDO THE DAMAGE WE HAVE WRECKED UPON THIS ECOSYSTEM AND BEGIN TO RESTORE WHAT WORKED PRETTY WELL AT ONE TIME.

I AM FULLY IN FAVOR OF DOING WHATEVER IT TAKES TO IMPROVE THE LOT OF THESE FISH. REMOVING THE DAMS IS A START. NO MORE DELAYS. WITH THE RAPID DECLINE IN NUMBERS OF FISH THAT I'VE SEEN IN FAR TOO FEW YEARS, I FEEL, THE FISH CAN'T SURVIVE ANY MORE DELAYS.

AND THERE ISN'T ENOUGH TIME OR SPACE TO GO INTO THE FACT THAT CALIFORNIA'S THIRD LARGEST RIVER, AND ARGUABLY IT'S WILDEST IS SO POLUTED I CAN'T EVEN SWIM IN IT AND MY DOGS COULD DIE IF THEY DID.

I FEEL FOR THE FARMERS. THEY ARE CAUGHT BETWEEN A ROCK AND A HARD PLACE. BUT, IN THE END, THE CROPS GROWN AT THE HEADWATERS CAN BE GROWN ANYWHERE. THESE FISH CAN ONLY LIVE HERE!!!

I IMPLORE YOU TO RECOMMEND DAM REMOVAL. THE COST OF NOT DOING SO WILL BE FAR GREATER ON SO MANY LEVELS.

Response to Comment IND170-2
Please refer to Master Response GEN-1.

Farrell, Devin

Comment IND171-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND171-1
Thank you for your comment. Please refer to Master Response GEN-1.

Fee, Kevin

Comment IND375-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND375-1
Thank you for your comment. Please refer to Master Response GEN-1.

Feller, Fred

Comment IND215-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND215-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ferguson, John

Comment IND408-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND408-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ferroggiaro, Robert

Comment IND292-1
I have spent a lot of time on the Klamath below the dams and have seen their ill effects. I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

Dam removal will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

Response to Comment IND292-1
Thank you for your comment. Please refer to Master Response GEN-1.

Filice, Ed

Comment IND196-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND196-1
Thank you for your comment. Please refer to Master Response GEN-1.

Fischer, Mark and Lisa

Comment IND294-1
While the water board assumes residents of wells would be mitigated by the KRRC, they will not be responsible for making certain that this happens. The Water Board shifts this responsibility to FERC to enforce. The SWRCB also states in the executive summary the Water State Board cannot ensure implementation of Good Neighbor agreements. What certainty will the KRRC's plan be for mitigation? The KRRC states in their literature that IF wells were to be adversely affected and IF it can be shown to be due to reservoir drawdown, then they would mitigate. What proof will the residents need to show to the KRRC to have their wells made whole again? What time period would the KRRC mitigate?

KRRC's Ground Water Management Plan is a document that is based on incomplete data with no specificity on inadequate funding numbers and a claim of instituting a Good Neighbor Policy. While the SWRCB may trust the KRRC, residents have seen and heard little to instill that trust. If wells go dry, do residents call FERC to be certain that the KRRC will do what they say to make the residents whole again? Will the KRRC still have funds necessary to make residents whole again?

There is nothing in the KRRC Plan that talks about how they intend to fix wells temporarily while fixing wells permanently. How can we live at home? Is KRRC trucking in water? Who pays for hooking up water to existing pipes to the homes? Who will pay to remove these pipes, clean up and hooking up to the new well, returning the home to its original state? Who is paying for the permits for well drilling? It could take numerous attempts to find a good site for one property. Who will pay to dig up the holding tanks some of which are underground, pump house to the new well site if needed? This could cost $20,000.00 plus. Who will fill in the old well site? Who will repair driveways, fences or other property that can be damaged in the repair of the wells? What happens if a new well cannot be found on the property? Who will pay for temporary housing? There is nothing mentioned about landscape that will perish *without wells. There will be no water for fire prevention during well repair work on private properties. Nothing in the KRRC Plan covers who pays for all of the above. It cannot be a verbal understanding. It must be in writing. This is not written in the plan.*

Response to Comment IND294-1

Thank you for your comment. Please refer to Master Responses GRW-1 and GRW-2. Additionally, Volume I Section 3.7.5 *Groundwater – Potential Impacts and Mitigation* Potential Impact 3.7-1 (pages 3-663 to 3-665) discusses the potential adverse effects to water levels in groundwater wells adjacent to the Lower Klamath Project reservoirs and how the Groundwater Well Management Plan would address potential impacts. The Groundwater Well Management Plan describes how impacts would be determined and the short- and long-term measures to address them. The State Water Board's draft water quality certification details the monitoring and reporting requirements associated with the Groundwater Well Management Plan.

Comment IND294-2

If dams are removed, 5 species of fish will be killed. The lost river and short-nose suckers are endangered species of fish. They are protected by law. Removing the dams will kill the lost river and short-nose sucker fish that live behind these dams. AB2640 grants a waiver against these protections. How can federal government and state turn a blind eye to this issue. We are a nation of laws and the lost river and short-nose suckers are protected. Yet in May 2018, the Klamath tribes filed a lawsuit. In the US District Court seeking to shut down the water supply to California and Southern Oregon farmers because of these very same ESA-listed sucker fish.

Response to Comment IND294-2

Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resources Impacts* describes the effects of the Proposed Project on Lost River and shortnose sucker, specifically in Potential Impact 3.3-13. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND294-3

There is an article from wildlife.ca.gov about the history of Iron Gate Hatchery. The article quote:

The environmental license plates funds were used to operate Fall Creek Hatchery. These funds were eliminated in May 2004 and no fish have been raised at this facility since then. The facility has retained its water rights but will need substantial renovation to become operational again. Iron Gate Fish Hatchery will be destroyed with dam removal. Tax payers' money will be used to restore the Fall Creek Hatchery that was closed in May 2004. Why are we destroying a fully functional fish hatchery to spend millions of tax pay payers' dollars to reopen an outdated fish hatchery.

Response to Comment IND294-3

The priorities for the Klamath River Renewal Corporation's (KRRC) proposed Fish Hatchery Plan were determined by the National Marine Fisheries Service (NMFS) and the California Department of Fish and Wildlife (CDFW) and are described in Volume II Appendix B Section 7.8.3 *Proposed Fish Hatchery Plan* of the Definite Plan (page 276). Please refer to Volume I Section 2.7.6 *Proposed Project – Proposed Project – Hatchery Operations* (pages 2-77 to 2-84) for a detailed discussion of hatchery operations.

Comment IND294-4

Yreka currently gets its water from Fall Creek at 15CFS. When the salmon runs come up river, and the river water is low, will salmon trump Yreka's water once the dams are removed? Currently the salmon have plenty of water with the dams in. During the salmon run, these dams provide ample water for the fish.

KRRC plans to run Yreka's water pipe above ground across the Klamath River. That pipe will be vulnerable to rock slides, vandalism, or worse terrorism. The water pipe is currently underground under the Iron Gate Reservoir, PROTECTED.

Response to Comment IND294-4

Please refer to Master Response WSWR-5.

Comment IND294-5

Ranches that have water rights on Bogus Creek were told recently by Fish and Game that they would have to cut water consumption in half for irrigation. These water rights go back for a long time. This project for dam removal is looking more and more like water control, not about the fish.

Response to Comment IND294-5

Please refer to Master Responses WSWR-1 and WSWR-3.

Comment IND294-6

Water quality should be tested at the California Oregon state line. It should not be tested below Iron Gate Reservoir. The Upper Klamath Lake is only 14 feet deep on average at max. It will always be warm. Algae blooms start in the Klamath Lake. In the past decades, the algae blooms have moved south to the lower reservoirs. History shows this. History also shows the Klamath River is warm and has given off a stench before JC Boyle, Copco Lake 1, Copco Lake 2 and Iron Gate were built. This is a fact. Until the water is clean coming into California, we should not think of dam decommission.

Response to Comment IND294-6

Please refer to Master Responses WQ-1 and PAP-1.

This comment also expresses concerns regarding water quality monitoring locations in the Klamath River. Water quality monitoring locations associated with the Proposed Project are elements of the Klamath River Renewal Corporation's (KRRC's) Definite Plan and/or the California Draft Water Quality Certification for the Lower Klamath Project. Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation. Comment noted.

Please also refer to Master Responses FLD-1, HAZ-2, and REC-1.

Please also refer to Section 3.20.5 *Recreation – Potential Impacts and Mitigation* for a discussion of potential impacts of the Proposed Project on recreation. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment IND294-7

These dams provide flood control, fire prevention, clean power and an abundance of recreational activities. On April 4, 2013, the US Department of Interior released a final environmental Impact Statement (EIS). It talked about for-dam removals and is awaiting approval from congress before the Secretary of Interior could make a determination of whether the removal of four facilities would advance restoration of the salmonid fisheries of the Klamath Basin and was in public interest. The EIS was developed under provisions of the KHSA and the National Environmental Policy Act. The EIS reveals that over the next few decades after dam removal it could help the salmon, eliminate toxic algae blooms and other water quality problems in the Klamath Basin.

Now 20-30 or more years is a long time to wait on a "could happen" plan. Meanwhile, all the water problems in the Upper Klamath Lake come into California and continue downstream.

Response to Comment IND294-7

Please refer to Volume 1 Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a brief summary of past environmental documents associated with Klamath River dam removal, including the 2012 KHSA EIS/EIR, as well as a list of the reasons that the State Water Board determined it should develop a separate EIR, rather than adopting one of the existing environmental reviews.

Comment IND294-8

All the residents around these reservoirs are left with decades of lost home values, loss of fire prevention, higher electricity costs and loss of recreational activities. Where is our compensation for our lost values? NOTHING is mentioned in the KRRC Plan.

Response to Comment IND294-8
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Please also refer to Section 3.20.5 *Recreation –Potential Impacts and Mitigation* for a discussion of potential impacts of the Proposed Project on recreation as well as Master Response REC-1. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Please also refer to Master Response HAZ-2.

Comment IND294-9
The KRRC Plan states up to eight years that will be liable for any problems. That is not enough time when we are talking decades for this river basin to recover. Dave Meurer (KRRC) stated at a June 12, 2018 Copco Lake Meeting that results of dam removal will not be known for 50 years.

Response to Comment IND294-9
The EIR evaluates the potential environmental impacts of the Proposed Project, and evaluates feasible measures to mitigate those impacts and alternatives to the Proposed Project. To the extent the comment raises concerns about the enforceability of requirements that the applicant address the environmental impacts of the Proposed Project, and of the ability of the applicant to do so, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of FERC proceedings. The State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related requirements as a condition of certification. These requirements would become enforceable through incorporation into any Federal Energy Regulatory Commission (FERC) surrender license, as well as under the Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

Comment IND294-10

March 13, 2017 Jeremy P Jacobs, EE News Reporter wrote:

"The Klamath River originates from the Upper Klamath Lake, a sprawling fresh water lake in Southern Oregon's high desert that expands to 80,000 acres when full. It is remarkably shallow however and prone to low inflow as well as algae."

This is where the SWRCB and the water quality control group should start their research in Oregon at Klamath Lake. This is where the algae runs downstream into California. It has always run downstream into California since day one before dams were built. The Indians and settlers did not live along the shores of the Klamath River because of the stench, again before dams. One hundred fifty years later, it is the dams fault for water quality?

Response to Comment IND294-10

Please refer to Master Responses WQ-1 and PAP-1.

Comment IND294-11

Jeremy P Jacobs in the same article mentioned above, quotes:

"The four dams at issue, proponents note, serve virtually no purpose. They are outdated and produce hardly any electricity. They don't store or divert water for anyone, and they provide no flood control."

This is a lie. This is what the residents of these reservoirs deal with on a daily basis. Yes, the dams have been operating since 1918, 1925, 1958 and 1962. They supply 77,000 residents and businesses with electricity. The dams have storage for electricity, fish, food storage for all animals, water storage for irrigation, storage for fire prevention and storage for when the salmon come up river. These reservoirs release water for the salmon runs twice a year. These dams provide flood control for everyone that lives around the Klamath River. Without the dams, there is no flood control.

Response to Comment IND294-11
Please refer to Master Responses FLD-1, ENR-1, HAZ-2, WSWR-1, WSWR-2, AQF-1, and TER-1. With respect to the comment about hydropower (electricity), this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Comment IND294-12
The reservoirs store water for recreation-like boating, water skiing, canoeing, kayaking, rafting, swimming, fishing and duck and goose hunting. The reservoirs also provide the residents that live around these reservoirs improved property and home values. If the dams are removed we, as residents, lose all around. No one talks of these loses. This is a fact.

Response to Comment IND294-12
Please refer to response to comment IND294-8.

Comment IND294-13
KRRC should put into place how properties around these reservoirs will be reinforced due to slope instability. KRRC should establish cooperation with US Geological surveys (USGS) engineers, National Park Service (NPS) and other public land organizations to establish a landslide observer(s). Emergency response funding has sometimes been used for short-term landslide (rock fall, toppling, creeping, lateral spread) observations and safety determinations following a hazardous failure. This may include aerial reconnaissance combined with NPS search and rescue operations. Designated observers can establish liaison relationships with relevant scientists, general NPS observations and monitoring procedures should be checked, corroborated, or ridiculed by scientists (US NPS).

Response to Comment IND294-13
Regarding potential for landslides, please refer to Volume I Section 3.11.5 Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation, Potential Impact 3.11-3 (pages 3-761 to 3-765) and Master Response GEO-2. Scientific investigations have found no potential for slope failure at Iron Gate Reservoir and J.C. Boyle Reservoir and there would be no significant impact. There is some potential for instability of diatomaceous deposits along the rim and below the Copco No. 1 Reservoir, and Mitigation Measure GEO-1 provides for monitoring and exclusion, if required.

Comment IND294-14
KRRC plan to spend up to $450 million on this project. July 12, 2018, KRRC also said it would cost up to $400 million for fish ladders. No talks about alternative ways NONE, EVER. KRRC also says tax payers would not want to pay for fish ladders.

Response to Comment IND294-14
The EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *[Alternatives Selection/Overview]* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment IND294-15
The Indian Tribes are with the KRRC to remove the four dams. Obviously, the Indians Tribes have a lot of pull and are federally recognized. They want the dams removed. 85% plus of Siskiyou residents and 85% plus of Klamath Basin residents voted "NO" against dam removal. We are also federally recognized. We vote and pay taxes. Our voices are not heard nor are our votes being counted at all.

Response to Comment IND294-15
Please refer to Master Response GEN-1.

Comment IND294-16
We are hopeful that SWRCB will finally listen to the real stakeholders in this process. We need more current and updated data before anyone takes another step. KRRC and SWRCB should not be relying on data that was gathered 7 years ago.

Response to Comment IND294-16
As described in Volume I Section 3.1.2 *Introduction – Environmental Setting*, the EIR establishes and evaluates the relevant baseline as part of each resource area. The EIR incorporates available existing information to describe the baseline under CEQA. The environmental setting analysis relies on a range of available information, including studies that are relevant to the description of existing conditions. In some instances, the analyses discuss new or updated studies like those noted in the comment, to confirm the presence and/or extent of a particular resource that has been identified as potentially present using existing information, or to confirm whether associated impacts have the potential to occur. These additional studies can be relevant for a range of reasons, including the abundance of available data for characterizing a resource, the likelihood that data collected in prior studies would change over time and the rate of that change, and the degree of granularity in the existing data. Where the analyses discuss new or updated studies, the EIR conservatively assumes the presence and extent of resources in light of available information, and appropriately evaluates the breadth of potential impacts as well as feasible mitigation. This approach is consistent with CEQA's requirement to describe the environmental

setting in order to "give the public and decision makers the most accurate and understandable picture practically possible of the project's likely near-term and long-term impacts" (CEQA Guidelines section 15125, subd. (a)).

Please also refer to Master Response WQ-4.

Flanagan, Robert

Comment IND290-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND290-1

Thank you for your comment. Please refer to Master Response GEN-1.

Flannes, Steve

Comment IND245-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND245-1
Thank you for your comment. Please refer to Master Response GEN-1.

Flo, Mark

Comment IND355-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND355-1
Thank you for your comment. Please refer to Master Response GEN-1.

Flynn, Pierce

Comment IND306-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND306-1
Thank you for your comment. Please refer to Master Response GEN-1.

Fochetti, John

Comment IND407-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND407-1

Thank you for your comment. Please refer to Master Response GEN-1.

Ford, Julie

Comment IND393-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND393-1
Thank you for your comment. Please refer to Master Response GEN-1.

Forster, Mitchell

Comment IND333-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND333-1
Thank you for your comment. Please refer to Master Response GEN-1.

Forsythe, Bruce

Comment IND98-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND98-1
Thank you for your comment. Please refer to Master Response GEN-1.

Friedman, Linda

Comment IND370-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND370-1
Thank you for your comment. Please refer to Master Response GEN-1.

Fujimura, Robert

<u>Comment IND283-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND283-1
Thank you for your comment. Please refer to Master Response GEN-1.

Gallegos, Jeff

Comment IND422-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND422-1
Thank you for your comment. Please refer to Master Response GEN-1.

Gee, Brad

<u>Comment IND86-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND86-1

Thank you for your comment. Please refer to Master Response GEN-1.

Gehring, Delbert

<u>Comment IND162-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND162-1
Thank you for your comment. Please refer to Master Response GEN-1.

Gierak, Richard and Chris Stein

Comment IND268-1
It has come to our attention that the removal of four hydroelectric dams on the Klamath River is in violation of five federal laws in addition to exposing all in the affected areas to greter dangers should these dams be removed. Not only Oregon fires but consider the number of California fires that would have been much worse without the reservoirs from these dams.

Response to Comment IND268-1
Thank you for your comment. Please refer to Master Response HAZ-2.

Comment IND268-2
This communication is in reference to the proposed removal of four hydroelectric dams on the Klamath River. The entire proposal is based on the recovery of Coho Salmon which Federal Judge Michael Hogan in 1999 deemed were not indigenous and all listings in Southern Oregon and California waters were deleted. These Coho were planted from the Cascadia hatchery in Central Oregon

Response to Comment IND268-2
Please refer to Master Response AQF-11.

Comment IND268-3
Thank you for your understanding of the seriousness of this proposed action. Proposed dam removal will kill all fish and wildlife dependent on the Klamath for ten years or more. Fire danger will increase without reservoirs used by fire helicopters and homes, businesses and towns along the river will be subject to

severe flooding without the dams protecions. It will also destroy tens of thousands of acres of agricultural lands in Northern California and Southern Oregon.

Response to Comment IND268-3
Please refer to Master Responses AQF-10, TER-1, FLD-1, HAZ-2, WSWR-1, and WSWR-3.

Comment IND268-4
Elections in Siskiyou County California and Klamath County Oregon voted 80% to retain the dams and removal of these dams would be in direct violation of the will of the people and the Constitution. Jackson County in Oregon has also indicated that their voters also want the dams to remain to assure them of irrigation waters and power costs.

Response to Comment IND268-4
Please refer to Master Response GEN-1.

Comment IND268-5
The Reclamation Act of 1902 (43 U.S.C. 391 et seq.) authorized the Secretary of the Interior to locate, construct, operate, and maintain works for the storage, diversion, and development of water for the reclamation of arid and semiarid lands in the western States.

Congress facilitated development of the Klamath Project by authorizing the Secretary to raise or lower the level of Lower Klamath and Tule Lakes and to dispose of the land uncovered by such operation for use under the Reclamation Act of 1902. Starting around 1912, construction and operation of the numerous facilities associated with Reclamation's Klamath Project significantly altered the natural hydrographs of the upper and lower Klamath River. Reclamation's Klamath Project consists of an extensive system of canals, pumps, diversion structures, and dams capable of routing water to approximately 200,000 ac (81,000 ha) of irrigated farmlands in the upper Klamath Basin. Water diversions from from UKL for the Klamath Project affects river flows downstream of Link River and Iron Gate dams. It has come to my attention that in section 372 of the Act the water right becomes an integral part of the property and cannot be taken or reduced.

The headwaters of the Klamath River originate in Southern Oregon and flow through the Cascade Mountain Range to the Pacific Ocean south of Crescent City, California. The river extends nearly 250 miles and is just one of three waterways that pass through the Cascades to the Pacific. It is named after a native American name - klamet - meaning swiftness.

Response to Comment IND268-5
Comment noted.

Comment IND268-6

The Klamath River was designated a Recreational River within the National Wild & Scenic Rivers System in 1981. The Klamath River enters California from Oregon just north of the Goosenest Ranger District. Heading west it is impounded by two dams forming Copco Lake and Iron Gate Reservoir. Nine miles further west it turns south and follows Interstate 5 for a few miles before again turning west and entering the Happy Camp/Oak Knoll Ranger District. The next 85 miles provide many opportunities for recreation and scenic vistas before the river enters the Six Rivers National Forest.

Dam removal would release toxic material that would destroy the habitat for all species in addition to physically changing the course of the Klamath River in direct violation of the National Wild & Scenic Rivers designation.

Response to Comment IND268-6

Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-7 provides an analysis of the potential effects of the Proposed Project on Wild and Scenic River resources, designations, or eligibility for listing. Contrary to the comment's assertion, the EIR finds that the Proposed Project would either have no impact or would be beneficial, depending on the river reach, for Wild and Scenic River resources designations, or eligibility for listing. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*. Please also refer to Master Response WQ-6.

Comment IND268-7

No State may impose any regulatory action against navigable rivers in the US of which the Klamath River is considered a navigable river. This would also prohibit removal of any dams located on a navigable river in the US by States.

Response to Comment IND268-7

This comment pertains to the application of the U.S. Constitution's dormant Commerce Clause to regulation of navigable waters and thus does not relate to the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384).

Comment IND268-8

Under the Federal ESA only indigenous species can be listed and under the Final report of Coho Salmon by the Klamath Expert Panel Coho Salmon were planted from Cascadia, Oregon and are not indigenous to the Klamath. In early September 1999, federal district Judge Michael Hogan agreed, throwing out the coho's status as threatened under the Endangered Species Act.

Response to Comment IND268-8

Please refer to Master Response AQF-11.

<u>Comment IND268-9</u>

Removal of these dams would reduce approximately 40% of water from the Klamath River that now goes to Southern Oregon for agriculture which would result in serious loss of agriculture that now stabilize the economy of Southern Oregon

Response to Comment IND268-9

Please refer to Master Response WSWR-1.

<u>Comment IND268-10</u>

I have discovered that the proposed removal of four hydroelectric dams on the Klamath are also in violation of the Klamath River Basin Compact which was ratified by Congress on August 30, 1997.

Response to Comment IND268-10

Please refer to Master Response CEQ-4.

<u>Comment IND268-11</u>

Hydro electric dams supply Northern California and most of Oregon homes and businesses with the least expensive power available. The average homeowner is liable for approximately $200 per month and with the proposed natural gas power supply it would increase their costs to approximately $600 per month.

Response to Comment IND268-11

Please refer to Master Response ENR-1.

<u>Comment IND268-12</u>

It has come to my attention that on the banks of the Klamath River in Northern California that there exists a Union Veterans of the Civil War cemetery that will be destroyed should they illegally remove four hydroelectric dams on the Klamath

Response to Comment IND268-12

Please refer to Section 3.12.5 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation* Potential Impact 3.12-3 and Potential Impact 3.12-14 for an analysis of potential erosion or flood disturbance impacts to historic and tribal cultural resources located along the Klamath River, by reach. It is the State Water Board's understanding that the cemetery noted in the comment is included in the set of known Tribal Cultural Resource (TCR) sites located along the Klamath River between J.C. Boyle Dam and Copco No. 1 Reservoir and is discussed in Potential Impact 3.12-3. Therefore, the analysis of impacts provided in that section also would apply to the cemetery noted in the comment. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

Comment IND268-13

At the present time Shasta Indian Tribe burial grounds are protected by Iron Gate Reservoir and removal of this dam their burial grounds could be exposed, plundered and desecrated.

Response to Comment IND268-13

Please refer to Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* for a discussion of the potential impacts to Shasta resources and proposed mitigation. Please refer to Volume III Attachment 1 for the final Section 3.12 *Historical Resources and Tribal Cultural Resources.*

Comment IND268-14

We have documentation from both the Shasta Nation and Karuk tribe denying Coho were indigenous to both the Rogue Valley and Klamath basin.

Response to Comment IND268-14

Please refer to Master Response AQF-11.

Comment IND268-15

Removal of these dams would be in serious loss of existing water rights as proposed solutions to avoiding this problem would be in serious possibility of failure and exposed to vandalism.

Response to Comment IND268-15

Please refer to Master Responses WSWR-1, WSWR-2, WSWR-3, WSWR-5, and WSWR-6.

Comment IND268-16

Due to occasional flooding Iron Gate Dam was constructed to serve to protect all that lived on the banks of the Klamath River from catastrophic flooding events. Without this dam property values would fall and expose all with the possibility of loss of life and property.

Response to Comment IND268-16

Please refer to Master Response FLD-1. Additionally, as discussed in Volume I Section 5.4 *Social and Economic Factors Under CEQA* (page 5-3), potential effects from implementing a project that are solely economic in nature, which would include flood and fire insurance rates, would not constitute an effect (i.e., an impact) to the physical environment.

Comment IND268-17

At the present time the dams supply fire helicopters access to water supply to fight forest fires. Removal of these dams would force said fire helicopters to much longer time delays to fill their buckets and thereby expose all to longer wait times and possibility of loss of lives and property.

Response to Comment IND268-17
Please refer to Master Response HAZ-2.

Comment IND268-18
In the late 90's a proposal was made to change the definition of Federal ESA regulations regarding endangered salmon to Ecological Society of America regulations which means that instead of regulations applying only to water and substrate would be changed to allow them regulations up to a mile from the banks of a river. Through the States of Idaho, Washington, Oregon and California State Granges we defeated this change.

In the early 2000's the Granges engaged Pacific Legal Foundation and listings of Coho in Northern California and Southern Oregon were cancelled as the Coho were not indigenous to these waters and rivers.

In the mid 2000's an attempt was made by environmental groups to list Chinook Salmon in the upper Klamath and the Siskiyou County Water Users Association filed a de-listing petition which was successful and the Chinook listing was denied.

Submitted by;

Dr. Richard Gierak

Bachelors Degrees in Biology, Chemistry, Doctorate in the Healing Arts, Director of Interactive Citizens United, Director of New Frontiers Institute, Inc. Prior Participant of FERC and FPAT (Fish passage advisory team report) and HET (Hatchery evaluation team) Prior Vice President of Greenhorn Action Grange, Prior California State Grange Spokesman for the Water Committee, Prior National Whip of the Property Rights Congress of America, Representative of the Grange States of California, Oregon, Washington and Idaho regarding EFH regulations, Prior member of the Siskiyou County Water Users Assoc and former Executive member of the RNC.

Response to Comment IND268-18
Comment noted. This comment refers to prior decisions regarding environmental regulations, including a proposal to include regulation along riverbanks up to a mile from the river, the listing status of coho salmon, and a de-listing petition for Chinook salmon filed by the Siskiyou County Water Users Association, which was successful. Please refer to Master Response AQF-11 for a discussion of the historical status of coho in the Klamath Basin.

Comment IND268-19
Current and future Oregonians are, and should continue to be, beneficiaries of the monumental achievements in water infrastructure that has created Oregon's

exemplary agricultural economy. The proposed removal of the four PacifiCorp dams, including the J. C. Boyle dam in Oregon, will destroy that very infrastructure.

Therefore, I stand alongside the majority of tax-payers and citizens in firm opposition to ODEQ's approval of a water quality certification request for the J. C. Boyle Dam removal project.

The dam removal effort has too many uncertainties which bear negatively on long-term water quality, river habitat and fish spawning grounds due to the river dynamics and existing sedimentary buildup behind the dams.

These dams serve several environmentally beneficial functions by first, creating a series of reservoirs which diminish turbidity and improve water quality as water moves through the system. These reservoirs are essentially giant settling ponds for particulate matter, including erosional debris, dead algae, cobble-sized sediment, pebbles, and valley-fill alluvium. Particulate organic matter, that originates from Upper Klamath Lake, basin agricultural return flows, municipal and industrial sources in the Klamath Falls area, is largely trapped by the J. C. Boyle reservoir. The overall nutrient loads, including naturally occurring phosphorous rich material, settles behind the dam and never reaches the slower moving and shallower gradient portions of the river system. In turn, Copco 1, Copco 2 and Iron Gate Dam reservoirs also serve to keep sedimentary debris from flowing further downstream.

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Although, all four reservoirs are known to have elevated organic loads, they still serve as excellent sedimentary traps. Current estimates range from 15 million to 30 million cubic yards of sediment behind all four dams. The J. C. Boyle dam, had an estimate that was originally 1.5 million cubic yards. Today the estimate has been forced into a range that is deemed politically acceptable, at 600,000 cubic yards. This number is still a ridiculously large volume of sedimentary debris to consider flushing into the California river system. Flushing this debris would be unconscionable and would cause catastrophic harm to the overall river environment, downstream fish populations, spawning grounds and riparian habitats.

Additionally, the toxicity of these enormous volumes of muck and sedimentary composites have not been sufficiently studied. Mining operations have long surrounded the river system throughout So. Oregon and No. California. A U.S. Geological Survey review of mine data (2005), highlights that these past operations released elevated amounts of toxic substances into the watershed, *including arsenic, chromium, copper, lead, mercury, nickel, tungsten, uranium, and zinc.*

Oregon has been tightening rules, initiating moratoriums and legislating outright bans on various small-volume run-of-river dredge mining operations for years. Therefore, ODEQ should have serious reservations about the complexities involved in this potential toxic stockpile and be less insistent on approving this certification. Otherwise, the citizens will recognize this current 401-certification process is a politically motivated, agenda-driven water quality charade reeking with double-standards.

The existing dams provide beneficial cleansing structures which allow the massive fresh-flow tributaries, and downstream volumes of low phosphoric, clean water from the western-slope to actually improve water quality as it travels the 250 miles to the Pacific Ocean.

ODEQ should never considering allowing this potential toxic debris into the river system.

First, it will never make it to the Pacific Ocean because deep boulder pockets, gravel and cobble bars and the subsequent multiple confluence embankments and ridges that occur along the lower elevations will trap the overwhelming tonnage of debris.

Additionally, the downstream gradient is too shallow, and the river flows will never be sufficient to mobilize the debris field. ODEQ's permit approval pretends to only be concerned about water quality in Oregon. This is indefensible because all of these toxins, muck and sedimentary debris will devastate the lower river.

The downstream impacts cannot be ignored. From River Mile 160 to the Pacific Ocean the gradient approaches a mere two percent (.1893) grade (Figure-1). The drop to sea level is only a 1600-foot change in elevation, which is only 10 feet per mile. ODEQ certainly knows the typical waste-water or home septic system would require a slope of 110 feet per mile to drain efficiently.

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While dam critics often complain that dam construction has altered the natural sediment transport processes reducing gravel bar and pocket gravel deposits and thereby reducing salmonid and lamprey spawning and rearing habitats, dam removal is not the solution.

The purposeful disbursement of Oregon's debris field into California's portion of the Klamath River system would be an immoral act.

In fact, the debris flow today, with the dams in place, is too heavy for the current channelized flows to successfully push into the Pacific. Even with the benefit of increase flows used for dissolution and flushing programs, which are regulated by the dam structures, there is insufficient flow to clear the mouth of the river (Figure-2).

The J. C. Boyle dam:

- *Provides cool water for the continued operations of Iron Gate Fish Hatchery which releases 7 million anadromous fingerlings annually*
- *Provides clean, renewable, low-cost hydroelectric power for 70,000 households*
- *Reduces peak flood flows by 25 percent*
- *Reduces algae blooms in the Lower Klamath River*
- *Reduces river temperatures in the Lower Klamath River*
- *Reduces river sedimentation and debris buildup in the Lower Klamath River*
- *Provides for lakeside camping, hiking, fishing, boating and recreational opportunities*
- *Provides river rafting and business opportunities*
- *Provides reservoirs for bio-remediation, while trapping toxins and sediment*
- *Allows for flow control and remediation techniques, such as flushing flows*

These positive attributes provide enormous public benefit and sufficient reason for ODEQ's denial of this step in the dam removal certification process.

In closing, there is another item that ODEQ must consider – Cost. Original cost estimates ranged from $1.4 billion and upwards. After 2010, when the US Congress first balked at funding the destruction of the Klamath Dams, there was an enormous effort to "find cost reductions." The results offered nothing more than cost shifting and slight-of-hand congressional Gerry-rigging of payments from various agency-level accounts. Never-the-less, the public was told of a new cost estimate of $800 million, a reduction of $400 million.

Today, the Klamath River Renewal Corp. estimates total cost at $400 - $450 million dollars, an estimated reduction of nearly $1 billion. It appears that if we wait a couple of more years the cost would be halved again!

I suggest, that a neat and tidy, $1 billion cost reduction from the original estimates with an overall price-tag of only $400 million cannot be legitimate, at least not using the same project scope and equivalent efforts. This begs the question, what items will be added to complete the dam removal project and who will fund future restoration and remediation efforts?

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No doubt, tax-payers will end up paying the full-price. They will be burdened with millions of dollars of cost-overruns, future water quality issues, higher rates for base-load electricity, devastated habitat and riparian areas, and the destruction of private property, all because of an over-whelming, unfathomable mindset intent on destroying western civilization's technological advances.

Oregonians should be the beneficiaries of the monumental investments, hard work and successful achievements made possible by our state's water infrastructure. Oregon's status as a modern agricultural and technological engine has been made possible by inexpensive baseload electricity and abundant, well-managed water resources.

Please ensure our heritage by denying approval for the 401 Water Quality Certificate for the removal of the J.C. Boyle dam.

Sincerely,
Dennis Linthicum
OR State Senate – District 28

Response to Comment IND268-19
The Oregon Water Quality Certification for the Lower Klamath Project was issued in September 2018 and is available at https://www.oregon.gov/deq/FilterDocs/ferc14803final.pdf. Comments on the Oregon Water Quality Certification should be submitted to the Oregon Department of Water Quality.

Goff, Gabreil

Comment IND223-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND223-1
Thank you for your comment. Please refer to Master Response GEN-1.

Goldsmith, Dan

Comment IND132-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND132-1
Thank you for your comment. Please refer to Master Response GEN-1.

Goodwin, Charles

Comment IND113-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND113-1
Thank you for your comment. Please refer to Master Response GEN-1.

Graff, Steven

Comment IND242-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND242-1
Thank you for your comment. Please refer to Master Response GEN-1.

Graham, Glenn

Comment IND445-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND445-1
Thank you for your comment. Please refer to Master Response GEN-1.

Grant, Nora and Clancy

Comment IND321-1
As a resident and property owner here in Siskiyou County I implore you to please stop the removal of these dams. I feel that the real reason behind the removal is more of one of dollars in the pockets of Tribal and environmentalist than it is a betterment for the river and fish.

Response to Comment IND321-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND321-2
The dams play a very vital part to this county. They provide clean energy, flood control, enough water in the river for the salmon to return and spawn, water for wild fire protection, a bird and turtle refuge, and many more benefits. What happens to all of us property owners when all of this is destroyed by dam removal?? No one wants to answer our questions or concerns. Will this effect our water tables? Will all of us that have properties near the existing lakes lose our wells? Who will compensate us for our devaluation of property if our wells are gone?

Response to Comment IND321-2
For more information on issues relating to flood control, water supply, salmon migration, wildfire protection, and wildlife habitat, please refer to Master Responses FLD-1, GRW-1, WSWR-1, WSWR-3, WSWR-4, ENR-1, TER-1, and HAZ-2. With respect to the comment regarding clean energy, this comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*). Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a)). However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I includes Section 5.4.1 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11), which summarizes the results of prior

economic studies conducted by the U.S. Department of the Interior to characterize potential effects on property value.

Comment IND321-3

Where will the CDF and local volunteer fire departments obtain water for fighting fires? What about the current established eco-system that exists here? What about the local farmers and ranchers that depend on the lakes and rivers for crops and livestock? The wildlife, ranchers, and residents, do we not have a voice in this matter? Do the environmentalists or Tribes Care? No! They do not! As long as their pockets are lined with money they are happy. Warren Buffet and Pacific Power have nothing to lose as they will come out on top either way this goes as does KRRC.

Response to Comment IND321-3

For more information, please refer to Master Responses HAZ-2, TER-1, WSWR-1, and WSWR-2.

Comment IND321-4

Residents here at Irongate Lake Estates, and Copco Lake have fought this for 10+ years to preserve our current way of life and properties. So much of the articles in the press and in the arguments the environmentalists are using are filled with unsubstantiated falsehoods.

Response to Comment IND321-4

Please refer to Master Response GEN-2.

Comment IND321-5

Our families have even been part of the studies done on the supposed danger of the algae . Of which none have shown any side effects. People and dogs swim and play in the lake all summer long, cattle and wildlife drink out of the lake daily and NO ONE dies. In anything there is always going to be one person out of a million that has a reaction to something, whether it is an allergy related incident or just stupidity, but the majority should not have to suffer or be punished just because of one out of a million. There are pictures supposedly taken at Irongate Lake with tons of algae and dead fish. Our family has been at Irongate Lake Estates since 1999 and never once have we seen any of this. There were thousands of dollars given out to do water studies, but when we have asked for reports of results conveniently the water testing lab has gone out of business. Let alone the actual testing being done at all. Why do we not hear about the contamination of the river below all the dams by an illegal Meth Lab which produced one of the largest fish kills ever on the Klamath? Or how the tribes net thousands of salmon at the mouth of the river before the salmon even have a chance to start their journey upstream, while shooting seal lions at the same time so they don't lose any of the salmon to them, and then half of those taken end up rotting and wasted. Have been there and seen it! No one will hear of this or *many other factors as they serve no purpose to the tribe's and environmentalist spew of lies.*

Response to Comment IND321-5
Please refer to Master Response GEN-2. For more information regarding algal toxicity, please also refer to Master Response WQ-7. Please refer to Volume I Section 3.4.2.1 *Phytoplankton*, Figures 3.4-2 and 3.4-3 (page 3-394) for photos of blue-green algae blooms in Iron Gate and Copco No. 1 reservoirs. Section 3.2.2 *Water Quality – Environmental Setting* and Appendix C *Water Quality Supporting Technical Information* provide a summary of the results of water quality studies in the Hydroelectric Reach (river and reservoirs), Middle and Lower Klamath River, and the Klamath River Estuary. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*. Please also refer to Volume I Section 3.4.2 *Phytoplankton and Periphyton – Environmental Setting* (pages 3-392 to 3-421) for a summary of the results of phytoplankton and periphyton monitoring in the Klamath Basin, including blue-green algae monitoring in the Lower Klamath River Project reservoirs.

Section 3.3.2.1 *Aquatic Resources – Aquatic Species – Fish – Anadromous Fish Species* provides a discussion of factors affecting the current abundance of salmonids in the Klamath Basin, including tribal harvest. Section 3.3.5.5 *Aquatic Resources – Fish Disease and Parasites* provides a discussion of fish kills on the Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND321-6
The contamination of dam removal will last for years as they try to clean up all of silt and re-new the river, towns down river will flood, in the summer and in the fall there will be only a trickle in the now flourishing river, fish will be not be able to come upstream as there will be no stream to come up, maintaining a cooler water temperature will be lost, new sources of electric power will have to be established with costs being passed on to the local residents, the current eco-system and wildlife will suffer and some like the turtles at their refuge will die. We have such a large array of wildlife, and birds including the once endangered osprey, bald and golden eagles that call this home. How can their survival and rights not be considered also. As for the salmon they have not been beyond Irongate Lake for over a century and the existing salmon will never go beyond the fish hatchery even with the dam removed, as most of them were spawned at the hatchery or below the Irongate Dam, even then that will be if and when the contaminated trickle of water will even be enough to allow them to get this far. Ask any of the families that have been in the area for generations, they will tell you about the salmon and how they have witnessed flooding of the river in the spring run offs and how in the late summer and fall that the river would barely be a trickle, but that is not being taken into account.

Response to Comment IND321-6
Please refer to Master Responses GEN-2, FLD-1, TER-1, ENR-1, WQ-1, WQ-2, WQ-3, WQ-6, WSWR-4, GEO-1, and Volume I Potential Impact 3.11-5 [*Geology, Soils, and Mineral Resources - Potential Impacts and Mitigation*] (pages 3-765 to 3-775). For a comprehensive analysis of the effects of the Proposed Project on aquatic resources, including the effects of suspended sediment and increased habitat access, please refer to Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation*. Please refer to Volume III Attachment 1 Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project* for a summary of BiOp-related instream flow targets for the Klamath River, which includes daily average minimum flow targets. With respect to the comment regarding new sources of electric power, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND321-7
This year with all of the wildfires in Northern California and Southern Oregon these lakes were crucial in the fighting of these devastating fires. Although we were evacuated the Irongate Lake saved us and many others from total burn out. The waters from all of the lakes in this removal project were used to supply water for all of the water drops done by fire fighters. We have been speaking with the Cal-Fire employees and whether or not the big wigs in Cal-Fire agree or not is irrelevant, the employees, the ones with the boots on the ground and fighting these wildfires will tell you KRRC plans of dry hydrants and/or deep pools in the river to be used for firefighting is not a viable solution. It has been stated by a local firefighters, with concern, that in this time with the kind of fires that we have experienced and will very likely be experiencing in the future, along with the loss of life and property that we have seen, it is just beyond belief that dam removal with loss of such water resources is still on the table. The reservoirs are used every year and the loss of these resources are inconceivable, and could result in loss of life and property!

Response to Comment IND321-7
For more information on wildfire-related issues, please refer to Master Response HAZ-2.

Comment IND321-8
In addition to the environmental impact, the fire fighting resources, potential devaluation of property, and the strong possibility of a change in the groundwater tables and loss of our wells, there is the loss of a source of clean energy from the hydro-plant on Irongate Lake. Ex Governor Jerry Brown just signed into law that all energy in the state of California by 2045 must be from a clean energy source. So why would it be agreeable to take out an existing clean energy source only to turn around and have to build another?? This defies all logic and reasonable sense.

Response to Comment IND321-8
Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND321-9
I implore you, please help us put a stop to this terrible tragedy once and for all.

Response to Comment IND321-9
Please refer to Master Response GEN-1.

Comment IND322-1
As a resident and property owner here in Siskiyou County I implore you to please stop the removal of these dams. I feel that the real reason behind the removal is more of one of dollars than it is a betterment for the river and fish. The dams play a very vital part to this county. They provide clean energy, flood control, enough water in the river for the salmon to return and spawn, water for wild fire protection, a bird and turtle refuge, and many more benefits.

Response to Comment IND322-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND322-2
What happens to all of us property owners when all of this is destroyed by dam removal?? No one wants to answer our questions or concerns. Will this effect our water tables? Will all of us that have properties near the existing lakes lose our wells? Who will compensate us for our devaluation of property if our wells are gone? Where will the CDF and local volunteer fire departments obtain water for fighting fires? What about the current established eco-system that exists here? What about the local farmers and ranchers that depend on the lakes and rivers for crops and livestock? The wildlife, ranchers, and residents, do we not have a voice in this matter? Pacific Power have nothing to lose as they will come out on top either way this goes as does KRRC.

Response to Comment IND322-2
For more information on issues relating to flood control, water supply, salmon migration, wildfire protection, and wildlife habitat, please refer to Master Responses FLD-1, GRW-1, WSWR-1, WSWR-3, WSWR-4, ENR-1, TER-1, and HAZ-2. This comment also pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*). Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a)). However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I includes Section 5.4.1 *Consideration of Economic Information*

for Resources Potentially Affected by Dam Removal (pages 5-4 to 5-11), which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Comment IND322-3

This year with all of the wildfires in Northern California and Southern Oregon these lakes were crucial in the fighting of these devastating fires. Although we were evacuated the Irongate Lake saved us and many others from total burn out. The waters from all of the lakes in this removal project were used to supply water for all of the water drops done by fire fighters. We have been speaking with the Cal-Fire employees and whether or not the big wigs in Cal-Fire agree or not is irrelevant, the employees, the ones with the boots on the ground and fighting these wildfires will tell you KRRC plans of dry hydrants and/or deep pools in the river to be used for firefighting is not a viable solution. It has been stated by a local firefighters, with concern, that in this time with the kind of fires that we have experienced and will very likely be experiencing in the future, along with the loss of life and property that we have seen, it is just beyond belief that dam removal with loss of such water resources is still on the table. The reservoirs are used every year and the loss of these resources are inconceivable, and could result in loss of life and property!

Response to Comment IND322-3

Please refer to Master Response HAZ-2.

Comment IND322-4

In addition to the environmental impact, the fire fighting resources, potential devaluation of property, and the strong possibility of a change in the groundwater tables and loss of our wells, there is the loss of a source of clean energy from the hydro-plant on Irongate Lake. Ex Governor Jerry Brown just signed into law that all energy in the state of California by 2045 must be from a clean energy source. So why would it be agreeable to take out an existing clean energy source only to turn around and have to build another?? This defies all logic and reasonable sense.

Response to Comment IND322-4

Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND322-5

As a resident of Irongate Lake Estates I find KRRC's plan for the removal and restoration totally unacceptable. It is filled mostly with speculation of how it will go and end up, with no sound science backing any of it up. And their plan for just piling up the debris of concrete, dirt, clay and whatever else in to hills, covering it up with topsoil and planting local plants on it to make it blend in to surroundings *totally absurd. If this is so appealing to them then let them build these hills of debris in their back yards!!!!*

Response to Comment IND322-5

Disposal of debris from dam removal is described in Volume I Sections 2.7.1.2 *Proposed Project – Proposed Project – Dam and Powerhouse Deconstruction – Copco No. 1 Dam and Powerhouse*, 2.7.1.3 *Copco No. 2 Dam and Powerhouse*, and 2.7.1.4 *Iron Gate Dam and Powerhouse – Staging Areas and Disposal Sites* (pages 2-33 to 2-35, 2-43, and 2-49 to 2-51), and the associated disposal site locations are shown on Figures 2.7-2 and 2.7-4. Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* has been revised to clarify the locations of the proposed disposal sites for Copco No. 1, Copco No. 2, and Iron Gate dams, including a summary table of the key observation points from which views of the proposed disposal sites would be possible in the short term and long term under the Proposed Project, and the key observation points from which views of the proposed disposal sites would not be possible (Table 3.19-3 in Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation*). Potential Impact 3.19-6 has been revised to clarify that in the short term (i.e., during construction and before revegetation occurs), the concrete disposal sites would be visible as constructed features incongruous with a natural landscape. However, at the Copco 1 No. 1 and Copco No. 2 dam disposal site, the concrete pile, while not aesthetically pleasing, would not be visually incongruent because of the existing substantially disturbed character of that area. The Iron Gate Dam disposal site would not be visible from any of the identified existing key observation points because it is on a plateau area above the Iron Gate Dam complex; therefore, even though the concrete disposal would be incongruous with the existing landscape prior to revegetation, it would not create a significant visual impact in the short term. Potential Impact 3.19-5 has been revised to clarify that in the long term, there would not be a permanent visual impact of the concrete disposal site for Copco No. 1 and Copco No. 2 dams because this area is already visually degraded by the presence of the two dam complexes, and the disposal site would be naturally-contoured, covered with soil, and revegetated such that it would visually blend with the surrounding landscape. Similarly, in the long term, there would not be a permanent visual impact of the Iron Gate Dam disposal site because once it is contoured, covered with soil, and revegetated, the form and color of the site would generally conform with adjacent landforms, vegetation, color, and scenery. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions. The proposed debris disposal and management approach is not uncommon for large-scale construction projects.

Comment IND322-6

You have the opportunity to stop this tragedy now instead of waiting until it all goes terribly wrong and reaping the consequences of the error of your decision to remove these dams.

Ultimately when all is said and done and this whole scenario goes totally array we will hold YOU responsible and liable.

Response to Comment IND322-6
Please refer to Master Response GEN-1.

Comment IND323-1
This year with all of the wildfires in Northern California and Southern Oregon these lakes were crucial in the fighting of these devastating fires. Although we were evacuated the Irongate Lake saved us and many others from total burn out. The waters from all of the lakes in this removal project were used to supply water for all of the water drops done by fire fighters. We have been speaking with the Cal-Fire employees and whether or not the big wigs in Cal-Fire agree or not is irrelevant, the employees, the ones with the boots on the ground and fighting these wildfires will tell you KRRC plans of dry hydrants and/or deep pools in the river to be used for firefighting is not a viable solution. It has been stated by a local firefighters, with concern, that in this time with the kind of fires that we have experienced and will very likely be experiencing in the future, along with the loss of life and property that we have seen, it is just beyond belief that dam removal with loss of such water resources is still on the table. The reservoirs are used every year and the loss of these resources are inconceivable, and could result in loss of life and property!

Response to Comment IND323-1
Thank you for your comment. Please refer to Master Responses HAZ-2 and GEN-2.

Comment IND323-2
It is my understanding that only certain states require sediment management plans prior to a dam removal (Csike and Rhoads, 2010) and I am concerned regarding the lack of clarity about the acceptable magnitude and/or the duration of contaminated sediment release from a former reservoir after the removal of the dam.

Response to Comment IND323-2
With respect to information regarding potential contaminants in reservoir sediment deposits, please refer to Master Response WQ-6, as well as Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* and Section 3.2.5 *Water Quality – Potential Impacts and Mitigation*. The "acceptable magnitude and/or duration of contaminated sediment release" is defined in the EIR significance criteria (see Section 3.2.3 *Water Quality – Significance Criteria*). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Regarding a "sediment management plan", the Definite Plan (see Volume II Appendix B: *Definite Plan – Appendix M*) includes a Water Quality Monitoring

Plan to assess the Proposed Project's impacts to water quality, and this plan includes turbidity and suspended sediment concentration (SSC) monitoring along with adaptive management requirements. Please note that the State Water Board has authority to review and approve any final Water Quality Monitoring Plan through its water quality certification under Clean Water Act Section 401.

Comment IND323-3

There have been recent controversies surrounding several dam removals which indicate continued concern regarding contaminated sediment issues and will continue to grow in importance in dam removal and river restoration projects.

Response to Comment IND323-3

Comment noted.

Comment IND323-4

The lack of clarity and/or duration may be grounds for litigation, which exposes the organizations that are involved in this dam removal and supposed river restoration to liability risks.

Response to Comment IND323-4

Comment noted. Please note that the Klamath River Renewal Corporation's (KRRC's) liability does not concern potential environmental impacts of the Proposed Project. For information on the issue of liability, please refer to KRRC (2019b) here: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf.

Comment IND323-5

I just got through reading a file that was sent to me by U.S. Senator Dianne Feinstein and was appalled by some of what I was reading.

Response to Comment IND323-5

This comment indicates that the reader was appalled by reading a file that was sent by U.S. Senator Dianne Feinstein. Comment noted.

Comment IND323-6

As a resident of Irongate Lake Estates I find KRRC's plan for the removal and restoration totally unacceptable. It is filled mostly with speculation of how it will go and end up, with no sound science backing any of it up. And their plan for just piling up the debris of concrete, dirt, clay and whatever else, that maybe toxic, in to hills, covering it up with topsoil and planting local plants on it to make it blend in to surroundings totally absurd. If this is so appealing to them then let them build these hills of debris in their back yards!!!!

Response to Comment IND323-6

Disposal of concrete and earthen material from dam removal is described in Volume I Sections 2.7.1.2 *Proposed Project – Copco No. 1 Dam and*

Powerhouse, 2.7.1.3 *Copco No. 2 Dam and Powerhouse*, and 2.7.1.4 *Iron Gate Dam and Powerhouse – Staging Areas and Disposal Sites* (pages 2-30 to 2-40, 2-40 to 2-45, and 2-45 to 2-53), and the associated disposal site locations are shown on Figures 2.7-2 and 2.7-4. Present-day contours suggest that the disposal sites were originally used as borrow sites during dam construction, thus returning material to these areas could represent a return to pre-dam conditions. The proposed on-site disposal approach for concrete and earthen material associated with the dams is not uncommon for large-scale construction projects.

Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation*, including Potential Impact 3.19-5 and Potential Impact 3.19-6, has been revised to include an analysis of the potential visual impacts of the concrete and earthen material disposal sites. The revisions do not change the impact significance determinations. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* for the revisions.

Also, please refer to Master Response HAZ-1 for a discussion of identification and disposal of hazardous materials.

Comment IND323-7

You have the opportunity to stop this tragedy now instead of waiting until it all goes terribly wrong.

Response to Comment IND323-7

Please refer to Master Response GEN-1.

Greyraven, Cynthia

Comment IND129-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people, pets, livestock, and wildlife. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND129-1
Thank you for your comment. Please refer to Master Response GEN-1.

Gross, John

Comment IND406-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND406-1
Thank you for your comment. Please refer to Master Response GEN-1.

Growney, Karen

Comment IND388-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND388-1

Thank you for your comment. Please refer to Master Response GEN-1.

Gustafson, Sharon

Comment IND256-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Water is life! We need more unrestrained rivers for wildlife, recreation, and environmental health. This is a great opportunity to make that happen without impacting agriculture.

Response to Comment IND256-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hagen, William

Comment IND193-1
Haven't the dam owners profited handsomely enough to fund their long-overdue removal?

I strongly support the full removal of the lower four Klamath River dams. l11e Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND193-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hager, Steven

Comment IND241-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND241-1
Thank you for your comment. Please refer to Master Response GEN-1.

Halvorson, Keith

Comment IND384-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND384-1

Thank you for your comment. Please refer to Master Response GEN-1.

Hamann, R.B.

Comment IND304-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND304-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hammerstad, Charles

Comment IND110-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND110-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hammerstad, Chuck

Comment IND122-1
I support the removal of the 4 lower dams on the Klamath River, and the short term water quality issues will rectify naturally and result in a cleaner, colder river that will benefit both people and the fishery in the years ahead. The Klamath River for years has suffered water quality issues with unhealthy blue-green algae coming from the dams, and this has caused a public health issue and advisory in most years, as well as a fish disease called "ich". Dam removal will correct this problem, and make the river healthier and recover salmon and steelhead.

Response to Comment IND122-1
Thank you for your comment. Please refer to Master Response GEN-1.

Haselden, Julie

Comment IND392-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND392-1
Thank you for your comment. Please refer to Master Response GEN-1.

Haufler, James

Comment IND430-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND430-1
Thank you for your comment. Please refer to Master Response GEN-1.

Haupt, Kenneth

Comment IND379-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND379-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hauser, Dan

Comment IND133-1
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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND133-1
Thank you for your comment. Please refer to Master Response GEN-1.

Henderson, Peggy

Comment IND165-1
We will lose all of our lake fish if the dams go out, which will pretty much destroy our way of life living here.

Response to Comment IND165-1
Thank you for your comment. Please refer to Potential Impact 3.20-2 for a discussion of the long-term changes to or loss of reservoir-based recreation activities and facilities due to removal of Iron Gate and Copco No. 1 reservoirs, including an analysis of the effects of the Proposed Project on recreational fishing in the reservoirs. The final Section 3.20 *Recreation* is presented in Volume III Attachment 1.

Comment IND165-2
My husband and I moved here in 2002 at the urging of Don and Corky Minion, my husband's surrogate parents. We immediately fell in love with the area, the lake, and the folks living here. We invested our time, our money, and our talents, serving as reserve deputies with the Siskiyou County Sheriff's Department for eight years.

This is our home, and where my husband passed away three years ago. Our children, grandchildren, and great-grandchildren come here every year to visit and enjoy this fishing paradise.

Response to Comment IND165-2
Please refer to Master Response GEN-2.

Comment IND165-3
Taking the dams out and reducing the Klamath River to a stream will destroy most of the fish in the Klamath River. And destroy the way of life for the people living here, many of whom have lived here most of their lives.

Response to Comment IND165-3
The EIR does not conclude that the Proposed Project would destroy most of the fish in the Klamath River. Please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for a comprehensive analysis of the effects of the Proposed Project on aquatic resources in the Klamath River. The final Section 3.3 *Aquatic Resources* is presented in Volume III Attachment 1.

Comment IND165-4
In 1916-1920, the Copco Lake dam was built by American engineers, with the addition of turbines, providing the cleanest and cheapest electricity to tens of thousands of residents and businesses in Siskiyou County, California, and the Southern Oregon area .

Response to Comment IND165-4
Comment noted.

Comment IND165-5
I believe an in-depth feasibility study, backed up by proven scientific data, should be done before reaching any conclusions about taking out the existing dams and lakes.

Response to Comment IND165-5
There have been numerous studies that contemplated removal of the Lower Klamath Project facilities over the past 25 years. Please refer to Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a brief introduction to the three past environmental reviews of Klamath River dam removal, including the 2012 Klamath Hydroelectric Settlement Agreement (KHSA) Environmental Impact Statement/Environmental Impact Report (EIS/EIR), the Federal Energy Regulatory Commission's (FERC's) 2007 National Environmental Policy Act (NEPA) document, and the U.S. Bureau of Reclamation's (USBR's) 2016 Supplemental Information Report. These documents provide a great deal of information regarding the existing Klamath Hydroelectric Project (KHP), the various alternatives for the future of the hydroelectric facilities, and the potential impacts of and mitigation measures for these alternatives. After careful consideration and review of past environmental documents prepared for the Klamath Hydroelectric Project, the State Water Board determined it should develop this EIR as a separate document, rather than adopting one of the existing reviews; please refer to Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a list of the reasons behind that decision.

Heneveld, Trevor

<u>Comment IND207-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND207-1

Thank you for your comment. Please refer to Master Response GEN-1.

Hickox, Robert

<u>Comment IND291-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND291-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hill, Michelle

Comment IND335-1
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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND335-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hineser, Mark

Comment IND354-1
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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND354-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hogue, Marc

Comment IND364-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND364-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hohler, David

<u>Comment IND145-1</u>
As a fish biologist that started working in the Klamath Basin over 30 years ago, I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND145-1
Thank you for your comment. Please refer to Master Response GEN-1.

Holloway, David

Comment IND150-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND150-1
Thank you for your comment. Please refer to Master Response GEN-1.

Howard, Jeff

<u>Comment IND421-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND421-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hrobuchak, David

<u>Comment IND146-1</u>
I strongly support the full and immediate removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND146-1
Thank you for your comment. Please refer to Master Response GEN-1.

Hull, Danny

<u>Comments IND156-1, IND157-1, IND158-1, IND177-1</u>
The California State Water Resources Control Board, 12/27/2018 Draft Environmental Impact Report (EIR) for the Lower Klamath Project License Surrender, is deficient for not providing consideration and analysis of a One Dam Removal Alternative for Iron Gate, Copco 1, Copco 2, and J.C. Boyle Dams, that explains any major detriments and major benefits incurred from--while leaving three of those dams permanently nonremoved--removing only each one of those dams.

Response to Comments IND156-1, IND157-1, IND158-1, IND177-1
Thank you for your comment. Consistent with CEQA Guidelines section 15126.6 (a), the Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. As described in Volume 1 Section 4.1 *Alternatives Selection/Overview* (pages 4-1 to 4-15), 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090). A one-dam removal scenario was not raised during public scoping for the Lower Klamath Project, and the comment does not provide a reason for the assertion that removing one of the four Lower Klamath Project dams would be a reasonable alternative to consider.

Comments IND156-2, IND157-2, IND158-2, IND177-2

Herewith now this February 25, 2019 I vote in rejection of, and against granting KRRC the water quality certification for the "Proposed Project" of removing the dams and associated facilities that together form the Lower Klamath Project (FERC Project No. 14083), that on September 23, 2016, the KRRC applied to the California State Water Resources Control Board to receive.

Response to Comments IND156-2, IND157-2, IND158-2, IND177-2

Please also refer to Master Response GEN-1.

Comment IND156-3, IND157-3, IND158-3, IND177-3

My additional comments on the California State Water Resources Control Board Draft Environmental Impact Report for the Lower Klamath Project License Surrender, are as follows:

ES-4 "Proposed Project Objectives The State Water Board has identified the following Proposed Project objectives, as required under CEQA Guidelines, section 15124, subdivision (b): In a timely manner: 1. Improve the long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River, including water quality impairments due to Microcystis aeruginosa and associated toxins, water temperature, and levels of biostimulatory nutrients. 2. Advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation. 3. Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams. 4. Ameliorate conditions underlying high disease rates among Klamath River salmonids.

The objectives further the underlying purpose of the Proposed Project, which is the timely improvement of water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and the restoration of anadromous access upstream of Iron Gate Dam (the current barrier to anadromy)."

ES-17 "fish survival through fishways would be reduced as compared to through undammed stream reaches. " . . . " would not improve other water quality conditions".

ES-18 "Because the dams and reservoirs would remain, they would still continue as an impairment to migration that is not present under the Proposed Project." ES-18 "However, while this alternative would further the underlying purpose and related objectives of providing fish passage upstream of Iron Gate Dam, fish survival through fishways would be reduced as compared to through undammed stream reaches"

Rather than the immediately aforegiven oversimplistic ES-18 quote, California State Water Board might assert that "However, while this alternative would further the underlying purpose and related objectives of providing fish passage upstream of Iron Gate Dam, fish survival per fishways passage might be reduced as compared to passage through undammed stream reaches, depending on the fishways' construction and protection from poaching and predation, although fishways for the dams would be greatly shorter in length than river length from the dams to the dams' reservoir headwaters, and the dam reservoirs afford both greater protection from predation and poaching of adult migrant fish than do many undammed stream reaches, and in the case of J.C. Boyle, Copco 1 and Iron Gate dams, much Upper Klamath Lake-like algae-sheltered shoreline habitat for juvenile fish--including anadromous fish--rearing and migration.

Response to Comment IND156-3, IND157-3, IND158-3, IND177-3
The sentences quoted from Volume 1 of the EIR, pages ES-17 and ES-18, are summary statements appropriate for the Executive Summary of a large document. Please refer to Volume 1 Section 4.4 *[Alternatives] Continued Operations with Fish Passage Alternative* (pages 4-99 to 4-180) for a detailed analysis of the potential impacts of this alternative on the environment. In particular, Volume 1 Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* (pages 4-131 to 4-162) presents a discussion of potential impacts associated with fish passage at the four Lower Klamath Project dams.

Comment IND156-4, IND157-4, IND158-4, IND177-4
ES-19 ". . . elimination of whitewater recreation flows . . .", ". . . fish survival through fishways would be reduced as compared to passage through un-dammed stream reaches . . ."

Whitewater recreation flows could continue from winter and spring seasons-stored Klamath River water, and also could be provided per temporary curtailment of hydroelectric power generation accompanied with increased J.C. Boyle Dam water storage. J.C. Boyle Dam's water release doesn't have to be restricted to constant hydroelectric power production and fish habitat water flow.

Response to Comment IND156-4, IND157-4, IND158-4, IND177-4
The sentence quoted from EIR page ES-19 is a summary statement appropriate for the Executive Summary of a large document. Please refer to Volume 1 Section 4.4.1 *Alternatives – Continued Operations with Fish Passage Alternative – Introduction* (pages 4-99 to 4-101) for a discussion of the hydrology assumptions related to recreation flows for this dams-in alternative. Volume 1 Section 4.4.20 Alternatives – *Continued Operations with Fish Passage Alternative – Recreation* (pages 4-176 to 4-178) presents a discussion of potential impacts of this dams-in alternative on recreational activities on the Klamath River, including whitewater boating.

<u>Comment IND156-5, IND157-5, IND158-5, IND177-5</u>
Assuming no fish habitat benefit of the Klamath River hydroelectric dam reservoirs, and no fish migration benefit of properly constructed and properly protected Klamath River hydroelectric dam fishways, is again oversimplistic (see ES-18 comment above).

Response to Comment IND156-5, IND157-5, IND158-5, IND177-5
The sentence quoted from Volume I *Executive Summary* page ES-18 is a summary statement appropriate for the Executive Summary of a large document. Section 4.4 *Alternatives – Continued Operations with Fish Passage Alternative* considers the Lower Klamath Project reservoirs as a potential source of rearing habitat, albeit one that would be limited by exisitng water quality conditions. For example, as described Section 4.2.3.2 *Alternatives – No Project Alternative – Aquatic Resources – Aquatic Resource Potential Impacts, Impacts, and Mitigation* Potential Impact 4.2.3-7 (page 4-138) for fall-run Chinook salmon, fish migrating through the Lower Klamath Project reservoirs would be exposed on a seasonal basis to some degree of stressful water quality conditions, including summer and fall high water temperatures in reservoir surface layers, low dissolved oxygen in reservoir middle and bottom layers, changes in dissolved oxygen, pH, and ammonia associated with algal blooms, and exposure to microcystin from *Microcystis aeruginosa* blooms (Dunsmoor and Huntington 2006, FERC 2007). These conditions can become stressful to fish, contributing to lower resistance to disease during June through September. Based on the reservoir dynamics and the predator population that currently occurs within the reservoirs, predation of outmigrating salmonids upstream of Iron Gate Dam likely would be low (NMFS 2006a). In restoration efforts elsewhere in the Pacific Northwest, anadromous juveniles have successfully passed through reservoirs under similarly difficult circumstances (NMFS 2006a).

The EIR does not conclude “no fish migration benefit” from provision of fish passage, as described in Volume I Section 4.4.3.7 *Alternatives – Continued Operations with Fish Passage Alternative – Aquatic Resources – Fish Passage* (page 4-137) analyzes the effects of fishways on aquatic resources and finds that while fish migrating through fishways may experience delay, injury, and mortality beyond what would occur from natural migration in the absence of dams and reservoirs (FERC 2007) (page 4-132), fishways would provide anadromous fish access to historical habitat and the benefits commensurate with increased habitat access.

<u>Comment IND156-6, IND157-6, IND158-6, IND177-6</u>
ES-24 "However, the Proposed Project is a restoration project aimed at improving the aquatic ecosystem in the Klamath River over the long term."

The "Proposed Project"'s premise of "restoration" is an oversimplification, and likely a subterfuge, and it should rather be termed a "partial restoration", because the Klamath River is a well established multiple use--including agriculture *irrigation, hydroelectric power, reservoir recreation, flood control, gold mining, remediated waste water transporting, waterfowl hunting, fire suppression, warm water nonnative game fish fishing, wildlife habitat, commercial fish harvesting, and log rafting--industrial river, and the "Proposed Project"s' "restoration" of the Klamath River towards a former wild and scenic status, excessively denies humanity of natural ecosystem-supportive Klamath River vital human life support, and is ambiguous due to current long term anthropogenically caused increasing global warming climate change, and increasing vital agricultural irrigation need (e.g., lowered Upper Klamath Basin water table), and global warmingreduced average annual Klamath River watershed snowpack storage, and increasing climate-protecting clean renewable energy need, and permanent loss of 70,000 homes worth of clean renewable hydroelectric power production. Indeed, Pacific Corp's "surrender of license" to KRRC for the purpose of the Proposed Project's "Klamath River restoration" proposition, is a corrupt ploy effort to: Avoid future litigation about futurely installed dam fishways' fish passage, substitute pisciculture and commercial fish harvesting for agriculture, substitute fossil fuel-powered energy production for clean renewable 24 hours 7 days a week hydroelectric power, unnecessarily destroy both three very good hydroelectric dams and one nearly excellent hydroelectric dam.*

Response to Comment IND156-6, IND157-6, IND158-6, IND177-6

Comment noted. The sentence quoted from Volume I *Executive Summary* page ES-24 is a summary statement appropriate for the Executive Summary of a large document. With respect to the comment's assertion regarding the premise of restoration, please refer to Volume I Section 2.6.1 *Proposed Project – Project Background – Water Conflicts in the Klamath River Basin* (pages 2-20 to 2-22), which presents timeline highlights of major water-related milestones and issues in the Klamath Basin over approximately the last few decades; the various water quality and resource impacts shown in the timeline provide context for the underlying purpose and objectives of the Proposed Project, as stated in Volume I Section 2.1 *Proposed Project – Project Objectives* (page 2-1). The EIR considers the multiple beneficial uses associated with the Klamath River throughout the analyses – please refer to Master Responses WSWR-1, WSWR-3, REC-1, FLD-1, HAZ-2, TER-1, and GEN-2. The comments regarding renewable energy and hydroelectric power generation pertain to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*). With respect to the comment regarding the wild and scenic status of the river, the EIR acknowledges that the Klamath River beginning 3,600 feet downstream of Iron Gate Dam and continuing to the Klamath Estuary (i.e., Middle and Lower Klamath River) is designated a wild and scenic river segment by both the State of California and the federal government. Thus, this status is considered as part of the CEQA baseline and is discussed in resource area environmental setting and potential impact analysis discussions including Section 3.2.3 *Water Quality – Significance Criteria*, Section 3.3.2.2 *Aquatic Resources – Environmental Setting – Physical Habitat Descriptions – Upper Klamath River – Hydroelectric Reach,* Section 3.14.5 *Land Use and Planning – Potential Impacts and Mitigation* Potential Impact 3.14-2, Section 3.19.2 *Aesthetics – Environmental Setting*, Section 3.19.3 *Aesthetics – Significance Criteria*, Section 3.20.2.1 *Recreation – Environmental Setting – Regional Recreation*, Section 3.20.2.4 *Recreation – Environmental Setting – Wild and Scenic River Conditions*, Section 3.20.3 *Recreation – Significance Criteria*, Section 3.20.4.5 *Recreation –Impact Analysis Approach – Wild and Scenic Rivers*, and Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-6 and Potential Impact 3.20-7.

Please refer to Volume 1 for Section 3.14 *Land Use and Planning* (specifically page 3-885) and Volume III Attachment 1 for the final Section 3.2 *Water Quality*, Section 3.3 *Aquatic Resources*, Section 3.19 *Aesthetics*, and Section 3.20 *Recreation*.

Comment IND156-7, IND157-7, IND158-7, IND177-7

ES-24 "It is clear that the Klamath River has significantly degraded water quality and aquatic resources, and that these ongoing impacts stem from multiple factors including operation of the hydroelectric facilities."

It is not so "clear" that Klamath River has "significantly degraded water quality and aquatic resources . . . that . . . stem from multiple factors including operation of the hydroelectric facilities", rather than ". . . that . . . stem . . . from multiple factors, including in the case of the hydroelectric facilities: (1) Primarily a lack of selective thermal mixing and withdrawal facilities, to release late summer and early fall Copco 1 Dam and Iron Gate Dam reservoirs' stratified waters, downriver in Klamath River of; (2) negligibly from the J.C. Boyle Dam facilities; (3) no water quality degradation from Copco 2 Dam facilities, and substantial aquatic resources degradation, that can easily be completely alleviated per fishways installation in Copco 2 Dam facilities.

In distinguishing the California Klamath River hydroelectric dam reservoirs' water quality contribution to the Klamath River, Upper Klamath Lake hypereutrophic water quality appears significantly to have much the same thermal chemistry as the California Klamath River hydroelectric dams' reservoirs' water quality, when Upper Klamath Lake's water quality is at equivalent temperatures to the California Klamath River hydroelectric dams' reservoirs' water quality temperatures. Climate change, diminished annual natural watershed water storage, and industrially modified (including irrigation, treated wastewater, urban and agricultural runoff) water flow are partly compensated for per the Klamath River dam reservoirs, as the reservoirs allow humanity to maintain water flow from Iron Gate Reservoir for 190 miles to the sea, and--per selective water release from thermally stratified Iron Gate reservoir--to modify water temperature in the Klamath River from Iron Gate Reservoir for several miles downriver of Iron Gate Reservoir. Ammonia and CO2 that are produced from decomposition in the reservoirs, are also produced from the undammed river reaches, however the greater turbulence of the undammed river reaches mixes the ammonia and CO2 *faster with the atmosphere than does J.C. Boyle, Copco 1--though not Copco 2--, and Iron Gate dams' reservoirs.*

Response to Comment IND156-7, IND157-7, IND158-7, IND177-7
The sentence quoted from the EIR page ES-24 is a summary statement appropriate for the Executive Summary of a large document.

J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and the associated reservoirs and hydropower generation facilities influence water quality in more ways than described by the comment. Section 3.2.2 *Water Quality - Environmental Setting* and Appendix C *Water Quality Supporting Technical Information* provide a summary of the water quality conditions in the Lower Klamath Project EIR water quality Area of Analysis. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*. Section 3.3.2 *Aquatic Resources - Environmental Setting* provides a summary of the aquatic resources under existing conditions in the Lower Klamath Project EIR aquatic resources Area of Analysis. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please refer to Master Response WQ-1 for a discussion of the role of the Lower Klamath Project dams/reservoirs with respect to overall water quality in the Klamath River. As described in Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*, the amount of flow in the Klamath River is determined by the operation of the Klamath Irrigation Project by the U.S. Bureau of Reclamation (USBR) and the applicable biological opinion(s) (BiOp) to meet the needs of listed species and maintain full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. The Proposed Project does not include any changes to the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s). According to the 2019 National Marine Fisheries Service (NMFS) biological opinion (2019 NMFS BiOp), the compliance point for the minimum Klamath River flow targets would shift upstream from Iron Gate Dam to Keno Dam if dam removal occurs and USBR and NMFS would coordinate to determine the appropriate releases at Keno Dam to provide flows downstream of Iron Gate Dam consistent with NMFS' expectations under the existing 2019 NMFS BiOp (NMFS 2019). As such, the minimum flows during summer and fall would be similar under existing conditions and the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.1.6 *Summary of Available Hydrology Information for the Proposed Project*.

Please refer to Master Response WQ-2 for a discussion of the potential for releases from the Lower Klamath Dams to reduce the Klamath River water temperature during summer and fall. Additionally, recent testing by PacifiCorp of an intake barrier curtain in Iron Gate Reservoir did not demonstrate that preferential withdrawal of deeper, cooler reservoir would reliably cool summer and fall water releases from Iron Gate Dam, or consistently achieve the water temperature allocations in the Klamath total maximum daily loads (TMDLs) while achieving dissolved oxygen water temperature objectives in the Klamath River. Potential water temperature improvements from operation of the curtain (i.e., 1 to 2°C [1.8 to 3.6°F]) would still not achieve water temperature objectives and would not be able to consistently occur all the time because the dissolved oxygen concentration in deeper, cooler reservoir waters would potentially be too low to achieve dissolved oxygen water quality objectives even with additional mechanical aeration (i.e., turbine venting) at Iron Gate Dam. During 2017, the curtain had to be completely rolled up (i.e., no longer drawing from deeper, cooler reservoir waters) to achieve dissolved oxygen concentrations for aquatic life (PacifiCorp 2018a).

Additionally, please refer to Volume I Section 4.5.2 *Two Dam Removal Alternative – Water Quality* (pages 4-186 to 4-204) for a discussion of how the presence of J.C. Boyle and Copco No. 2 dams would influence Klamath River water quality even without Copco No. 1 and Iron Gate dams.

Appendix C, Section C.3 *Nutrients* provides a discussion of the dissolved nutrient conditions, including ammonia and ammonium concentrations, in the Hydroelectric Reach, the Middle and Lower Klamath Project, and the Klamath River Estuary. Ammonia and ammonium are naturally formed in the river environment, but the turbulent, oxygen-rich Klamath River would more rapidly convert these into other less toxic and bioavailable forms of nitrogen than would occur in the Lower Klamath Project reservoirs. Additionally, turbulent, oxygen-rich conditions in the Klamath River would limit anoxic conditions along the streambed that would convert organic nitrogen to ammonia/ammonium. Measurements of ammonia/ammonium in the Lower Klamath Project reservoirs, especially at lower reservoir depths, indicate the anoxic conditions that form during seasonal thermal stratification are likely causing conversion of organic nitrogen in reservoir deposits to ammonia. Please refer to Volume III Attachment 1 for the final Appendix C *Water Quality Supporting Technical Information*.

Comment IND156-8, IND157-8, IND158-8, IND177-8

ES-24 "In looking at the range of benefits and impacts the State Water Board has identified the Proposed Project as the environmentally superior alternative."

I disagree. To me the "Proposed Project" is a "destroy the Klamath River hydroelectric dams and leave the river to nature" (quote of myself) alternative, that definitely is not the "environmentally superior alternative" for improvement of the multiuse Klamath River. Leaving Klamath River to dry out our farms and our urban wells, because there is no artificial water storage (Link River Dam is a diversion dam that raised Upper Klamath Lake water level very little, Keno Dam is an irrigation dam) for the globally-warmed climate changed Klamath river, and not providing additional--or at least constantly providing--fish hatcheries to supplement salmonid harvest from the river, and disallowing multiple use of the *dams whereof 15 miles of the Klamath River is able, per four reservoirs, to provide both warm and cool water aquatic habitat that is proven able to support both warm and cool water aquatic life--including abundant warm and cold water game fish--year round, and permanently losing 70,000 homes' worth of clean renewable hydroelectric power production, in exchange for a long term seasonally--per reduced watershed snowpack--diminished flow, globally warmed climate-changed river, that for the last 176.3-66 miles of its length to the sea, has both much the same chemical composition, and the same or greater seasonally warm water quality characteristics, that it has had for the immediately previous 15-20 years, is not the "environmentally superior alternative" that humanity needs to produce for the Klamath River's best environmental coexistence with humanity. The Klamath River is, and has long been, a multi-use industrial river and not a wild and scenic river.*

Response to Comment IND156-8, IND157-8, IND158-8, IND177-8
As stated in Volume I *Executive Summary* (page ES-24), the State Water Board has looked at the range of benefits and impacts under the Proposed Project and six alternatives and has identified the Proposed Project as the environmentally superior alternative based solely on a comparison to the existing condition (summarized in Table ES-1). While the alternative with the least number of unmitigable adverse environmental impacts would be the Continued Operations with Fish Passage Alternative, the Proposed Project is a restoration project aimed at improving the aquatic ecosystem in the Klamath River over the long term and as such would result in significantly more identified benefits for environmental resources than the Continued Operations with Fish Passage Alternative, including all of the benefits listed above under Effects Found to be Beneficial. Further, the majority of the unmitigable adverse impacts identified under the Proposed Project would occur in the short term, during reservoir drawdown and construction activities associated with hydroelectric facilities removal. With respect to the comment's concerns regarding water supply, hatcheries, water temperature and aquatic species, please refer to Master Responses WSWR-1, WSWR-3, AQF-2, WQ-2. The comments regarding renewable energy and hydroelectric power generation pertain to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*). With respect to the comment regarding the wild and scenic status of the river, the EIR acknowledges that the Klamath River beginning 3,600 feet downstream of Iron Gate Dam and continuing to the Klamath Estuary (i.e., Middle and Lower Klamath River) is designated a wild and scenic river segment by both the State of California and the federal government. Thus, this status is considered as part of the CEQA baseline and is discussed in resource area environmental setting and potential impact analysis discussions including: Section 3.2.3 *Water Quality – Significance Criteria;* Section 3.3.2.2 *Aquatic Resources – Environmental Setting – Physical Habitat Descriptions – Upper Klamath River – Hydroelectric Reach;* Section 3.14.5 *Land Use and Planning – Potential Impacts and Mitigation* Potential Impact 3.14-2; Section 3.19.2 *Aesthetics – Environmental Setting;*

Section 3.19.3 *Aesthetics – Significance Criteria;* Section 3.20.2.1 *Recreation – Environmental Setting – Regional Recreation;* Section 3.20.2.4 *Recreation – Environmental Setting – Wild and Scenic River Conditions;* Section 3.20.3 *Recreation – Significance Criteria;* Section 3.20.4.5 *Recreation –Impact Analysis Approach – Wild and Scenic Rivers;* and Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-6 and Potential Impact 3.20-7. Please refer to Volume I for Section 3.14 *Land Use and Planning* (specifically, page 3-885) and Volume III Attachment 1 for the final Section 3.2 *Water Quality*, Section 3.3 *Aquatic Resources*, Section 3.19 *Aesthetics*, and Section 3.20 *Recreation.* Please also refer to Master Response GEN-1.

Comment IND156-9, IND157-9, IND158-9, IND177-9

Rather than the "Proposed Project", the "Continued Operations with Fish Passage Alternative" to retain the Klamath River hydroelectric dams, and to improve the dams where necessary with fishways, that are adequate for native and nonnative upper Klamath River fishes' ("upper" is used here to exclude sturgeon) year-round fish travel throughout the Klamath River, provides the Klamath River's best environmental coexistence with humanity. Also, Copco 2 Dam--with its oftentimes 46 minute reservoir pool replenishment time--provides no adverse environmental impact on the Klamath River, that--much similar to Link River Dam's effect on Link River--a fish ladder (complete with fish counting station), a fish screen, and a seasonally adjusted fish ladder and dam water release flow, can't adequately mitigate. (per a 1,150 cubic feet/second moderate river-flow rate, Copco 2 Dam's reservoir of 73 acre-feet water storage changes its water every 46 minutes).

Response to Comment IND156-9, IND157-9, IND158-9, IND177-9

Section 4.4 *Alternatives – Continued Operations with Fish Passage Alternative* (pages 4-99 to 4-180) provides a comprehensive assessment of the alternative that includes provision of fish passage with fishways. Additionally, as discussed in Section 4.1 *Alternatives – Alternatives Selection/Overview* (pages 4-1 to 4-14), the State Water Board analyzed the *Two Dam Removal Alternative*, in which the Copco No. 1 and Iron Gate dam complexes in California would be fully removed, while the J.C. Boyle dam complex in Oregon and Copco No. 2 dam complex in California would remain in place. As stated in Section 4.1 *Alternatives – Alternatives Selection/Overview* (page 4-5), this alternative was analyzed because it eliminates the reservoirs with the largest contributions to water quality impairment and with the tallest dams for fish ladder construction, while allowing for continued power generation (please refer to Section 4.5 *Alternatives – Two Dam Removal Alternative* [pages 4-181 to 4-246] for additional information).

Comment IND156-10, IND157-10, IND158-10, IND177-10

The question about restoring the Klamath River, is not so much a question of a fish out of water, as it is a question of people out of water, and people out of a cool climate, and people out of fish, and people out of fossil fuel-powered electricity generation, and people out of clean renewable electricity production, *and people out of agriculturally-produced food. Again, "destroy the Klamath River hydroelectric dams and leave the river to nature" is not the "environmentally superior alternative". Not for humanity's social and nature-dependant environment. Time and again the natural environment is deficient to provide for humanity's best long term survival (ex's: some infectious diseases, most tsunamis, dearth of natural bridges, dearth of natural boats, some landfall hurricanes, most tornadoes, some drought-strickened gravel-spawned fish eggs, etc.).*

Response to Comment IND156-10, IND157-10, IND158-10, IND177-10
Please refer to Master Response GEN-1.

Comment IND156-11, IND157-11, IND158-11, IND177-11
From a legitimate public environment multiuse paradigm of the Klamath River, the Klamath River Hydroelectric Dams have provided 313 years of Klamath River clean renewable hydroelectric power production earth surface biocycle atmospheric emissions, for what could have been 313 years of 100% fossil fuel-powered electricity production atmospheric emissions.

Response to Comment IND156-11, IND157-11, IND158-11, IND177-11
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND156-12, IND157-12, IND158-12, IND177-12
ES-4 "The objectives further the underlying purpose of the Proposed Project, which is the timely improvement of water quality related to the Lower Klamath Project within and downstream of the current Hydroelectric Reach and the restoration of anadromous access upstream of Iron Gate Dam (the current barrier to anadromy)."
ES-24 "However, the Proposed Project is a restoration project aimed at improving the aquatic ecosystem in the Klamath River over the long term."

First and foremost the Klamath River does not belong to the fish, the Klamath River belongs to humanity for humanity's best long term survival. Currently and for the most likely forseeable future, fish live year-round throughout the entire Klamath River, because the Klamath River's water is adequately good for the fish. Other than improvement of the Klamath hydroelectric dams with fish passageways and/or fish screens, where necessary for adequate upper Klamath River fish passage throughout the Klamath River, and additional fish hatcheries to help salmonids compensate against increasing global warming, ongoing climate change, and commercial salmon harvesting, there is no necessary restoration of the Klamath River.

Response to Comment IND156-12, IND157-12, IND158-12, IND177-12
The sentences quote only partial excerpts from the objectives stated in Section *Executive Summary* (page ES-4). Please see Volume I Section *Executive Summary* (page ES-4) and Section 2.2 *Proposed Project – Project Location* (page 2-1) for a complete statement regarding proposed project objectives. Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC). Water quality conditions in the Klamath River Basin under existing conditions are described in Volume III Attachment 1 Section 3.2.2 *Water Quality – Environmental Setting.* Additionally, please refer to Master Response WQ-1 for a discussion of the role of the Lower Klamath facilities with respect to overall water quality.

Comment IND156-13, IND157-13, IND158-13, IND177-13
Blaming Iron Gate Dam and/or Copco 1 Dam for the Klamath River's last 176.3-66 miles of water chemistry and water temperature, is overlooking the substantial chemical input from the Shasta, Scott, and Salmon rivers into the Klamath River, and the turbulence and surface area-caused rapid equilibration of Klamath River with its environment in the first 25 river miles immediately downstream from Iron Gate Dam. From the time Klamath River leaves Keno, Oregon, until the Klamath River passes Iron Gate Dam, Klamath Rivers' chemistry is mostly determined of its natural river bed composition, river bank runoff, rapid elevation change, atmospheric chemistry (including thermal, material composition, and precipitates), instream water springs, tributary creeks, biological activity, and 15 miles of dam reservoirs.

Response to Comment IND156-13, IND157-13, IND158-13, IND177-13
Section 3.2.2 *Water Quality – Environmental Setting* and Appendix C *Water Quality Supporting Technical Information* provide a summary of the measured water quality conditions in the Lower Klamath Project EIR water quality Area of Analysis. The analysis of the potential impacts in the EIR is based on water quality measurements from the Klamath River and water quality numeric models developed to evaluate Klamath River conditions under the Proposed Project and various alternatives. Water quality measurements take into account the influence of the Shasta, Scott, Salmon, and Trinity Rivers along with conditions in the Klamath River. Additionally, the water quality numeric models were calibrated using Klamath River water quality measurements and water quality data from Klamath River tributaries, including the Shasta, Scott, Salmon, and Trinity Rivers. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*.

Comment IND156-14, IND157-14, IND158-14, IND177-14
[4-108] "Temperature effects of the dams do not extend downstream of the Salmon River confluence (see Section 3.2.2.2 Water Temperature). Therefore, there would be no change in the impact of the Continuing Operations with Fish Passage Alternative in the Middle and Lower Klamath River reaches downstream

from the confluence with the Salmon River, including the Klamath River Estuary and the Pacific Ocean nearshore environment."
[3-25] "Downstream from the Salmon River (RM 66), summer water temperatures begin to decrease slightly with distance as coastal weather influences (i.e., fog and lower air temperatures) decrease longitudinal warming (Scheiff and Zedonis 2011) and cool water tributary inputs increase the overall flow volume in the Klamath River (Asarian and Kann 2013). In general, however, water temperatures in this reach still regularly exceed salmonid thermal preferences (less than 68F) during summer months."

I seriously doubt that Copco 1, Copco 2, and Iron Gate dams' reservoirs' water temperatures effect the Klamath River's water temperature greater than 25 miles downstream from Iron Gate Dam.

Response to Comment IND156-14, IND157-14, IND158-14, IND177-14
Please refer to response to comment ORG46-127 for a technical discussion of the multiple model results that indicate Iron Gate Dam releases potentially influence Klamath River water temperature to the confluence with the Salmon River (river mile (RM) 66.3). Overall, water temperature modeling indicates there is a small difference (i.e., approximately 1°C or less) between water temperature in the Klamath River under existing conditions and dam removal conditions that ***may*** extend to the confluence of the Salmon River during portions of some years (typically spring and fall months) (PacifiCorp 2004, 2005, 2008, 2014; Risley et al. 2012). The confluence with the Salmon River is the furthest downstream location Iron Gate Dam releases may influence Klamath River water temperature, but Iron Gate Dam releases do not always influence water temperature all the way to the confluence of the Salmon River. Modeling indicates Iron Gate Dam releases typically stop influencing water temperature farther upstream in the Klamath River during winter (i.e., December through February) and late spring to early fall (i.e., May through September) months. As such, Potential Impact 3.2-1 correctly states water temperature would not be directly affected in the Middle Klamath River downstream from the confluence with the Salmon River. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-1.

Comment IND156-15, IND157-15, IND158-15, IND177-15
[4-108] "under the Continued Operations with Fish Passage Alternative, late summer/fall water temperature conditions would not move towards a condition that supports designated beneficial uses, including cold freshwater habitat (COLD), rare, threatened, or endangered species (RARE), and migration of aquatic organisms (MIGR) (North Coast Regional Board 2010) in the Middle Klamath River to approximately the confluence of the Salmon River"
ES-4 "Proposed Project Objectives The State Water Board has identified the following Proposed Project objectives, as required under CEQA Guidelines, section 15124, subdivision (b):

In a timely manner:" . . . "2. Advance the long-term restoration of the natural fish populations in the Klamath Basin, with particular emphasis on restoring the salmonid fisheries used for subsistence, commerce, tribal cultural purposes, and recreation. 3. Restore volitional anadromous fish passage in the Klamath Basin to viable habitat currently made inaccessible by the Lower Klamath Project dams."

The statement "2. Advance the long-term restoration of the natural fish populations . . . with particular emphasis on restoring the salmonid fisheries . . . ." should be "Advance the long-term augmentation and partial restoration of the natural fish populations . . . with particular emphasis on augmenting and partially restoring the salmonid fisheries . . . ."

Per current and forseeably likely long term Klamath River water conditions, currently and for a medium-term forseeable future, all that Klamath River salmonids need to survive and thrive in the Klamath River, is adequate fish passageways and fish screens in all of the Klamath River hydroelectric dams, and very likely, additional fish hatchery artificial propagation to compensate for fish population increase-produced fish predation and fish harvest. Recall that juvenile fish are forage fish for larger fish and other predators, and that some Klamath River salmonids rear in the mainstem Klamath River and the Klamath River estuary for a year or longer.

Proponents for Klamath River salmon like to note salmon die-offs near the Klamath River estuary, and within 66 miles of the Pacific Ocean, and at Iron Gate dam, that are due to water temperature and/or disease. Certainly Iron Gate dam-released water, is able to equilibrate with ambient environmental temperatures within both a few miles downriver of Iron Gate dam, and many miles upriver of the river's 66 river mile distance to the Pacific Ocean; and certainly salmon would swim up Klamath River past the Klamath River dams when all of those dams have adequate fish passageways, as does J.C. Boyle Dam at this time, rather than as salmon have every year since Iron Gate Dam was built in 1962, migrated from the Pacific Ocean to Iron Gate Dam, and then either remained at Iron Gate dam to die of natural and/or water temperature-related cause in consequence of no fish ladder at Iron Gate dam, or returned downriver to find better water temperature, and then not so finding die of natural and/or water temperature related cause. Certainly also, water releases from the Trinity River Trinity and Lewiston Reservoirs, and from the J.C. Boyle, Copco 1, and Iron Gate reservoirs, have helped optimize the Klamath River's wildlife habitat. ("Discharge from Lewiston Dam can play an important role in regulating water temperatures downstream in the mainstem Trinity and lower Klamath rivers.") [The Influence of Lewiston Dam Releases on Water Temperatures of the Trinity River and Lower Klamath River, CA, April to October, 2014, Magneson and Chamberlain]

I find that global warming-caused climate change allowing, Chinook salmon shall continue to migrate to Iron Gate Dam's location, providing the Iron Gate Dam's *water releases are properly adjusted and timed to provide upstream migrating adult chinook salmon with sufficiently cool Klamath River water temperature. Of recent years--e.g. 2014--apparently the Klamath River near-estuary Ich-caused large salmon population deaths, and the year 2002 Klamath River near-estuary bacteria-caused large salmon population deaths, are particularly indicative of warm-water related salmon fatality, that is not due to the Klamath River hydroelectric dams, in consequence of those deaths having occurred shortly after the salmon entered the Klamath River, 150-190 miles distant to Iron Gate Dam. (Ref.: Klamath River Basin Hydrologic Conditions Prior to the September 2002 Die-Off of Salmon and Steelhead Water-Resources Investigations, USGS Report 03–4099, https://na01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubs.usgs.gov%2Fwri%2F2003%2F4099%2Fwri034099.pdf&data=02%7C01%7Cwr401program%40waterboards.ca.gov%7C3f089e18d6904a4b913f08d69bc59a42%7Cfe186a257d4941e6994105d2281d36c1%7C0%7C1%7C636867670366403142&sdata=5FuqJ5XpYpfakUaZHzUOzXSEKKE4MnivbdspkQXt7NY%3D&reserved=0; "[4-108] "Temperature effects of the dams do not extend downstream of the Salmon River confluence (see Section 3.2.2.2 Water Temperature")*

The Klamath River's Salmonids can survive 71 degree water temperature for several days, and so as individual fish should be able to migrate safely in the Klamath River between the Salmon River confluence and the Copco 1 headwaters within a few days of each year during the immediately forthcoming 50 years.

Response to Comment IND156-15, IND157-15, IND158-15, IND177-15

Comment noted. The sentences quote only partial excerpts from the objectives stated in Section *Executive Summary* (page ES-4). Please see *Executive Summary* (page ES-4) and Volume I Section 2.2 *Proposed Project – Project Location (*page 2-1) for a complete statement regarding proposed project objectives. Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC).

The EIR is based on the best available and most current scientific and factual data. There is no evidence that the Klamath River Hydroelectric Project improves conditions for anadromous salmonids downstream of Iron Gate Dam, or reduces the risk of fish disease. As described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Disease and Parasites*, FERC (2007) concluded that the Klamath Hydroelectric Project (KHP) has likely contributed to conditions that foster disease and lead to salmon losses in the Middle and Lower Klamath River. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Water quality conditions in the Klamath River Basin under existing conditions are described in Section 3.2.2 *Water Quality – Environmental Setting.* Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Additionally, please refer to Section 3.3.2.2 *Aquatic Resources – Environmental Setting – Physical Habitat Descriptions* for a discussion of periodic high water temperatures during summer, poor water quality (low dissolved oxygen and high pH), and disease outbreaks during spring, which impair the ability of the mainstem Klamath River to support the rearing and migration of anadromous species. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-6, and WQ-1.

Comment IND156-16, IND157-16, IND158-16, IND177-16

Retaining Copco 1 and Iron Gate dams' water storage during the immediately forthcoming 50 years, even when that water storage is greatly depleted for fish habitat, would greatly benefit Klamath River valley agriculture and power generation, and could per careful water release/water storage regimen, beneficially assist Klamath River water environment from Iron Gate Dam to the Klamath River Estuary.

Response to Comment IND156-16, IND157-16, IND158-16, IND177-16

Please refer to Master Responses WSWR-1 and WSWR-3. The comment regarding hydroelectric power generation pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND156-17, IND157-17, IND158-17, IND177-17

By way of a comparison with California State Water Board Klamath River salmon migration temperatures findings, here is a quote about Columbia River Bonneville Dam salmon migration temperatures: "Adult fall Chinook salmon and steelhead have evolved to migrate in the Columbia River during relatively warm water conditions, but temperatures have warmed in recent history because of the effects from development and management of the Federal Columbia River Power System and from regional climate change. Fish that are migrating in 21 to 25°C (70 to 77°F) water are within the zone of tolerance and at the upper end of this range, likely under significant thermal stress." [Temperature and handling of adult salmon and steelhead at Bonneville Dam 24 January 2010 Christopher A. Peery, Fish Biologist Idaho Fisheries Resources Office U.S. Fish and Wildlife Service, DOI Ahsaka, Idaho]

ES-4 "Proposed Project Objectives The State Water Board has identified the following Proposed Project objectives, as required under CEQA Guidelines, section 15124, subdivision (b): In a timely manner:" . . . "4. Ameliorate conditions underlying high disease rates among Klamath River salmonids."

The Klamath River hydroelectric dams reduce habitat for the salmon diseases Ceratomyxa shasta and Parvicapsula minibicornis that both inhabit the same polychaete host, Manayunkia speciosa, because Manayunkia speciosa prefers shallow running water over an exposed pebble and small stone riverbed, rather than a dam reservoir silted bottom; thus removing the Klamath hydoelectric dams' reservoirs, will increase Klamath River presence of the Klamath River salmon-killing salmonid parasites, Ceratomyxa shasta and Parvicapsula minibicornis, per restoring free-flowing river environment that favorably supports the parasites' common polychaete worm host, Manayunkia speciosa (e.g., see Journal of Parasitology 93(1):78-88. 2007).

Response to Comment IND156-17, IND157-17, IND158-17, IND177-17
As described in Section 3.3.4.4 *Aquatic Resources – Impact Analysis Approach – Water Temperature* thermal tolerances of focal salmonid species were defined for critical life-history stages and were selected based on USEPA (2003) guidelines for salmonids. The analysis in the EIR is consistent with the reference cited by the commenter, finding stressful conditions for migrating Chinook salmon at temperatures greater than 21ºC. Please refer to Volume III Attachment 1 of the final Section 3.3 *Aquatic Resources*. Please refer to Master Response AQF-5 for a discussion of fish disease upstream from Iron Gate dam.

Comment IND156-18, IND157-18, IND158-18, IND177-18
ES-4 "Proposed Project Objectives The State Water Board has identified the following Proposed Project objectives, as required under CEQA Guidelines, section 15124, subdivision (b): In a timely manner: 1. Improve the long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River, including water quality impairments due to Microcystis aeruginosa and associated toxins, water temperature, and levels of biostimulatory nutrients."

Klamath River from Keno Dam to Iron Gate Dam, shall continue to receive the majority of its water from hypereutrophic phosphorous and nitrogen rich Upper Klamath Lake water, that also contains enough Microcystis aeruginosa to amply, adversely to some uses (such as swimming, dog swimming, and consumption of year round reservoir-resident fish) effect Klamath River water there, and that will continue to greatly support substantial benthic periphyton growth all the way to near the Klamath River estuary. Copco 1 Dam and Iron Gate Dam reservoirs are deep enough so that they each seasonally thermally stratify, and J. C. Boyle Dam reservoir's near dam 40 foot depth often has cooler water than the reservoir's surface water, so that all three reservoirs allows both cool water and warm water ecosystems to coexist within them, and so that fish are able to occupy and migrate in different thermal layers within each of those reservoirs. The Klamath River Hydroelectric Dam reservoirs also provide some constant settling [4-28] of biostimulatory nutrients--including nitrates and phosphates--that the reservoirs receive from Upper Klamath Lake water.

Response to Comment IND156-18, IND157-18, IND158-18, IND177-18
Comment noted. Please refer to Master Responses WQ-1, WQ-2, and PAP-1.

Comment IND156-19, IND157-19, IND158-19, IND177-19
[page 3-81] " However, within the general uncertainty of climate change projections, results from the two models correspond reasonably well and indicate that water temperatures in the Upper Klamath Basin are expected to increase on the order of 2°F to 5°F between 2012 and 2061. RBM10 results also indicate that, even with warming of water temperatures under climate change, the primary long-term effect of dam removal downstream of Iron Gate Dam is still anticipated to be the return of approximately 126 miles of the Middle Klamath River, from Iron Gate Dam (RM 193.1) to the Salmon River (RM 66), to a more natural thermal regime (Perry et al. 2011). Model results indicate that the annual temperature cycle downstream from Iron Gate Dam would shift forward in time by approximately 18 days under the Proposed Project, with warmer temperatures in spring and early summer and cooler temperatures in late summer and fall immediately downstream from the dam."

Allowing for the EIR's declared 50 year [pages 3-80, 4-107] climate change-caused Klamath River water thermal increase projection, I approve of implementing the "Continued Operations with Fish Passage Alternative", and utilizing the PacifCorp-collected, and of some Pacificorp ratepayers paid, Klamath River hydroelectric dams deconstruction ("J C Boyle Dam Removal Copco & Iron Gate Dams Removal") fund, to provide Upper Klamath River fish-adequate fishways in all of the Klamath River hydroelectric dams.

Response to Comment IND156-19, IND157-19, IND158-19, IND177-19
Comment noted. Please refer to Master Responses GEN-1. Please note that the water temperature modeling results quoted in the comment and excerpted from Potential Impact 3.2-1 are discussing the water temperature under the Proposed Project and they are not about water temperature conditions under the Continued Operations with Fish Passage Alternative. Please refer to Volume I Section 4.4.2.1 *Alternatives –Continued Operations with Fish Passage Alternative – Water Temperature* (pages 4-102 to 4-108) for a discussion of the Klamath River water temperature under the Continued Operations with Fish Passage Alternative. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*, including Potential Impact 3.2-1.

Comment IND156-20, IND157-20, IND158-20, IND177-20
With our current administration's emphasis on United States of America infrastructure improvement whereof we may "make America great again", I herewith now vote that the United States of America Department of the Interior should purchase and manage the Klamath River hydroelectric dams and the Link River hydroelectric facilities, so that the dams and hydroelectric facilities are responsibly managed as public property per the United States of America's national citizenship, and that the United States of America Department of the

Interior should, where necessary with fish ladders and/or fish screens that are adequate for all upper Klamath River fish, improve the Klamath River hydroelectric dams and Link River hydroelectric facilities, so that the Klamath River dams and Link River hydroelectric facilities continue to provide much multiuse--including hydroelectric power production--of the Klamath River and Link River respectively.

Response to Comment IND156-20, IND157-20, IND158-20, IND177-20
This comment focuses on the federal government purchasing and managing the Klamath River hydroelectric dams and Link River hydroelectric facilities. Comment noted.

Comment IND156-21, IND157-21, IND158-21, IND177-21
Per requiring some Pacificorp ratepayers to fund deconstruction of the Klamath River hydroelectric dams and the Link River western settlement historic-hydroelectric facilities, without Pacificorp allowing those ratepayers to opt out of funding that deconstruction, Pacificorp coerced many Pacificorp ratepayers to provide decontruction-designated funding, for deconstruction that those ratepayers did not and do not approve of. Humanity doesn't need Pacificorp requiring that the Klamath River hydroelectric dams be destroyed, and humanity doesn't need Pacificorp donating or surrendering the Klamath River hydroelectric dams to KRRC (Klamath River Renewal Corporation) for deconstruction of those dams.

Money that from PacifiCorp ratepayers who, and California taxpayers who, prefer to have opted out of paying for Klamath River hydroelectric dam deconstruction, has been scheduled and/or collected for the subversive to American security—-including power security, agricultural security, fish habitat security, Klamath Basin municipal water works security, and national defense security-purpose of destroying the Klamath River hydroelectric dams, should be re-purposed to fund installation of Upper Klamath River anadromous fish migration-adequate fish passageway--including fish screens--facilities, in each Klamath River basin Klamath River hydroelectric project, where those fish passageway facilities both do not exist adequately, and are necessary for adequate Klamath River fish passage past the hydroelectric project(s).

Response to Comment IND156-21, IND157-21, IND158-21, IND177-21
Please refer to Master Response ENR-1.

Comment IND156-22, IND157-22, IND158-22, IND177-22
[Page 3-728] "Since it is planned in the 2017 IRP for PacifiCorp to add new sources of renewable power or purchase RECs to comply with the California RPS, and removal of the reservoirs would result in a reduction in methane production, it is not anticipated that the replacement of the hydroelectric energy from the Lower Klamath Project dam complexes would result in an increase in GHG emissions from non-renewable power sources. As such, GHG impacts

from replacement of the hydroelectric energy from the Lower Klamath Project dam complexes is determined to be less than significant. Significance No significant impact."

California State Water Board's above statement manifests false carbon and greenhouse gas (GHG) economy. Here's why: The Lower Klamath Project dams' reservoirs' do not produce anthropogenic GHG, they produce biologic "biochemistry as usual" earth surface biocycle carbon compounds, that are either recycled through the biosphere, or initially allocated primarily into the earth's surface--including earth surface waters and upper earth crust terrain--and the earth's atmosphere, per weathering--including geologic forces--and inanimate chemical reactions. Furthermore, the "Proposed Project" deconstruction of the Lower Klamath Project dams, results in less PacifiCorp clean renewable energy production infrastructure to add new PacifiCorp clean renewable energy production infrastructure to; the "Proposed Project" deconstruction of the Lower Klamath Project dams requires much anthropogenic fossil fuel combustion into earth's atmosphere; and construction of new PacifiCorp clean renewable energy production infrastructure most likely requires substantial anthropogenic fossil fuel combustion in consequence of a current and immediately forthcoming dearth of clean renewable energy power and electrically powered heavy duty construction equipment to construct new PacifiCorp clean renewable energy production infrastructure of. Also Pacificorp's proposed purchase of renewable energy certificates (RECs) does not guarantee replacement of deconstructed Lower Klamath Project dams with new--not currently or futurely existent--clean renewable power production facilities, and certainly doesn't guarantee replacement water storage for the 11+ miles of Klamath River water storage that would be lost with deconstruction of Copco 1, Copco 2, and Iron Gate dams' reservoirs.

Response to Comment IND156-22, IND157-22, IND158-22, IND177-22
The comment regarding hydroelectric power generation pertain to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND156-23, IND157-23, IND158-23, IND177-23
[4-107] "In the long term, climate change is expected to cause general increases in water temperatures. The historical data record indicates that mainstem water temperatures have increased, on average, approximately 0.05ºC (0.09ºF) per year between 1962 and 2001 (Bartholow 2005) such that climate change may already be affecting Klamath River water temperatures. Projecting the Bartholow (2005) estimate of an average annual temperature increase 50 years into the future, water temperatures would increase approximately 2–3°C (3.6–5.4°F). . . . Considering together the available sources for climate change predictions, annual average water temperatures in the Middle and Lower Klamath River are expected to increase within the period of analysis on the order of 1–3 °C (1.8–5.4 °F)."

Projecting similar long term climate change-caused general water temperature increases on Upper Klamath Lake, a 50 year increase of 1–3 °C (1.8–5.4 °F) in naturally dammed--of a 4,137.8 feet natural dam elevation heigth--8 feet average depth Upper Klamath Lake, seems readily plausible to occur, however I don't recommend draining the lake so as to dredge a cool water channel through the lake for fish habitat. Similarly I do not believe that because of ongoing global warming-caused climate change, humanity must loose 11+ miles of Klamath River reservoir water storage. With installation of depth-graduated fish ladders and fish screens, that allow fish passage per different reservoir depth levels; and installation of depth selective water withdrawal pipes, that allow reservoir water withdrawal and mixed reservoir water level water release past both Copco 1 and Iron Gate dams' reservoirs; water quality from immediately below Iron Gate Dam to the Salmon River confluence with Klamath River, may be substantially augmented, improved, and controlled per a Copco 1 and Iron Gate dams' reservoirs' management, that always seasonally prioritizes and ascribes no greater than thirdly importance to hydroelectric power production of the reservoirs, and secondary importance to the reservoirs' provision of both the reservoirs' fish habitat, and the Klamath Rivers' fish habitat from Iron Gate Dam to the Salmon River confluence with the Klamath River, while limiting the Klamath River's agriculture irrigation primary importance to a primary importance that always allows Klamath River fish habitat-adequate Keno Dam flow into the Klamath River.

Response to Comment IND156-23, IND157-23, IND158-23, IND177-23

Please refer to Master Response WQ-1 for a discussion of the role of the Lower Klamath Project dams/reservoirs with respect to overall water quality in the Klamath River. As described in Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project*, the amount of flow in the Klamath River is determined by the operation of the Klamath Irrigation Project by the U.S. Bureau of Reclamation (USBR) and the applicable biological opinion(s) to meet the needs of listed species and maintain full irrigation deliveries in accordance with existing contracts, contingent upon available water supplies. The Proposed Project does not include any changes to the amount of flow released by the Klamath Irrigation Project and the applicable biological opinion(s). According to the 2019 National Marine Fisheries Service biological opinion (2019 NMFS BiOp), the compliance point for the minimum Klamath River flow targets would shift upstream from Iron Gate Dam to Keno Dam if dam removal occurs and USBR and NMFS would coordinate to determine the appropriate releases at Keno Dam to provide flows downstream of Iron Gate Dam consistent with NMFS' expectations under the existing 2019 NMFS BiOp (NMFS 2019). As such, the minimum flows during summer and fall would be similar under existing conditions and the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.1.6 *Introduction – Summary of Available Hydrology Information for the Proposed Project*.

Please refer to Master Response WQ-2 for a discussion of the potential for releases from the Lower Klamath Dams to reduce the Klamath River water temperature during summer and fall. Additionally, recent testing by PacifiCorp of an intake barrier curtain in Iron Gate Reservoir did not demonstrate that preferential withdrawal of deeper, cooler reservoir would reliably cool summer and fall water releases from Iron Gate Dam, or consistently achieve the water temperature allocations in the Klamath total maximum daily loads (TMDLs) while achieving dissolved oxygen water temperature objectives in the Klamath River. Potential water temperature improvements from operation of the curtain (i.e., 1 to 2°C [1.8 to 3.6°F]) would still not achieve water temperature objectives and would not be able to consistently occur all the time because the dissolved oxygen concentration in deeper, cooler reservoir waters would potentially be too low to achieve dissolved oxygen water quality objectives even with additional mechanical aeration (i.e., turbine venting) at Iron Gate Dam. During 2017, the curtain had to be completely rolled up (i.e., no longer drawing from deeper, cooler reservoir waters) to achieve dissolved oxygen concentrations for aquatic life (PacifiCorp 2018a).

Additionally, please refer to Volume I Section 4.4 *Continued Operations with Fish Passage Alternative.*

Comment IND156-24, IND157-24, IND158-24, IND177-24

For most of the Klamath River Hydroelectric Project's occurrence, the project has been operated primarily to provide continuous hydroelectric power production. So as to better accomplish fair multiuse--including agriculture irrigation, fish habitat, and hydroelectric power production--of the Klamath River resource, and in consequence of climate change-caused watershed snowpack storage reduction, hydroelectric dams' blockage of fish migrations, and increased demand and supply for clean, renewable energy production, the Klamath River Hydroelectric Dam facilities and the Link River hydroelectric facilities should be owned and operated of the United States of America Department of the Interior. Since Pacificorp has opted to deconstruct the Klamath Hydroelectric dams, the U.S.A. Department of the Interior should be able to inexpensively purchase the dams. And since Pacificorp ratepayers have accrued a Klamath Hydroelectric dams deconstruction fund that could be applied towards installing fishways in the Klamath Hydroelectric dams, the U.S.A. Department of the Interior should be able to both purchase the dams and financially assist in equipping the dams with Upper Klamath River fish-adequate fishways.

Response to Comment IND156-24, IND157-24, IND158-24, IND177-24

Please refer to Volume I Section 4.4 *Continued Operations with Fish Passage Alternative.*

Comment IND156-25, IND157-25, IND158-25, IND177-25

[3-204] "Dams (e.g., Link River Dam, Iron Gate Dam, Lewiston Dam, etc.) have eliminated access to much of the historical spring-run spawning and rearing

habitat and are partly responsible for the extirpation of at least seven spring-run populations from the Klamath-Trinity River system (Myers et al. 1998)."

Since after Copco 1 was built in 1912-18, Link River Dam was built in 1918-21 with a fish ladder, and with a low elevation water drop chute stilling basin that is yet preferred per many Link River fish for passing Link River Dam, even though the west end of Link River Dam has of recent years been equipped with the second lowest fish ladder now in the U.S.A, I don't find how Link River Dam has eliminated access to much of the historical spring-run spawning and rearing habitat and is partly responsible for the extirpation of at least seven spring-run populations from the Klamath-Trinity River system.

Response to Comment IND156-25, IND157-25, IND158-25, IND177-25
Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Spring-run Chinook Salmon* has been clarified as requested. Please refer to Volume III Attachment 1 Section 3.3.2.1 *Aquatic Resources – Environmental Setting Aquatic Species – Spring-run Chinook Salmon* for the revisions.

Comment IND156-26, IND157-26, IND158-26, IND177-26
[3-204] "Spring-run Chinook salmon upstream migration is observed during two-time periods—spring (April through June) and summer (July through August) (Strange 2008) (Table 3.3-4). Snyder (1931) also describes a run of Chinook salmon occurring in the Klamath River during July and August under historical water quality and temperature conditions."

Per the "Continued Operations with Fish Passage Alternative", a reintroduction of the Klamath River spring salmonids migrations to and from the Upper Klamath River basin and Upper Klamath Lake drainage, should result in a robust and abundant annually recurrent Upper Klamath River anadromous salmonid population! The "Continued Operations with Fish Passage Alternative", allows humanity to financially affordably try utilizing fish passage-adequate artificial fishways, fish hatcheries (e.g. Iron Gate hatchery and possibly Fall Creek hatchery), and water storage-enhanced fish habitat (e.g. Iron Gate and Copco 1 dams), to allow, maintain, support, and provide a recurrent annually abundant Klamath River anadromous salmonid population with. If eight years after the Klamath River hydroelectric dams are equipped with adequate Upper Klamath River anadromous fish-passage fishways, Copco 1 Dam and/or Iron Gate Dam anadromous fish assistance and support is found excessively deficient, remedial measures that may then include removing Copco 1 Dam and/or Iron Gate Dam, will be much more qualifiable and quantifiable, than humanity's current Iron Gate Dam to Keno Dam, Klamath River healthy--and harvested(!)--red band trout population-based, Upper Klamath River salmonid-sustainability estimates.

Response to Comment IND156-26, IND157-26, IND158-26, IND177-26
Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC). Section 4.4.3.7 *Alternatives – Continued*

Operations with Fish Passage Alternative – Aquatics Resources – Fish Passage presents an assessment of a continued operations with fish passage alternative to the Proposed Project. This alternative is compared to the Proposed Project in Section *Executive Summary – Alternatives to the Proposed Project – Continued Operations with Fish Passage* (ES-17 to ES-18).

Additionally, Section 3.3.5.9 *Aquatic Resource Impacts*, Potential Impact 3.3-14 discusses potential impacts to redband trout populations as a result of the proposed project. Please refer to Volume III attachment 1 for the final Section 3.3.5.9.

Comment IND156-27, IND157-27, IND158-27, IND177-27

[3-29] "While J.C. Boyle Reservoir does not thermally stratify, there are still large summertime variations in dissolved oxygen with depth observed in J.C. Boyle Reservoir that result in bottom waters in the reservoir having lower dissolved oxygen concentrations than surface waters (Raymond 2009a, 2010a; see Appendix C, Figure C-29 for more detail). This variation can affect dissolved oxygen concentrations further downstream in the California portion of the Hydroelectric Reach." [3-230] "The 21-mile long riverine reach between J.C. Boyle and Copco No. 1 reservoirs is divided into two reaches: the 4.6-mile long J.C. Boyle Bypass Reach, which receives bypass flows from J.C. Boyle Dam, and the 17-mile long Peaking Reach, which receives variable flow from hydroelectric operations (see also Section 2.3.1 J.C. Boyle Dam and Associated Facilities). The downstream 6.2 miles in California is designated by CDFW as a Wild Trout Area with the whole reach managed by CDFW for wild trout, including angling restrictions and reduced stocking, and habitat enhancements targeted for native trout (CDFG 2005). The reach from the J.C. Boyle Powerhouse to the Oregon-California state line is designated as a National Wild and Scenic River."

J.C. Boyle Reservoir is small, receives Spencer Creek inflow at J.C. Boyle Reservoir's headwaters, sometimes is not greatly oxygenated from the Klamath River's Keno Dam to J.C. Boyle Dam Reservoir riffle-running flow, has a total volume retention/replenishment time of only 1.53 days, is about 52% in a wide shallow valley and 48% in a shaded narrow canyon, is 40 feet deep in the canyon near J.C. Boyle Dam, and is at 3800 feet elevation that is 14.8 miles and near 950 feet in elevation distant to the California portion of the (J.C. Boyle) Hydroelectric Reach. That 950 feet of elevation difference provides much ample river turbulence opportunity, including many violent rapids, for Klamath River's dissolved oxygen to completely equilibrate with ambient Klamath River canyon environment--including hot springs--conditions, regardless of J.C. Boyle Reservoirs' dissolved oxygen level. (per a 1,150 cubic feet/second moderate river-flow rate, J.C. Boyle Dam's reservoir of 3,495 acre-feet water storage, completely changes water every 1.53 days)

Response to Comment IND156-27, IND157-27, IND158-27, IND177-27
While the comment is correct that fast-moving, turbulent flows in the J.C. Boyle Peaking Reach of the Klamath River provide aeration of river water, especially within the rapids in this reach, modeling of dissolved oxygen concentrations in the J.C. Boyle Peaking Reach indicate that hydropower peaking flows can release lower dissolved oxygen water that potentially affects dissolved oxygen concentrations further downstream in the California portion of the J.C. Boyle Peaking Reach.

Modeling of dissolved oxygen concentrations shows dissolved oxygen concentrations upstream and downstream of J.C. Boyle Powerhouse are similar during non-peaking periods, but dissolved oxygen concentrations decrease downstream of J.C. Boyle Powerhouse during hydropower peaking operations (see Figure 4.8-42 below; PacifiCorp 2004a-1). Once peaking operations stop, the dissolved oxygen concentrations downstream of J.C. Boyle Powerhouse become the same as dissolved oxygen concentrations upstream of J.C. Boyle Powerhouse again. The pattern of lower dissolved oxygen concentrations during peaking operations and higher dissolved oxygen concentrations during non-peaking periods seen in the modeled dissolved oxygen concentrations downstream of the J.C. Boyle Powerhouse under existing conditions is also seen in dissolved oxygen concentration data at the J.C. Boyle Powerhouse measured in 2019 (see Figure IND156-27-1 below), indicating the dissolved oxygen modeling is correctly characterizing dissolved oxygen dynamics downstream of the J.C. Boyle Powerhouse.

A comparison of the modeled dissolved oxygen concentrations “above Copco” (i.e., downstream of the Oregon-California state line) under existing conditions and under without-Project (i.e., with dam removal) conditions shows the low dissolved oxygen concentrations associated with hydropower peaking operations produce a lower dissolved oxygen concentration period during several hours of the day than would occur under dam removal conditions (see Figure 4.8-42 below; PacifiCorp 2004a-1). Total maximum daily load (TMDL) dissolved oxygen modeling results at the Oregon-California state line shown in Figure 3.2-19 also have periods of lower dissolved oxygen concentrations in the summer under existing conditions (i.e., “TMDL dams-in” [T4BSRN] scenario) than under the Proposed Project (i.e., “TMDL dams-out, Oregon” [TOD2RN] scenario), further supporting the potential for hydropower peaking operations to influence dissolved oxygen concentrations in the California portion of the J.C. Boyle Peaking Reach. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

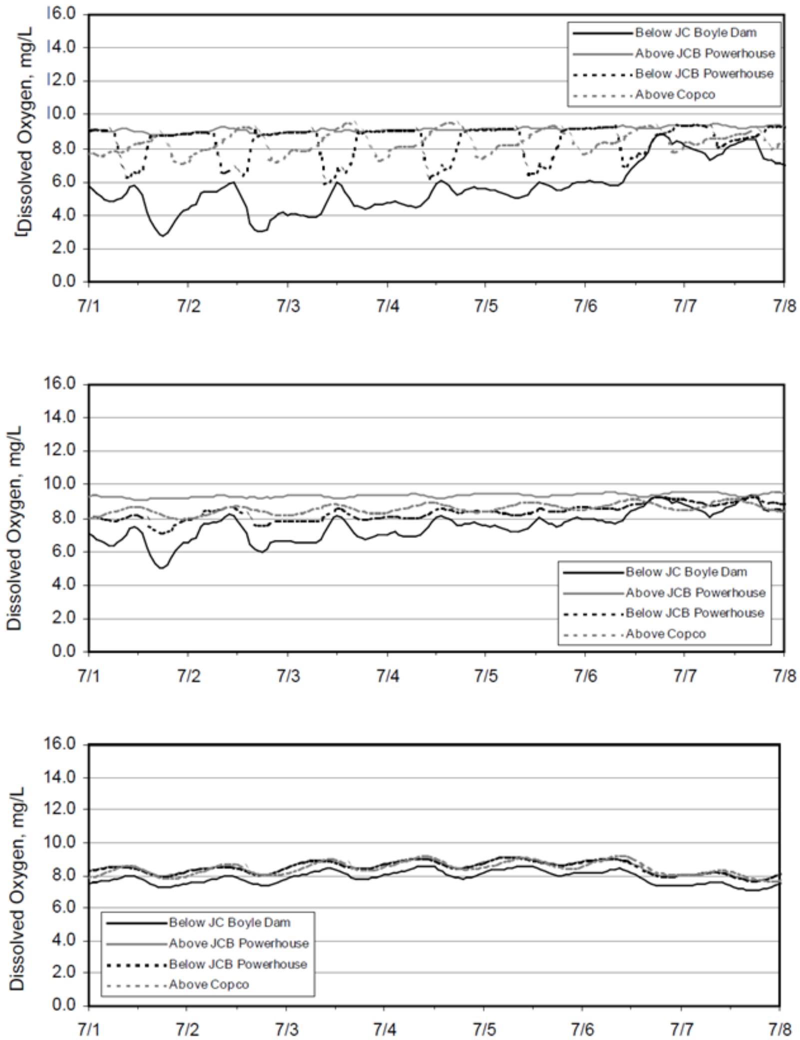

Figure 4.8-42 from PacifiCorp (2004a-1). J.C. Boyle Bypass and Peaking Reach Dissolved Oxygen, 2000: EC [Existing Conditions] (Top), SF [Steady Flow] (Middle), WOP [Without-Project] (Bottom). Note: The Without-Project (WOP) Conditions Modeled in PacifiCorp (2004a-1) Included the Removal of Keno Dam in Addition to Removal of J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams.

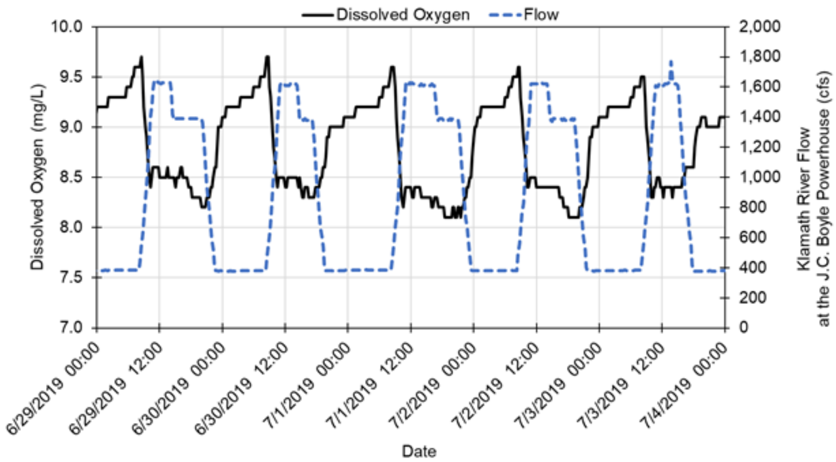

Figure IND156-27-1. Dissolved Oxygen and Klamath River Flow Measured at the U.S. Geological Survey (USGS) 11510700 Gage Downstream of J.C. Boyle Powerhouse. Source: USGS 2019.

Data directly documenting the influence of low dissolved oxygen concentrations in J.C. Boyle Reservoir on dissolved oxygen concentrations at the Oregon-California state line are unavailable, but United States Geological Survey (USGS) dissolved oxygen data measured downstream of the J.C. Boyle Powerhouse indicate hydropower peaking flows diverted from J.C. Boyle Reservoir are decreasing dissolved oxygen concentrations in the J.C. Boyle Peaking Reach downstream of the powerhouse and modeling results consistently indicate that hydropower peaking operations potentially impact dissolved oxygen concentrations in the California portion of the Hydroelectric Reach. Thus, it is reasonable to conclude that variations in dissolved oxygen concentrations in J.C. Boyle Reservoir can affect dissolved oxygen concentrations further downstream in the California portion of the Hydroelectric Reach.

Comment IND156-28, IND157-28, IND158-28, IND177-28

Currently I am without additional time to comment on the California State Water Resources Control Board's draft Environmental Impact Report (EIR) for surrender of the Lower Klamath Project license. Hopefully California State Water Resources Control Board, realizes that the hypereutrophic Klamath River's water quality, without a major cataclysmic event such as a large and long term volcanic eruption, will within the immediately forthcoming several centuries, most likely never--with or without dams--naturally be high elevation unpolluted and naturally nonenriched alpine environment pristine.

Response to Comment IND156-28, IND157-28, IND158-28, IND177-28

As explained in Volume I Section 2.1 *Proposed Project –Project Objectives* (page 2-1), rather than focusing on a pristine and/or alpine environment as stated in the comment, the water quality objective of the Proposed Project is to improve the long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River, including water quality impairments due to *Microcystis aeruginosa* and associated toxins, water temperature, and levels of biostimulatory nutrients.

As summarized in Volume I *Executive Summary – Summary of Propose Project Effects, Potential Impacts, and Potential Cumulative Impacts – Effects Found to be Beneficial* (page ES-9), the Proposed Project is expected to have a beneficial effect on long-term water quality conditions associated with the Lower Klamath Project in the California reaches of the Klamath River by improving water temperature, dissolved oxygen, and pH, and reducing the incidence of algal toxins and noxious phytoplankton blooms.

Humphreys, Chad

<u>Comment IND108-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND108-1
Thank you for your comment. Please refer to Master Response GEN-1.

Humphreys, Tim

Comment IND220-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND220-1

Thank you for your comment. Please refer to Master Response GEN-1.

Ihara, Nancy

Comment IND320-1

I attended the hearing at the D St Community Center in Arcata. The testimony in favor of dam removal was overwhelming. We must do what we can to encourage healthier migration of salmon.

i appreciate the supportive position of the Water Board in this matter.

Response to Comment IND320-1

Thank you for your comment. Please refer to Master Response GEN-1.

Imatani, Kenneth

<u>Comment IND378-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND378-1
Thank you for your comment. Please refer to Master Response GEN-1.

Israel, Joshua

<u>Comment IND397-1</u>
I support removal of the Klamath River Dams (JC Boyle, COPCO I and 2, and Iron Gate Dams). Klamath used to be the third biggest Salmon Fishery in the West Coast and this needs to be restored.

Response to Comment IND397-1
Thank you for your comment. Please refer to Master Response GEN-1.

Jansen, Marty

<u>Comment IND351-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND351-1

Thank you for your comment. Please refer to Master Response GEN-1.

Jepson, Oliver

<u>Comment IND319-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND319-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, Dan

Comment IND134-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND134-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, Daniel

Comments IND138-1 and IND139-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comments IND138-1 and IND139-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, David

Comment IND147-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND147-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, Drake

Comment IND194-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND194-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, Kenneth

Comment IND377-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND377-1
Thank you for your comment. Please refer to Master Response GEN-1.

Johnson, R.B.

Comment IND301-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND301-1

Thank you for your comment. Please refer to Master Response GEN-1.

Johns, Don

Comment IND182-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND182-1
Thank you for your comment. Please refer to Master Response GEN-1.

Joost, William, Jr.

Comment IND192-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND192-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kaar, Susan

Comment IND234-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND234-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kalinowski, John

Comment IND405-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND405-1
Thank you for your comment. Please refer to Master Response GEN-1.

Keegan, Kyle

<u>Comment IND373-1</u>
I am a resident of Humboldt County and an ecological restorationist for the past two decades.

I have personally witnessed the decline of the Klamath River, the health of its waters and its salmon runs. I want to give my full support for the removal of the dams in order to attempt to reverse the decline or salmon runs and to restore natural flow regimes and water quality/quantity to the Klamath river ecosystem. I understand that there may be short term impacts to water quality after removing the dams.

I also feel that strong returns of salmon will be in the best interest or local Indian tribes who depend on the runs for subsistence and cultural needs.

Please continue to work towards making the Klamath Dam removal a reality.

Response to Comment IND373-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kennedy, Mark

<u>Comment IND353-1</u>
Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

Response to Comment IND353-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kent, Bart and Mary Cunningham

<u>Comment IND154-1</u>
As an Intervenor in the project to remove the dams on the Klamath River I am writing to submit my comments on the SWRCB Draft EIR.

Response to Comment IND154-1
Thank you for your comment.

<u>Comment IND154-2</u>
I found the Draft EIR to be deficient and lacking in addressing the effects of dam removal. The report is largely based on obsolete data and biased studies. Many of the referenced studies are older than 20 years.

Response to Comment IND154-2
The Lower Klamath Project EIR incorporates all available existing information. This includes older studies that are still relevant to the Proposed Project and the EIR alternatives as well as more recent, available data. In instances where the analyses rely on studies that would be conducted in 2019 (e.g., wetland delineation surveys, local groundwater well studies, reservoir rim slope stability studies), presence of those resources is assumed and mitigation is proposed to reduce impacts to less than significant.

Please also refer to Master Response WQ-4 for a discussion of how more recent water quality data are considered in the EIR analyses.

<u>Comment IND154-3</u>
Very few current studies have been done. There has also been no adequate exploration of alternative solutions to dam removal.

Response to Comment IND154-3
The Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *[Alternatives Selection/Overview]* (pages 4-1 to 4-14) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project

dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Please note that alternatives that were eliminated from consideration are discussed in the following subsections of Volume I *Alternatives – Alternatives Selection/Overview – Alternatives Selection:*

- Section 4.1.1.2 *Elimination of Potential Alternatives for Failure to Meet Underlying Project Purpose* (pages 4-6 through 4-11);
- Section 4.1.1.3 *Removal or Consolidation of Substantially Similar alternatives* (pages 4-11 through 4-13);
- Section 4.1.1.4 *Elimination of Potential Alternatives that Would Not Avoid or Substantially Lessen Significant Environmental Effects of the Proposed Project* (pages 4-13 through 4-14);
- Section 4.1.1.5 *Alternatives With Other Feasibility Concerns* (page 4-14).

Comment IND154-4
Your report states that loss of property value is not analyzed in this project because it does not constitute an effect. However this is having a drastic effect on homeowners around the lake.

Response to Comment IND154-4
Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment.

Comment IND154-5
Your report also addresses slope instability but does I not address the fact that many homes may be subject to slippage. The effects of slope slippage on existing homes is a direct impact of dam removal and should be addressed.

Response to Comment IND154-5
Regarding the potential for landslides (slippage) due to reservoir drawdown, please refer to Potential Impact 3.11-3 (pages 3-761 to 3-765) in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* and to Master Response GEO-2. There is some potential for instability of diatomaceous deposits along the rim and within Copco No. 1 Reservoir, where there are twelve parcels with existing habitable structures that could be affected. Mitigation Measure GEO-1 applies to these structures.

Khartchenko, Alexander

Comment IND68-1

1. Protection of our lives against fires (because of our Lakes the tragic situation similar to what happened in Paradise would never take p lace here).

Response to Comment IND68-1

Thank you for your comment. Please refer to Master Response HAZ-2.

Comment IND68-2

2. The cheapest and the cleanest source of power energy: clean water goes through turbines, produces electricity, and then the same clean water goes further.

Response to Comment IND68-2

Please refer to Master Response ENR-1 for a discussion of the potential for rate increases from the removal of the Lower Klamath Project Facilities. With respect to the potential for an increase in greenhouse gas (GHG) emissions from the removal of the Lower Klamath Project facilities, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND68-3

3. The best recreation area exists here now because of out Dams and Lakes: water skiing, rowing, great fishing, hiking - (especially around Copco Lake - the most fun!.), etc.

Response to Comment IND68-3

Please refer to Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-2 for a discussion of long-term changes to or loss of reservoir-based recreation activities and facilities due to removal of Iron Gate and Copco No. 1 reservoirs. The final Section 3.20 *Recreation* is presented in Volume III Attachment 1.

Comment IND68-4

4. Preserving the gorgeous flora and fauna which was created due to the Dams - the current ecology is more than 100 years old: several nests of Bald Eagles, rare small turtles, short nose sucker, etc.

Response to Comment IND68-4

Please refer to Master Response TER-1.

Comment IND68-5

5. The value of Lakes for local agriculture is a crucial. There is no doubt about it. Also Lakes provide the best fresh water for our wells - we live near the Lake and we know it.

Response to Comment IND68-5
Please refer to Master Responses WSWR-1 and WSWR-3 for information regarding the water supply and agriculture in the Klamath Basin. Please also refer to Master Response GRW-1 for a discussion of the effects of the Proposed Project on groundwater wells in the vicinity of the reservoirs.

Comment IND68-6
The liberals and those who pretend to be environmentalists base their ideas of demolishing Dams not on true data and therefore the whole their approach is a false and hence dangerous.

Response to Comment IND68-6
Please refer to Master Response GEN-2.

Comment IND68-7
Many hundred years ago according to archeologists Copco Lake existed, and the earthquake a few hundred years ago broke the natural dam. In 1916 the Dam was re-created by genius American engineers with addition of turbines providing the cleanest and cheapest electricity to tens of thousands of residents and businesses in California Siskiyou county and Southern Oregon area.

Response to Comment IND68-7
This comment does not relate to the adequacy of the EIR under CEQA (see Master Response GEN-2).

Comment IND68-8
The dream of liberals (none of the them live near the Lakes or even in Siskiyou county) that demolition of Dams will bring salmon to the Klamath River in our neighborhood is not grounded on facts as well. According to the notes of people who lived here before dams were built (1850 to 1910), salmon was never noticed here, more over in old times during the hot summers the River was almost dry; they called it Walk Through river or Stinky river. The saying" The History is a Science about Future " becomes true, if Dams will disappear we return back to the Stinky River.

Response to Comment IND68-8
Please refer to Master Response AQF-4.

Comment IND68-9
Another wrong words of those who support demolishing of Dams is so called algae health issues. According to my personal experience algae has nothing to do with the health: I swim in the Lake and River every summer and never had any health problems, on the contrary, I feel very refreshed, full of energy and healthy after that. And certainly as recent research proves, Algae has nothing to do with our Dams: Algae existed millions years ago and will continue to be for millions years more.

Response to Comment IND68-9
Please refer to Master Response WQ-7.

Comment IND68-10
By the way, many many hundred years ago according to the findings of archeologists Copco Lake existed, and most likely the earthquake a few hundred years ago broke the natural dam. In 1916- 1920 the Dam was re-created by genius American engineers with addition of turbines providing the cleanest and cheapest electricity to tens of thousands of residents and businesses in California Siskiyou county and Southern Oregon area.

Response to Comment IND68-10
This comment does not relate to the adequacy of the EIR under CEQA (see Master Response GEN-2).

Comment IND68-11
DAMS MUST BE SAVED.

Response to Comment IND68-11
Please refer to Master Response GEN-1.

Kiefer, Marc

Comment IND363-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND363-1
Thank you for your comment. Please refer to Master Response GEN-1.

Klein, Dorothy and Rodney

Comment IND175-1
We are Absolutly Against removal of the dams. Why take away a NATURAL Source of energy? What will have to be used to replace it? MONEY. Money from all the humans in the area. These are not The only places to save fish. HUMANS are more important than fish. Those of us on Fixed incomes dread The raise in out utility bills.

Please use your influence to Stop The dam removals.

Response to Comment IND175-1
Thank you for your comment. Please refer to Master Responses GEN-1, GEN-2, and ENR-1. With respect to the comment about energy, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Koch, David

Comment IND148-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND148-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kohlman, Brian

Comment IND90-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND90-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kosh, Ryan

<u>Comment IND266-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND266-1

Thank you for your comment. Please refer to Master Response GEN-1.

Kress, Larry

<u>Comment IND372-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND372-1
Thank you for your comment. Please refer to Master Response GEN-1.

Krivan, William

Comment IND190-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND190-1
Thank you for your comment. Please refer to Master Response GEN-1.

Krizo, David

Comments IND270-1 and IND271-1
I believe keeping the dams is essential for many reasons.

Response to Comments IND270-1 and IND270-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comments IND270-2 and IND271-2
The dams were put in after major flooding on the river with a great deal of property and personal damage. It is not a good idea to expose the occupants downriver to those dangers again.

Response to Comments IND270-2 and IND270-2
Please refer to Master Response FLD-1.

Comments IND270-3 and IND271-3
With the push for green energy by the government, why would we destroy an important source of that green energy which would need to be replaced by fossil fuels?

Response to Comments IND270-3 and IND271-3
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comments IND270-4 and IND271-4
As a farmer, water storage is very important to me. It is a waste to let water uselessly go to the ocean.

Response to Comments IND270-4 and IND271-4
Please refer to Master Responses WSWR-1 and WSWR-3.

Comments IND270-5 and IND271-5
Removing dams would destroy wildlife habitat.

Response to Comments IND270-5 and IND271-5
Please refer to Master Response TER-1.

Comments IND270-6 and IND271-6
The decisions to destroy the dams were done in closed door meetings with no input accepted or allowed from those most affected.

Response to Comments IND270-6 and IND271-6
Please refer to Volume I Section 1.4 *Introduction – EIR Process Overview* (pages 1-3 and 1-4) and Section 1.5 *Introduction – Public Involvement and Agency Consultation in Preparing Draft EIR* (pages 1-4 to 1-8) for a discussion of activities that have occurred since the State Water Board issued the Notice of Preparation on December 22, 2016, to the circulation of the Draft EIR for agency and public review, as well as a review of public stakeholder outreach, scoping meetings, scoping comments, and agency and Tribal consultation during this period.

Comments IND270-7 and IND271-7
There is clear evidence that dam removal would cause a major environmental catastrophe. I have not seen this refuted. Those pushing the removal have separated themselves from any financial or other responsibility in the case that this catastrophe does happen. This seems very unethical. Also unethical is forcing those who do not agree with removal to pay for it.

Response to Comments IND270-7 and IND271-7
Please refer to Master Response GEN-1. Please also refer to Section 3 of the Draft EIR for detailed discussions of the potential physical effects of the proposed project on the environment.

With respect to the comment's assertions regarding financial responsibility for the Proposed Project, including the potential for unexpected environmental impacts relating to dam removal, please note that this issue does not constitute substantial evidence regarding the potential physical impacts of the Proposed Project on the environment (CEQA Guidelines section 15384). To the extent the comment raises concerns about the enforceability of requirements that the applicant address the environmental impacts of the Proposed Project, and of the ability of the applicant to do so, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of FERC proceedings. The State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related requirements as a condition of certification. These requirements would become enforceable through incorporation into any Federal Energy Regulatory Commission (FERC) surrender license, as well as under the Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

Comments IND270-8 and IND271-8

These and many other concerns I have are included in the attachment. Please see the attachment: "MEMORANDUM OF LAW - THE FOUR KLAMATH RIVER HYDROELECTRIC POWER DAMS CANNOT BE REMOVED PURSUANT TO THE KLAMATH BASIN AGREEMENTS WITHOUT THE CONSENT AND RATIFICATION OF THE UNITED STATES CONGRESS"

Response to Comments IND270-8 and IND271-8

This comment relates to the Klamath Basin Restoration Agreement (KBRA), Klamath Hydropower Settlement Agreement (KHSA), Upper Klamath Basin Comprehensive Agreement (UKBCA), Amended Klamath Hydropower Settlement Agreement (KHSA), Klamath Power Facility Agreement (KPFA), SA 3288, and the Klamath River Basin Compact. Comment noted. Please also refer to Master Response CEQ-4 for a discussion regarding the Klamath River Basin Compact.

Krizo, Jacqui

This commenter provided the same set of comments twice. Please see below responses for the first set of comments 1–20.

Comment IND272-1

80% of Siskiyou County, and the majority of Klamath County voters, voted to keep the dams. The dams are in their back yards and affect these citizens the most. Our region's representatives, with their massive amounts of study on the issue, support keeping our dams. We must live with the disastrous results of this immense dam removal "experiment" as stated at meetings by the "experts." Everyone, including the public, has been excluded from all the closed-door negotiations except those who support dam destruction.

Response to Comment IND272-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND272-2

70,000 households receive the green clean power from our hydroelectric dams.

Response to Comment IND272-2
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND272-3
We live in this pristine rural area. We don't want 22 million cubic yards of sediment to flow to the Pacific with dam removal, sterilizing the entire river for decades.

Response to Comment IND272-3
The State Water Board is not aware of any scientific evidence that sediment release from behind the Lower Klamath Project would result in "sterilizing the entire river." Please refer to Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and to Master Response GEO-1.

Comment IND272-4
In 2011, Interior's report said that the entire dam removal and restorations could boost salmon population in parts of the upper basin by 10%, only if all the other water quality problems were solved first. Solving all the water quality problems would require reversing "mother nature's" natural occurring phosphorus that is prevalent in the entire upper basin. Before our Klamath dams and before the Klamath Reclamation Project, historians wrote that Klamath Lake quality was so bad that even their horses would not drink from it.

Response to Comment IND272-4
Please refer to Master Response WQ-1 for a discussion of the role of the Lower Klamath Project dams/reservoirs on overall water quality. The Proposed Project does not include any changes to the amount of flow released by the United States Bureau of Reclamation's (USBR's) upstream Klamath Irrigation Project and the applicable biological opinion(s), and historical observations of low flows and associated poor water quality are not anticipated to reoccur due to removal of the Lower Klamath Project Dams

Comment IND272-5
With the massive amounts of wildfires, we'd like to keep the dam reservoirs created by our dams, because the water for firefighting has saved many communities from being incinerated. Our little communities are important to us. Wildfires severely affect our air quality and oxygen in the river. Without firefighting capabilities, forests, wildlife and housing get totally burned up.

Response to Comment IND272-5
Please refer to Master Response HAZ-2.

Comment IND272-6

We support fish ladders and trucking fish like on the Columbia River and others.

Response to Comment IND272-6

Please refer to Volume I Section 4.4 *Continued Operations with Fish Passage Alternative* (pages 4-99 to 4-180) for the analysis of the provision of fish passage on the Lower Klamath Project dams using fish ladders.

Comment IND272-7

Dean Brockbank, vice president and general counsel of PacifiCorp was quoted as saying the government "made it very clear from a public policy point of view that they did not want these dams relicensed. Once that became abundantly clear, we shifted our framework from relicensing to a settlement involving a possible dam removal framework". This statement makes apparent that top level officials within the Department of Interior conspired to orchestrate the removal of the dams from the beginning and that the rest of this discussion was not a sincere attempt to settle the issues with all options available.

Response to Comment IND272-7

Please refer to Volume I Section 1.4 *Introduction – EIR Process Overview* (pages 1-3 and 1-4) and Section 1.5 *Introduction – Public Involvement and Agency Consultation in Preparing Draft EIR* (pages 1-4 to 1-8) for a discussion of activities that have occurred since the State Water Board issued the Notice of Preparation for the Lower Klamath Project EIR on December 22, 2016, including a review of public stakeholder outreach, scoping meetings, scoping comments, and agency and Tribal consultation during this period.

Comment IND272-8

Dam removal will destroy the economy of Siskiyou County, and greatly impair Modoc and Klamath Counties, so we want to keep our dams.

Response to Comment IND272-8

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a).

Comment IND272-9

We want to keep the water storage, ecosystems for wildlife in and near the reservoirs, flood control, recreation, clean green energy, forests, water in reservoirs for firefighting, agriculture, water quality from the dam reservoirs, and air quality that these dams provide. We have had some record runs of salmon since the dams were built.

Response to Comment IND272-9

Please refer to Master Responses TER-1, FLD-1, HAZ-2, and WQ-1.

<u>Comment IND272-10</u>

According to the Bureau of Reclamation, additional Upper Basin water storage would cost more than 10 billion dollars. Klamath Project water storage that could be destroyed is already paid for, inexpensive, and maintenance is paid through hydropower production.

Response to Comment IND272-10

Please refer to Master Responses WSWR-1 and WSWR-3.

<u>Comment IND272-11</u>

I know people who lived downriver before the dams were built, who survived the floods. We want to continue preventing flash floods, deaths, loss of homes, buildings, fish and wildlife habitat, and erosion caused by preventable floods.

Response to Comment IND272-11

Please refer to Master Responses FLD-1 and TER-1.

<u>Comment IND272-12</u>

We want to keep the hatcheries that produce millions of fish that will be destroyed with dam removal.

Response to Comment IND272-12

Please refer to Master Response AQF-2.

<u>Comment IND272-13</u>

In your EIR you celebrate the possible production of more lampreys. These fish parasites eat other fish. With the demand that if salmon and suckers don't thrive, our irrigation water will be sent to the ocean, we really don't want these to parasites to thrive in our already-fragile ecosystem. Also planted into our Tulelake and Lower Klamath wildlife refuges are little islands to attract Caspian terns. The tern population along the Columbia River has been responsible for around 15 million to 20 million salmon smolts being eaten annually. The cormorant population growing on East Sand Island is estimated to be responsible for an additional 11 million young salmon each year. With these fish predators, Lampreys, dams or no dams, the survival of fish in the Klamath Basin, by design, is hindered.

Response to Comment IND272-13

Pacific lamprey do not eat other fish in the Klamath River. As adults in the marine environment, lamprey are parasitic on large fish and whales, which does not result in mortality of their hosts. For a discussion on the anticipated loss of aquatic and shoreline habitat associated with the Proposed Project, the potential effects on fish-eating birds including bald eagle, osprey, merganser, cormorant, egret, and heron, please refer to Volume I Section 3.5.5 *Terrestrial Resources – Potential Impacts and Mitigation – Special-status Species and Rare Natural Communities* Potential Impact 3.5-21 (pages 3-562 to 3-563).

<u>Comment IND272-14</u>
We want to keep the dam reservoirs that provide recreation, an established ecosystem, reduction of algae, nutrients and toxins, and habitat for endangered species.

Response to Comment IND272-14
Please refer to Master Responses GEN-1, TER-1, WQ-1, PAP-1, PAP-2, and REC-1.

<u>Comment IND272-15</u>
The Shasta Tribe opposes dam and lake destruction. They are the only Tribe which held the ancestral grounds where the dams are located, and they have not been allowed a voice in the KHSA or any settlement "agreements." Dam destruction would expose and further damage ancestral Shasta burial and village sites with no known benefit to them of any kind. They sacrificed their homeland sacred ground for these dams.

Response to Comment IND272-15
Please refer to Section 3.12 *Historical Resources and Tribal Cultural Resources* for a discussion of the consultation process that the State Water Board engaged in with both the Shasta Indian Nation and the Shasta Nation to identify potentially-impacted resources, discern potential impacts, and develop potential mitigation measures related to the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 2.12 *Historical Resources and Tribal Cultural Resources*.

<u>Comment IND272-16</u>
We want to keep our world class whitewater rapids and deep water lakes for competition quality lake fishing, boating and water skiing.

Response to Comment IND272-16
Please refer to Master Response REC-1.

<u>Comment IND272-17</u>
We Klamath Basin farmers have been forced to allow our stored water to be diverted downstream for mandatory "pulse flows." Farmers here, many families of WWI and WWII veteran homesteaders, are terrified that our water storage will be gone along with any possible water, including our aquifer, for mandated river flows and lake levels and pulse flows, with nothing left to water our crops. We pride ourselves in a growing number of organic crops, water conservation, and improved water quality, providing certified healthy American grown food. We want to keep growing food that provides waterfowl with 35 million pounds of food annually; Klamath Basin is the most important waterfowl area in North America.

Response to Comment IND272-17
Please refer to Master Responses WSWR-1 and WSWR-3.

Comment IND272-18
We have received terrifying information from Stephen Koshy, "United Nations Earth Dam Design trained engineer and former Deputy Director, Earth Dams Directorate of India." He designed clay core dams. He has researched destruction of clay core dams and predicts the "catastrophic collapse" resulting from the attempt to remove Iron Gate Dam. He cites specific knowledge of internal clay core saturated lower level pore pressure rendering that core unstable upon reduction of external pressure (drawdown and excavation). He has warned agencies of removal failure and loss of life. Agenda driven agencies have repeatedly marginalized his concerns, refusing to adequately address his scientific predictions. The KRRC's Definite Plan does not consider, address or provide for a catastrophic collapse and loss of life.

If you are interested in more information that Stephen Koshy has compiled on a clay core dam removal impending catastrophe, I will be happy to send that to you.

Response to Comment IND272-18
Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 has been revised to clarify the discussion of risks of dam failure under existing conditions, during reservoir drawdown, and dam deconstruction; as well as the most recent (2019) Division of Safety of Dams ratings and hazard classifications for the three California dams. Please refer to Volume III Attachment 1 Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 for the revisions.

Comment IND272-19
When Interior decided to destroy Chiloquin dam, we were assured that it would increase Lost River and Shortnose sucker spawning range by 95%, bringing our suckers to no longer be endangered. That promise and experiment obviously did not work to increase sucker population, but it was obviously one step closer to eliminating dams and rewilding the west.

Response to Comment IND272-19
The comment raises a prior, unrelated dam removal effort that does not relate to the potential physical impacts of the Proposed Project on the environment. Please refer to Master Response GEN-2.

Comment IND272-20
In your draft EIR we find no accountability or mitigation certainty for all the resulting destruction listed above. Perhaps the California State Water Resources

Control Board will be the agency to compensate and mitigate the resulting destruction to our communities, resources and lives.

Response to Comment IND272-20

Regarding the comment on accountability and mitigation certainty, please note that pursuant to CEQA section 15126.4 subdivision (a) (2), mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. Please refer to Master Response CEQ-2 for further discussion of the enforceability requirement for CEQA mitigation measures in the context of Federal Energy Regulatory Commission (FERC) proceedings. The State Water Board has issued a draft water quality certification and will issue a final certification that includes implementing water-quality related requirements as a condition of certification. These requirements would become enforceable through incorporation into any FERC surrender license, as well as under the Clean Water Act (CWA). Please note that potential environmental impacts that are not mitigable are analyzed in the EIR as significant and unavoidable. Volume III Attachment 1 Table ES-1 summarizes the results of the EIR impact analyses, including identifying impacts that are significant and unavoidable and impacts that are avoidable with mitigation.

Please note that the applicant explains mitigation surety for the Proposed Project in updates to the Definite Plan. Klamath River Renewal Corporation (KRRC) has identified Resources Environmental Solutions LLC (RES) as the entity that would assume responsibility for long-term maintenance and adaptive management of mitigation measures, and would function as a specialty corporate indemnitor to cover risks not otherwise fully covered by the Project Agreement or insurance and bond programs (KRRC 2019b, 2020). Please also refer to: http://www.klamathrenewal.org/wp-content/uploads/2019/07/KRRC-July-29-FERC-Filing.pdf and http://www.klamathrenewal.org/wp-content/uploads/2020/02/Public-02-28-2020-Supp-Response-Letter.pdf.

Kroeker, Curtis

Comment IND128-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, *which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.*

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND128-1
Thank you for your comment. Please refer to Master Response GEN-1.

Krohn, Jerry

Comment IND415-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND415-1
Thank you for your comment. Please refer to Master Response GEN-1.

Krupinski, K

<u>Comment IND389-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND389-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kryger, Robert

<u>Comment IND288-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND288-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kuhwarth, Richard

Comment IND299-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND299-1
Thank you for your comment. Please refer to Master Response GEN-1.

Kwok, Steven

Comment IND240-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND240-1
Thank you for your comment. Please refer to Master Response GEN-1.

L. Martin, William

Comment IND188-1
Thank you for this opportunity to comment upon the current application by Klamath River Renewal Corporation (KRRC) to remove four dams on the Klamath River.

I strongly support the application and the final Project of dam removal. The Klamath dams block salmon and steel head from reaching more than 300 miles of spawning and rearing habitat in the upper basin. Historically, the Upper Klamath-Trinity Rivers spring-run Chinook salmon was the most abundant run on the river. Today less than 3% remain, in large part because they cannot access historical habitat in the Upper Klamath Basin A non-profit organization, the Klamath River Renewal Corporation (KRRC), was formed in 2016 to take ownership of four PacifiCorp -owned dams (Copco #1, Copco #2, Iron Gate and JC Boyle), for the purpose of overseeing the dam removal process.

All the pieces are in place for these dams to be removed by 2021 pending the license transfer.

Funding for the projects is set, with up to $450 million secured from PacifiCorp ratepayers and the state of California through the 2014 Proposition 1 Water Bond.

Please continue to support this major project by granting licenses and applications.

Response to Comment IND188-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lahti, Derald

<u>Comment IND168-1</u>
Please proceed with the obvious best solution and remove the four lowest dams on The Klamath River. This will be good for the local and indigenous people, the environment and the economic health of the entire area. Thanks for doing the right thing.

Response to Comment IND168-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lapcevic, William

<u>Comment IND187-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND187-1
Thank you for your comment. Please refer to Master Response GEN-1.

Larson, Edward

<u>Comment IND201-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND201-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lee, Scott

Comment IND261-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND261-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lester, Paul

Comment IND314-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND314-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lima, Chris

<u>Comment IND117-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath! While now a resident of Idaho, I have spent most of my life living in California and working towards improving watershed health for both fish, wildlife, and people.

Response to Comment IND117-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lonergan, David

Comment IND149-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND149-1
Thank you for your comment. Please refer to Master Response GEN-1.

Lorenson, R.B.

Comment IND303-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND303-1

Thank you for your comment. Please refer to Master Response GEN-1.

Luby-Prikot, Lukas

Comment IND366-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND366-1
Thank you for your comment. Please refer to Master Response GEN-1.

Mace, Bruce

Comment IND99-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND99-1
Thank you for your comment. Please refer to Master Response GEN-1.

Maier, Kenny

Comment IND376-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND376-1
Thank you for your comment. Please refer to Master Response GEN-1.

Makshanoff, William

Comment IND186-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND186-1
Thank you for your comment. Please refer to Master Response GEN-1.

Maniatis, Terez

Comment IND227-1
I would like to see full removal of the lower 4 Klamath River Dams! I am a business owner in Mt. Shasta and enjoy fishing and rafting on the Klamath river and would like to see the water quality improve! Thanks for considering my opinion.

Response to Comment IND227-1
Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Manning-Brown, Helen

Comment IND436-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND436-1
Thank you for your comment. Please refer to Master Response GEN-1.

Mar, Terry

<u>Comment IND232-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND232-1
Thank you for your comment. Please refer to Master Response GEN-1.

Marsden, Michael

Comment IND341-1
Dear State Water Resources Control Board,

I strongly support the full removal of the lower four Klamath River Dams. The Draft Environmental Impact Report (DEIR) affirms that the dam removal is the best alternative and would comply with the water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoration a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for the struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Sincerely,

Michael Marsden

Martinez

Response to Comment IND341-1
Thank you for your comment. Please refer to Master Response GEN-1.

Marta, Michele

Comment IND336-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND336-1
Thank you for your comment. Please refer to Master Response GEN-1.

Martin, Rosada

Comment IND279-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND279-1
Thank you for your comment. Please refer to Master Response GEN-1.

Mattson, William

Comment IND195-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND195-1
Thank you for your comment. Please refer to Master Response GEN-1.

McCalister, R.B.

Comment IND302-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND302-1
Thank you for your comment. Please refer to Master Response GEN-1.

McClintock, Robert

Comment IND289-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND289-1
Thank you for your comment. Please refer to Master Response GEN-1.

Mcgee, Thomas Sr.

Comment IND224-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND224-1
Thank you for your comment. Please refer to Master Response GEN-1.

McGrew, Marisa

<u>Comments IND359-1 and IND360-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project Purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comments IND359-1 and IND360-1
Thank you for your comment. Please refer to Master Response GEN-1.

McKernan, Patrick

Comment IND317-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND317-1

Thank you for your comment. Please refer to Master Response GEN-1.

McKinley, Charles

Comment IND111-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND111-1
Thank you for your comment. Please refer to Master Response GEN-1.

McLaren, Graham

Comment IND443-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND443-1
Thank you for your comment. Please refer to Master Response GEN-1.

McMorrow, John

Comment IND404-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND404-1
Thank you for your comment. Please refer to Master Response GEN-1.

Meamber, Sheila and Don

Comment IND185-1
It makes no sense to convert from the clean hydro power produced by the 4 dams, and converting to carbon polluting natural gas generators as has been reported.

Response to Comment IND185-1
Thank you for your comments. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND185-2
The use of Upper Klamath Basin streams for enhanced natural spawning habitat river miles, will not work. Except during the winter, Upper Klamath Lake and Lake Ewauna are too warm, along with a lethal shortage of dissolved oxygen there for Salmonid smolts to survive the trip back to the ocean.

Response to Comment IND185-2
As decribed in Section 3.3.5.3 *Aquatic Resources – Potential Impacts and Mitigation – Water Quality – Upper Klamath River and Connected Waterbodies*, water quality in the Upper Klamath Basin under the Proposed Project would not preclude the occurrence of anadromous salmonids upstream of Iron Gate Dam. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND185-3
Chinook Salmon never migrated past J.C. Boyle due to the natural reef at that site, Moonshine Falls. Early explorers reported observing the salmon piled up at the base of the Falls, unable to swim any further.

Response to Comment IND185-3
As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, there is no evidence of a natural reef at J.C.Boyle that historically blocked upstream migration of salmonids. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND185-4
Biologists from USF&W wrote articles about the salmon that used to travel to the Upper Basin. They have no concrete proof.

Response to Comment IND185-4
The research of Hamilton et al. (2005) and Hamilton et al. (2016) was published in peer-reviewed journals and is considered the best available and most current scientific and factual data on Chinook salmon historical use of the upper Klamath River Basin. These studies involved authors from the U.S. Fish and Wildlife Service, the U.S. Bureau of Reclamation, and the National Marine Fisheries Service.

Comment IND185-5
The reservoirs behind the hydro dams provide large safe water sources for the helicopters to dip water to dump on the forest fires that have been so destructive to the natural forests and air quality all over the West Coast.

Response to Comment IND185-5
Please refer to Master Response HAZ-2.

Comment IND185-6
The reservoirs trap the nutrients consumed by the algae, dropping to the bottom of the lakes keeping both out of the downstream Klamath River, and cleaner than prior to dams over 100 years ago. The nutrients all originate in Oregon; they are stopped by the reservoirs, keeping the water quality of the River cleaner at a reasonable cost.

Response to Comment IND185-6
Please refer to Master Response WQ-1.

Comment IND185-7
It makes no sense to report that removal of the dams will improve water quality. Leave them in place !!!

Response to Comment IND185-7
Please refer to Master Responses WQ-1 and GEN-1.

Mees, Michael

Comment IND340-1
My name is Michael Mees a student at HSU and I am honored to be currently living on unceded Wiyot land. I am writing to voice my support for this project. The DEIR was conducted and presented very thoroughly. Salmon are vital to the lively hoods and way of life for traditional peoples in these areas. It is tantamount to their culture and is what connects them to each other and the land. Salmon is also vital to a thriving fishing economy. These dams have all but killed these practices along the Klamath watershed. It is about time that we right the wrongs from our past and remove them to restore and revitalize these areas. Thank you for your hard work and collaboration.

Response to Comment IND340-1
Thank you for your comment. Please refer to Master Response GEN-1.

Menard, Robert

Comment IND287-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND287-1
Thank you for your comment. Please refer to Master Response GEN-1.

Merlone, Steven

Comment IND239-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND239-1
Thank you for your comment. Please refer to Master Response GEN-1.

Metzler, Michael

Comment IND339-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND339-1
Thank you for your comment. Please refer to Master Response GEN-1.

Michaelides, Peter

Comment IND309-1

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND309-1

Thank you for your comment. Please refer to Master Response GEN-1.

Mikeska, Jeff

Comment IND273-1

I am writing you to let you know that I am encourage you to remove the dams on the Klamath River below Klamath Lake.

Response to Comment IND273-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND273-2

I fish the Klamath River below Iron Gate Dam a number of times a year. Mostly in the summer months. When the fish aren't biting the water is certainly warm and pleasant for swimming. Unfortunately the elevated water temperatures are not good for the fishery and water quality issues caused by plant life blooms. At times there is so much seaweed that the water barely flows. Higher water *temperatures encourage plant life growth-which encourages even slower water-which in turn encourage higher temperatures creating a destructive loop. Removal of the dams will bring the water temperatures down and return the river bottoms to a more natural and less silted state in which weeds cannot flourish so readily. Lower water temperatures will also discourage destructive algae blooms which are main contributors to water quality problems.*

Response to Comment IND273-2
Section 3.2.5.1 *Water Quality – Potential Impacts and Mitigation – Water Temperature* Potential Impact 3.2-1 provides an analysis of the short-term and long-term alterations in water temperature due to conversion of the reservoir areas to a free-flowing river. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Further, Volume I Section 3.4.5 *Phytoplankton and Periphyton – Potential Impact and Mitigation – Phytoplankton* Potential Impacts 3.4-1 through 3.4-5 (pages 3-426 to 3-440) present the analysis of the short-term and long-term changes to phytoplankton and periphyton in the Klamath River under the Proposed Project, including the potential for increased scour of periphyton during winter and spring storm events under dam removal and compared to existing conditions. Please also refer to Master Response GEN-2.

Comment IND273-3
Please consider removing the dams for the health of the river ecosystem.

Response to Comment IND273-3
Comment noted.

Miller, Susan

Comment IND233-1
I attended the meeting referenced above and listened carefully to all the comments presented. What I noticed is that the commenters who spoke for retaining the dams cited practical reasons and benefits for their retention. Specifically:

1. *Clean hydroelectric power to 70,000 homes and businesses in three counties,*
2. *Electric power independence and lower power rates,*
3. *Flood control,*
4. *Fire suppression,*
5. *Groundwater recharge, especially in the Copco Lake area,*
6. *Adequate cold water for a large salmon fish hatchery,*
7. *Recreation and*

Response to Comment IND233-1
Thank you for your comment. Please refer to Master Responses GEN-1, ENR-1, FLD-1, HAZ-2, GRW-1, REC-1 and AQF-2. With respect to the comment about

hydroelectric power, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Comment IND233-2

8. Water retention for discharge during fall fish runs, while those who were pro dam removal discussed fish and river restoration, as if dam removal were the panacea for all their ills, when in reality the poor fish runs have nothing to do with the dams. (The Copco lake dam has been in existence for over 100 years and there is documented evidence that a lake was present before the dam, due to the existence of a basalt reef.) In fact the dams are beneficial to the anadromous fish for the following reasons:

1. Iron Gate dam provides cold water for a much larger fish hatchery than formerly existed on Fall Creek.

2. The dams create a barrier to the transmission of toxic algae downstream.

3. The dams provide a consistent flow of cold water for discharge downstream, as the water is released from the bottom of the dams.

4. The dams release extra water during the critical months of September and October for supporting the fall fish run, without which the river flow would be inadequate in 3 out of 5 years to support a fall fish run, due to low precipitation.

Scientific evidence has shown that the poor fish runs are caused primarily by the following:

1. Less phytoplankton food supply in the oceans due to pollution and ocean oscillating currents.

2. The comeback of marine mammals, such as seals, now that they are protected. It is estimated that one seal can eat 18 lbs of fish/day.

3. Commercial fishing pressure

4. The allowance of gill netting at the mouth of the river by the Yurok tribe.

5. Overfishing in general, both in the river and the ocean.

Response to Comment IND233-2

There is no available scientific information to suggest that the Lower Klamath Project dams are beneficial to anadromous fish in the Klamath River. Section 3.3.2 *Aquatic Resources – Environmental Setting* describes the best available and most current scientific and factual data on aquatic resources in the Klamath River basin, their current status, and factors affecting their habitat suitability and population abundance. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please refer to Master Responses WQ-1, WQ-2, and PAP-1 with respect to the role of the Lower Klamath Project dams/reservoirs with respect to water quality, including toxic algae and associated algal toxins, water temperature, and river flow.

Comment IND233-3

The environmentalists talk about the "pristine" river and environment of 200 years ago, yet I don't see any of them living without modern conveniences, such as running water and electricity, made possible by our technological society. In fact they will likely be the first ones to whine when

1. their electric rates double or triple when the dams are removed,

Response to Comment IND233-3

Please refer to Master Response GEN-2.

Comment IND233-4

2. The fish hatchery is no longer supplying millions of fry to the river yearly,

3. The spawning holes and the mouth of the river are filled in with sediment for years to come (as has been already demonstrated by the removal of Condit Dam),

4. Their fall fish runs are severely impacted by low flows and warm water coming from upstream sources, no longer moderated by the dams and

Response to Comment IND233-4

With regard to the potential for impacts on salmonid populations due to a reduction in hatchery production under the Proposed Project, please refer to Master Response AQF-2.

With regard to the potential for sediment-related impacts on salmonid habitat due to dam removal, please refer to response to comment LA6-4.

"Fall fish runs" (presumably fall-run Chinook salmon) are not predicted to be "severely impacted by low flows and warm water" under the Proposed Project, as described in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Additionally, all flows are released at Keno Dam; no perscribed flows are released from any of the Lower Klamath Project dams.

<u>Comment IND233-5</u>
5. toxic algae are allowed to contaminate the entire river, instead of being held behind the dams.

Response to Comment IND233-5
Please refer to Master Responses WQ-1 and PAP-1.

<u>Comment IND233-6</u>
No, the environmentalists and tribes don't talk about these facts. They only talk nostalgically about Native American ceremonies and practices from over 100 years ago, as if they are more important than the 79% of Siskiyou County residents who voted to retain the dams.

Response to Comment IND233-6
Please refer to Master Responses GEN-1 and GEN-2.

<u>Comment IND233-7</u>
The dams in question are an intregal part of the infrastructure supporting our modern society. As scientists and engineers, please don't get swept away with nostalgia and wishful thinking. Instead, apply your scientific analytical skills to a critical review of the facts and pertinent scientific evidence. Thank you.

Response to Comment IND233-7
Comment noted.

Moitoza, Franklin

<u>Comment IND213-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND213-1
Thank you for your comment. Please refer to Master Response GEN-1.

Montes, Luis

Comment IND367-1
You are urged to vote to remove the environmentally disastrous Klamath River Dams. I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, thus restoring substantial rearing habitat for endnagered Salmon and Steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are the leading cause of salmon and Steelhead declines in the Klamath Basin watershed. The Water Board's DEIR supports what dam removal advocates have said all along • dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND367-1
Thank you for your comment. Please refer to Master Response GEN-1.

Moran, Michael

Comment IND343-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND343-1

Thank you for your comment. Please refer to Master Response GEN-1.

Most, Stephen

Comment IND248-1

As the author of River of Renewal, Myth and History in the Klamath Basin and the writer/producer of a documentary film, also called River of Renewal, about Klamath Basin history, I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. They brought about the closure of the canneries on the Klamath River estuary and the near extinction of the river's Spring chinook species. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND248-1
Thank you for your comment. Please refer to Master Response GEN-1.

Muller, Trevor

Comment IND206-1
I implore you to please remove the dams. Thanks you for your consideration.

Response to Comment IND206-1
Please refer to Master Response GEN-1.

Murphy, Dennis

Comment IND167-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND167-1
Thank you for your comment. Please refer to Master Response GEN-1.

Murphy, John

Comment IND403-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND403-1
Thank you for your comment. Please refer to Master Response GEN-1.

Murphy, Ronald

Comment IND280-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND280-1
Thank you for your comment. Please refer to Master Response GEN-1.

Muscatine, Jeffrey

Comment IND419-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-tem1 benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND419-1
Thank you for your comment. Please refer to Master Response GEN-1.

Muzzio, Andy

Comment IND74-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND74-1
Thank you for your comment. Please refer to Master Response GEN-1.

Myers, Cynthia

Comment IND130-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND130-1
Thank you for your comment. Please refer to Master Response GEN-1.

Naughton, James

Comment IND429-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND429-1

Thank you for your comment. Please refer to Master Response GEN-1.

Neal, David

Comment IND151-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND151-1
Thank you for your comment. Please refer to Master Response GEN-1.

Nelson, Greg

Comment IND441-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND441-1
Thank you for your comment. Please refer to Master Response GEN-1.

Nelson, Sarah

Comment IND264-1
I support the full removal of the lower four Klamath River dams. I have friends and co-workers who are members of the Yurok tribe, and the dams have negatively impacted their lives and culture. The dams have also damaged the lives of a lot of the fishing families I know in our region. If the salmon begin to thrive, then all of our people will as well. I'm worried about our future on the northcoast. Please remove the dams.

Response to Comment IND264-1
Thank you for your comment. Please refer to Master Response GEN-1.

Nelson, Steven

Comment IND238-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND238-1
Thank you for your comment. Please refer to Master Response GEN-1.

Netti, Steve

Comment IND244-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND244-1
Thank you for your comment. Please refer to Master Response GEN-1.

Neuman, Dick

Comment IND174-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND174-1
Thank you for your comment. Please refer to Master Response GEN-1.

Newton, Jerry and Linda

Comment IND173-1
I am writing concerning the removal of the Klamath Dams in Siskiyou County California.

I'm not going to tell you all the reason why they should not be taken out I Don't think I can add anything that has not already been wrote.

But we are a Christian Family and we are quit aware that we are to take care of our earth thats our God given right! But I know we are created in God's image and we are his Children and it's pretty sad when fish + nature become more important than His Children + and their happiness.

I'm quit aware that in the day like a few thousand yrs Dinasours roamed this earth but my life is not any worse because I don't have a dinasour stake on my plate!! The salmon will always be here and if not so b it people a 1,000 yrs from now will not be effected.

Please do whatever you can so that we can keep our beautiful lakes.

Response to Comment IND173-1
Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Nguyen, Megan

Comment IND346-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND346-1

Thank you for your comment. Please refer to Master Response GEN-1.

Nickelson, Thomas

Comment IND222-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND222-1
Thank you for your comment. Please refer to Master Response GEN-1.

Niebruegge, Dave

Comment IND140-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND140-1
Thank you for your comment. Please refer to Master Response GEN-1.

Nilsson, Tim and Debbie

Comment IND152-1
My husband, Tim Nilsson, and I would like to go on record as objecting to the removal of the 3 dams in Siskiyou County and the Boyles Dam.

Response to Comment IND152-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND152-2
In light of the recent fires, not having access to the reservoirs could hugely impact firefighting. The "plan" that pilots will know the deep holes to draw water from is not even realistic. The water would be so low in the summer that there probably wouldn't be deep holes.

Response to Comment IND152-2
Please refer to Master Response HAZ-2.

Comment IND152-3
The river was so low near the coast, prior to the dams, that wagon trains could cross it. How is that going to help the fish?

This is not about the fish, but about "stealing" our North state water. Removing the dams will greatly damage fisheries for years to come.

Response to Comment IND152-3
The Lower Klamath Project dams do not result in an increase in flows in the Klamath River near the coast. Please refer to Volume I Section 3.6.2.2 *Flood Hydrology – Environmental Setting – Basin Hydrology* (pages 3-590 to 3-621) for a description of hydrology in the basin.

The analysis in the Lower Klamath Project EIR does not find that removal of the dams under the Proposed Project would greatly damage the fisheries for years to come. Please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for a comprehensive analysis of the effects of the Proposed Project on aquatic resources in the Klamath River. Please see Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND152-4

Removing the dams will cause great financial damage to our County if we lose the dams. Pulling dams in the Gold Hill, Oregon area has damaged their economy for many years, if not permanently.

Response to Comment IND152-4

Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Comment IND152-5

Removing the dams will cause loss of recreation and tourism opportunities.

Response to Comment IND152-5

Please refer to Section 3.20.5 *Recreation – Potential Impacts and Mitigation* for a discussion of potential impacts of the Proposed Project on recreation. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment IND152-6

Our County overwhelmingly voted in favor of keeping our dams.

Response to Comment IND152-6

Please refer to Master Response GEN-1. Volume I Section 2 *Proposed Project* (page 2-21) acknowledges in Table ES-2 on page ES-23 and in that during the Siskiyou County Advisory Election Vote on November 2, 2010 (Measure G), approximately 79 percent of voters expressed their opinion and voted "No" to dam removal, while 22 percent voted "Yes".

Comment IND152-7

The dams produce clean energy where all other options are environmentally negative.

Response to Comment IND152-7

This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

<u>Comment IND152-8</u>
Just talk of removal has seriously damaged property values and thus income to our county. We are already considered a low income or poverty area so addition damage to our tax base would be devastating.

Response to Comment IND152-8
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a).) However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

<u>Comment IND152-9</u>
We believe this proposal is supposedly putting the needs of fish ahead of those real people who live in and love Siskiyou County!

Response to Comment IND152-9
Please refer to Master Response GEN-1.

Nomellini, Angela

<u>Comment IND75-1</u>
Though I am a resident of Arizona, I and my husband spend considerable time fishing in California. In fact, we are supporters of the California Salmon and Steelhead Coalition, a combined effort of California Trout, Trout Unlimited and the CA chapter of The Nature Conservancy.

Response to Comment IND75-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND75-2</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND75-2
Thank you for your comment. Please refer to Master Response GEN-1.

Nourish, Bruce

Comment IND100-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND100-1
Thank you for your comment. Please refer to Master Response GEN-1.

O'Brien, Jess

Comment IND412-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies withClean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND412-1
Thank you for your comment. Please refer to Master Response GEN-1.

O'Callaghan, Dennis

Comment IND164-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND164-1
Thank you for your comment. Please refer to Master Response GEN-1.

O'Dowd, Alison

Comment IND70-1
I am a River Ecologist and Professor at Humboldt State University. My research area includes the impacts of dams on aquatic ecosystems. I strongly support the full removal of the lower four Klamath River dams.

Response to Comment IND70-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND70-2
Ecologically, the lower four Klamath River dams have been disastrous for the aquatic communities in the Klamath River basin. Toxic algal blooms and warmer temperatures in the reservoirs combined with the altered flow regime has reduced salmon populations in particular. Despite the impacts of the dam, the Klamath River is still one of the most productive fisheries on the West Coast and dam removal will only bolster this fishery further. Dam removal is a golden opportunity that should not be passed up, particularly given the imperiled species that are at risk of extirpation (or eventually extinction) if the dams are not removed in the near future.

Dam removal will reopen for 400 miles of spawning and rearing habitat for salmonids and will improve water quality throughout the mainstem Klamath River.

Response to Comment IND70-2
Please refer to Master Response GEN-1.

Comment IND70-3
In addition to the ecological benefits of the Klamath dams removal, it is my understanding that dam removal will not adversely affect irrigated agriculture because none of the dams slated for removal provide agricultural water supply.

Response to Comment IND70-3
Please refer to Master Response GEN-1.

Comment IND70-4
I am currently the faculty director of a place-based learning community called "Klamath Connection" at Humboldt State University. This learning community is for incoming freshmen and we use the Klamath River as a case study to show an example of how people from a variety of backgrounds can come together to solve complex environmental problems. We take 170 freshman each August to the Klamath River mouth during the week of freshman orientation and the experience for the students to be able to put their feet in the river and learn about the issues surrounding the Klamath is truly transformative for them. The beautiful Klamath River makes a difference in the lives of incoming freshmen at Humboldt State University and undoubtedly the lives of countless others throughout Northern California. The intrinsic value of the free-flowing Klamath River cannot be quantified or commodified.

Response to Comment IND70-4
Please refer to Master Responses GEN-1 and GEN-2.

Comment IND70-5
It is my hope that the dam removal process will proceed in a timely manner. I agree with the key findings of the draft EIR that supports dam removal.

Many thanks to the State Water Board for moving this process forward.

Response to Comment IND70-5
Please refer to Master Response GEN-1.

Ohara, Stanley

Comment IND252-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND252-1
Thank you for your comment. Please refer to Master Response GEN-1.

Olitzky, Bruce

Comment IND101-1
Dams that no longer serve any function should all be removed. Our habitat is at peril and your support is desperately needed.

Response to Comment IND101-1
Thank you for your comment. Please refer to Master Response GEN-1.

Pace, Felice

Comment IND161-1
My comments on the DEIR for DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LOWER KLAMATH PROJECT LICENSE SURRENDER FEDERAL ENERGY REGULATORY COMMISSION PROJECT NO. 14803 are attached.

I want to get the contact information which all those who commented at the hearings or otherwise have submitted and, in particular, names and email addresses. Please either provide that via return email or inform me that you will require a Public Records Request to provide the information and/or documents *containing contact information for all those commenting on the DEIR or testifying at DEIR hearings.*

Response to Comment IND161-1
Thank you for your comment. Per your request, State Water Board staff provided the requested information on February 15, 2019. Additionally, original comments on the Lower Klamath Project EIR are presented in this volume (Volume III) of the EIR. The comments themselves include contact information provided by the commenters.

Comment IND161-2
PacifiCorp should be responsible for removing the dams they own which have become non-performing assets because, if relicensed, they loose an estimated $20 million per year.

Response to Comment IND161-2
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment: CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a). Please also refer to Volume I Section 5.4 *Social and Economic Factors Under CEQA*.

Please refer to Master Response ENR-1 for a discussion of the potential for rate increases associated with dam removal, including PacifiCorp's claims regarding the cost of relicensing over a 40-year license term.

Comment IND161-3
The KHSA is a sweetheart deal for a 1% corporation at taxpayer and ratepayer expense (I am both!) in order to save the stockholders money. Still, it does get the dams out, maybe.

Response to Comment IND161-3
The State Water Board is not a signatory to the Klamath Hydroelectric Settlement Agreement (KHSA) or the Amended Klamath Hydroelectric Settlement Agreement. Please also refer to Master Comment GEN-2.

Comment IND161-4
Delay also serves the Corporation which gets to continue making $ without having to do very much to help salmon. The Water Board should require that PacifiCorp do a lot more to help salmon until the dams are actually out.

Response to Comment IND161-4
Please refer to Master Comment GEN-2. Please also refer to Volume I Section 2.7.9 *Proposed Project –KHSA Interim Measures* for a discussion of the series of interim measures that have been implemented by PacifiCorp since 2010 to

assess and address environmental conditions and improve fisheries prior to dam removal.

Comment IND161-5
If the Klamath Renewal Corporation fails, the Hoopa Tribe will be there to make sure the dams come out. Their recent court victory assures that and that interim measures to better protect salmon, which the Water Board should also require, will be implemented between now and when dam removal takes place.

Folks should rethink the delusion that dam removal will fix the Klamath's problems. The Bureau of Reclamation will still control Klamath flows and will do all they can to minimize flows in order to maximize delivery of irrigation water to federal irrigators.

Response to Comment IND161-5
Please refer to Master Response WSWR-1 and WSWR-2.

The U.S. Bureau of Reclamation's (USBR's) management of Klamath River flows for irrigation water supply purposes is beyond the scope of the EIR.

Comment IND161-6
Folks should also rethink the delusion that removing four dams will solve the Klamath's water quality problems. The main source of water quality degradation basin-wide is not dams but rather irrigated agriculture in the Upper Basin, Shasta and Scott Basins. We will not solve the Klamath's water quality ills unless and until we can get the NCWQCB and Oregon DEQ to effectively regulate agriculture in the Upper Basin, Shasta and Scott.

Response to Comment IND161-6
Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes in the Klamath Basin* provides a general summary of the effects that Lower Klamath Project hydroelectric facilities and operations have on Klamath River water quality, including changes in water temperature, dissolved oxygen, phytoplankton (suspended algae), nutrients, suspended sediment (turbidity), and periphyton (attached algae). Figure 3.2-2 illustrates the general seasonal influence of reservoirs formed by large dams, such as Copco No. 1 and Iron Gate reservoirs, on water quality parameters. The specific influence of the Lower Klamath Project dams and reservoirs on water quality parameters in the Klamath River are summarized in Section 3.2.2 *Water Quality – Environmental Setting* and further detailed in Appendix C *Water Quality Supporting Technical Information*. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Appendix C *Water Quality Supporting Technical Information*. Please also refer to Master Response WQ-1 for further discussion of the influence of the Lower Klamath Project dams/reservoirs on the overall water quality in the Klamath River. Issues associated with diversions in other parts of the Klamath River watershed are beyond the scope of the EIR, which

focuses on impacts related to actions proposed in the California portion of the Lower Klamath Project, including the Copco No. 1, Copco No. 2, and Iron Gate dam complexes.

Comment IND161-7

A fifth PacifiCorp Dam, Keno, will be transferred to Reclamation and will remain. It receives most of the highly polluted federal irrigation water and has the worst water quality in the entire Klamath River Basin. That water leaves Keno and flows down the Klamath River. Fixing Klamath water quality requires fixing Keno and the Water Boards, PacifiCorp and NMFS are remiss in not making that happen. We can only fix Keno's water quality problems by effectively regulating agricultural pollution and by restoring marshes on the margins of Keno Reservoir.

Response to Comment IND161-7

Addressing water quality concerns in Keno Reservoir, which is located in Oregon, is not part of the Klamath River Renewal Corporation's (KRRC's) Proposed Project or an alternative and therefore is not considered in this EIR. As described in Volume 1 Section 1.1 *Authorization, Purpose, and Use of EIR* (page 1-1), the EIR focuses on impacts related to actions proposed in the California portion of the Lower Klamath Project, including the Copco No. 1, Copco No. 2, and Iron Gate dam complexes. Additionally, throughout the EIR analyses, including Section 3.2 *Water Quality* and Section 3.3 *Aquatic Resources*, conditions in Oregon, including water quality conditions in Keno Reservoir, are considered to the extent that they influence water quality downstream in California. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and the final Section 3.3 *Aquatic Resources*.

Comment IND161-8

Estimates of water quality improvements resulting from dam removal contained in the DEIR have a wide range, for example estimates of temperature improvements in the DEIR have something like a 20 degree range. The FEIR should explain why that is the case and put that into the summary and introduction. This is important because some interests are making fantastic claims for water quality degradation or improvement on both sides of the dam removal issue. Therefore, it is important that those reading the FEIR understand the uncertainty in estimates of water quality improvements and degradation as well and, especially, the source of the uncertainty.

Response to Comment IND161-8

Please refer to the Volume I *Executive Summary – Issues to be Resolved* (page ES-24) for a brief discussion of the degree of environmental impacts and benefits for the proposed restoration project. Potential Impact 3.2-1 discusses the anticipated short-term and long-term alterations in water temperatures due to conversion of the reservoir areas to a free-flowing river. As discussed in Section 3.2.2.1 *Water Quality – Environmental Setting – Overview of Water Quality Processes*, large reservoirs like Iron Gate Dam retain their water temperature for weeks or months, so releases from Iron Gate Reservoir would alter the natural downstream Klamath River water temperature conditions. In the late summer/fall, Iron Gate Dam continues to release warmer water than would naturally occur because the reservoir still contains water that was heated during the summer months. As summarized in Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* and discussed further in Potential Impact 3.2-1, modeling indicates that water released from Iron Gate Dam under existing conditions is approximately 4 to 18°F warmer in the summer and fall as compared to modeled conditions without J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams (i.e., the Proposed Project) (PacifiCorp 2004a-1; Dunsmoor and Huntington 2006; North Coast Regional Board 2010). There is a wide range in the water temperature variation between existing conditions and the Proposed Project since the relatively low variability in the reservoir water temperature results in relatively low variability in the water temperature downstream of Iron Gate Dam under existing conditions, yet the water temperature downstream of Iron Gate Dam under the Proposed Project fluctuates with natural meteorological changes (i.e., solar radiation, heating and cooling due to ambient air temperature). As a result, there are periods in the fall when modeling indicates the Klamath River water temperature downstream of Iron Gate Dam under the Proposed Project would substantially decrease (i.e., greater than 10ºF) over the course of several days in response to meteorological changes (e.g., a cold front), but water temperature downstream of Iron Gate Dam under existing conditions would only decrease by only a few degrees due to the slower response of the reservoir water temperature. While the difference in water temperature downstream of Iron Gate Dam between existing conditions and the Proposed Project is up to approximately 18°F warmer in the summer and fall, the difference typically is less and varies based on changes in meteorological conditions. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality,* including Figure 3.2-3 that shows the difference between water temperature downstream of Iron Gate Dam under existing conditions and the Proposed Project.

Comment IND161-9

Free the Klamath, not just from dams but from the tyranny of irrigation interests and the US Bureau of Reclamation who leave too little water in our rivers and who pollute and degrade the water which remains.

Response to Comment IND161-9

Please refer to Master Response GEN-1.

Pagliaro, Ignacio

Comment IND435-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND435-1
Thank you for your comment. Please refer to Master Response GEN-1.

Pagones, Dennis

Comment IND166-1
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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND166-1
Thank you for your comment. Please refer to Master Response GEN-1.

Palmer, Neil

Comment IND329-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND329-1
Thank you for your comment. Please refer to Master Response GEN-1.

Paoluccio, Joseph

<u>Comment IND399-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND399-1
Thank you for your comment. Please refer to Master Response GEN-1.

Parcell, Ruth

<u>Comment IND277-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND277-1
Thank you for your comment. Please refer to Master Response GEN-1.

Parry, Stephen

Comment IND247-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND247-1
Thank you for your comment. Please refer to Master Response GEN-1.

Peck, Medwin

Comment IND347-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND347-1
Thank you for your comment. Please refer to Master Response GEN-1.

Pendergast, Fred

Comment IND217-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND217-1
Thank you for your comment. Please refer to Master Response GEN-1.

Perry, Stan

<u>Comment IND253-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND253-1
Thank you for your comment. Please refer to Master Response GEN-1.

Person, Molly

Comment IND332-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND332-1
Thank you for your comment. Please refer to Master Response GEN-1.

Piimauna, Kevin

<u>Comment IND374-1</u>
Bring back the wildlife. Dams ruin the river. I can' t make it to any meetings because I'm in Orange County and work and go to school. You guys should stream the meetings on Facebook.

Response to Comment IND374-1
Thank you for your comment. Please refer to Master Response GEN-1.

Piziali, Robert

<u>Comment IND286-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND286-1
Thank you for your comment. Please refer to Master Response GEN-1.

Plopper, Charles

Comment IND112-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND112-1

Thank you for your comment. Please refer to Master Response GEN-1.

Preskenis, Dan

Comment IND136-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND136-1
Thank you for your comment. Please refer to Master Response GEN-1.

Pryor, Geoff

Comment IND228-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND228-1
Thank you for your comment. Please refer to Master Response GEN-1.

Raddue, Rick

Comment IND297-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND297-1
Thank you for your comment. Please refer to Master Response GEN-1.

Raffel, Corey

Comment IND125-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND125-1
Thank you for your comment. Please refer to Master Response GEN-1.

Raivio, Matt

Comment IND350-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND350-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ramp, Rudy

Comment IND278-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND278-1
Thank you for your comment. Please refer to Master Response GEN-1.

Reynolds, Phil

Comment IND285-1

Dam removal on the Klamath.
I am against the removal of this clean renewable hydroelectric project.
The residents of Siskiyou County are overwhelmingly against the removal of this project. This non stop removal agenda(attack) must be stopped.
I have resided at Copco Lake since October of 1980. In these many years I witnessed the beginning talks on dam removal, scientific studies, reports, and endless public comment meetings. In all these years no state or federal agency has ever truly listened to the things we as citizens of these lakes have said. The dam removal project in an agenda that is filled with false science. And yes the word is agenda. This project is set to move forward regardless of the devastation it may cause.

Response to Comment IND285-1

Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Comment IND285-2

Facts are useful pieces of information. Fact : If the dams were the true cause of the fish declines it would have been noticeable from the first years of power generation.

Response to Comment IND285-2

Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*, specifically Section 3.3.2 *Aquatic Resources – Environmental Setting*, which discusses current and historical fish distribution, fish populations, and citations for observed fisheries declines in the Klamath Basin.

Comment IND285-3

Fact: The water that leaves John Boyle, Copco, and Irongate lakes is cooler than the water that comes out of upper Klamath Lake. Fact: the volcanic legacy of this water drainage causes natural phosphorus and nitrogen level to be above normal. Fact: the algae grows in the waters that feed upper Klamath Lake. Fact: Free flowing rivers are the agenda of this experiment in the sparsely populated regions of California and Oregon.

Response to Comment IND285-3

Please refer to Master Responses WQ-1 and PAP-1 for a discussion of the role of the Lower Klamath Project dams/reservoirs with respect to water quality in the Klamath River, where the information provided is supported by peer-reviewed literature citations and data.

Comment IND285-4

Fact: River populations of fish will not increase if consumption of salmon world wide are over resourced in our oceans by all nations foreign and domestic. Fact:

Salmon populations are struggling throughout the northwest so this is not a reservoir or dam issue but a over consumption issue.

Response to Comment IND285-4
Comment noted. There is no available scientific information to suggest that over-consumption is leading the current decline in anadromous salmonids. There is currently no commercial fishery for coho salmon or steelhead. Please refer to Section 3.3.2 *Aquatic Resources – Environmental Setting,* which describes the best available and most current scientific and factual data on aquatic resources in the Klamath Basin, the current status of those resources, and factors affecting habitat suitability and population abundance for aquatic resources. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND285-5
Here in lies the problem facts are not what are being used to decide the fate of these dams. Predetermined agendas that over time have morphed to fit the political ideals of the agencies and people running these agencies. I urge whatever agency that would see this letter would use common sense and decency to come to any final conclusion for this century old ecosystem slated for destruction.

NO DAM REMOVAL from the residents of the lakes.

NO DAM REMOVAL by the residents of Siskiyou county.

NO DAM REMOVAL PERIOD!!!!!!!

Response to Comment IND285-5
Please refer to Master Response GEN-1.

Robb, Carol

Comment IND106-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

I caught my first steelhead on the Klamath. I want future generations to be able to say the same!

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND106-1
Thank you for your comment. Please refer to Master Response GEN-1.

Roff, Gabriella

Comment IND225-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND225-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rogers, Anna

Comment IND77-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural di versions.

It's time to undam the Klamath!

Response to Comment IND77-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rogers, Hamilton

Comment IND439-1
I strongly support tl1e full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND439-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rogers, Mike

<u>Comment IND334-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND334-1
Thank you for your comment. Please refer to Master Response GEN-1.

Romberger, Christian

Comment IND119-1
I strongly support the full removal of the lower four Klamath River dams. The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only economically viable project alternative that will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

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Response to Comment IND119-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rood, Edson

Comment IND199-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND199-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rosenberg, Bob

Comment IND85-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND85-1
Thank you for your comment. Please refer to Master Response GEN-1.

Rusert, Frieda

Comment IND221-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND221-1
Thank you for your comment. Please refer to Master Response GEN-1.

Ryan, Bill

Comment IND83-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undarn the Klamath!

Response to Comment IND83-1

Thank you for your comment. Please refer to Master Response GEN-1.

S., Ron

<u>Comment IND281-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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It's time to undam the Klamath!

Response to Comment IND281-1
Thank you for your comment. Please refer to Master Response GEN-1.

Salkas, Jim

Comment IND410-1
I am strongly in favor of the proposed removal of dams on the Klamath River. The restoration of the salmon runs on the Klamath River will be greatly enhanced with the removal of these dams increasing upstream nesting opportunities and improved riparian ecology.

Response to Comment IND410-1
Thank you for your comment. Please refer to Master Response GEN-1.

Salle, Nicholas

Comment IND327-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND327-1
Thank you for your comment. Please refer to Master Response GEN-1.

Schaaf, Cody

Comment IND123-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND123-1
Thank you for your comment. Please refer to Master Response GEN-1.

Schadlich, Daisy

Comments IND155-1 and IND131-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comments IND155-1 and IND131-1

Thank you for your comment. Please refer to Master Response GEN-1.

Schmidt, Bill

Comment IND180-1

The Klamath River is a NatuRlay A upSide Down River. With worm, PoulateD, + Low oxygen At the Head Watters (coming out of Oregon) thare At the mouth.

In your Sienc Reports the watter Below the Dams is cleaner than Above them. Except For two time A year. When the watter Head to Be cooler + more Oxyegon. Why Not Draw the watter out of Iron Gate ReservoR At the Cooler Leveal that the watter is At the DesiReD Cooler temiture + Run over Rifels to At Oxygon to the watte At the two time A year? In Doing so the watter would Be good All year.

Response to Comment IND180-1

Thank you for your comment. Please refer to Master Responses WQ-1, and WQ-2. Additionally, the Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *[Alternatives Selection/Overview]* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

Comment IND180-2

In All the Meetting And what I Have Herd And Read there is Nothing proposed to clean the River Watter Better or As Mutch As the Dam's.

If Not How can A Board in charge of Clean watter Even Intertain the Idea oF Dam Removal with A clear Conision?

Response to Comment IND180-2

Please refer to Master Responses WQ-1 and PAP-1. Please also refer to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* for analysis of the water quality potential impacts and mitigation measures under the Proposed Project. As analyzed in Section 3.2.5 *Water Quality – Potential Impacts and Mitigation*, the three significant and unavoidable impacts to water quality are all limited to the short-term (i.e., one to three years before dam removal, dam removal year 1, dam removal year 2, and post-dam removal year 1) and there are no long-term significant and unavoidable impacts to water quality under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment IND180-3

Down Below Happy Camp the watter Quality is Better Becaus of the PulouteD watter is mixed with more clean watter. In This thought of oulting PulouteD watter with clean. What About all the clean watter that is DiverteD to the Rouge Valley FRome the upper Klamath watter SHead?

Response to Comment IND180-3

As a potential long-term approach to improving water quality in the Klamath River, the suggestion in the comment to dilute water in the Klamath River in California using water that is currently diverted from Jenny Creek, a tributary to the Klamath River, into the Rogue River Valley in Oregon, does not meet screening levels of feasibility. There is no project proponent with the authority to implement it and no analysis of water quantity needed to sufficiently improve the mainstem Klamath River water quality as suggested by the comment.

Furthermore, the suggestion made in the comment is not appropriate as a mitigation measure for short-term water quality impacts due to dam removal under the Proposed Project. Please refer to TR18-6 for a discussion of how additional Klamath River flows would have a minimal to no reduction in the suspended sediment concentrations (SSCs) during drawdown that cause a short-term significant and unavoidable impact to water quality (Potential Impact 3.2-3) and additional flows would potentially increase the duration that suspended sediment concentrations exceed the threshold of significance by transporting more reservoir sediments downstream. The short-term significant and unavoidable decrease in dissolved oxygen that would occur under the Proposed Project (i.e., Potential Impact 3.2-9) is due to high suspended sediment concentrations during reservoir drawdown, so this potential impact would not be substantially reduced by river dilution flows since suspended sediment concentrations would not be substantially reduced by additional flows. The short-term significant and unavoidable increase in water temperature and decrease in dissolved oxygen downstream of the Klamath River confluence with Fall Creek under the Proposed Project (i.e., Potential Impact 3.2-17) also would not be substantially reduced by river dilution flows since Fall Creek Hatchery (FCH) operations would potentially result in a localized increase in water temperature and decrease in dissolved oxygen as Fall Creek flows enter the mainstem Klamath River regardless of the magnitude of Klamath River flows.

This comment does not introduce a feasible project alternative or mitigation measure considerably different from others previously analyzed that would clearly lessen the environmental impacts of the project (CEQA Guidelines Section 15088.5(a)(3)).

Comment IND180-4

As to the Idea of Large NumBer oF Mile of sponing Above Iron Gate. You Have NatuRal Barrier. Like ReaFs + Hat SpRing Above Iron Gate Dam.

In the Arkoligal FinD oF ImDiPle Camps on up the River they FounD Fish Skellitons with No Head's. I have Herd Shasta Indians Say the caut Fish Down By the Shasta And tRape them For Obisideon with the upper Klamath Indians.

When Iron Gate Was Built there was Fund + Plans to Build A Fish Labber. The Research At that time Concluted that Not Be of Mutch use to warent iT. Why is this not consider?

Response to Comment IND180-4

Please refer to Master Responses AQF-4 and AQF-11.

As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, there is no evidence of a natural reef at J.C.Boyle that historically blocked upstream migration of salmonids. The final Section 3.3 *Aquatic Resources* is presented in Volume III Attachment 1.

Comment IND180-5

Since the Fish Number Are Down why is their omleg 3 BeDs a Iron gate Hachry Being uses Rather than the Full 12? Everyone Points to A larg Fish Run. Back when Hachings wer in Full operaton with Rearing Bed up + Down the RiveR.

BeSiDe we All Know the lerger + Fish Loss is in the Ocean. Why Not Do Like wasiton + Alaska And Buld Hacherys to Flood more Junivels out to the ocean, For a Larger RetuRn?

Response to Comment IND180-5

Please refer to Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries* for a description of current Iron Gate Hatchery operations, including a discussion of the net effect of hatchery releases on naturally occurring fish stocks. The final Section 3.3 *Aquatic Resources* is presented in Volume III Attachment 1.

Comment IND180-6

With the Dam's + manament their can Be Clean watter. With out no change.

Response to Comment IND180-6

Please refer to Master Responses WQ-1 and PAP-1.

Comment IND180-7

I Can Not JustiFy How You Can give a clean watter CenteFact with sound Judment

Response to Comment IND180-7

The comment does not focus on the sufficiency of the EIR in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated (CEQA Guidelines section 15204(a)).

Please note that the Klamath River Renewal Corporation (KRRC) has included a Water Quality Monitoring Plan in their proposed Definite Plan (Volume II Appendix B: *Definite Plan – Appendix M*) that would assess the Proposed Project's impacts to water quality. Volume I Section 2.7.8.7 *Proposed Project – Proposed Project – Water Quality Monitoring and Construction BMPs* (pages 2-97 to 2-99) provides a general summary of the water quality monitoring proposed in the Definite Plan, and Section 3.2.5 Water Quality – Potential Impacts and Mitigation provides a discussion of water quality monitoring with regards to the individual water quality parameters (Potential Impact 3.2-1 for water temperature; Potential Impact 3.2-3 for suspended sediments; Potential Impact 3.2-7 for nutrients; Potential Impact 3.2-9 for dissolved oxygen; Potential Impact 3.2-11 for pH; Potential Impact 3.2-12 for chlorophyll-a and algal toxins; and, Potential Impact 3.2-14 for inorganic and organic contaminants). The final Section 3.2 Water Quality is presented in Volume III Attachment 1. The State Water Board has authority to review and approve any final Water Quality Monitoring Plan through its water quality certification under Clean Water Act (CWA) Section 401.

Further, the State Water Board has issued a draft water quality certification which sets forth water quality monitoring, adaptive management, and compliance requirements for any Water Quality Monitoring Plan to meet, as Condition 1 and Condition 2. The Oregon Department of Environmental Quality (ODEQ) has issued a final water quality certification that sets forth water quality monitoring and adaptive management conditions for points upstream of California. Comments on the California Draft Water Quality Certification for the Lower Klamath Project should be submitted to the State Water Board's Water Quality Certification Program following the instructions provided at https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/lower_klamath_ferc14803.html.
The Oregon Water Quality Certification for the Lower Klamath Project is available at https://www.oregon.gov/deq/FilterDocs/ferc14803final.pdf.

Schoettgen, Scott

Comment IND260-1

Thank you for all of your work and deliberation in pursuit of just and sustainable water management practices in California. I am writing in support of the removal of the Klamath River Dams and subsequent restoration of the Klamath River system.

As large dams like the Klamath Dams, and the Lower Elwha Dam in Washington come down, I encourage the state water board to leverage our research institutions to their fullest capabilities studying the long term effects on local environment (climate) and economy.

Here are some interesting studies to consider in regards specifically local climate temperatures and greenhouse gases.

"The interaction of rivers and urban form in mitigating the Urban Heat Island effect: A UK case study"
https://www.sciencedirect.com/science/article/pii/S0360132312001722

"Significant cooling effect on the surface due to soot particles over Brahmaputra River Valley region, India: An impact on regional climate"
https://www.sciencedirect.com/science/article/pii/S0048969716305770?via%3Dihub

I've also seen estimates that upwards of 10% of the world's methane gas emissions come from the breakdown of organic matter sitting stagnant in reservoirs that wouldn't exist if the rivers were flowing freely.

In regards to economy...there are without a doubt substantial opportunities in water conservation technology development. The resent studies in the Tulare Valley showed significant increases in crop yields and decreases in water use when pressurized water systems were used. This is just the tip of the iceberg when you start considering other developments like large scale hydroponics and non-reservoir off-drainage water storage.

California prides itself on being the innovation Mecca of the world. Developments in water technology can be utilized all around the world and provide massive economic potential for business here in California.

Response to Comment IND260-1
Thank you for your comment. Please refer to Master Response GEN-1.

Schramm, Steve

Comment IND243-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND243-1
Thank you for your comment. Please refer to Master Response GEN-1.

Schug, Axel

Comment IND81-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND81-1
Thank you for your comment. Please refer to Master Response GEN-1.

Schweitz, Joshua

Comment IND396-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND396-1
Thank you for your comment. Please refer to Master Response GEN-1.

Sedlock, Evan

Comment IND210-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND210-1
Thank you for your comment. Please refer to Master Response GEN-1.

Segelke, Trevor

Comment IND204-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND204-1
Thank you for your comment. Please refer to Master Response GEN-1.

Self, Ann

Comment IND76-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND76-1

Thank you for your comment. Please refer to Master Response GEN-1.

Shadden, Bryan

Comment IND104-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND104-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shank, Amelia

Comment IND71-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND71-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shaw, William

Comment IND184-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND184-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shell, Christopher

Comment IND121-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND121-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shields, Thomas

Comment IND226-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND226-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shin, Donald

Comment IND189-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND189-1
Thank you for your comment. Please refer to Master Response GEN-1.

Shoop, Carter

Comment IND107-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND107-1

Thank you for your comment. Please refer to Master Response GEN-1.

Sieber, Michael

Comment IND338-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND338-1
Thank you for your comment. Please refer to Master Response GEN-1.

Sievert, Jane

Comment IND424-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND424-1
Thank you for your comment. Please refer to Master Response GEN-1.

Silver, Dan

Comment IND137-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND137-1
Thank you for your comment. Please refer to Master Response GEN-1.

Simon, James

Comment IND428-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND428-1

Thank you for your comment. Please refer to Master Response GEN-1.

Sinclair, Kimberly

Comment IND275-1

I'm at a loss regarding the blatant disregard for the communities that have spoken up against the dam removal project.
They have expressed their concerns for their livelihood, property value, aesthetic value, water rights, home safety as it pertains to fire, recreation, farming, drought concerns, and so many other concerns. They have almost unanimously voted in opposition to the removal of the dams, yet for some reason there is still a good chance that the removal project could still move forward.

Response to Comment IND275-1

Thank you for your comment. Please refer to Master Response GEN-1. As required under CEQA, the EIR analyzes 22 environmental resources (see list in Volume I Section 3.1 *Introduction* page 3-1), including the topics mentioned in the comment (i.e., aesthetic resources, water supply and water rights [including consideration of drought conditions], wildfire-related hazards, recreational resources, and agricultural resources. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines, section 15131(a)). However, to inform the public and decisionmakers regarding the potential economic consequences of the Proposed Project, the EIR includes Section 5.4.1 *Consideration of Economic Information* *for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Please also refer to Master Responses WSWR-1, WSWR-3, HAZ-2, and REC-1.

Comment IND275-2
In addition, I have seen letters to residents around the lake concerning possible landslides as a direct result of the lake removals.

Response to Comment IND275-2
Regarding potential for landslides, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-3 (pages 3-761 to 3-765) and to Master Response GEO-2.

Comment IND275-3
Furthermore, I have read over the EIS that was submitted and don't believe that their research, assessment, and plans, are even close to complete. As a graduate of natural resource management at OSU, I understand the implications of smaller dam removals , and what they entail. I also have seen first hand what kind of aftermath they can leave behind, both environmentally and economically.

Response to Comment IND275-3
This comment raises a concern that the research, assessment, and plans related to dam removal are incomplete, and that dam removal can environmental and economic impacts. Please note that comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation. Additionally, please refer to response to comment IND275-1.

Comment IND275-4
I have also seen the benefits of fish ladders on the Columbia River, which would seem a way better option at this time.

Response to Comment IND275-4
Please refer to Volume I Section 4.4 *Continued Operations with Fish Passage Alternative* (pages 4-99 to 4-180), which analyzes the provision of fish passage for the Lower Klamath Project dams using fish ladders.

Comment IND275-5
These lakes have created a working ecosystem for 100years, with aquatic life, water foul, wildlife - such as eagles, osprey, pelicans, deer, mountain lions, bears, and so many other things that rely on the lake for their sustenance.

Response to Comment IND275-5
Please refer to Master Response TER-1.

<u>Comment IND275-6</u>
I implore you to please consider the people and the environment in this particular situation. There are other options that would be far more beneficial to both the environment and the people .

Response to Comment IND275-6
Please refer to Master Responses GEN-1 and GEN-2.

Skenes, Joshua

<u>Comment IND395-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND395-1
Thank you for your comment. Please refer to Master Response GEN-1.

Skinner, R.B.

<u>Comment IND305-1</u>
I believe it is vitally important to remove the dam's that have affect native fish and wildlife for far to long. Hatchery's don't work and I am tired of paying for them.

Please consider removal for the future generations, if you don't it will be on your watch. You have a chance to make a change for the better, can you live with that possibility of loosing a natural resource for ever? I couldn't.

Give Nature a chance.

Response to Comment IND305-1
Thank you for your comment. Please refer to Master Response GEN-1.

Slightom, Bruce

Comment IND102-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND102-1
Thank you for your comment. Please refer to Master Response GEN-1.

Smaldino, Eric

Comment IND205-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND205-1

Thank you for your comment. Please refer to Master Response GEN-1.

Smith, Harry

Comment IND438-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND438-1
Thank you for your comment. Please refer to Master Response GEN-1.

Smith, Karri

Comment IND387-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND387-1
Thank you for your comment. Please refer to Master Response GEN-1.

Solway, Sean

Comment IND257-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND257-1
Thank you for your comment. Please refer to Master Response GEN-1.

Sommer, Karen

Comment IND315-1
My husband and I strongly support the removal of dams on the Klamath River, for the health of the river and the health of the fish. The scientific studies show that it would not harm the towns nearby.

Response to Comment IND315-1
Thank you for your comment. Please refer to Master Response GEN-1.

Sosnove, Nancy

Comment IND331-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND331-1

Thank you for your comment. Please refer to Master Response GEN-1.

Sowell, Margaret

Comment IND361-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND361-1
Thank you for your comment. Please refer to Master Response GEN-1.

Spaller, William

Comment IND183-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) a:ffinns that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND183-1
Thank you for your comment. Please refer to Master Response GEN-1.

Spurr, Jeffrey

Comment IND420-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply witl1 water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND420-1
Thank you for your comment. Please refer to Master Response GEN-1.

Stanley, Brent

Comment IND88-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND88-1
Thank you for your comment. Please refer to Master Response GEN-1.

Stauss, Arthur

<u>Comment IND78-1</u>

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND78-1
Thank you for your comment. Please refer to Master Response GEN-1.

Steffan, Fred

Comment IND219-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND219-1
Thank you for your comment. Please refer to Master Response GEN-1.

Steinhart, John

Comment IND64-1
Dear State Water Resources Control Board,

I strongly support saving Scott dam at Lake Pillsbury. Keeping this dam is way more beneficial then destroying it. The people of Potter Valley have been depending on this water for a hundred years. Without the water from Scott dam. Potter Valley would dry up. Also Lake Mendocino would go dry 60 percent of the time!

Due to climate change and global warming, destroying Scott dam would actually have devastating impacts on Salmon in the Eel river. In the summer months Scott dam releases cold oxygenated water for fish to survive. Without the dam, the upper Eel river would become a small trickle in the summer months killing fish due to lack of oxygen.

Wildlife depends on Lake pillsbury, Elk, Eagles, Bear, Deer, Mountain lion, are all well established thanks to Lake Pillsbury.

Please save Scott dam and Lake pillsbury !

Sincerely,

John Steinhart

Response to Comment IND64-1
This comment was intended for a different project and was submitted for this project in error. It therefore has been omitted from the record.

Stewart, James

Comment IND427-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply witl1 water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND427-1
Thank you for your comment. Please refer to Master Response GEN-1.

Stokes, John

<u>Comment IND402-1</u>
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND402-1
Thank you for your comment. Please refer to Master Response GEN-1.

Street, Bill

Comment IND84-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND84-1
Thank you for your comment. Please refer to Master Response GEN-1.

Suarez, Alicia

Comment IND69-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND69-1
Thank you for your comment. Please refer to Master Response GEN-1.

Swan, Tim

Comment IND218-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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It's time to undam the Klamath!

Response to Comment IND218-1
Thank you for your comment. Please refer to Master Response GEN-1.

Sway, Scott

Comment IND259-1
California: Approve Klamath Dam Removal 401 Permit

I am writing to you to comment on the Draft EIR for the removal of the 4 dams on the Klamath River.

I urge the Water Resources Control Board to approve the 401 Permit and let's get those dams removed from the Klamath River.

We need to bring the Salmon back to healthy population levels. Lots of Salmon is a win win for everyone in our region. Environmentally, Economically, Culturally and it's also the right thing to do.

Response to Comment IND259-1
Thank you for your comment. Please refer to Master Response GEN-1.

Teakle, Ken

Comment IND380-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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It's time to undam the Klamath!

Response to Comment IND380-1
Thank you for your comment. Please refer to Master Response GEN-1.

Tomlinson, Michael

Comment IND337-1
The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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It's time to undam the Klamath!

Response to Comment IND337-1
Thank you for your comment. Please refer to Master Response GEN-1.

Tone, Jerry

Comment IND414-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND414-1

Thank you for your comment. Please refer to Master Response GEN-1.

Tontz, Rick

Comment IND296-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND296-1
Thank you for your comment. Please refer to Master Response GEN-1.

Toretta, Tom

Comment IND209-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND209-1
Thank you for your comment. Please refer to Master Response GEN-1.

Torre, Robert

Comment IND284-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND284-1
Thank you for your comment. Please refer to Master Response GEN-1.

Toth, Rob

Comment IND267-1
I am a fly fisherman as well as a small scale miner and have conducted both activities on the Klamath river during my 55 year lifetime. I'm all for protecting the environment and its fish, but not at the cost of illogical or unfair regulations. I understand that the recently released DEIR on the Klamath River dam removal project determined that, over the 24 months following the proposed removal,

there would be zero impact to water quality despite an estimated 20-30 million cubic yards of sediment being flushed through the system.

I also understand that the moratorium placed on gold dredging in the Klamath River was supported by the theory that dredging would have a negative impact on water quality, both from sediment as well as heavy metals being stirred up, despite the fact that it would likely take generations for 4" dredges to produce the same amount of sediment that the dam removal project would.

So my question is this: how can the 20-30 million cubic yards of sediment be determined to have no impact on water quality while that of a limited number of gold dredges scattered throughout the Klamath system be determined to have a detrimental affect so severe that a moratorium was placed on their usage?

I look forward to your answer to this question.

Response to Comment IND267-1

Thank you for your comment. Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 finds that there would be a significant and unavoidable impact to water quality in the short-term due to release of reservoir sediments currently trapped behind the Lower Klamath Project dams, but the reservoir sediments would not continue to be a source of suspended sediments that result in an exceedance of water quality objectives in the long-term. As explained in Potential Impact 3.2-3, modeling indicates that the suspended sediment concentrations (SSCs) would resume modeled natural background levels by the end of post-dam removal year 1. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Additionally, Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-13 includes implementation of Mitigation Measure WQ-2 and WQ-3 to reduce the potential for short-term impacts due to exposure to inorganic and organic contaminants in the Middle and Lower Klamath River and the Klamath River Estuary during and after reservoir drawdown to a less than significant level. As explained in Potential Impact 3.2-13, there would be little to no long-term potential for adverse impacts to human health from exposure to river water due the release of inorganic or organic contaminants associated with sediments deposits behind the Lower Klamath Project dams because potential exposure would be associated with elevated suspended sediment concentrations and modeling indicates that SSCs would return to background levels (i.e., existing conditions) by the end of post-dam removal year 1 under all water year types. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Please refer to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* for further discussion of the short-term and long-term water quality potential impacts due to the release of sediments currently trapped behind the Lower Klamath

Project dams (Potential Impact 3.2-2 for water temperature; Potential Impact 3.2-3 for suspended sediments; Potential Impact 3.2-7 and 3.2-8 for nutrients; Potential Impact 3.2-9 and 3.2-10 for dissolved oxygen; Potential Impact 3.2-11 for pH; Potential Impact 3.2-12 for chlorophyll-a and algal toxins; and, Potential Impact 3.2-13 and 3.2-14 for inorganic and organic contaminants). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

This comment raises concerns with gold dredging activities in the Klamath River. Comment noted.

Trafican, Jeffrey

Comment IND418-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND418-1

Thank you for your comment. Please refer to Master Response GEN-1.

Triska, Mark

Comment IND352-1

I strongly support the full removal of the lower four Klamath River darns. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND352-1

Thank you for your comment. Please refer to Master Response GEN-1.

Tucker, Scott

Comment IND258-1

I strongly support the full removal of the lower four Klamath River darns. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND258-1
Thank you for your comment. Please refer to Master Response GEN-1.

Turner, Eli

Comment IND202-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND202-1
Thank you for your comment. Please refer to Master Response GEN-1.

Turner, Todd

Comment IND211-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

If the Hoopa and Yuroks would police the so called subsistence gill net fishing it would go a long way to helping this fishery. Lots of adult steelhead also end their return to spawn in the nets.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

Undam the Klamath!

Response to Comment IND211-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND212-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND212-1
Thank you for your comment. Please refer to Master Response GEN-1.

Umeda, Marc

Comment IND362-1
How incredible it must be for you to sit in a position, at this moment in time, capable of making a decision that is going to MAKE HISTORY! You are too well aware of the BENEFITS TO NATURE for me to even discuss them. You also know that ALL STAKEHOLDERS AGREE that dmn removal is required. SIEZE THIS MOMENT! Show the world that California knows how to make the hard decisions mid LEAD THE WORLD by removing the Klamath dams. When you do, the WORLD WILL FOLLOW!

Response to Comment IND362-1
Thank you for your comment. Please refer to Master Response GEN-1.

Van De Hey, Abigail

Comment IND65-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND65-1
Thank you for your comment. Please refer to Master Response GEN-1.

Vincent, Bruce

Comment IND103-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND103-1
Thank you for your comment. Please refer to Master Response GEN-1.

Volk, Grant

Comment IND442-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND442-1

Thank you for your comment. Please refer to Master Response GEN-1.

Vorik, Dmitriy

Comment IND176-1

My name is Dmitriy Vorik and apologizing ahead of time for my English since it is my fours language. I like to tell you about one of the biggest scam happening now in California. As you know we have crazy wildfires in last years and there is shortage of drinking water.

In 2020 l environmentalists are going to remove three hydroelectric dams in California and one in Oregon. This dams are located on Klamath river.
This project was given by Jerry Brown to KRCA non-profit corporation owned by environmental fanatics.

Response to Comment IND176-1

Thank you for your comment. Please refer to Master Responses HAZ-2 for a discussion of the potential for increased wildfire risk due to the loss of the Lower Klamath Project reservoirs under the Proposed Project. With respect to drinking water, please refer to Volume I Section 3.8 *Water Supply/Water Rights* (pages 3-667 to 3-684) for information regarding the potential effects of the Proposed

Project on surface water supply availability for existing water rights, including drinking water.

Comment IND176-2

According KRCA removal of the dams will cost about $500 million but we all know how government operates with taxpayers money and it will cost over billion.

Response to Comment IND176-2

Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines section 15131(a).

Comment IND176-3

The environmentalist simply have an agenda to destroy all dams in USA and it has nothing to do with the saving Salmon. Salmon population is very healthy on Klamath River. This is my arguments why dams must stay in place:

Response to Comment IND176-3

The status of anadromous salmonid populations in the Klamath River are described in Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND176-4

Three out of four dams providing clean renewable energy. You can't go "greener" than that.

Response to Comment IND176-4

Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Comment IND176-5

Since 1970 population in California was doubled from 20 to 40 million and no single reservoir was built. In 2022 each resident of California will be limited by only 55 gallons a day and in 2024 by only 50 gallons. Thanks to Gov. Brown. Two huge freshwater reservoirs, Iron Gate and Copco lake will be flush to the ocean.

Response to Comment IND176-5

Please refer to Volume I Section 3.8 *Water Supply/Water Rights* (pages 3-667 to 3-684) for information regarding the potential effects of the Proposed Project on surface water supply availability for existing water rights, including drinking water.

<u>Comment IND176-6</u>
The wildfires are destroying property's and lives of the residents of California . Firefighters using water from this reservoirs to save our lives.

Response to Comment IND176-6
Please refer to Master Response HAZ-2.

<u>Comment IND176-7</u>
This dams preventing from floods in raining season. Without dams fire and flood insurance will go to sky for local residence. Also the level of water wells will go down for locals.

Response to Comment IND176-7
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines section 15131(a). However, to inform the public and decisionmakers regarding the potential economic consequences of the proposed project, Volume I includes Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value. Please also refer to Master Responses FLD-1 and GRW-1.

<u>Comment IND176-8</u>
The month of September is one of the driest month of the year and that's when the Salmon heading from the ocean to the spawning grounds. This time of the year dams releasing cold water toward the ocean to help Salmon.

Response to Comment IND176-8
As described in Section 3.3.5.4 *Aquatic Resources – Potential Impacts and Mitigation – Water Temperature* the Proposed Project is predicted to result in cooler water temperature in the fall compared with existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comment IND176-9</u>
The upper Klamath river is naturally contaminated from Klamath Lake and several hot springs located above Copco Lake. Upper Klamath water is to warm for Salmon.

Response to Comment IND176-9
Please refer to Master Responses WQ-1. Please also refer to Section 3.2.2 *Water Quality – Environmental Setting* and Appendix C *Water Quality Supporting Technical Information* (pages C-1 to C-119) for further information

about the water quality variations in the Klamath River from J.C. Boyle Reservoir to the Pacific Ocean, including data quantifying water temperature changes in the Klamath River from the natural hot springs upstream of Copco No. 1 Reservoir. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment IND176-10

When I talk to upper Klamath Indian tribes they mentioned to me that even without dams they never so any Salmon coming up so far. There is a good reason why they call Copco Lake lake not a reservoir. It was a 30 foot waterfall before the dams been build and Salmon will never jump over.

Response to Comment IND176-10

As described in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, there is no evidence of an impassible barrier at the location of Copco No. 1 Dam that historically blocked upstream migration of salmonids. Please refer to the available data on historical abundance of salmon in the Klamath River watershed prior to Lower Klamath Project construction, as summarized in the Section 3.3.2.1 *Aquatic Resources – Environmental Setting – Aquatic Species – Anadromous Fish Species*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-4.

Comment IND176-11

By destroying Iron gate dam they will destroy fish hatchery. Every year hatchery releases millions of baby salmon steelhead and trout back in to the system. Plus hundreds of Pacific corporation and hatchery workers will have to look for another job.

Response to Comment IND176-11

The Iron Gate Hatchery operations under existing conditions are described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-2.

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects, such as reductions in jobs, from implementing a project (CEQA Guidelines section 15131(a)).

Comment IND176-12

By removing dams they will contaminate the hole river with a settlement from the lakes. Not only Salmon population will be destroyed for many years but also endangered Green Sturgeon.

Response to Comment IND176-12
The Iron Gate Hatchery operations under existing conditions are described in Section 3.3.2.3 *Aquatic Resources – Environmental Setting – Habitat Attributes Expected to be Affected by the Proposed Project – Fish Hatcheries*. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Response AQF-2.

Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects, such as reductions in jobs, from implementing a project (CEQA Guidelines section 15131(a)).

Comment IND176-13
This is not very politically correct to say but the native Indians are catching hundreds of thousands of Salmon by using gill nets. The department of fish and wildlife of California has no authority to count legal catch of native Indians. And since they using local Indian police nobody can control them.

Response to Comment IND176-13
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project (CEQA Guidelines section 15131(a)).

Comment IND176-14
Many people including myself my friends and my family using this reservoirs for recreation such as boating, fishing, hunting...... Siskiyou county will lose ton of tourist on the top of losing money from the property taxes since the value of the properties went down dramatically.

Response to Comment IND176-14
Please refer to Master Response REC-1. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects, such as reductions in property values, loss of property tax revenues, and increases in energy costs, from implementing a project. (CEQA Guidelines section 15131(a)).

Comment IND176-15
Majority of Siskiyou residents voted against dam removal and our voices have been ignored as always.
Residents of local communities are devastating and we need your help.
PLEASE help us. Let know the world and Trump administration what's going on here. We counting on you.

Response to Comment IND176-15
Please refer to Master Response GEN-1.

Waite, Ryan

Comment IND265-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND265-1
Thank you for your comment. Please refer to Master Response GEN-1.

Walden, Charlene and James

Comment IND109-1
We purchased our property in Siskiyou County at Iron Gate Lake Estates in 1999. We began our fight to save the Dams on the Klamath River in 2003-2004, we then built our home at Iron Gate Lake Estates in 2005. We have one of the best wells ever drilled for our water and now the KRRC is wanting to put a meter of some sort into our well to see if Dam Removal will effect our water, levels, silt etc... We have declined this procedure and will continue to fight the Dam Removal. As a resident and property owner we implore you to please stop the removal of these Dams.

Being raised down river since the 60's we understand what the river can do during very wet years and very dry years. We also know how the hydroelectric dam is providing clean energy, renewable energy to over 70,000 residents and businesses in Northern California and Southern Oregon. The Dams play a very vital part to this county.

As a resident and property owner here in Siskiyou County I implore you to please stop the removal of these dams. I feel that the real reason behind the removal is more of one of dollars than it is a betterment for the river and fish. The dams play a very vital part to this county. They provide clean energy, flood control, enough water in the river for the salmon to return and spawn, water for wild fire protection, a bird and turtle refuge, and many more benefits.

Response to Comment IND109-1
Thank you for your comments. Please refer to Master Responses GEN-1, GEN-2, FLD-1, HAZ-2, and TER-1. The comments regarding renewable energy pertain to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND109-2
What happens to all of us property owners when all of this is destroyed by dam removal?? No one wants to answer our questions or concerns. Will this effect our water tables?

Response to Comment IND109-2
Please see Master Response GRW-1.

Comment IND109-3
Will all of us that have properties near the existing lakes lose our wells? Who will compensate us for our devaluation of property if our wells are gone?

Response to Comment IND109-3
Comment noted. Please note that CEQA documents analyze significant effects on the physical environment; CEQA does not address potential social or economic effects from implementing a project. (CEQA Guidelines, section 15131(a).)

Comment IND109-4
Where will the CDF and local volunteer fire departments obtain water for fighting fires? What about the current established eco-system that exists here?

Response to Comment IND109-4
Please refer to Master Responses HAZ-2 and TER-1.

<u>Comment IND109-5</u>
What about the local farmers and ranchers that depend on the lakes and rivers for crops and livestock?

Response to Comment IND109-5
Please see Master Response WSWR-1, Volume I Section 3.8.1 *Water Supply/Water Rights – Area of Analysis* (page 3-667), Volume I Section 3.8.5 *Water Supply/Water Rights – Potential Impacts and Mitigation* Potential Impact 3.8-2 (pages 3-679 to 3-680), and Volume I Section 3.15.5 *Agriculture and Forestry Resources – Potential Impacts and Mitigation* (pages 3-899 to 901). For additional information regarding groundwater supply, please refer to Volume I Section 3.15.5 *Agriculture and Forestry – Potential Impacts and Mitigation* (page 3-900) and Volume I Section 3.7.5 *Groundwater – Potential Impacts and Mitigation* (pages 3-663 to 3-665).

<u>Comment IND109-6</u>
Pacific Power have nothing to lose as they will come out on top either way this goes as does KRRC.

Response to Comment IND109-6
Comment noted.

<u>Comment IND109-7</u>
This year with all of the wildfires in Northern California and Southern Oregon these lakes were crucial in the fighting of these devastating fires. Although we were evacuated the Irongate Lake saved us and many others from total burn out. The waters from all of the lakes in this removal project were used to supply water for all of the water drops done by fire fighters. We have been speaking with the Cal-Fire employees and whether or not the big wigs in Cal-Fire agree or not is irrelevant, the employees, the ones with the boots on the ground and fighting these wildfires will tell you KRRC plans of dry hydrants and/or deep pools in the river to be used for firefighting is not a viable solution. It has been stated by a local firefighters, with concern, that in this time with the kind of fires that we have experienced and will very likely be experiencing in the future, along with the loss of life and property that we have seen, it is just beyond belief that dam removal with loss of such water resources is still on the table. The reservoirs are used every year and the loss of these resources are inconceivable, and could result in loss of life and property!

Response to Comment IND109-7
Please refer to Master Responses HAZ-2 and GEN-2

<u>Comment IND109-8</u>
In addition to the environmental impact, the fire fighting resources, potential devaluation of property, and the strong possibility of a change in the groundwater tables and loss of our wells, there is the loss of a source of clean energy from the

hydro-plant on Irongate Lake. Ex Governor Jerry Brown just signed into law that all energy in the state of California by 2045 must be from a clean energy source. So why would it be agreeable to take out an existing clean energy source only to turn around and have to build another?? This defies all logic and reasonable sense.

Response to Comment IND109-8

Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND109-9

As a resident of Irongate Lake Estates I find KRRC's plan for the removal and restoration totally unacceptable. It is filled mostly with speculation of how it will go and end up, with no sound science backing any of it up. And their plan for just piling up the debris of concrete, dirt, clay and whatever else in to hills, covering it up with topsoil and planting local plants on it to make it blend in to surroundings totally absurd. If this is so appealing to them then let them build these hills of debris in their back yards!!!!

Response to Comment IND109-9

Disposal of debris from dam removal is described in Volume I Sections 2.7.1.2 *Proposed Project – Copco No. 1 Dam and Powerhouse*, 2.7.1.3 *Copco No. 2 Dam and Powerhouse*, and 2.7.1.4 *Iron Gate Dam and Powerhouse – Staging Areas and Disposal Sites* (pages 2-30 to 2-40, 2-41 to 2-45, and 2-45 to 2-53), and the associated disposal site locations are shown on Figures 2.7-2 and 2.7-4. Present-day contours suggest that the disposal sites were originally used as borrow sites during dam construction, thus returning material to these areas could represent a return to pre-dam conditions. Please note that Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* has been revised to clarify how grading and revegetation of staging areas and onsite disposal areas included in the proposed restoration activities would affect views in the aesthetic Area of Analysis. Please refer to Volume III Attachment 1 Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation*, including Potential Impact 3.19-5, for the revisions.

Comment IND109-10

You have the opportunity to stop this tragedy now instead of waiting until it all goes terribly wrong and reaping the consequences of the error of your decision to remove these dams.

Ultimately when all is said and done and this whole scenario goes totally array we will hold YOU responsible and liable.

Response to Comment IND109-10

Please refer to Master Response GEN-1.

Wangerin, Joyce

Comment IND394-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND394-1

Thank you for your comment. Please refer to Master Response GEN-1.

Ward, Charles

Comment IND114-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND114-1
Thank you for your comment. Please refer to Master Response GEN-1.

Warner, Patrick

Comment IND316-1
An avid fisherman and outdoorsman, I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements. Additionally, this would restore many miles of affected riparian ecosystem to the benefit of thousands of people and millions of organisms.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND316-1
Thank you for your comment. Please refer to Master Response GEN-1.

Waters, Brian

Comment IND91-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undarn the Klamath!

Response to Comment IND91-1
Thank you for your comment. Please refer to Master Response GEN-1.

Webb, David

Comment IND159-1
Perhaps I missed it in the document, but in meetings and general discussion I have never seen any effort to describe the likely design life of any of the power

plants to be removed. I do know that back in the 1990's I was speaking to the operator of Iron Gate hydro plant, who at the time was struggling with trying to figure out how to remove and replace the runner in the plant, which had been weld repaired so many times that it was warped and cracking. Most plants have large hatches or other openings, and a place to park a crane so that large and heavy items can be lifted out. At the time we spoke he told me that in designing that plant, PP&L had assumed that by the time anything major needed to be replaced, nuclear plants would have made power so cheap that the plant would be abandoned instead of repaired.

All the discussion I have heard to date opposing dam removal seems to be predicated on the unspoken assumption that all these plants would continue to fill their design function forever unless removed, something that simply cannot be true. All machinery eventually reaches the point where its cost of repair cannot be recovered, and it winds up getting scrapped. The same holds true for steel, and for reinforced concrete, where eventually it too ages and cracks and is eventually irreparable.

I recall that ~ 20 years ago FERC directed operators of all high risk hydro plants to travel down the inside of their penstocks beating on them with a hammer, searching for weak spots. Sounded somewhat crude, but likely indicative that some plants' penstocks had nearly rusted through and would need difficult and expensive repairs if they were to continue in operation.

Response to Comment IND159-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND159-2
At any rate, while it is clear that for many people dam removal and related restoration work is strictly an emotional issue, (i.e. not one where opinions will change as a result of factual discussion), for those others seeking the whole picture, I think it would help to understand that the discussion is not whether the dams will be removed, but when it should be done, as eventually it must.

Response to Comment IND159-2
Please refer to response to comment IND159-1 and Master Response GEN-2.

Comment IND159-3
Another aspect affecting the useful life of the plants is the likely rate of return they will yield going forwards. Siskiyou County is right now struggling with the near complete loss of income from the sale of power from Box Canyon Dam on the Sacramento River, where PP&L is apparently showing little interest in buying the hydro power produced even for ~ $.04/kwh. This suggests that the energy market is oversupplied, at least for much of the year, and may indicate that aging plants like those on the Klamath where maintenance costs are probably rising,

have become more liabilities than assets. This aspect of the plant economics also seems to have escaped everyone's attention also.

Response to Comment IND159-3
Please refer to response to comment IND159-1.

Comment IND160-1
At the meeting in Yreka, Wayne Hammar noted that PP&L is the largest single property tax payer in the county, one of the few substantive comments I heard at the meeting. What was not clear at all was whether he was referring to all PP&L assets, (poles, lines, buildings, trucks, etc., along with real property along the Klamath and elsewhere) or just the dams and their built in equipment themselves as would be most appropriate in the context of the discussion. Can you get clarification on that and provide dollar amounts also?

Response to Comment IND160-1
Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment. Please also refer to Master Response GEN-2.

Weber, Eugene

Comment IND208-1
I strongly support the full removal of the lower four Klamath River dams.

Response to Comment IND208-1
Thank you for your comment. Please refer to Master Response GEN-1.

Weddle, Pat

Comment IND318-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The

Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND318-1
Thank you for your comment. Please refer to Master Response GEN-1.

Weeder, Julie

Comment IND391-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND391-1
Thank you for your comment. Please refer to Master Response GEN-1.

Weidenfeld, Jessica

Comment IND411-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND411-1
Thank you for your comment. Please refer to Master Response GEN-1.

Weiner, Andrew

Comment IND72-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural di versions.

It's time to undam the Klamath!

Response to Comment IND72-1
Thank you for your comment. Please refer to Master Response GEN-1.

West, Richard

Comment IND298-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND298-1
Thank you for your comment. Please refer to Master Response GEN-1.

Westberg, Paul

Comment IND312-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND312-1
Thank you for your comment. Please refer to Master Response GEN-1.

Whelan, Bruce

Comment IND96-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND96-1
Thank you for your comment. Please refer to Master Response GEN-1.

White, Adam

Comment IND66-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND66-1
Thank you for your comment. Please refer to Master Response GEN-1.

Whitton, James

Comment IND426-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND426-1
Thank you for your comment. Please refer to Master Response GEN-1.

Williamson, Peter

Comments IND307-1 and IND308-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comments IND307-1 and IND308-1

Thank you for your comment. Please refer to Master Response GEN-1.

Wilson, Eric

Comment IND203-1

I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND203-1
Thank you for your comment. Please refer to Master Response GEN-1.

Windflower, Lisa

Comment IND369-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND369-1
Thank you for your comment. Please refer to Master Response GEN-1.

Wong, James

Comment IND425-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

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Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND425-1
Thank you for your comment. Please refer to Master Response GEN-1.

Worcester, Chris

Comment IND118-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles

of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND118-1
Thank you for your comment. Please refer to Master Response GEN-1.

Wrisley, Gregg

Comment IND440-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

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Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND440-1
Thank you for your comment. Please refer to Master Response GEN-1.

Wrisley, Michael

Comment IND342-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND342-1
Thank you for your comment. Please refer to Master Response GEN-1.

Wyro, John

Comment IND401-1
I strongly support the full removal of the lower four Klamath River dams. One small step for man, one giant leap for our fisheries!

Do it!

Response to Comment IND401-1
Thank you for your comment. Please refer to Master Response GEN-1.

Yyeki, William

Comment IND181-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-tem1 benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND181-1
Thank you for your comment. Please refer to Master Response GEN-1.

Zampino, Jerry

Comment IND413-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the

project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam removal process will create temporary sediment impacts, the long-term benefits of darn removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND413-1
Thank you for your comment. Please refer to Master Response GEN-1.

Zufelt, Steven

Comment IND237-1
I strongly support the full removal of the lower four Klamath River dams. The Draft Environmental Impact Report (DEIR) affirms that dam removal is the best alternative and would comply with water quality requirements.

The Klamath is the third most productive fishery for salmon and steelhead on the West Coast. Dam removal is the only project alternative that achieves the project purpose of restoring a free-flowing river, and will re-open over 400 miles of spawning and rearing habitat for struggling salmon and steelhead. Dam removal improves water quality and complies with Clean Water Act water quality objectives.

The dams are a leading cause of salmon declines in the Klamath Basin. The reservoirs created by these dams host massive blooms of toxic algae every year, which impairs water quality and poses health risks for people and pets. The Water Board's DEIR supports what dam removal advocates have said all along - dam removal helps alleviate these conditions.

Dam removal improves water quality. This includes getting rid of the blue green algae blooms and fish disease problems below the dams. While the dam

removal process will create temporary sediment impacts, the long-term benefits of dam removal include stronger salmon runs and better water quality.

Dam removal will not affect irrigated agriculture: none of the dams slated for removal provide agricultural diversions.

It's time to undam the Klamath!

Response to Comment IND237-1

Thank you for your comment. Please refer to Master Response GEN-1.

2.4 Oral Comments and Responses – Draft EIR

This section presents oral comments received on the Draft EIR during the four public meetings held in 2019 and the State Water Board's responses to those comments. Comments written on speaker cards and written comments submitted at the public meetings are also included in this section. Comments and responses in this section are organized by meeting location. To determine which meeting location your comment is associated with, please refer to Table 2-3.

Table of Oral Comments and Responses

2.4.1 Yreka Public Meeting—February 5, 2019

This section presents comments received on the Draft EIR during the Yreka public meeting on February 5, 2019, and the State Water Board's responses to those comments. Oral comments (including written comments submitted at the public meeting) and responses in this section are organized alphabetically by affiliation name, and for individuals, by last name, first name, following the set of commenters with affiliations. To determine whether your comment is associated with another meeting location, please refer to Table 2-3.

Table of Oral Comments and Responses for the Yreka Public Meeting

California State Assemblymember, Kevin Kiley

Comment SA2-ORAL-1
Good evening. I'm Kevin Kiley. I'm a member of the State Assembly representing California's 6th Assembly District.

You know, I came to tonight's meeting with an open mind but with deep concerns about this proposed project. I'm concerned about the absence of local control. Residents of the Klamath Dam Basin have been disenfranchised. They are overwhelmingly against the dams but, instead, misguided environmentalists and bureaucrats in Sacramento and Washington are making the decision to remove them.

Response to Comment SA2-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment SA2-ORAL-2
I'm concerned that there are no good replacements. There's no plan for finding replacement water. New reservoirs on feeder streams north of Klamath Lake would cost an estimated $8 billion.

Response to Comment SA2-ORAL-2
Please refer to Master Responses WSWR-1, WSWR-2, and WSWR-3.

Comment SA2-ORAL-3
And yes, I'm concerned about environmental damage. Removing the dams would result in a significant release of sediments down the river up to an estimated 20 million cubic yards of silt. There is a risk that sediment release will cause significant environmental damage to the area south of Iron Gate dam. It could also be harmful to the salmon, a species the supporter of the removal project supposedly wants to protect.

Response to Comment SA2-ORAL-3
With respect to the release of sediments during Proposed Project dam removal, please refer to the analysis in Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources - Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and Master Response GEO-1. With respect to the potential impacts of sediment release on fish in the Klamath River, please refer to the analyses in Potential Impacts 3.3-1, 3.3-4, 3.3-7, 3.3-8, and 3.3-9 in Section 3.3.5.9 *Aquatic Resources, Potential Impacts and Mitigation Aquatic Resource Impacts.* Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

<u>Comment SA2-ORAL-4</u>

I'm concerned about economic damage. There's been inadequate analysis of the consequences of removing the dams to the economy of Siskiyou and Modoc Counties, particularly to the farmers and ranchers that rely on its water.

Over the last few decades, we've seen how misguided policies related to logging have decimated communities in this area. Removing the dams would be another blow to the region. Removing the four clean power hydroelectric facilities could also cause energy prices to rise hurting rate payers.

Response to Comment SA2-ORAL-4

Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment.

With respect to the comment's concern regarding water availability for farmers and ranchers, please refer to Master Responses WSWR-1, WSWR-2, and WSWR-3.

With respect to the comment's concern regarding energy prices, please refer to Master Response ENR-1.

<u>Comment SA2-ORAL-5</u>

But after tonight I have an even bigger concern, and that's that I see the State Water Resources Control Board which has been a source of so much misery to so many people in this state using the public comment period as a statutory box to check rather than an opportunity to meaningfully engage with the public, to listen and to learn.

[Applause.]

MR. KILEY: It's a perfect example of why so many people feel that the state only cares about our North State communities to the extent that there are tax dollars to collect or resources to purloin or lives to control. But I do want the folks that came here tonight to know that I'm fighting for you. There are a few of us that are with the State, and I'll be fighting to make sure that the fate of this project is up to the citizens of Siskiyou County.

Response to Comment SA2-ORAL-5

Comment noted.

California Trout Incorporated, Andrew Braugh

<u>Comment ORG3-ORAL-1, Speaker Card</u>

Support project

Response to Comment ORG3-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG3-ORAL-2
MR. BRAUGH: Good evening. My name is Andrew Braugh, A-N-D-R-E-W, B-R-A-U-G-H.

Thank you for your presentation. I appreciate your time tonight. I'm here on behalf of California Trout. We are a private 50—501(c)(3) that solves complex natural resources issues by balancing the needs of water, people, and fish.

Response to Comment ORG3-ORAL-2
Comment noted.

Comment ORG3-ORAL-3
I believe that an abundance of wild fish indicates healthy waters, and that healthy waters mean a better California. We strongly support this dam removal project and a free-flowing Klamath River.

Response to Comment ORG3-ORAL-3
Please refer to Master Response GEN-1.

Comment ORG3-ORAL-4
We are pleased that the Draft EIR confirms that the proposed project will have long-term benefits associated with protecting water quality which, in turn, ensures a healthier aquatic habitat, greater spawning opportunities, and a reduction in the incidence of fish disease. Many species of fish are imperiled in California and my organization is committed --

THE COURT REPORTER: Can you—I—can you back up a little? I can't hear you clearly.

MR. BRAUGH: How's that?

THE COURT REPORTER: I think so. Back up just a bit, please.

MR. BRAUGH: How am I doing now?

THE COURT REPORTER: Back up on your wording or what you were reading.

MR. BRAUGH: Back up on my wording.

Many species? Right there?

THE COURT REPORTER: Yes.

MR. BRAUGH: Many species of fish are imperiled in California and my organization is committed to restoring fisheries' vitality around the state. This project will remove the dams that now serve as barriers that block migration upstream to high quality habitat. The removal of the Copco 1 and 2 and Iron Gate dams as well as the JC Boyle dam in Oregon is the best chance to once again give native salmon and steelhead access to the clean, cold water of their historic spawning riparian habitat.

We have extensively studied the issue of the Klamath River dam removal and support scientific evidence demonstrating that fish can and will return to the upper regions of the watershed even in areas that have been blocked for decades or more.

Response to Comment ORG3-ORAL-4
Comment noted. Recolonization of salmon as a response to dam removal is discussed in Section 3.3.5.9 *Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-7, Potential Impact 3.3-8, Potential Impact 3.3-9, and Potential Impact 3.3-10. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment ORG3-ORAL-5
In addition, revival of the salmon-steelhead fisheries on this river system will provide economic benefits to the region by creating local jobs and boosting tourism and recreation in the area.

Response to Comment ORG3-ORAL-5
Please refer to Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-6 (pages 3-1013 to 3-1015) for a discussion of the potential for changes to river-based recreation including fishing under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*.

Comment ORG3-ORAL-6
Cal Trout asks that our support for the project to remove Klamath River dams be answered in this public record.

Response to Comment ORG3-ORAL-6
Please refer to Master Response GEN-1.

County of Siskiyou, Wayne Hammar

Comment LA3-ORAL-1, Speaker Card
Pacificorp is the largest taxpayer in the County, roughly $2M annually. What is the tax loss to the County with the removal of the dams? FYI, 70% of the loss will directly impact County schools. What is the loss for taxpayers with lakeside property?

Response to Comment LA3-ORAL-1

Thank you for your comment. Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment. Please also refer to Volume I Section 5.4.1 *Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Comment LA3-ORAL-2

MR. HAMMAR: Hi. My name is Wayne Hammar, W-A-Y-N-E, H-A-M-M-A-R.

I'm the Siskiyou County tax collector. I'm by no means an expert on water quality, but my questions that I would like answered have to do with some of the property taxes it will take in this county.

PacifiCorp is the largest single tax payer in the county to the tune of about $2 million which, you know, might be chump change in the Federal Government and the State Government but very important to this county.

Seventy percent of those dollars go directly to our schools, so whatever loss we'll take by the removal of the three dams and their infrastructure will directly hit our schools. Also, it will affect public safety.

And so I—I would just like to know what realistically those—those estimates would be on those property tax losses.

I've also heard—and I know it's hearsay, I can't say for a fact that—that it's been said that there's a minimal impact on property tax values in Siskiyou County, and I just don't believe that.

You can probably talk to anybody at Copco lakefront property and ask them what's going to happen when that lake disappears. I'm sure that will have some impacts. And again, in the bigger scheme of things, it may not—it may not seem large but, to our account, those are very important revenues.

So that's really my question is what, realistically, will have an affect on the property tax values here and what the removal of those dams will mean to that.

Thank you.

Response to Comment LA3-ORAL-2

Please refer to response to comment LA3-ORAL-1.

County of Siskiyou, Board of Supervisors, Brandon Criss

Comment LA1-ORAL-1

Siskiyou County appreciates the opportunity to comment on the Draft Environmental Impact Report for the Lower Klamath Project. Tonight the County's comments will be limited to highlighting a few of the concerns our Environmental Consultants, SWCA, have identified in its initial review of the Draft EIR. These are only preliminary highlights, and the County will be submitting its formal written comments to the State Water Control Resources Board at a later date, prior to February 26th.

The County's first concern is that many sections of the Draft EIR rely on future surveys and studies to identify resources or habitats that are in the project area, making the impact analysis unreliable. An EIR must include a description of the physical environmental conditions in the vicinity of the project as they exist at the time of the Notice of Preparation, or at the time of the commencement of environmental analysis. This description generally constitutes the baseline physical conditions by which a lead agency determines whether an impact is significant. Here, the EIR relies on future surveys and studies to identify wetlands, special-status plants, culturally significant plants, special-status wildlife, and groundwater wells, among others. This hinders realistic and accurate impact determinations, which are evaluated by comparing expected environmental conditions after project implementation to the existing baseline conditions. It is also very concerning that much of the underlying data that is relied on in the EIR for impact determinations is primarily decades-old data that no longer reflects existing conditions.

Response to Comment LA1-ORAL-1

Thank you for your comment. Please refer to response to comment LA9-12 for a discussion of future surveys and Master Responses WQ-4 and TER-1.

Comment LA1-ORAL-2

The County's second concern is that the Draft EIR considers a proposed project that is not yet stably defined. The Definite Plan is still being reviewed for technical adequacy, among other things, by FERC and an Independent Board of Consultants, and KRRC has recently agreed to submit an updated Definite Plan to FERC by April 29, 2019. Given the potential for changes to the Proposed Project by KRRC, or changes that may result from the pending FERC review of the Definite Plan, the project is essentially in flux and the Water Board's failure to wait for FERC's input on the Definite Plan prior to forging ahead with the Draft EIR has set the stage for an environmental analysis that is inadequate.

The Water Board's failure to wait for the final Definite Plan also creates the potential for future amendments to the Draft EIR, requiring recirculation, which results in financial hardship to economically stressed stakeholders and local agencies, such as Siskiyou County, who will be obligated to expend further *limited resources to review and respond to the new documents the Board circulates. Had the Water Board followed typical and acceptable procedural steps in developing this EIR, there would have been a significant decrease in the financial strain experienced by affected stakeholders and local agencies, including Siskiyou County.*

Response to Comment LA1-ORAL-2
Please refer to response to comment LA9-4.

Comment LA1-ORAL-3
Finally, the Draft EIR appears to use (quote, unquote) "Recommended Measures" as a substitute for feasible mitigation measures. If the Water Board is relying on these measures to reduce environmental impacts, it should refer to them as mitigation measures. Under CEQA's Guidelines, it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects. The "Recommended Measures" that are throughout the Draft EIR, appear both feasible and would lessen environmental impacts, and should be identified as "Mitigation Measures" to ensure implementation.

Response to Comment LA1-ORAL-3
Please refer to Master Response CEQ-2.

Comment LA1-ORAL-4
Again, Siskiyou County appreciates the opportunity to appear and comment on the Draft EIR and looks forward to submitting further written comments.

Response to Comment LA1-ORAL-4
Comment noted.

Comment LA1-ORAL-5
Hi, my name is Brandon Criss. I'm current Chair of the Siskiyou County Board of Supervisors.

Siskiyou County appreciates the opportunity to comment on the Draft Environmental Impact Report for the Lower Klamath Project. Tonight, the county's comments will be limited to highlighting a few of the concerns. Our nat-—our environmental consultants have identified in this initial review of the Draft EIR. These are only primary highlights and the county will be submitting its final written comments to the State Water Control Resources Board at a later date prior to February 26.

Response to Comment LA1-ORAL-5
Comment noted.

Comment LA1-ORAL-6

The county's first concern is that many sections of the Draft EIR rely on future surveys and studies to identify resources or habitats that are in the project area making the impact analysis unreliable.

An EIR must include a description of the physical environmental, environmental conditions in the vicinity of the project as they exist at the time of the Notice of Preparation or at the time of the commencement of an environmental analysis. This description generally constitutes the baseline physical conditions by which a lead agency determines whether impact is significant. Here, the EIR relies on future surveys and studies to identify wetlands, special status plants, culturally significant plants, special status wildlife, and groundwater wells among others.

This hinders realistic and accurate impact determinations which are evaluated by comparing expected environmental conditions after project implementation to the existing baseline conditions. It is also very concerning that much of the underlying data that is relied on in the EIR for impact determinations is primarily decades old data that no longer reflects existing conditions.

Response to Comment LA1-ORAL-6

Please refer to response to comment LA1-ORAL-1.

Comment LA1-ORAL-7

The county's second concern is that the Draft EIR considers a prop-—proposed project that is not yet stably defined. The definite plan is still being reviewed for technical adequacy among other things by FERC and an independent board of consultants, and KRRC has recently agreed to submit an updated definite plan to FERC by April 29th, 2019.

Given the potential for changes to the proposed project by KRRC are changes that may result from the pending FERC review of the definite plan. The project is essentially in flux and the Water Board's failure to wait for FERC's input on the definite plan prior to forging ahead with the Draft EIR has set the stage for an environmental analysis that is inadequate.

The Water Board's failure to wait for the definite plan also create the potential for future amendments to the Draft EIR requiring recirculation, which results in financial hardship to economically stress—stress stakeholders and local agencies such as Siskiyou County.

Response to Comment LA1-ORAL-7

Please refer to response to comment LA1-ORAL-2.

Comment LA1-ORAL-8

Finally, the EIR prepares to use, "recommended measures" as a substitute for feasible mitigation measures. Under CEQA's guidelines, it is the policy of the *state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects. The recommended measures that are throughout to Draft EIR should be identified as mitigation measures to ensure the implementation.*

Response to Comment LA1-ORAL-8
Please refer to response to comment LA1-ORAL-3.

Comment LA1-ORAL-9
I'm getting the hint here. Thank you for your time. And the county appreciates being able to speak on the subject. Here's my written comment.

Response to Comment LA1-ORAL-9
Comment noted.

County of Siskiyou, Board of Supervisors, Lisa L. Nixon

Comment IND60-ORAL-1
My name is Lisa, L-I-S-A, Nixon, N-I-X-O-N.

I'm speaking to you this evening as a private individual, a citizen of Yreka and Siskiyou County and as – as an individual member of the county board of supervisors.

Response to Comment IND60-ORAL-1
Thank you for your comment.

Comment IND60-ORAL-2
I echo our Board Chair Supervisor Brandon Criss' comments, because they—they were provided on behalf of our entire board.

Response to Comment IND60-ORAL-2
Please refer to responses to comments LA1-ORAL-1 through LA1-ORAL-9.

Comment IND60-ORAL-3
I do feel compelled, however, to speak to you on one aspect and this is largely extemporaneous.

I—I harken back to the comments of my grandfather and my father and my uncles about the pre-river conditions before the dams. And they—they mirror largely Mr. Cozzalio's comments that he's made to you through the years. So sometimes it's hard for me to reconcile what is happening here today.

Response to Comment IND60-ORAL-3
Comment noted.

Comment IND60-ORAL-4

I want to touch on the very important point of the phraseology used in your very detailed report, and I thank you for your care and detail, the "recommended mitigation measures. "Well, "recommended," I—I do not understand the legal ramifications of this terminology. I don't know what the legal enforceability of that terminology is. There may be some. I just don't understand it at this point.

Siskiyou County has been advocating for years—for many years before I came on the board against dam removal largely, not entirely, but largely because no one has been able to give us definitive mitigation measures that would result in the citizens of your county not holding the bag for any insufficiently mitigated negative impacts. It seems like we're moving closer to that point, but recommended mitigation measures are not good enough for me.

We are looking to all of the players in this proposal, especially the project proponent KRRC and FERC and now to our Water Board to give us certainty on what mitigation measures will be taken. We need certainty, we need them to be enforceable so that our citizens are—are not left with the adverse impact. So I thank you for your care.

Response to Comment IND60-ORAL-4

Please refer to Master Response CEQ-2.

Environmental Protection Information Center, Rogue Climate, Allie Rosenbluth

Comment ORG1-ORAL-1, Speaker Card

Remove the dams!

Response to Comment ORG1-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG1-ORAL-2

MS. ROSENBLUTH: Hello.

So first I would like to thank the California Water Board for the opportunity –

MS. RAGAZZI: Can you introduce your name and –

MS. ROSENBLUTH: —to testify on this dam removal permit site.

My name is Allie Rosenbluth, it's spelled A-L-L-I-E, Rosenbluth, R-O-S-E-N-B-L-U-T-H. And I live in Jackson County, Oregon.

I am the campaign's director for Rogue Climate, a Medford based nonprofit with over 6,000 supporters in Southern—Southern Oregon region.

Today, we are here to testify in support of the removal of all four Klamath dams. This Friday, the Oregon Climate Change Research Institute released their 2019 climate assessment which declared Southern Oregon, including parts of the Klamath River Basin, has experienced the worst impacts of climate change throughout the state.

At Rogue Climate, we believe that it is critical to reduce emission and transmission to clean energy while our communities prepare and mitigate the climate change but impact the climate change that we are already experiencing.

River water temperatures are impacting the health of the Klamath River and it's salmon population. It's clear that the dams are compounding these impacts.

In the summer, the dams/reservoirs host massive blooms of toxic algae each year posing health risks to people who are using the river.

In recent years, there have been extremely few or no salmon available for these communities. Dam removal is coupled with restoration and greenhouse gas reduction is a key to a healthy Klamath River that can support varieties of salmon populations that is critical for the Klamath, Yurok, Karuk and Hoopa Valley tribes, and as it creates jobs in fishing and tourism, that our communities in Southern Oregon and Northern California rely on.

Additionally, removing the dams would also support California's goals as they relate to environmental justice and tribal consultation. For these reasons and more, we urge the California Water Board to approve permits for the removal of the four Klamath dams.

Thank you.

Response to Comment ORG1-ORAL-2
Comment noted.

Karuk Tribe, Alex Watts-Tobin

Comment TR2-ORAL-1, Speaker Card
General support for the DEIR Acknowledging complexities of the project

Response to Comment TR2-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment TR2-ORAL-2
MR. WATTS-TOBIN: Good evening.

My name is Alex Watts-Tobin, A-L-E-X, last name W-A-T-T-S, hyphen T-O-B-I-N.

I live with the Karuk tribe which is on record as strongly advocating for dam removal.

And I just wanted to remind them—the board in my remark tonight that the Klamath Basin is a very large constituency, certainly including this area but all—but also in fact all the way from Crater Lake roughly down through Klamath Falls down through here and the downriver communities. And everybody who's living here is part of that community that depends on that river and always has.

It's part of my job to advocate for people to listen to the native people, of course, who live on the river. And I will be—I have some—in my job, I have some reservations about the DEIR and I will be making some comments on that.

But to speak personally now, as part of that big constituency, I really would like to invite some of the people from this town to come down to the hearings in Orleans and Arcata because, frankly, they get very boring when you just let—listen to people that are always "Take the dams down, take the dams down." I come up to Yreka for an interesting discussion.

The big picture of this, I think, is I—personally, I would—I'm in favor of dam removal and that I think that the DEIR has—has done a very good job of assessing the impacts.

Some of the things which I noticed in it, even if you're not inclined to listen to the native people that much, you need to listen to just the white settlers—a majority of the white settlers. Look at the Siskiyou Pioneer from the 1960s, fish were extremely abundant on this river prior to that dam removal, and that is very much on record. If you look at that, some of the comments have relied on a large amount of cherry picking this data.

The impacts also, in—it was good to see that the impacts from the drawdown of the JC Boyle Reservoir, I don't think, will have much—too much impact on the stretch of the river between JC Boyle and Copco Reservoir. It's something like calculations from JC Boyle being 381 acres, it would be only about a thousand cubic feet per second which is also well within a normal range.

So overall, I would like to amend the report and—and recommend taking out the dams.

Thank you.

Response to Comment TR2-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

Karuk Tribe, Robert J. Super

Comment TR1-ORAL-1, Speaker Card
hAve tAlKing poiNts SUPPort DAM REmoval

Response to Comment TR1-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment TR1-ORAL-2
I would like to say that the—the reports that you were given are—we have a division of natural resources that have comments about there being algae and—and to back up what you were saying. And we believe that if you take the dams out that the dams that are in there, they are—the water that goes through them has—it doesn't go to agriculture.

Response to Comment TR1-ORAL-2
Please refer to Master Response GEN-2.

Comment TR1-ORAL-3
And this last—last year, we only gathered salmon for our ceremonies. We didn't gather like we usually do. So we were trying to help our salmon get through and so we were letting them go, the Yuroks, the Karuks, and the Hoopas.

And that sediment that we talked about, you know, it will—it will affect for a little while, but our salmon will come back and they talk about when they're taking out the dams that they will be taking 'em out during the off season when the salmon aren't coming up, so we won't—the salmon won't be able to come through.

Response to Comment TR1-ORAL-3
Please refer to Master Response AQF-10 for a summary of the potential impacts to fish resulting from sediment release due to dam removal.

Karuk Tribe, Sammi Jo Goodwin

Comment TR5-ORAL-1, Speaker Card
I support removal of the four Klamath dams, As a Karuk tribal member. The Klamath river is essential to our culture and our way of life. The quality of life is measured by our movement to restore a healthy river

Response to Comment TR5-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment TR5-ORAL-2
MS. GOODWIN: Hello. My name is Sammi Jo Goodwin, S-A-M-M-I, J-O, G O-O-D-W-I-N.

I am a—I am an indigenous woman who lives here in Siskiyou County who grew up on the Klamath River. And I am here as a water protector. I come before just to testify because living here knowing the devastation of what dams have done, you know, I am all for dam removal and anything that promotes dam remov—removal.

Being close to home and having it hit home is a little bit different. You know, growing up, you know, like my father was a cultural—you know, he believes in cultural preservation. So that's what I believe in. I come from a strong legacy of that. He was a archaeologist/anthropologist, so he was out looking for artifacts, he was out scoping looking for villages, he was out scoping looking for acorns, water, and, of course, preserving our villages on the Klamath River.

I come from two very big villages on the Klamath River: The Inam, Innova Panaminik [phonetic] villages. I grew up on in Somes Bar, California, and that is where our tribe's fishery is at. That's the main fishery.

And with that, I've watched the devastation of salmon go from hundreds from pictures—seeing pictures, having big hogs and they're, like, two feet fish down to we don't have any salmon coming up. And if they are, they're tired and they're diseased and the algae from the water is in their gills.

I've also seen with my own eyes a fish kill. I've also seen devastation of elders not having their natural foods, something that was given from the Creator to our people for all to like—for all to want and all to have.

As I testify, I also testify for my children who I would love them to also have the legacy of our natural food. And being indigenous doesn't necessarily mean that I'm tied to one certain spot because my spirit is very strong. And most of our spirits are very strong as long as we pray. So each year we pray at our ceremonies and we pray for salmon and we pray for the fish and—of all kinds, the trout, the suckers, the eels. It's not just one. It's all. And it all affects us. Steelhead. For those sport fisherman, it affects you, too. Once it's gone, it's gone for all.

So when will we know that water's life and when will we not know that money cannot feed us? So I stand just here saying I testify as a Karuk indigenous woman, and I am for dam removal.

Response to Comment TR5-ORAL-2
Please refer to Master Response GEN-2.

Karuk Tribe, Taylor Tupper

Comment TR4-ORAL-1, Speaker Card
In favor of Dam Removal. Since 2006 FERC Relicencing for Klamath.

Response to Comment TR4-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment TR4-ORAL-2
MS. TUPPER: Hello. My name is Taylor Tupper, T-A-Y-L-O-R, T-U-P-P-E-R.

I'm an enrolled member of the Klamath tribes of Oregon. I traveled here tonight with my elder and my father Rayson Tupper, who is also a Modoc elder of the Klamath tribes.

My tribe has been here since time immemorial. And we have always been at the forefront in providing leadership and support towards this monumental effort of dam removal.

I would like to be here to say—as a reminder, I'm here to state that the Klamath tribes won their FERC relicensing process in 2006. This is a key component to that effort. We know those dams block our promised 1864 Treaty right resource. It re—it blocks c'iyaals, that's in our tribal language which means salmon.

We know that the Federal Government has a trust and responsibility to the tribes as stated in the Constitution of the United States, Article 6. On January 31st, 2007, my tribe was notified that two federal agencies ruled that PacifiCorp must install the fish ladders at the four Klamath dams to receive the new license for operating the hydro facilities: Iron Gate, Copco 1, Copco 2, and—and JC Boyle.

After a—after they did their own feasibility studies, they determined that dam removal was cheaper than the ladders. So that's when this came about and we were asked that question.

The win in 2007 was both instrumental and monumental to these 2019 dam removal efforts. That win will—was upheld to our treaty rights for the tribes of Oregon.

Our journey has spanned almost two decades. We recall traveling and marching with the lower river tribes to the shareholders meeting in Scotland and then to the other parts of the nation, including the capitals in Oregon, California, and Washington, D.C., all in support of salmon recovery.

My people and myself and my father refuse to walk away. Our efforts in these past few decades help contribute and pave the way to the California State legislative actions that now support dam removal.

They are fish and water people and we have been waiting for over a hundred years for the return of the salmon for our treaty right to be upheld. Still today over 100 years since Iron Gate was built in 1917, the c'iyaals have continued to travel towards their home in Klamath. And still today they break themselves at

Iron Gate. My people will continue to fight to see these salmon return. We know all things come full circle.

Remove the dams as mandated in the FERC 2006 process.

Thank you.

Response to Comment TR4-2
Please refer to Master Response GEN-2.

Karuk Tribe, Vikki Preston

Comment TR3-ORAL-1, Speaker Card
Dam removal will be positive impact to river health. Spring salmon and other salmon are at risk from a unhealthy river.

Response to Comment TR3-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment TR3-ORAL-2
MS. PRESTON: Thank you.

My name is Vikki Preston and I am from Orleans. I grew up in Orleans my whole life.

I grew up the mouth of Red Cap Creek, which is the—a major tributary to the Klamath River. So I guess you can say that my first experience with this is just being a person who would go to the river constantly every day and that—I feel like even in the short time I feel like I've been alive, I have noticed changes along the river and the way that the changes have impacted my family personally with the amount of salmon that we're able to get and—you know, year to year. And I—I think that—firstly, I think of my own family, you know, being impacted, you know, physically, emotionally by—by the health of the river specifically.

Response to Comment TR3-ORAL-2
Please refer to Master Response GEN-2.

Comment TR3-ORAL-3
So just to speak on where I'm coming from, I—I feel like the—there are many significant long-term benefits from the proposed project and the Draft EIR does include that dam removal really improves water quality. It also says that the sediment impacts will be temporary while the long-term benefits are stronger runs of salmon and better water quality.

Response to Comment TR3-ORAL-3
Comment noted.

<u>Comment TR3-ORAL-4</u>

It also clarifies that dam removal will not affect irrigated agriculture. None of the dams we are removing provide agricultural diversions. The DEIR clarifies that dam removal will not affect Salmon River flow. That's controlled further upstream by the BOR Irrigation Project.

Response to Comment TR3-ORAL-4

Comment noted.

<u>Comment TR3-ORAL-5</u>

With salmon, the Karuk tribe agrees with the key findings of this document. And we support the proposed project to undam the Klamath.

Response to Comment TR3-ORAL-5

Comment noted.

<u>Comment TR3-ORAL-6</u>

And I would really—I really appreciate the very empowering things that people have said today regarding the youth, because we were—I was in the classroom today with some of the kids in Orleans and working on an old tradition of how salmon and acorns was given to the people. And I think the importance behind this story is to remind ourselves without salmon, without acorns, without these places and taking care of these places that we're not taking care of ourselves. And I think that, you know, the kids feel this.

And it is really empowering to have them—like, this is their sense of identity and the sense of identity that I have grown up with my entire life. And it is directly tied to the health of the river. And these are the things that are being impacted negatively by the dams. But to speak to this—to speak to the hope that the kids have, just because of the hope the community has to the benefits of this happening, I think is the stronger point to be made here today.

So thank you very much.

Response to Comment TR3-ORAL-6

Comment noted.

Klamath River Renewal Corporation, Matt Cox

<u>Comment ORG14-ORAL-1</u>

MR. COX: Hi. My name is Matt Cox, M-A-T-T, C-O-X.

I'm the communications director for Klamath River Renewal Corporation, and I'm speaking tonight on KRRC's behalf.

KRRC is part of a cooperative effort to reestablish the natural vitality of the Klamath River to support all communities in the Basin.

Our job is to take ownership of the four PacifiCorp dams, remove these dams, restore – inundated lands and implement entire mitigation measures --

THE COURT REPORTER: Slow down, please. I'm having a hard time hearing you.

MR. COX: No problem.

And implement required mitigation measure in compliance with all applicable federal, state, and local laws. KRRC is seeking regulatory permits to accomplish this project, including Water Quality Certification by the State of California.

The DEIR is an impressive and thorough review of potential benefits and impacts of removal of the Lower Klamath Project hydroelectric. KRRC commends the Water Board, staff and the consultants for its work on this analysis, and we think there's quite a bit for community members and stakeholders to learn from it.

The DEI- -- excuse me – the DEI [sic] showed – the DEIR showed the proposed project to be environmentally superior compared to the six alternatives to the project that the board analyzed in terms of both project benefits and the negative impacts. The report short that most potential impacts from the project are small and short term and can be reduced with mitigation. It also shows many project effects are beneficial in the short and long term, which is an important finding for those who are interested in the long-term health of the Klamath River and the communities and ecosystems that depend on it.

The DEIR also shows the proposed project protects water quality by restoring the free-flowing condition of the river and ensures volitional fish passage and that the project would be a boom to salmon and steelhead populations. Many of the species is expected to recover following dam removal are tribal trust species that are important to the culture and health of some tribes on the Klamath River.

The DEIR also shows an expected increase in recreational and commercial fishing industries.

KRRC is pleased with these findings in the DEIR and look forward to continue work with regulators in the community to finalize the EIR and other permits and then implement the project, including mitigation measures to enhance benefits and reduce adverse impacts.

KRRC will be submitting written comments regarding this DEIR in the near future. We are encouraged that this DEIR brings KRRC one step closer to project approval.

Thank you.

Response to Comment ORG14-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Klamath Riverkeeper, Andrew Marx

Comment ORG49-ORAL-1, Speaker Card
Undamn The Klamath. Bring the Salmon Home

Response to Comment ORG49-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG49-ORAL-2
MR. MARX: Hi. I'm Andy Marx, it's A-N-D-Y, M-A-R-X.

So I'm been fly-fishing the Klamath since 1996. For the last five years, I've been a part-time fly guide. I have a full-time job as well, but during the Klamath steelhead season that's what I do with my spare time. I've also recently become a member of the Klamath River Keeper.

My first steelhead trip on the Klamath more than 20 years ago, I really didn't get it. It was a bust. We didn't catch any fish. I went down there with an old-timer local who had fished it for years. And I asked him, "Why did we come down here?" And he kind of shrugged his shoulders and said, "Well, you should have been here 20 years ago. You just couldn't beat it." Since that first trip, there's been great years and there's been terrible years.

On more than one trip, we've had to leave the river. It was pea-soup green. It wasn't fit to stand in, to fish, swim in or even really look at.

There is a book that I picked up not long after I started fishing the Klamath called California Steelhead by a guy named Jim Freeman. It was written in 1971 and he described a stretch of river down Beaver Creek that I fished year and in and year out, and he described it as the finest steelhead water in the world. And there have been years like that and there have been years when there were no fish in that run.

Dam removal will allow the Klamath salmon and steelhead access to clean, cool water above the dams. I've been up there and fished, caught trout—trout all day long until your arm's sore. And there's a reason, the water quality is there. Below Iron Gate, you couldn't buy a trout to save your life.

Sure. In October, there's some steelhead around; November, steelhead around. But for most of the year, it's uninhabitable.

The Draft EIR's conclusion is right on. The environmental cost of dam removal is outweighed by the benefits to all the beings that depend on a healthy river.

I understand the sediment issues and I – I understand that that they will impact the fly-fishing guiding business for a couple of years. I work for an outfit with a number of guides that are full-time, and it's going to impact them as well. And we're all in favor of dam removal, because we know what it's going to do to the fishing runs we depend on for economic reasons.

There used to be a vibrant economy along the river. If you drive the river, you see these closed up trailer parks, like Fishers or the Rainbow Resort, stores, Happy Camp with a faded sign that says "steelhead capital of the world." It's possible, if it's restored, the people will come back. And I think in the end, we owe it not only to ourselves but our children and all the beings that in the future are going to depend on the free-flowing vibrant river.

Thank you.

Response to Comment ORG49-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

McCloud Watershed Council, Angelina Cook

<u>Comment ORG4-ORAL-1, Speaker Card</u>
We support River Restoration for the many benefits that intact ecosystems provide. We urge Siskiyou County to leverage the tremendous economic opportunities that Klamath Restoration would provide

Response to Comment ORG4-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment ORG4-ORAL-2</u>
Good evening. My name is Angelina Cook, A-N-G-E-L-I-N-A.

I have been living in and working towards water conservation and ecosystem restoration in Siskiyou county for over 13 years. I'm speaking tonight on behalf of the McCloud Watershed Council.

We appreciate the concerns that have been expressed through this process and in this room tonight as this is a huge project and will certainly affect lives of many. Some questions, however, are likely to remain unanswered as they undoubtedly were when the dams were built.

I am grateful to the woman from Washington who traveled here tonight to speak to the success of the restoration and of the Elwha River.

When humans settled in the area that is now known as Siskiyou County, rivers flowed free from the mountains to the sea for a reason.

The economic disadvantage and environmental crises Siskiyou County and California now face are because of overengineering, ecosystems, and demanding more from nature than we are necessarily entitled to.

In short, we strongly support the removal of all four dams for the many economic and environmental benefits an intact Klamath River would provide.

We urge the State Water Resources Control Board to approve the Draft EIR. And we encourage Siskiyou County to respect our natural heritage and embrace the economic potential of river restoration and truly renewable industries.

Response to Comment ORG4-ORAL-2
Comment noted.

Mid Klamath Watershed Council, Devin Finegan

Comment ORG9-ORAL-1
MR. FINEGAN: My name is Devin Finegan, that's D-E-V-I-N, F-I-N-E-G-A-N.

Thank you for this opportunity to speak. Thank you for all the work that you guys have been doing in making sure these dams come out in a responsible way. And I appreciate and invite comments about how we feel about how that should be happening.

I am a fisheries technician with the Mid Klamath Watershed Council, so I've been on a majority of the fish-bearing streams for Weitchpec to Hornbrook. We just finished with coho surveys last week, and the numbers do not look good this year and they did not look good last year.

People are wondering if what some of this empty perfect spawning ground looks like is what extinction might look like. That is what the people on the ground are asking right now.

So the environmental impact of this dam has happened and is happening. And I hope that we can mitigate, which it sounds like there is some money and plans on how to mitigate the dam removal to mitigate the impact that has come from these dams.

It really feels like we are in a threshold right now where, if we don't make this change, it will be the extinction of the fish. And this isn't the only thing threatening the fish. Coho, who are a particular—they are on the endangered species list in a very particular kind of stream to spawn in, which is a low gradient stream that lends itself to human use.

So a lot of these streams that this endangered coho used to spawn in also have cows on them, they have logging going on in them, they have irrigation for fields. There's just—you know, there's a list of impacts that are happening. And this dam removal is something we do have power over to give them more habitat to continue living.

Hearing that the river was trashed before the dams came in is confusing to me. You know, it sounds like the river—this river and the fish in it and everybody in there has grown together over the years. And it was managed by people, the native people before the dams were in here.

And the stories I've heard of the past is that there were enough fish in there to feed tens of thousands or however many people were here without having to go to a grocery store. And the stories that I'm hearing now that there were no fish in here before the dams do not line up with my understanding of how that was.

You know, we see that PacifiCorp doesn't find us an efficient way to bring electricity in here, and that is why they are selling. And I think that that speaks to the argument of it being a reasonable way to generate electricity.

Thanks for your time.

Response to Comment ORG9-ORAL-1
Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Office of Assemblymember Brian Dahle, Bruce Ross

Comment SA1-ORAL-1
Bruce Ross. That's B-R-U-C-E, R-O-S-S. And I'm the district director for Assemblyman Brian Dahle, and that's B-R-I-A-N, D-A-H-L-E.

The Assemblyman regrets that he wasn't able to be here tonight, but he did ask me to speak on his behalf.

Response to Comment SA1-ORAL-1
Thank you for your comment.

Comment SA1-ORAL-2
A lot of people are going to have a lot to say, so I will be brief. You know, this—this debate and discussion and analysis of this proposed dam removal—removal project has been going on for 10 to 15 years now, more like 15 at this point. And there's been a lot of reports and a lot studies and this is the latest analysis of it.

Given that really exhaustive background, one of the most recognized things in the EIR is a section about issues to be resolved. And there's one extraordinary sentence in it and it says, "The degree of environmental impacts and benefits for *the proposed restoration project are issues to be resolved as is the potential for mitigation of impacts both within and outside of the Water Board's purview."*

And I'll—I'll be honest, it's striking to read an EIR—I mean, the point of it is to resolve those impacts and to find mitigations for them. So if the Draft EIR doesn't have all that information done, it—it seems that it's just not a finished product yet, so I don't know why it's being circulated. And I appreciate the candor of the report that it says that but, nonetheless, it doesn't seem like it's a completed report.

Response to Comment SA1-ORAL-2
Please refer to response to comment LA1-ORAL-1 and Master Response CEQ-2.

Comment SA1-ORAL-3
You know, people in Siskiyou County have long been saying that pulling the plugs on these dams and letting 15 million tons of sediment run downstream is precisely what you not want to do in the habitat of protecting salmon in a river with existing water quality problems. So I think everyone appreciates that the water quality of the dam removal are being taken seriously. It just doesn't seem like it's been resolved.

And in that vein, you know, if after all of this work has been done and the state is coming out with a report that says, "Well, we don't really know what—we haven't resolved the benefits and the impacts yet, we don't have the mitigation resolved, those are issues we're working on," why are we here? If the state, after pushing this for 15 years, can't answer those questions in a straightforward way, why are we here?

Response to Comment SA1-ORAL-3
Please refer to Master Response AQF-14 and Master Response CEQ-2.

Pacific Coast Federation of Fishermans Association, Glen Spain

Comment ORG12-ORAL-1, Speaker Card
The commercial fishing industry supports dam removal.

Response to Comment ORG12-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG12-ORAL-2
MR. SPAIN: Thank you.

My name is Glen Spain, S-—excuse me. G-L-E-N, one N, last name, Spain like the country, S-P-A-I-N.

I'm the northwest regional director for the PacifiCorp Federation of Fishermen's Association. We are the largest trade association of commercial family fisherman on the West Coast representing something like a thousand different business operations up and down the coast, many of them salmon dependent. And many of them have been closed down repeatedly in the past few years because of the very simple problems in the Klamath Basin on the reduction of populations in the Klamath Basin. That triggers coastwide closures because of weak stock management, problems that we have to deal with on a daily basis.

Response to Comment ORG12-ORAL-2
Comment noted.

Comment ORG12-ORAL-3
We're very gratified to see that the EIR confirmed what science has been saying all along and that is that dam removal will completely benefit the river, decrease water temperatures, greatly reduce c. shasta and other fish diseases, protect water quality and very much improve the populations of not only coho, spring run chinook, fall run chinook and every other species in—in the Basin.

We're also very gratified to see a—a context for the whole issue of sediment. You know, big numbers like 15 million cubic yards sound like a lot of sediment. In fact, this is a major river. It carries between 4- and 6,000—or between 4 and 6 million cubic yards of sediment in a normal year. What we're talking about in terms of additional sediment is, as you point out in the DEIR rightfully, within the range of normal variability that the river can handle and would typically wash out in about two years. So that makes it very much a doable issue.

And also it debunks a lot of the sediment fears that are there. There are no toxins in the sediment, nothing to speak of. The EPA's confirmed that over and over.

Response to Comment ORG12-ORAL-3
Comment noted.

Comment ORG12-ORAL-4
Another myth is that there's flood protections here. There's no flood protections. These were not flood protection dams. They're not designed to do flood protection. They provide little or no flood protection, never have. In fact, the worst floods in the Basin were two and three years after the last dam, Iron Gate was completed. They have provided very little.

Response to Comment ORG12-ORAL-4
Comment noted.

<u>Comment ORG12-ORAL-5</u>
Another problem that I hear often repeated is the fear that there will be irrigation impacts. So these dams are below the irrigation system. They're hydrologically below, and there are no irrigation outflows from any of the lower dams to anywhere. So there is no irrigation impact. In fact, removing the dams and eliminating the pressure on the Upper Basin farmers to put more water in the river because of the c. shasta, which they're now under court order to do 50,000 feet, that c. shasta problem will probably disappear and that push for irrigation restrictions will disappear.

Response to Comment ORG12-ORAL-5
Comment noted.

<u>Comment ORG12-ORAL-6</u>
One last thing on replacement power, the dams were misquoted. They produce 82 megawatts for power on average. No dam systems over the last—this is FERC's numbers. Over the last years, no dam system can run 24/7 particularly in the summer when water levels are low.

The power has already been replaced. When PacifiCorp has purchased by Berkshire Hathaway a few years ago, Berkshire Hathaway promised to put in 1400 megawatts of renewable power, 17 times more than the 82 megawatts of the dams. They've already replaced the power 17 times over and total power is only 1.7 percent of their total capacity in generation. Thank you.

Response to Comment ORG12-ORAL-6
Comment noted.

Salmon Recovery Funding Board, Monica Harle

<u>Comment ORG16-ORAL-1, Speaker Card</u>
I support salmon recovery & most efforts in that direction. We have had success with dam removal in WA state.

Response to Comment ORG16-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment ORG16-ORAL-2, Speaker Card</u>
Salmon & fish passage is part of American heritage

Response to Comment ORG16-ORAL-2
Please refer to Master Response GEN-2.

<u>Comment ORG16-ORAL-3</u>
MS. HARLE: Hi. My name—my name is Monica Harle. I don't usually speak in public. I'll just go like this. Okay. So --

THE COURT REPORTER: How do you spell your name, please?

MS. HARLE: M-O-N-I-C-A, H-A-R-L-E.

I did not know that I would be speaking tonight but I—I'm going to.

I'm a citizen advisory—I'm not from California. I'm from Washington State.

I'm a citizen advisory committee member for the Hood Canal Region for the Salmon Recovery Funding Board. And so I was so interested in—in this topic. I've been reading about it in the papers.

I just wanted to say the Hood Canal Region is three counties and two tribes. And so there's millions and millions of dollars coming in each year for salmon recovery.

I wanted to say Washington State supports all salmon recovery efforts, including dam removal if necessary.

Dam removal such as the Elwha River dam removal has been extremely successful. Documented.

Number 4. Healthy salmon populations and present in our lives and rivers, water bodies is essential, basically, to all Americans. I think it's a very American thing. Culturally, it's important, not just to tribes but to all people.

And the fifth thing I was going to say: I've seen the statistics, and healthy salmon in fisheries is a huge economic driver, recreational and commercial.

Response to Comment ORG16-ORAL-3
Consideration of the potential impacts of the Proposed Project on river-based recreation including fishing is presented in Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-6. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*. Potential economic impacts of dam removal on commercial fishing are discussed in Volume I Section 5.4.1.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Commercial Fishing* (pages 5-5 to 5-7).

Salmon River Restoration Council, Stefan Dosch

<u>Comment ORG20-ORAL-1, Speaker Card</u>
I just want to say that it is about time the Klamath wasn't toxic in the summertime, Salmon were given a chance to return home and these outdated, devastating dams come down. Let's keep moving forward on this.

Response to Comment ORG20-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG20-ORAL-2
My name is Stefan Dosch, that's S-T-E-F-A-N, D-O-S-C-H.

Okay. Hi. I'm Stefan Dosch. I'm at settler living on the Karuk ancestor land, and I live in Orleans. And I work with youth in our area and we spend a great deal of time in the Klamath and Salmon Rivers counting salmon and carcasses with the kids—actually, count salmon carcasses. We also count living fish. And we understand through hands-on experience, it's an amazing, incredible keystone species.

Response to Comment ORG20-ORAL-2
Please refer to Master Response GEN-2.

Comment ORG20-ORAL-3
So this can be a really depressing job sometimes and—but the kids themselves have a whole lot of hope. And they're hope is that they know that the dams are coming down soon.

There has been a seam in human history, humans upstream neglecting to think of those who live downstream of themselves. And I think this picture will be incredibly clear as you move this discussion down the river. This has been an incredible movement to get to where we are right now, and it's high time for these dams to come down.

People have mentioned how there will still be water quality issues after dam removal and I think this is an interesting point. And I do think we should look into where all of that nutrient loading and eutrophication comes from as well.

Response to Comment ORG20-ORAL-3
Please refer to Master Responses WQ-1, PAP-1 and PAP-2.

Comment ORG20-ORAL-4
As for sediment, the salmon survived a period of unregulated hydrologic mining. The fish will recover.

Response to Comment ORG20-ORAL-4
Please refer to Master Responses AQF-3 and AQF-4.

Comment ORG20-ORAL-5
I support this dam removal project and if any of you have clots or dams in your bloodstreams, I'd advocate for their removal as well.

Response to Comment ORG20-ORAL-5
Comment noted.

Shasta Nation, Betty Hall

Comment TR21-ORAL-1
MS. HALL: Hello. I'm Betty Hall, B-E-T-T-Y, H-A-L-L. I am a liaison for the Shasta Nation.

Response to Comment TR21-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR21-ORAL-2
Well, I've been trying to get through that big, big report. But when I got, you know, as I think you already know, there's a lot I don't agree with. And all week I went over and over it and I still—still see some of the same things still there. But when I got to the section of the Quartz Valley Reservation, I was absolutely—almost terrified. That whole section needs to be deleted completely, totally.

When you recommend—well, they said there's Shasta and Karok Indians were on that reservation --

THE COURT REPORTER: Shasta and which Indian?

MS. HALL: Shasta and Karok Indian. And you state that if you want to know about the culture and history of the Shasta Indians, read what we have written about the Karok tribe. That is so wrong. That is so different. We are so different people.

I grew up on that reservation. My father started that reservation all by himself. He got in his little car and headed down to Sacramento and started wheels turning and then the reservation came about.

We moved there when I was four years old from Mugginsville, which is three miles on up the road. I grew up on that reservation. And what I observed is differences between the Wicks family that was Shasta. That's my family. Maiden name is Wicks.

And there was also Mark Purcell [phonetic] there. He was Shasta and some Karok, but he did not get along with the Karok people there very often. He was calling the police on them a lot a – a number of times.

But I represent what I saw, the children on that reservation, most of them my playmates, they suffered terribly. They were terribly neglected. They almost starved.

One couple would leave their little kids for two weeks or more. My father would go check on 'em. Here's a little one sitting on the floor trying to eat flour, only thing in the house, putting it in his mouth. He brought 'em all home, bed 'em down in our living room, mother would take care of 'em till the parents finally came back to get their kids. They knew where to come find their children, because my parents had 'em. My mother and father used to take care of 'em, or they'd come by hungry. It – it was hard to watch.

And then the school. I went to school with 'em at Quartz Valley School. One little boy was about maybe first, second grade and, all of a sudden in the classroom, he just bursted out sobbing so hard. The teacher ran up to him and said "What's the matter? Are you hurt? Are you sick?" Finally, he says, "I'm hungry."

They were starving. Most of those children and almost every one of those Karok families were always hungry. It's hard to watch.

And it – I grew up with this. I saw it. I watched it. It's hard – then one day cars came in – white cars came in. I don't know if it was from the welfare department or whatever and picked up all the kids and they went to Chemawa to go to school. I think possibly the teacher may have recommended that, because she saw that they were hungry and they didn't have food, and they needed to be cared for better.

And then to compare – to make the statement like that – I'm writing it. I've been working on it until about 2:00 in the morning on what I saw, what I observed when I grew up with on that reservation. Like a lot of those kids – a lot of them were my playmates, you know, I missed them.

MS. HALL: And it – it's hard to see. But that really needs to be changed. That's not correct. It refers to the Karok culture and custom is so different, their belief systems are different. They have a putawan. There's some here they know what the putawan is, the Indian devil.

MS. RAGAZZI: Thank you, Betty.

MS. HALL: Their windows are covered at night ter- -- ter--- terrified of that. I used to have to walk my little friend home because she was so afraid of Indian devil.

THE WITNESS: Yes. Well, I could go on all night, I know, but that needs to be changed and then I still – we still would prefer no project. And you understand why because of all our graves that could be damaged, the Civil War veterans that are buried up there that could be damaged, there's burials underneath those reservoirs. I mean, come on, think about 'em.

Response to Comment TR21-ORAL-2
Please refer to Section 3.12.5.1 *Historical Resources and Tribal Cultural Resources – Potential Impacts and Mitigation – Potential Impacts to Tribal Cultural Resources* Potential Impact 3.12-2 for a discussion of how drawdown of Iron Gate, Copco No. 1, and Copco No. 2 reservoirs could result in shifting, erosion, and exposure of known or unknown, previously submerged tribal cultural resources within the reservoir footprints. Potential Impact 3.12-3 includes a discussion of the potential for short-term erosion or flood disturbance impacts to tribal cultural resources located along the Klamath River during reservoir drawdown under the Proposed Project. Please refer to Volume III Attachment 1 for final Section 3.12 *Historical Resources and Tribal Cultural Resources*.

Siskiyou County Water Users Association, Richard Marshall

Comment ORG18-ORAL-1, Speaker Card
Comment on EIR

Response to Comment ORG18-ORAL-1
Thank you for your comment.

Comment ORG18-ORAL-2
MR. MARSHALL: Richard Marshall, R-I-C-H-A-R-D, M-A-R-S-H-A double L. I'm the president of the Siskiyou County Water Users Association. Is there a director here from the Water Board? Actual director? No.

Response to Comment ORG18-ORAL-2
Comment noted.

Comment ORG18-ORAL-3
Thank you once again for taking care of us citizens here in Siskiyou County but making sure that people who make the decision don't get to come up here and hear us firsthand. The last time we met was July 2018. Our group submitted comments at your request to assist in the Water Board's preparation of the EIR regarding Klamath dams. As part of that information, we provided a report on the PDO, Pacific Decadal Oscillation. And as usual, it seems comments that we make, whether from the county or our group or the citizens in general, we don't get appropriate consideration on the issues that we submit.

We are the group that's most impacted by the removal of the hydroelectric dams, not you in Sacramento or in other areas throughout the state who think this is a good thing to remove the dams.

A total of 1800 pages you've put together, amazingly regurgitates the outdated 2012 EIR done by DOI, a document which was questioned by Dr. Paul Hauzer, former quality control officer from the DOI. I object again to taxpayer funds being devoted to the effort to remove our dams that we have by popular vote *indicated that they should be kept. You don't listen to the citizens.*

Response to Comment ORG18-ORAL-3

Please refer to Volume I Section 2.6.4 *Proposed Project – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a list of the reasons that the State Water Board determined it should develop a separate EIR, rather than adopting one of the existing environmental reviews (e.g., 2012 Klamath Hydroelectric Settlement Agreement [KHSA] EIS/EIR).

With respect to Dr. Houser's whistleblower complaint relating to the prior Klamath dam removal proposal, the independent investigative panel report on this subject indicates that Dr. Houser's concerns were related to disagreements on how to present uncertainty in scientific data, rather than about the data or scientific analysis itself (RESOLVE [2012] - *Independent Investigation of the Scientific Record Pertaining to the Allegations of Dr. Paul Houser*). Ultimately, the panel determined that Mr. Houser's complaint did not have merit.

Additionally, please refer to Master Response AQF-13 for a discussion of how varying ocean conditions can affect anadromous fish.

Please also refer to Master Response GEN-1.

Comment ORG18-ORAL-4

Now, one of the issues I would like to bring up in particular, because I think it's interesting when you read that entire report, you don't see much about historical context of the river prior to the dams. And many times, we talk about issues that have nothing to do with the history of the dams which I think is really important—history of the river, I should say, before the dams.

In the 1850s, one gentleman was mentioning here there was an 1855 report by Commissioner Moneypenny which basically said that there were problems back in 1855 with the river producing fish and the—and the Native Americans were restless and they had problems along the river because the fish were in short supply. So the fish aren't always there as some of the Native Americans would like to have you believe and they say "since time immemorial fish have been coming here." That's not true.

The historic conditions effect in the Klamath River prior to the construction of the dams includes the information I just read. There's another very reliable report from Glenn Briggs who's not here, I guess, with us this evening, maybe he is, a retired civil engineer with the U.S. Bureau of Reclamation. His family history goes back to the 1860s along the Klamath River, which was his home—family home was situated in the area of Happy Camp.

And I'll just read something briefly from there. We're going to include this in our written report when we get that done. I'll get to it here in a second.

So he describes in the late summer through the fall the dry conditions of the river, which is the issue that is very difficult to deal with if you don't have the dams to flush the river.

In George Gibbs Journal of Redick McKee's Expedition through Northwestern California in 1851, which was published in Archaeological Research Report from the Department of Anthropology—I'm going to get the hook here. They indicate that the Klamath River contrasting with the Trinity River had a taint because of its origin; that means it's origin in Lower Klamath Lake because of the blue-green algae because of the lack of water, it is known as the stinky river --

You going to cut me short here?

MS. RAGAZZI: I want to make sure everybody has an opportunity to comment. You're welcome to come back later.

MR. MARSHALL: There's one more thing.

So this gentleman who is educated and worked for the Bureau of Reclamation talks about his family history going back then that the river was always a problem. I know Glenn Spain would like to think differently. Right, Glenn?

But in fact, it's not true. It was always bad. There was always a problem with fish in the late year. Taking the dams out, that's what we're talking about returning to, spend hundreds of millions of dollars to get back to a situation that was untenable to begin with.

Thank you.

Response to Comment ORG18-ORAL-4
Please refer to Master Responses WQ-1 and AQF-4.

Andrews, Esther

<u>Comment IND3-ORAL-1, Speaker Card</u>
Support dam removal very strongly.

Response to Comment IND3-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND3-ORAL-2</u>
MS. ANDREWS: Hello. My name is Esther Andrews. That's E-S-T-H-E-R, Andrews, A-N-D-R-E-W-S.

I traveled here from Orleans to say that, every year I've lived there, I've seen a strong negative impact that the dams have on the environment there.

As far as power is concerned, it's not clean energy and it's not significant.

Response to Comment IND3-ORAL-2
Comment noted. This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Comment IND3-ORAL-3
MS. ANDREWS: So much in this area depends on the river and has developed on an undammed river, especially the fish but also the flora and every single animal up and down the food chain have developed with a symbiotic relationship to the beautiful Klamath, including us.

This is a very important step for habitat restoration. I work in fisheries. And I see so much of the streams and rivers, and I see how much the fish are struggling. And this is very important to me. It's very important for all of us that these dams come down. It's very exciting to see that moving forward.

Response to Comment IND3-ORAL-3
Please refer to Master Response GEN-2.

Banzali, Francine

Comment IND24-ORAL-1
MS. BANZALI: My name is Francine Banzali. That's B, as in boy, A-N-Z-A-L-I.

I'm relatively new to Siskiyou County. I've been coming up here for about 15 years, and I'm a resident only three years. I live in Happy Camp California.

And driving down the river, you can't ignore that there's a lot of problems socially and economically. There's a lot of poverty. Driving down the river, it's very obvious to me.

And it looks like this was a thriving area. There was a lot of fishing and people were making their living off the river with people coming here for – as tourists.

And I also wanted to comment: Two years ago, I went to the Salmon River Fish Dive. It was really fabulous. I was enthralled. I saw a huge fish. I had never seen anything like that.

I came out of the water—we were counting fish if anybody's never gone there. So I counted eleven fish in our group. We swam four miles and I was excited. I got out of the water, and I was like, "I saw eleven fish." And everyone there bowed their heads. They said, "There's usually thousands of fish. If you look down and you can't see, there's so many fish."

And it's really quite frightening when you hear about these stories. And these are people who were younger than me. I'm 50 and, in their lifetime, they've seen a huge decline in fish. So I think this is like the canary in the coal mine.

And I think everyone should come down. Come down, we'll show you. And please invite us up to see what your issues are, why you're afraid of giving—taking down the dams, because I'm not really sure why you would be afraid of this because it's obvious that whatever the price is, we need to take out these dams and—and fix the problems that are on the river.

So anyone please come down, and we'd be happy to show you the river and show you the fish. And that's all I have to say.

Thank you.

Response to Comment IND24-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Chichizola, Malcolm

<u>Comment IND62-ORAL-1</u>
MR. CHICHICOLA: Save the salmons. Destroy the dams. Oh, whatever, whatever.

Save the creatures and all sick or the creek anywhere that has water except for the one that you drink.

Response to Comment IND62-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Chichizola, Regina

<u>Comment IND44-ORAL-1</u>
MS. CHICHICOLA: Hi. My name is Regina Chichicola, C-H-I-C-H-I again, C-O-L-A.

I'm here today with a group of Save California Salmon and also as a resident of the town of Orleans, California.

As a resident of Orleans, I've seen what the loss of fisheries has done to the community. I've seen what it means to people when there's no fish for ceremonies. And I've seen what it does to people when the river turns green when ceremonies are going on and when fishing is happening. I've heard a lot of people talking about when people get sick from the water quality in the river. And I've also seen what it means to people when there's no fish coming back because 90 percent of the fish die from fish diseases because of these dams.

These dams have caused massive water quality issues: The blue-green algae which is a liver toxin, as I'm sure you guys know; and it also causes fish diseases that kill a lot of the fish in the river.

Furthermore, these dams are not used in any way for flood control. The dams are not used in any way for irrigation supply. And therefore, they can be taken out. And the company that owns them, PacifiCorp, as their private property wants to remove them. And therefore, it's a win-win for everyone.

Dam removal will create a lot of jobs within this county, and it will create a lot of short-term jobs for taking the dams down, but it will also create a lot of long-term jobs through restoring of the fishing industry. And that's going to be here locally through recreational jobs but also throughout the West Coast through jobs for fisherman.

As we know the fishing industry on the coast has really been suffering and that's looks like everyone on the coast. There's been widespread unemployment and depression and food insecurity because of the lack of salmon on the reservations and also in coastal communities.

I also work for a group called Pacific Coast Federation of Fishermen's Association. And to see the pain of dumping fourth-fifths of the fishing fleet for the people is intense. You know, knowing people cannot afford to feed their families and have to give up on their – on their dreams and their – and on what their fathers have done for work, too, is pretty intense.

And it's also intense to see what it means to the tribal communities to not have fish, because it means everything to people to have fish on the table. And to see the depression and the disease issues and the high, high heart disease and the – just the way that it affects people's health and mental states.

I mean, my area has 12 times the suicide rate of the – the nation because people don't have – feel hopeless and you can help bring their hope back. So this is a chance for jobs, for communities to be healthy again and to bring hope back to an area that's really suffering. So please do the right thing and remove the dams and help restore our salmon.

And thank you for coming to Yreka also.

Response to Comment IND44-ORAL-1

Thank you for your comment. Consideration of the potential impacts of the Proposed Project on river-based recreation including fishing is presented in Section 3.20.5 *Recreation – Potential Impacts and Mitigation* Potential Impact 3.20-6. Please refer to Volume III Attachment 1 for the final Section 3.20 *Recreation*. Potential economic impacts of dam removal on commercial fishing are discussed in Volume I Section 5.4.1.1 *Other Required CEQA Discussion and*

Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal – Commercial Fishing (pages 5-5 to 5-7).

Please also refer to Master Response GEN-2.

Corcoran, James

Comment IND28-ORAL-1, Speaker Card
Dam removal is not in the public interest. We need the flood control, water storage and the cleanest and cheapest electricity there is.

Response to Comment IND28-ORAL-1
Thank you for your comment. Please refer to Master Responses GEN-1, FLD-1, WSWR-1, WSWR-2, WSWR-3, and ENR-1.

Comment IND28-ORAL-2
MR. CORCORAN: James, J-A-M-E-S, Corcoran, C-O-R-C-O-R-A-N. I'm a resident of Siskiyou County.

I would like to point out that the proposed removal of these four dams on the Klamath River is not in the public interest. We need the water storage. We need the flood protection in the spring, and we need the hydroelectric power which is the most cost effective and greenest power that there is. If we remove these dams, they would have to be replaced by a gas-fired plant. That's not exactly green energy.

So who would benefit if the dams are removed? Well, there are investors and there are contractors that would make money on the removal of the dams and the building of a gas-fired power plant. So those are most important considerations. Would the public benefit if these dams were removed? It seems to me they would not.

Response to Comment IND28-ORAL-2
Comment noted. Please refer to response to comment IND28-ORAL-1. With respect to the comment regarding hydroelectric power, this topic pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy).

Cozzales, Rex

Comment IND45-ORAL-1
MR. COZZALIO: Hi. My name is Rex Cozzalio, R-E-X, C-O-Z-Z-A-L-I-O.

Recent data and research supports positions of the region most sup-—most affected supermajorities in opposition.

Response to Comment IND45-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND45-ORAL-2
The Upper Klamath Lake core drills; sediment studies of historic nutrient loads and algae; water quality monitoring --

THE COURT REPORTER: Slow down, please.

MR. THALER: I've cut it four times to the point of virtual insignificance.

MS. RAGAZZI: We'll take the whole thing if you're not able to make it through it.

MR. COZZALIO: You can't even read this, not with—not with my notes.

MS. RAGAZZI: Okay.

MR. COZZALIO: Experimental water treatment attempts; discovered biological lake and instream characteristics of microcystis aeruginosa, including the production, breakdown and effects of microcystin toxins; downstream microcystis outbreak monitoring; sentinel fish studies regarding manayunkia speciose polychaete, parvicapsula minibicornus --

THE COURT REPORTER:Okay. Wait. Slow down.

MR. COZZALIO: All of the testing that has been done in the last few years actually supports the supermajority against the dams. None of this information is included. All of that—all of that paragraph lists those—those studies.

Response to Comment IND45-ORAL-2
While the comment lists multiple topics and asserts that information on these topics have not been included in the EIR, it does not specify which studies or reports are being referred to.

Comment IND45-ORAL-3
In addition to already known massive environmental resident, economic, and health and safety benefits, the dams and deep water lakes provide -- recent science also confirms they provide not only—the only cost-effective enhancement to naturally endemic Klamath environmental conditions. They provide habitat and protections to some of the most viable life stage populations of sucker fish, trout, wildlife, and other listed species based upon the recent data.

Response to Comment IND45-ORAL-3
Section 3.3.2 *Aquatic Resources – Environmental Setting* includes a comprehensive summary of conditions for aquatic resources within the Lower

Klamath Project reservoirs under existing conditions. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND45-ORAL-4

Destruction of the only deep water lakes and dams will infect resident Upper Basin polychaete with lethal—lethal ceratomyxa genotypes in a habitat historically nonconducive to salmon, compounding disease for all affected resident species throughout the entire downstream Klamath. Higher nutrient loads delivered downstream will engender higher instream competitive microcystis outbreaks producing far higher instream toxic impacts to all resident species, including human.

Those instream nutrients will support historically experienced increase of instream macrophyte and peri-—periphyton disease conducive growth, particularly during the lowest flows and highest temperature time of year coinciding with salmon migration.

Response to Comment IND45-ORAL-4

Please refer to Master Response WQ-1 for discussion of how the Lower Klamath Project dams and reservoirs influence overall water quality, including nutrients.

Please refer to Section 3.3.5.5 *Aquatic Resources – Potential Impacts and Mitigation – Fish Disease and Parasites* for discussion of how dam removal would influence fish disease and parasites in the Klamath River Basin. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Please also refer to Master Responses AQF-5 and AQF-6. Please refer to Volume I Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* Potential Impact 3.4-2 (pages 3-428 to 3-433) for analysis of potential blue-green algae [cyanobacteria] blooms in the Klamath River due to potential increases in nutrient concentrations following Lower Klamath Project dam removal. The potential summer and fall increases in nutrient concentrations from Lower Klamath Project dam removal (see also Volume III Attachment 1 Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients*), particularly directly downstream from Iron Gate Dam, would not substantially contribute to blue-green algae [cyanobacteria] blooms in the Klamath River due to the lack of the suitable habitat conditions required for extensive phytoplankton growth. Please also refer to Volume I Section 3.4.5.2 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Periphyton* Potential Impact 3.4-4 (pages 3-435 to 3-437) and Potential Impact 3.4-5 (pages 3-437 to 3-440) for analysis of the potential changes in periphyton abundance in the Klamath River Basin due to elimination of hydropower peaking operations, conversion of the reservoir areas to a free-flowing river, and increases in nutrients from dam removal.

With respect to the comment about macrophytes, please refer to response to comment ORG46-136.

Comment IND45-ORAL-5

The State Water Resources Control Board is appointed and serves at the pleasure of the governor, empowered to carry out the environmental policies of the governor. The legislature has the right to review and comment on those policies but not to amend them. The governor has directed agencies within the water management plan to facilitate Klamath Agenda Project destruction.

Response to Comment IND45-ORAL-5

Comment noted.

Comment IND45-ORAL-6

Within their current Draft EIS, Water Resources limited their review to outdated theoretical and amended altered premise science supplied by the KHSA/KRRC to support their acknowledged single objective of project destruction. In Water Resources' EIS budget request, not a single dollar was allocated to investigation and assessment of current science refuting agenda premise.

In their cut-and-paste report, Water Resources marginalizes acknowledged water quality, environmental, species, health, safety, economic, and property impacts. Admitting that retention of the project would eliminate those unmitigated impacts and degraded water quality, that option is dismissed as not supportive of applicant objectives, somehow leaving the unavoidable damages to a nonexistent third party good neighbor agreement.

The mere fact of performing a Draft Water Quality Certification before completion of the EIS demonstrates Water Resources' agenda bias. In ignoring the above recent data to appease agenda policy and produce a document facilitating FERC bypass of the new holistic EIS, Water Resources abrogates any intent of responsible regional and environmental accountability. In doing so, they guarantee irreversible evidenced devastation and loss to the region.

MS. RAGAZZI: Thank you, Rex.

Response to Comment IND45-ORAL-6

The State Water Board drafted an EIR, consistent with the requirements of the California Environmental Quality Act (CEQA). An Environmental Impact Statement (EIS) is a requirement of the National Environmental Policy Act (NEPA) and will be developed as part of the Federal Energy Regulatory Commission's (FERC's) process for the Proposed Project. Please also refer to Master Responses GEN-1 and CEQ-2.

Fischer, Stephen

Comment IND51-ORAL-1, Speaker Card
Life time resident of Klamath River sean the river before the Damns

Response to Comment IND51-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND51-ORAL-2
MR. FISCHER: Thank you. Stephen, S-T-E-P-H-E-N, Fischer, F-I-S-C-H-E-R. I'm a—I'm a long time resident of the Klamath River and if you take the dams out, the water isn't going to get hotter—or it's going to get hotter. It's not going to get cold. There's going to be less water going down the river. And without any snowpack or any water and, during the winter, we aren't going to have enough water. That water is going to go down.

We used to walk across. I was down there before the dams were put in, we could walk across the Klamath River over the rocks and get our—our socks wet and tennis shoes.

If you take them dams out, there's not going to be enough water for fish to come up there. All the fish are—are going to stop. They're going to be beat up, tore up. And the salmon can't make it. The steelhead will be tore up so bad you can't get 'em up the creeks.

And there will be a—an influx of eels and sucker fish on the bottoms of the river. And it's terrible. I've been swimming in it getting suckered by an eel. That's not a good thing.

Response to Comment IND51-ORAL-2
Please refer to Master Response WQ-2. Additionally, Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* includes a comprehensive analysis of the potential impacts of the Proposed Project on aquatic resources. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*.

Additionaly, please refer to Master Response AQF-4 for a discussion of the historical abundance of andromous fish in the Klamath River.

Comment IND51-ORAL-3
If you take the dams out, all the agriculture is going to get on—they can only use it certain amount per day, per week, a few days per week. It' going to ruin all the agriculture.

Response to Comment IND51-ORAL-3
Please refer to Master Responses WSWR-1, WSWR-2, and WSWR-3.

<u>Comment IND51-ORAL-4</u>
You take the dams out, you're going to kill us all. It's bullshit.

Thank you.

Response to Comment IND51-ORAL-4
Comment noted.

Foster, John

<u>Comment IND31-ORAL-1</u>
AGIANET

Response to Comment IND31-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND31-ORAL-2</u>
MR. FOSTER: John Foster, J-O-H-N, F-O-S-T-E-R.

I don't see how it's—I've been speaking at all these things the last 15 years.

Response to Comment IND31-ORAL-2
Please refer to Master Response GEN-2.

<u>Comment IND31-ORAL-3</u>
It don't seem like your agenda's changed. It still—you just want to take the dams out, and you're going to make your thing match that. So what we, the people, here say or what science says, it doesn't seem to matter.

Because starting out at poor quality coming out of that shallow lake in—in Oregon, how can it not get better going to deep lakes? And taking out dams where there's nothing to improve it, how's it going to get better? There's a couple springs in there, but not enough to—this river's always been backwards and it's going to stay backwards. It doesn't start cold and end warm. It starts warm and gets colder as it goes. So I just don't agree with this.

Response to Comment IND31-ORAL-3
Please refer to Master Response WQ-1.

Grunbaum, Jon

<u>Comment IND32-ORAL-1</u>
MR. GRUNBAUM: Good evening. And thank you for coming here to hear our comments.
IND41-ORAl-1

My name is Jon Grunbaum, J-O-N, last name is G-R-U-N-B-A-U-M.

And I've been a full-time fishery biologist on the Klamath River for 25 years. My territory is basically 120 miles downstream from the dams to the Salmon River. And I've—of course I've read a lot of science and the studies and the EIR, and I really commend all the great science that has gone into this and your work on this project.

Response to Comment IND32-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND32-ORAL-2

So I'm here on behalf of the fish to talk for the fish because they can't talk.

And I would like to see the salmon restored in the Klamath Basin. This was the third largest run on the West Coast before the dams were put in. So, you know, I don't believe that the dams saved our water quality and saved—is saving our fish right now.

Response to Comment IND32-ORAL-2

Comment noted.

Comment IND32-ORAL-3

So I see many benefits of dam removal, and that's to restore the salmon/steelhead populations, the third largest fish run on the West Coast, improve the economy of river communities by improving river-related recreation opportunities, such as fishing, swimming, rafting, and sightseeing. It would benefit everybody in Siskiyou County economically.

Response to Comment IND32-ORAL-3

Comment noted.

Comment IND32-ORAL-4

So I've seen firsthand how the dams—and read scientific papers how the dams are impacting the salmon. And the most obvious one is that the dams prevent fish access to 300 miles of habitat for steelhead, over 300 miles, several hundred miles of habitat for chinook salmon, the spring run, which are extremely important which are nearly extinct right now in the Klamath Basin, and 80 miles of habitat for silver salmon, which would be restored by removing the dams.

One of the worst possible things that I think are happening to our salmon population and leading to extinction is fish disease. And it's mainly caused by the dams. A lot of algae's moved underneath the dams, has grown in there because the river doesn't flush every year. And this algae has moved in and it is habitat for the polychaete worm that is intermediate host for the two disease organisms that are just decimating our salmon.

Over 90 percent of our salmon are infected with these diseases. And we—on some years greater than 50 percent, we think, of the juvenile salmon that migrate down and perish because of these two diseases.

Response to Comment IND32-ORAL-4
Comment noted.

Comment IND32-ORAL-5
Also, dams are adversely affecting the water quality. People have already spoke about this and due to the thermal lag which the dams cause, the water is warmer in the fall which stresses the adult fish coming in to spawn, and they're more susceptible to these diseases. We've had fish kills.

Creates a lot of biological—which is hard on the fish.

THE COURT REPORTER:Biological what?

MR. GRUNBAUM: Biological oxygen demand. Depletes the oxygen in the water.

THE COURT REPORTER: Oh, oxygen. Thank you.

MR. GRUNBAUM: And it's just bad for a healthy economy.

Response to Comment IND32-ORAL-5
Comment noted.

Comment IND32-ORAL-6
And I don't see the downside to dam removal as being very serious, because not much power is generated.

Response to Comment IND32-ORAL-6
Comment noted.

Comment IND32-ORAL-7
These dams are not flood control dams. And they're—they wouldn't affect water supply for agriculture in the Upper Basin.

Response to Comment IND32-ORAL-7
Comment noted.

Comment IND32-ORAL-8
MR. GRUNBAUM: Okay. One more comment.

And also, I'm a strong advocate of private property rights, and I know a lot of people in this room are, too. So I think we ought to respect PacifiCorp and Warren Buffett's desire to remove the dams because that's their property.

Thank you.

Response to Comment IND32-ORAL-8
Comment noted.

Hendricks, Nicholas

Comment IND40-ORAL-1
As a resident of siskiyou, an outdoorsman, a farmer and a fisherman, I strongly support the Klamath dam removal project. We need to let these once anadromous waters flow free once again.

Response to Comment IND40-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND40-ORAL-2
My name is Nicholas Hendricks. N-I-C-H-O-L-A-S, H-E-N-D-R-I-C-K-S.

I currently live on Wintu and Shasta territory. I'm also a citizen of Northern California and Siskiyou County. And as an outdoorsman, a fisherman, a farmer, I strongly support the Klamath dam removal.

Combined with reduced industrial forestry, increased restorative forestry and wetland restoration, we can rebuild the legacy of a wild and flowing Klamath River. The Klamath—the project is essential in preventing disastrous environmental incidents like the 2002 Klamath fish kill, which killed between 40,000 and 70,000 adult fish. They died of disease and was the largest fish kill in history.

As far as removal as to limited short-term implications, the long-term benefits of the removal will greatly outweigh the dangers of not removing the dams.

THE COURT REPORTER: Slow down, please.

MR. HENDRICKS: There are over 13,000 dams in the state. Depending on who you ask, there's only one to five undammed waterways inside the state.

We do not need to save the dams. We need to save the fish. We need to protect the traditional way of life for the many tribes of the Klamath River and restore the wild and scenic aspect of the Klamath.

I also personally support with clear desires of the greater and of the majority of the first persons in indigenous nations whom have had historical and rightful control of the past and the future of the Klamath River. The actions of those three to four generations of settlements have run their course and it's their time to end.

Thank you.

Response to Comment IND40-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

Jones, Marva

Comment IND37-ORAL-1
MS. JONES: [Speaking in native language.]

My name is Marva Jones, M-A-R-V-A, J-O-N-E-S.

I come from the village of Vilichanden, Mashymet, Watzek, and Wopum on the Klamath River and along the Smith River. And I'm Tolowa, Yurok, Karuk, and Wintu.

And I come here to support the removal of the four Klamath dams.

I come in a good way and I'm honored to be here from the country. I respect that. I've been passed down responsibilities to protect our homelands and this is one of the areas that I've been taught and committed to be a part of in the effort to restore and balance this world. A lot of teachings going on on this river.

We don't just use it for food, but it's also a spiritual place for balancing this whole entire world. We do ceremony along the river that restores and bounties for all of us, not just us locals but everybody on this whole entire earth. And so those thing is—the teachings are very powerful and they need to continue. And we know the earth—I mean, that the river is sick right now. And we know that this is the best method in restoring the life of the river. And it's urgent and—I don't know.

I just wanted to share with you how important it is to, not only me, but the healing of all of our people. I'm not just talking about our native people but all of us. And we're in a dire time right now with climate change and the effects of that. And we can't—we can't turn a blind eye and ignore this. There's got to be a—there's got to be a solution.

Response to Comment IND37-ORAL-1
Thank you for your comment. Please refer to Master Responses GEN-1 and GEN-2.

Joseph, Patricia

Comment IND42-ORAL-1
MS. JOSEPH: Patricia Joseph, P-A-T-R-I-C-I-A, J-O-S-E-P-H. I am a Hoopa tribal member, and I come here to let everyone know that I stand with the decisions of our tribe for dam removal.

Response to Comment IND42-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Joseph, Thomas

Comment IND53-ORAL-1
MR. JOSEPH: Good evening. My name is Thomas, T-H-O-M-A-S, last name Joseph, J-O-S-E-P-H.

I'm a member of the Hoopa Valley tribe, and the Trinity River which is a major contributory to the Klamath River, and I'm here to say that I support dam removal.

Response to Comment IND53-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND53-ORAL-2
Sitting in this room, it's really hard to not bite back at a lot of the ignorant comments that were made, especially when people decide to speak on behalf of indigenous people and they themselves aren't even indigenous. But I really feel it's more vital and important that we build bridges in this moment and not walls.

There's more things that are threatened this Klamath River besides these dams. There's a pipeline that's also coming in. And this pipeline is going to threaten the—the safety of this river as well. And the people in this community are going to also be threatened. And so I know that their lands are – are valued in their hearts and they're also going to have to defend their lands against this pipeline. So I think it's more important that we build bridges in this moment.

But the rhetoric, I—I do—I do want to state to the facts since I'm running down here on time. For the record, the hostile environment that is being played out here in Yreka can let it be a testament to this board of how they come up here and they go over their time to exclude the amount of time for other people to speak, other people that may be in favor of dam removal.

And that type of hostility is a going-on hostility of environment that Yreka citizens have continued to play for decades. They don't give a rats ass about the people downriver. And them continuing to talk above and beyond their time is perfect evidence of that.

And for us to continue to live in a society plagued by their—by their balbaric [sic] teachings to keep us in the dark. You know, these teachings of stripping our land and destroying Mother Nature and taking everything and just take, take, take, take, built on their balbaric teaching of traditions, that needs to go as well.

So for the record, I have a minute left. I wanted to state that Fox News said that—that Yreka is 99 percent don't believe in climate change. And so here you have all these people testifying to you to keep these dams, but they don't even understand the predicament of the world that we're living in today, then that climate change is real, that we have caused that, that these rivers can be restored, that it has proven with other dams—or other rivers—other dams that have been removed in Washington and other places. And so we're saying stick to the science, understand the community that they're in. And we've been dealing with 'em for a long time.

Response to Comment IND53-ORAL-2
Please refer to Master Response GEN-2.

Khart, Al

<u>Comment IND1-ORAL-1, Speaker Card</u>
Planned Demolition of DAMS is a CRIME AGAINST ENVIRONMENT AND PEOPLE

STOP KRRC!

Response to Comment IND1-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND1-ORAL-2</u>
MR. KHART: Al, A-L, K-H-A-R-T, and I'm a resident of Copco Lake.

I worked in science for more than 20 years, and I think the project is not grounded – grounded correctly. So it's—it requires more feasibility study. I wrote mathematical model and a risk model. And I would like to say that nothing was done to measure the risk of removal of dams.

And topics which I've heard, they are like—they are very similar. It's like somebody wrote the template and there was people who are for removal of dams, spoke in the same manner.

Response to Comment IND1-ORAL-2
The EIR analyzes the potential environmental impacts that could occur across 22 different resource areas in accordance with the CEQA, including the risk of dam failure during reservoir drawdown which is discussed in Volume I Section 3.6.5.3 *Flood Hydrology – Potential Impacts and Mitigation –Risks of Dam Failure* Potential Impact 3.6-6 (page 3-635).

<u>Comment IND1-ORAL-3</u>

So let me say now as a—as a human being from planet Earth and as a resident of Copco Lake, I think 77 years, they stream in Copco Lake and the river every summer. Sometimes, my skin is green, but I haven't had any diseases, so the health issue with dams is not correct. So it looking like we—we don't have this kind of issue.

Second, you say people say that about fires. I was witnessing two fires, and my house survived only because of Copco Lake. Is it amazing? Yes.

And just imagine if Paradise would have Copco Lake. Those—those 86 people probably be alive—alive, you know.

Response to Comment IND1-ORAL-3

Please refer to Master Responses WQ-8 and HAZ-2.

<u>Comment IND1-ORAL-4</u>

And the last point, if you know that – that science—the history of the science is about future. So, historically, dams or Copco Lake dam existed several hundred years ago.

I—I read about archaeological research and they say that this dam was like 8- or 700 years ago and engineers 100 years ago just restored the dam, because it was damaged by earthquake. So lake existed many, many years ago. So American engineers returned back lake which existed before.

So what if we remove dams? And then again, in many years people will decide, hey, it was not actually a good idea. Let's return dams back. It might happen. So I think at least the dam removal project is not grounded very nicely. And I'm against removal of the dams.

Response to Comment IND1-ORAL-4

Please refer to Master Response GEN-2.

Kramer, Richard

<u>Comment IND46-ORAL-1, Speaker Card</u>

FLOOD CONCERNS OF I5 BRIDGE ON KLAMATH CROSSING

Response to Comment IND46-ORAL-1

Thank you for your comment. There are three bridges that cross the Klamath River at the Randolph E. Collier Northbound and Southbound Rest Area along Interstate 5; the northbound and southbound Interstate 5 Bridges, which cross the Klamath River approximately 11 river miles downstream of Iron Gate Dam (Figure IND46-ORAL1-1), and the Klamath River Bridge 2-135, which crosses the Klamath River approximately 11.2 river miles downstream of Iron Gate Dam

(Figure IND46-ORAL1-2). The Interstate 5 Bridges have more than 14 feet of freeboard (i.e., clearance between the lower limit of the bridge superstructure and the river) during an estimated high-water flood elevation (i.e., 50-year or 100-year flood) (Caltrans 2019b). There would be even more freeboard during the approximately 10-year recurrence interval flows (i.e., 13,000 – 15,000 cubic feet per second [cfs], as measured at Iron Gate Dam, from Volume I Section 3.6.2 *Flood Hydrology – Environmental Setting* Table 3.6-11, pages 3-622 to 3-623) that would occur at this location during reservoir drawdown, and therefore, the bridges would not be subject to a substantial risk of damage due to flooding. Similarly, the Klamath River Bridge 2-135 has more than 5 feet of freeboard during an estimated high water flood event and the bridge would not be in danger of flooding during the approximately 10-year recurrence interval flows that would occur at this location (Caltrans 2019c). Please also refer to Volume I Section 3.6.5.1 *Flood Hydrology – Potential Impacts and Mitigation – Flood Hydrology* Potential Impact 3.6-1 (page 3-626 to 3-630) for a discussion of the short-term increases in downstream surface water flows during reservoir drawdown. Potential impacts to bridges downstream of Iron Gate Dam related to altered floodplain inundation conditions following dam removal are discussed in Volume I Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-3 (page 3-630 to 3-632).

The bridge at the mouth of the river noted in the comment is presumably the Klamath River Bridge 1-28 and is located 189.2 river miles downstream of Iron Gate Dam in the town of Klamath, California. This bridge replaced the 1926 Douglas Memorial Bridge, which was destroyed in the flood of December 1964 and January 1965, when the Klamath River reached a peak flow of 557,000 cfs (near the town of Klamath (USGS 2018) submerging the town of Klamath under 15 feet of water (DWR 1965). The December 1964 and January 1965 flood was approximately equivalent to a 100-year flood event for the Klamath River, as shown in Volume I Section 3.6 *Flood Hydrology* Table 3.6-11 (pages 3-622 to 3-623). The Proposed Project would not increase river flows during reservoir drawdown to anywhere near a 100-year flood event. Additionally, the new Klamath River Bridge 1-28 is located on a portion of the Klamath River that has a higher span than the original Douglas Memorial Bridge.

Please also refer to Master Response FLD-1.

Figure IND46-ORAL1-1. Klamath River looking downstream at the Interstate 5 Bridges (June 5, 2019).

Figure IND46-ORAL1-2. Klamath River Bridge 2-135 (June 5, 2019).

Figure IND46-ORAL1-3. Looking downstream at the Klamath River from Klamath River Bridge 2-135 (June 5, 2019).

Comment IND46-ORAL-2

MR. KRAMER: Evening. I'm Ryck Kramer, R-Y-C-K, K-R-A-M-E-R.

And this was brought up at one of our POW meetings. Nobody's really addressed it, but it's something that kind of concerns me.

I have no particular expertise in this. I'm an observer. I've lived here for a little over 80 years. I was here during the '55 and the '64 floods. The water at the mouth of the river took out the bridge down there, and I think the water lying there was 70 feet above the bridge.

We have the I-5 artery running directly below these dams. The—and I—and I really think that they are a flood control issue here. If those dams were not there, the possibility of that—the bridge, which is only about 20 feet above the river level right now, it could be taken out and the main artery on the West Coast would be gone.

It would—and I think that would—that's something that I don't think the board or any of the other EIRs have addressed. I think that's something that should be looked at.

Response to Comment IND46-ORAL-2

Please refer to response to comment IND46-ORAL-1.

Comment IND46-ORAL-3

And just a comment. As a native here, third generation, it's incongruous to me that people from the outside come in and tell us how to live our lives, what's good *for us, what's bad for us. The government has a real bad habit of making a one-size-fits-all agenda, and I think that's just not the thing to do.*

Thank you so much.

Response to Comment IND46-ORAL-3
Comment noted.

Mackintosh, Don

Comment IND18-ORAL-1
I am a PG&E retiree. I sent 28 years in Power Grid Operations and my job was controlling power generation, transmission, and distribution. It is a fact that Hydro electric generation is the cleanest and cheapest of all generation. The fuel for Hydro generation is water. The water goes in and turns a turbine and comes out as water unchanged and usable. In all other generation the fuel chemically changes state after it is used and it is costly. Wind and solar are not dependable sources of power because it is necessary to have rolling generation on line for back up. I will not go into the many benefits of hydro, but when a power grid collapses and is dead, it takes power to start generation again. Hydro generation is used for this purpose because it can be started instantly and is always available.

California dams have been inspected recently by the Division of Dam Safety. It has been reported that four hydroelectric facilities on the Klamath are in good condition. They are in place and in operation with a history of producing revenue of $40 million plus annually. The cost of producing is plus or minus 8% of the gross revenue.

The National Hydropower Association is forecasting a growth in hydropower. The growth is due to new hydro installations and the upgrading of existing hydro for increased power output. This is done with new turbines and design innovations. There is a new technique called the closed loop pumped storage system that increases efficiency. The existing Hydro units on the Klamath are already efficient and cheap. The turbines and generators are simple and long lasting, typically 50 years.

The Hydro generation from the four dams produces 169 mega watts of power that supplies Siskiyou county, and the southern portion of Oregon, with 70 mw left over that goes south and is sold to PG&E.

The 169 mw of generation that will be destroyed has to be replaced to maintain the electrical grid by building a new generation plant. That alone could cost $4.5 billion. The replacement generation must be designed to fit into the grid and has to be in service before the hydro electric is removed. There has been no mention of a replacement power source. We don't know where it is coming from or what it will be.

Once the dams are breached the release of toxic material downstream begins, and a perfectly good $40 million plus business has been destroyed. It has been said that the complete removal and cleanup of this project could be as high as $7 billion. But that does not include the cost of the new replacement generation of $4.5 billion. So the total of dam removal and replacement generation would be $11.5 billion. The rate payers monthly power bill will probably be double if not triple what it is now. And who will pay for the liability insurance after the dams have been breached?

I believe that Siskiyou County should take possession of the Klamath Hydro facilities and continue pursuing the relicensing in the public interest through an organization such as a public utility district. The money that Pacific Corp (over $200 million) has taken from the rate payers for dam removal should be credited back to the people (Public Utility) for purchase of the Klamath Hydro Facilities. Also, as rate payers of the PUD, we could invest in our local utility company. I know that there is concern about the liability of a public utility but it is my understanding that there is a certain amount of government liability protection for this type of entity.

Our power supply here is unique in that it can function independent from the power grid. The Klamath Hydro dams are positioned so that in a situation of a long term grid outage Siskiyou county can be electrically isolated and generate its own power.

Response to Comment IND18-ORAL-1

Thank you for your comment. The comments regarding hydropower pertain to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (Greenhouse Gas Emissions and Energy). With respect to the comment's concern regarding power rates, please refer to Master Response ENR-1.

With respect to the comment's concern regarding sediment contaminants, please refer to Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* for a general summary of existing data (2006, 2009–2011) characterizing potential contaminants in J.C. Boyle, Copco No. 1, and Iron Gate reservoir sediments. The way in which existing sediment chemistry data were used to assess potential impacts in the EIR is summarized in Section 3.2.4.7 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants*. Further, Section 3.2.5.7 *Water Quality – Potential Impacts and Mitigation – Inorganic and Organic Contaminants* Potential Impact 3.2-13 presents an analysis of possible human exposure to inorganic and organic contaminants due to the release and exposure of reservoir sediment deposits under the Proposed Project. Potential Impact 3.2-14 presents a similar analysis for the Proposed Project, conducted for freshwater and marine aquatic species. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment IND18-ORAL-2

MR. MACKINTOSH: Yes, I'm Don M. Mackintosh, it's M-A-C-K-I-N-T-O-S-H, and we have a ranch in Weed.

But I am a retired PG&E and my—I worked in—let's see—a power grid operations and my job was to control generation, transmission and distribution of, you know, of parts of a—of the grid. And I did that for 28 years.

And this is—this is a sick thing to take out these dams. You know, because I—over the years, you know, we communicated with and operated and controlled, you know, the—these same stations, these same hydro, ah, generation.

And so I did write up a—a report how this is—that I want to turn in—how this is electrically wrong to take out these dams. So it's basically – I have all the—basically, what we're going to – the dam's hydro is the cheapest, cleanest power that there is. It's—it's—the fuel is water. It goes in and it comes out. It turns the turbines and it comes out clean. It's usable. It's—there is—it's—it's a very simple, basic way to make power.It's—it's a power that is produced is 169 megawatts. It's actually lighting these—the lights in this room.

It's—there's so many benefits here. I mean, it's—when the grid goes down, you know, it cannot be started unless you have power as hydro power to start—start the grid up again. So that—this is what's important here.

Another thing about this—these—this hydro is that this community is unique because it's—it's able to be isolated in the case of a grid collapse, which is—it could happen easily these days. And when the grid goes down, it can't be restored for a long time, possibly a year, more actually. But – but this—this Siskiyou County can be electrically isolated, and we can—we can generate our own power here, so it's a—it's a beautiful thing.

And so there's many—but the most about this, you know, this dam removal is that, you know, they don't talk about when you take these dams out, there's 169 megawatts comes out of the grid, so it's got to be reported. It's got to be replaced. That means you have to build another dam to replace what you're taking out here and that's—that can be $4.5 billion right there, then you—and then I've been told—hold on.

I've been told that this removal can be $7 billion just to remove, you know, the dams. So, basically, I'm going to end. So what—the important part of this thing is that this should be part of this impact report, the—the electrical damage that is taking place when you take 'em out. And so that has to be studied, so I'm going to put this in. I'm qualified to do this, you know. So then --

MS. RAGAZZI: Not that one?

MR. MACKINTOSH: This one here. And then I'll follow up with something even more detailed but this is --

MS. RAGAZZI: Thank you.

MR. MACKINTOSH: Yeah. Go ahead and take it.

MS. RAGAZZI: Thank you.

MR. MACKINTOSH: Yeah.

MS. RAGAZZI: I'll take this, too.

MR. MACKINTOSH: So there's one other thing --

MS. RAGAZZI: Don, there's a lot of people to talk tonight.

MR. MACKINTOSH: Okay. All right.

MS. RAGAZZI:Thank you very much.

Response to Comment IND18-ORAL-2
Please refer to response to comment IND18-ORAL-1. Please also refer to Master Response GEN-1.

Meamber, Don

Comment IND19-ORAL-1
Pg. 1 & 8 PacificCorp owned land disposition. Will the identified Project B lands be as stated transferred to CA or OR and as a result harm Siskiyou County property tax revenue? Who might otherwise be a designated 3rd party for public interest purposes?

Response to Comment IND19-ORAL-1
Thank you for your comment. As stated in Volume I Section 2.7.10 *Proposed Project – Land Disposition and Transfer* (page 2-108), the Proposed Project provides that following dam removal the Klamath River Renewal Corporation (KRRC) would transfer Parcel B lands to the states, or to a designated third-party transferee. The lands would thereafter be managed for public interest purposes (e.g., tribal mitigation, river-based recreation, wetland restoration, etc.) (Klamath Hydroelectric Settlement Agreement [KHSA] Section 7.6.4). Pursuant to the KHSA, decisions about the land transfer would occur following dam removal, and

the outcome of who the lands will ultimately be transferred to and what they will be used for is uncertain.

Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment. Please also refer to Volume I Section 5.4.1 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA – Consideration of Economic Information for Resources Potentially Affected by Dam Removal* (pages 5-4 to 5-11) which summarizes the results of prior economic studies conducted by the U.S. Department of the Interior (DOI) to characterize potential effects on property value.

Comment IND19-ORAL-2

Pg. 4, no. 1. "Improve the long term water quality conditions…levels of biostimulatory nutrients." How will that be accomplished when those nutrients are coming down the River from Oregon? Shut down all farming, but nutrients are naturally high in the Upper Basin from the area soil and also the enormous flocks of waterfowl over the centuries.

Response to Comment IND19-ORAL-2

Please refer to Section 3.2.5.3 *Water Quality – Potential Impacts and Mitigation – Nutrients* Potential Impact 3.2-8 for the analysis of the long-term alterations in nutrients that would occur in the Klamath River due to the lack of interception and retention by the Lower Klamath Project dams, should they be removed and the reservoirs converted to a free-flowing river. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Please also refer to Master Response WQ-1.

Comment IND19-ORAL-3

Pg. 4, no. 2. "Advance the long-term restoration of the natural fish populations in the Klamath Basin…" Poly-chaete worms continue to spread more spores of the C. Shasta and Parvacapsul which attack and kill the smolts. Continued non-natural high flows in the summer enhance the worm populations.

Response to Comment IND19-ORAL-3

Please refer to Master Responses PAP-2, AQF-5, and AQF-6.

Comment IND19-ORAL-4

Pg. 4, no. 3. "Restore…anadromous fish passage in the Klamath Basin…made inaccessible by the Lower Klamath Project dams." Many local old timers, especially descendants of the Shasta Tribe, feel that the natural reefs located at J.C. Boyle or Big Bend, prevented salmon entry into the Upper Basin. Will the Project blast out the reef?

Response to Comment IND19-ORAL-4

As discussed in detail in Section 3.3.5.8 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Habitat*, it appears that there was no "reef" forming a barrier to fish migration at the time that Copco No. 1 Dam was built. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response AQF-4.

As indicated in Volume I Section 2.7.1.2 *Proposed Project – Dam and Powerhouse Deconstruction – Copco No. 1 Dam and Powerhouse* (page 2-30), removal of Copco No. 1 Dam would occur to 20 feet below the pre-dam streambed at the dam such that river bed sediment mobilization through natural channel processes does not expose the concrete foundation of the dam and create a fish passage barrier or prevent river bedload movement to occur.

Comment IND19-ORAL-5

Pg. 5, Reservoir Drawdown, "Copco No. 1 Reservoir would be drawn down first…in year 1…Copco No. 2…in May of dam removal year 2." Won't the moving mass of sediment from No. 1 overtop No. 2 dam by the time demolition work begins, only 0.3 mile downstream, and make removal more difficult?

Response to Comment IND19-ORAL-5

Please refer to Volume I Section 2.7.3 *Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* (pages 2-60 to 2-69), which discusses the particle trapping efficiency of Copco No. 2 Reservoir during drawdown of the upstream J.C. Boyle and Copco No. 1 reservoirs (page 2-61), and finds that sediments released from the upstream reservoirs during drawdown would not accumulate to a significant degree behind Copco No. 2 Dam.

With regard to the more general topic of potential dam failure, as stated in Volume III Attachment 1 Section 3.6.5.2 *Flood Hydrology, Potential Impacts and Mitigation – Risks of Dam Failure* Potential Impact 3.6-6 (page 3-635), Federal Energy Regulatory Commission (FERC) requires a potential failure modes analysis as part of the license surrender application process.

Comment IND19-ORAL-6

Pg. 8, Downstream Flood Control. I was wondering what is meant by "maintain existing flood protection." What besides our hydro dams is flood protection?

Response to Comment IND19-ORAL-6

Please refer to Volume I Section 2.7.8.4 – *Proposed Project – Other Project Components – Downstream Flood Control* (page 2-95), Section 3.6.5.2 *Flood Hydrology – Potential Impacts and Mitigation – River Floodplain* Potential Impact 3.6-3 (page 3-632), and Volume II Appendix B: *Definite Plan* for a description of how the Proposed Project maintains existing flood protection, as described in the Downstream Flood Control Project Component, which would involve relocating habitable structures located within the altered floodplain following dam removal.

Flood protection is also maintained by flood forecasting as described in the Klamath River Renewal Corporation's (KRRC) proposed *Emergency Response Plan*. Please refer to Volume I Section 2.7.8.11 *Proposed Project – Proposed Project – Other Project Components – Emergency Response* (page 2-101), Potential Impact 3.6-3 (page 3-632), and Volume II Appendix B: *Definite Plan*.

With respect to the potential impacts of the Proposed Project's changes to downstream flood hydrology, as well as the Proposed Project's proposal to reduce or avoid such impacts, please refer to Master Response FLD-1.

Comment IND19-ORAL-7

Pg. 11, Historical Resources and Tribal Cultural Resources. Again, early explorers and tribal descendants tell of the very poor water quality of the summer Klamath flow. This Project will not restore to the wonderful water quality of historic conditions.

Response to Comment IND19-ORAL-7

Please refer to Master Response WQ-1.

Comment IND19-ORAL-8

Pg. 12, Water Quality, suspended sediments. This section addresses the "short-term" release of sediments trapped behind the dams. I borrowed a device about 5 years ago from the USDA locally that measures the PPM of particles suspended in water. Here is what I found: my 6 farm ponds ran about 300 PPM, Shasta River at the USGS Weir near Montague 189, my house well was 297, Montague City treated drinking water 150, Yreka Fall Creek treated drinking water 60, Crystal Geyser bottled water 52, Sunnyside distilled water -0-, the Klamath River at the Klamathon Bridge was 65, and Willow Creek which runs into the Klamath just upstream of the Klamathon Bridge measured 116. Are the dams cleaning the Klamath, probably?

Response to Comment IND19-ORAL-8

Please refer to Master Response WQ-1.

Comment IND19-ORAL-9

Pg. 20, Public Involvement and Agency Consultation. "…the State Water Board has consulted with and/or obtained comments from various Native American Tribes, state and federal public agencies, affected local agencies and stakeholders…" Listed are 4 federal agencies, 5 state agencies, 5 Native Tribes, and Siskiyou County, but not Del Norte Co. where you held a Scoping meetings mentioned on pg. 20. Also not on the list are the citizens of Siskiyou County, like in this room, who have submitted comments at meetings, by mail and online, that voted 79% in opposition to dam removal.

Response to Comment IND19-ORAL-9
The agencies and entities listed include those that specifically requested consultation on the Proposed Project. The State Water Board received comments from the Del Norte County Board of Supervisors on the Lower Klamath Project Draft EIR and these comments are being be considered by the State Water Board prior to finalization of this EIR.

With respect to the Siskiyou County vote, please refer to Master Response GEN-2.

Comment IND19-ORAL-10
MR. MEAMBER: My name is Don Meamber, D-O-N, M-E-A-M-B-E-R.

I have a—I have a respect for the dams, because my uncle was John Boyle, and he—he designed all the dams and was in charge of construction of all of 'em. The first two were built before I was born, the next two while I was in college.

Response to Comment IND19-ORAL-10
Please refer to Master Response GEN-2.

Comment IND19-ORAL-11
What I have is some comments about the – about the EIR Executive Summary. One concern is Pacific-—the PacifiCorp land disposition on page 1 and page 8 concerned that – that they might be turned over to California or Oregon State, or the document states "a third party for public interest purposes." The county—the county receives property taxes from the power company now. And if either of those things happen, it will be lost.

Response to Comment IND19-ORAL-11
Please refer to response to comment IND19-ORAL-1.

Comment IND19-ORAL-12
Page—page 4, No. 1. Improve the long-term water quality conditions/levels of biostimulatory. How will that be accomplished when those—when the nutrients are coming down the river from Oregon? Shut down all farming in Oregon? But the nutrients are naturally high in the Upper Basin from the area, geology, and soil and also enormous flocks of waterfowl spent time for centuries there.

Response to Comment IND19-ORAL-12
Please refer to response to comment IND19-ORAL-2.

Comment IND19-ORAL-13
Page 4, No. 2. Advance the long-term restoration of natural fish populations in the Klamath Basin. The polychaete worm continue to spread spores of ceratomyxa shasta and parvicapsula which attack and kill the smolts. Continued nonnatural high flows in the summer enhance worm populations.

Response to Comment IND19-ORAL-13
Please refer to response to comment IND19-ORAL-3.

Comment IND19-ORAL-14
Page 4, No. 3. Restore anadromous fish passage in the Klamath Basin made accessible—inaccessible by Lower Klamath Project dams. Many local long-timers, especially decedents of the Shasta tribe feel the nat—natural reef located at JC Boyle or Big Bend prevents salmon entry into the Upper Basin. Will the project blast out the reef to change that?

Response to Comment IND19-ORAL-14
Please refer to response to comment IND19-ORAL-4.

Comment IND19-ORAL-15
Page 5. Reservoir drawdown. Copco No. 1 Reservoir would be drawn down first in year one. Copco No. 2 in May of dam removal year number two.

Won't the moving mass of sediment from No. 1 over top dam No. 2—Copco No. 2 by the time the demonstration works? And it's only three-tenths of a mile downstream. Are—will that make it more difficult to remove it?

Response to Comment IND19-ORAL-15
Please refer to response to comment IND19-ORAL-5.

Comment IND19-ORAL-16
Page 8. Downstream flood control. I'm wondering what is meant by "maintain existing flood production." What besides our hydro dams has any value for flood protection?

Response to Comment IND19-ORAL-16
Please refer to response to comment IND19-ORAL-6.

Comment IND19-ORAL-17
Historical resources and tribal cultural resources. Again, early explorers and tribal decendents tell of a very poor water quality of a summer – Klamath flows. This project will not restore the wonderful water quality of historic conditions.

One final quote I want to make. I borrowed a tool from the local USDA to measure particles in the water of—on my property and other streams. And in the Klamath River at Klamathon Bridge was 65. Crystal Geyser bottled water is 52. Montague drinking water was 150. Yreka drinking water was 60. And Bill Schmidt just mentioned earlier about the water being cleaner down—downstream of the dams. Well, that measurement kind of confirms it's cleaner downstream than it is above it—above the dams.

Response to Comment IND19-ORAL-17
Please refer to response to comment IND19-ORAL-7.

Meamber, Sheila and Brett, and Krista Grassi

Comment IND49-ORAL-1
DO NOT TAKE THE DAMS OUT!!!

Response to Comment IND49-ORAL-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Comment IND49-ORAL-2
As someone who was raised on a ranch in the Shasta Valley area, but now reside on the Rogue River in Gold Hill, I think I can speak to the issues more than some who have never lived in the area.

I've hiked, hunted and fished in the Marble Mountains, the Russian Wilderness, Trinity Alps, Willow Creek Mountain, Butte Creek, climbed Mt. Shasta more than once and experienced the beauty that this area has to offer.

I used to fish on the Shasta River until the State closed it for Coho spawning and rearing habitat on my family ranch. We restored the riparian natural conditions for the salmon on our stretch of the Shasta River. My father received awards for his efforts from the North Coast Regional Water Quality Control Board in 2007 and the Klamath River Basin Fisheries Task Force in 1996. The point I'm making is that we believe in conservation efforts for the fish and the streams.

My great, great uncle, JOHN C. BOYLE, was the engineer responsible for building the four Klamath Dams targeted for removal.

Response to Comment IND49-ORAL-2
Please refer to Master Response GEN-2.

Comment IND49-ORAL-3
They are still producing clean energy inexpensively and the dams are still in good condition. The dams are storing the pollution from the Upper Basin and making the Klamath River cleaner than it was before the dams were built.

Response to Comment IND49-ORAL-3
Please refer to Master Response WQ-1.

Comment IND49-ORAL-4
It makes no sense to remove the dams not knowing the final outcome of turning lose all the sediment that is stored behind the dams (20 million yards).

Response to Comment IND49-ORAL-4
Sediment modeling used to estimate sediment erosion, transport, and deposition is described in USBR (2012; see pages 9-18 to 9-32 for the model sensitivity analysis). Please also refer to Master Response GEO-1.

For a discussion of how measurement uncertainty associated with the reservoir sediment deposits is accounted for in the EIR analyses, please refer to response to comment ORG46-8.

Comment IND49-ORAL-5
Historically the fish rarely went past JC Boyle Dam, formerly known as Salt Caves/Big Bend, anyway.

Response to Comment IND49-ORAL-5
Please refer to Master Response AQF-4.

Comment IND49-ORAL-6
Most seem to agree that the cost of such a project will be considerable and one of biggest dam removal projects in the country, if not in the world.

Response to Comment IND49-ORAL-6
Comment noted.

Comment IND49-ORAL-7
If the dams are taken out, the River will still have algae and excessive nutrients to feed the algae, which is why the Regional Water Quality Board would not issue a 401 permit to relicense the dams.

Response to Comment IND49-ORAL-7
Please refer to Master Response PAP-2.

Comment IND49-ORAL-8
If this dam removal project doesn't work out, who is going to be liable? Not the KRRC (a shell corporation)! No amount of money will restore people's livelihoods, increase in electricity rates will occur, people's wells will dry up, homes and business' will be prone to flooding, potential loss of water source for fire protection, property devaluation and all other property owners (farmers and ranchers) affected will be forced to make up for the loss if this "experiment" fails.

Response to Comment IND49-ORAL-8
Please refer to Master Responses ENR-1, GRW-1, FLD-1, and HAZ-2. Please note that under CEQA, potential effects from implementing a project that are solely social or economic in nature, such as reductions in property values, loss of property tax revenues, and increases in energy costs, do not constitute an effect (i.e., an impact) to the physical environment.

<u>Comment IND49-ORAL-9</u>
I was born and raised on a ranch in the Shasta Valley, Siskiyou County, California. My family and grandparents and generations before have a long history there.

My father's great uncle was JOHN C. BOYLE who was the engineer that built the four Klamath Dams that are under consideration for removal.

Response to Comment IND49-ORAL-9
Please refer to Master Response GEN-2.

<u>Comment IND49-ORAL-10</u>
The people in Siskiyou County are under siege and have been for as long as I can remember. There are misguided individuals and well- funded organizations that want to see the dams taken out; most of them don't live in the area and never have. They don't understand or don't care what the economic impact this will have on property owners and others that reside in the area – they have their own agenda.

Response to Comment IND49-ORAL-10
Please refer to Master Response GEN-2.

<u>Comment IND49-ORAL-11</u>
Most rely on faulty science and embrace talking points provided to them by others. A lot of them don't really know why they are in favor of taking out the dams other than they are told taking out the dams will make the water cleaner and make it better for the fish; that returning the river to its "natural state" is a good thing.

Those that believe in taking out the dams believe: (1) that it will enable an abundance of Salmon to migrate further up the Klamath River and (2) that the River will be cleaner. The problem is they don't know that for sure as records going back before the dams were put in indicate that the river water was dirty and warm. After the dams were built and with the passage of time, the River is cleaner than it's ever been. There are also records that dispute that Salmon migrated up past the Moonshine Falls near J.C. Boyle Dam.

Response to Comment IND49-ORAL-11
Please refer to Master Response WQ-1 and Master Response AQF-4.

<u>Comment IND49-ORAL-12</u>
These dams are well maintained and provide hydroelectric power as well as other benefits such as recreational use, flood control, fire protection, habitat benefits for many animals, as well- as scenic appeal. The dams are all inspected annually by the State Dam Safety Agency and have reported they're all in excellent condition.

Response to Comment IND49-ORAL-12
Please refer to Master Responses REC-1, TER-1, FLD-1, and HAZ-2. With respect to the scenic quality of the reservoirs, please refer to Section 3.19.5 *Aesthetics – Potential Impacts and Mitigation* Potential Impact 3.19-1, which discusses the loss of open water vistas under the Proposed Project. Please refer to Volume III Attachment 1 for the final Section 3.19 *Aesthetics*.

Comment IND49-ORAL-13
Taking out the dams would not only be an expensive boondoggle, but destroy the fishery and do the opposite by polluting the River with algae and excessive amounts of nutrients from the bottom of the reservoirs and the Upper Basin.

Response to Comment IND49-ORAL-13
Please refer to Master Responses PAP-1 and AQF-4.

Comment IND49-ORAL-14
THE DAMS NEED TO STAY.

Response to Comment IND49-ORAL-14
Please refer to Master Response GEN-1.

Comment IND49-ORAL-15
MS. MEAMBER: My name is Sheila Meamber, S-H-E-I-L-A, M, as in Mary, E-A-M-B, as in boy, E-R. Good evening.

My husband Don and I own and operate a ranch in the Montague area that has been in our family for generations. My husband's family has a long history here in Siskiyou County. In 1886, his ancestors donated a half section of land to form the town of Montague. The Shasta River runs through our property, and we have an exquisite view of Mount Shasta.

I want to disclose that my husband's great uncle was John C. Boyle who was the engineer who built the four Klamath dams that are now under consideration for being taken out.

Response to Comment IND49-ORAL-15
Please refer to Master Response GEN-2.

Comment IND49-ORAL-16
At this time, I would like to share two letters written by my son and my daughter that were submitted to FERC in October of 2017. They were pertinent then and they are pertinent now.

Response to Comment IND49-ORAL-16
Comment noted.

<u>Comment IND49-ORAL-17</u>

From my son, he writes: "As someone who was raised on a ranch in the Shasta Valley area but now reside on the Rogue River in Gold Hill, I think I can speak to the issues more than some who have never lived in the area. I've hiked, hunted, and fished in the Marble Mountains, the Russian Wilderness, Trinity Alps, Willow Creek Mountain, and Butte Creek, climbed Mount Shasta more than once and experienced the beauty that this area has to offer.

I used to fish on the Shasta River until the state closed it for coho spawning and riparian habitat on my family ranch. We restored the riparian natural conditions for the salmon on our stretch of the Shasta River. My father received awards for his efforts from the North Coast Regional Water Quality Control Board in 2007 and the Klamath River Basin Fishery Task Force in 1996.

The point I'm making is that we believe in conservation efforts for the fish and the streams. My great, great uncle, John C. Boyle was the engineer responsible for building the four Klamath dams targeted for removal. They are still producing clean energy inexpensively and the dams are still in good condition.

Response to Comment IND49-ORAL-17

Please refer to Master Response GEN-2.

<u>Comment IND49-ORAL-18</u>

The dams are storing the pollution from the Upper Basin and making the Klamath River cleaner than it was before the dams were built.

Response to Comment IND49-ORAL-18

Please refer to Master Response WQ-1.

<u>Comment IND49-ORAL-19</u>

It makes no sense to remove the dams not knowing the final outcome of turning loose all the sediment that is stored behind the dams, 20 million yards.

Response to Comment IND49-ORAL-19

Please refer to response to comment IND49-ORAL-4.

<u>Comment IND49-ORAL-20</u>

Historically, the fish rarely went past JC Boyle dam, formerly known as the Salt Caves/Big Bend anyway.

Response to Comment IND49-ORAL-20

Please refer to Master Response AQF-4.

<u>Comment IND49-ORAL-21</u>
Most seem to agree that the cost of such a project would be considerable and one of the biggest dam removal projects in the country, if not in the world.

Response to Comment IND49-ORAL-21
Comment noted.

<u>Comment IND49-ORAL-22</u>
If the dams are taken out, the river will still have algae and excessive nutrients to feed the algae which is why the Regional Water Quality Control Board would not issue a 401 permit to relicense the dams.

Response to Comment IND49-ORAL-22
Please refer to response to comment IND49-ORAL-7.

<u>Comment IND49-ORAL-23</u>
If this dam removal project doesn't work out, who's going to be liable? Not the KRRC, a Shell Corporation. No amount of money will restore people's livelihoods. Increase—increase of electricity rates will occur, people's wells will dry up, homes and businesses will be prone to flooding, potential loss of water source for fire protection, property devaluation and all of the property owners, farmers, and ranchers affected will be forced to make up for the loss if this experiment fails.

Response to Comment IND49-ORAL-23
Please refer to response to comment IND49-ORAL-8.

<u>Comment IND49-ORAL-24</u>
And this is to nidify [sic] Brett Meamber, Gold Hill, Oregon.

I have a second letter, but I will save that for later.

MS. RAGAZZI: Do you want to provide it to us today in writing?

MS. MEAMBER: Yes, it is in writing.

MS. RAGAZZI: Okay. Thank you, Sheila.

MS. MEAMBER: Okay.

Response to Comment IND49-ORAL-24
Comment noted.

Reynolds, Chrissie

<u>Comment IND11-ORAL-1</u>
My name is Chrissie Reynolds, C-H-R-I-S-S-I-E, Reynolds, R-E-Y-N-O-L-D-S.

There isn't a day that this issue of dam removal has not impacted me, my life, my health, and well-being mentally and spiritually and physically over the last almost two decades but most especially over the last four years most dramatically.

I live at Copco Lake. I was, in fact, probably created here. My parents along with my mom's parents bought a small A-frame cabin adjoining my three aunts and two uncles A-frame cabin back in the early 1960s. I was born in 1966. These two original properties were the premier cover properties—properties on the brochure of Copco Lake that showcased the Sportsman's Paradise and an ideal lake getaway with country life abounding.

My family saved and sacrificed to purchase these properties as a somewhat close retreat from the Bay Area hustle and bustle and thought it a great place to bring their kids and families; to teach them how to fish, both river and lake fishing—I'm just going to make this shorter.

Every one of my elder family members was interned in concentration camps after the Presidential Executive Order 9066 in 1942. My family was given a few days to settle their businesses and homes, employment and families, pack and put what they could carry in two suitcases and be ready for transport where they were taken to Topaz, Utah, after being at the Tanforan Race Track. My mom was 13. My dad was 17.

I give this historical background here because I—I feel it's vitally important to my ancestors to honor them and help protect what they worked so hard for—they were interned, they came back, they saved, they sacrificed, they bought property as a retreat for themselves—to help protect what they worked for, to defend against enemies foreign and domestic. These liberties that are self-evident must be protected at all costs. My family fought to defend these principals and I will do no less.

I came up every school break and, 20 years ago, I moved here permanently—over 21 years ago.

Response to Comment IND11-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

<u>Comment IND11-ORAL-2</u>
The smear campaign against the negative health impacts needs to stop. The State Water Resources Board has been a major contributor to the spread of mis- and disinformation about the safety of the reservoirs. I have over the last almost 20 years been to meetings, interviewed local doctors, vets, the county health

department, our county supervisors, and our factual evidence does not support the intimidating and often misleading information your postings have. And in fact to me, your postings have caused more harm than the algae itself.

I was part of the studies conducted, and the amount of money that was spent is shameful. The reports came back inconclusive, and yet more studies are what were called for by the ones who get a paycheck to conduct these studies. The people are the ones that are paying for these studies and the people are the ones who are most affected. And yet the people are being undermined, ignored, disrespected and lied to again and again.

I've been to the above-mentioned sources to discuss the effects of geoengineering and the operations being carried about above our heads every day and the denial is criminal on the health impacts—effects. Now, the powers that are on their way out are finally admitting that they are conducting these experiments beginning this year.

Why? They've been doing it for years; why come out in the open now? And that's how I feel about this process going before the Water Board.

For years, the board is one that I have felt that we needed to defend ourselves form. With their postings claiming the harmful, deadly effects that these toxins might or could have on human and animal health impacts. I know the negative health effects on human and animal life and what it has been to property values, our local economy, the psyche, and human—and human perception.

There's maybe a campaign and a blast about the toxic blue-green algae. You know, it's a natural health supplement that's in direct threat to Big Pharma. Cattle—cattle ranchers here are a big threat to Big Ag, rural sustainable living are the big threat to the ones promoting Agenda 1 [sic]. One could say these were intentional attacks.

Response to Comment IND11-ORAL-2

Please refer to Master Response WQ-7. The information on blue-green algae [cyanobacteria] discussed in the EIR represents the best available data on blue-green algae [cyanobacteria] conditions in the Klamath River and the potential health risks due to interactions with blue-green algae [cyanobacteria] and their associated algal toxins.

The science of blue-green algae [cyanobacteria] and their associated algal toxins (e.g., microcystin), including the ability to measure at very low concentrations, has advanced over the past decade. Moving forward, advances in the science should continue to inform our understanding of the potential health hazards of these species and their algal toxins. As such, the water quality thresholds for algal toxins may continue to be adjusted (e.g., lowered) if new information indicates potential chronic impacts from low level exposures to these algal toxins over time.

Please also refer to Master Response GEN-2.

Comment IND11-ORAL-3

Our local government elected by the people has told the states and the feds no over and over. A bi-state water compact was signed in 1957 and is being ignored.

Response to Comment IND11-ORAL-3

Volume I *Executive Summary* Table ES-2 (page ES-23) and in Section 2 *Proposed Project* (page 2-21) acknowledges that during the Siskiyou County Advisory Election Vote on November 2, 2010 (Measure G), approximately 79 percent of voters expressed their opinion and voted "No" to dam removal, while 22 percent voted "Yes". The 1957 Klamath River Basin Compact between the states of Oregon and California is also noted in Section 2.6.1. Additionally, please refer to Master Response CEQ-4 for a discussion of the Klamath Compact Agreement.

Comment IND11-ORAL-4

With the drawdowns of the lake, I see the exposed land, I think of the clams and the mussels and other aquatic life that is left to dry out and die off. I see the eagles and the herons, and I'm filled with guilt and shame at our—at my own species and powerlessness as I see the planes dumping toxic payloads over us day and night.

Response to Comment IND11-ORAL-4

Please refer to Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation* for a comprehensive analysis of the potential impacts of the Proposed Project on aquatic resources. Additionally please see Potential Impact 3.3-19 for a discussion of impacts to freshwater mussels. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources.* Please also refer to Master Response TER-1 for a summary of how the EIR analyzes the effect of removing the Lower Klamath Project reservoirs on wildlife habitat, including raptors other birds.

The comment's assertion that dumping of toxic payloads from planes is occurring in the area is not sufficiently detailed such that the State Water Board can address the concern in this comment response.

Comment IND11-ORAL-5

Can you please explain to me how the aluminum got in the reservoirs that you have i-—identified in the draft document?

My research also showed that the U.S. Military weaponized algae decades ago. Why wouldn't it be logical to conclude that some of these weren't also created by *the very ones who stand to gain? I question the authenticity of the origins of the c. shasta. It isn't in my nature to be confrontational, even negative, but this dam removal issue has turned me into a person who has had to research, go to meetings, be involved, had my eyes opened to the absolute corrupt and evil nature of the operations being done against people every day by their own government.*

Response to Comment IND11-ORAL-5

While aluminum is a naturally occurring element in the Earth's crust, the source of elevated aluminum detected in the Klamath River Basin is currently unknown (California State Water Resource Control Board 2017).

Please also refer to Master Response GEN-2.

Comment IND11-ORAL-6

I have met through this process a beautiful Shasta elder named Betty Hall. Her ancestors were Civil War veterans, Civil War veterans buried under these reservoirs. In this process, I was disgusted to hear some official ask her if she could just pick two of the ancestors to mark somehow. Seriously? These veterans were a part of the very beginning of our history as a nation, and this is the disrespect we get from the government official?

This process introduced me to Rex Cozzalio who is one of the most articulate, intelligent, well-spoken men I've ever met. It's been an honor learning from him about his family's history since his ranch is first in line since before and after the dams were put in.

I'm deeply grateful to Richard Marshall and others of the Siskiyou Water Users for their activism and actions. I got—I've gotten to know so many people united and protecting our water, and I am honored and humbled and extremely grateful.

Response to Comment IND11-ORAL-6

As described in Section 3.12 *Historical Resources and Tribal Cultural Resources* the Shasta Nation was among the tribes that requested consultation under Assembly Bill 52 (AB 52) with the State Water Board regarding the Lower Klamath Project. The Shasta Nation met with the State Water Board and the Klamath River Renewal Corporation (KRRC) in a series of confidential consultation meetings within the timeframe of February 2017 through October 2018. Consultation with the Shasta Nation has informed the analysis in the EIR, but concluded after the Shasta Nation and the State Water Board acknowledged that it would not be possible to reach agreement on mitigation measures, despite a good faith effort to do so. Volume III Attachment 1 presents the final Section 3.12 *Historical Resources and Tribal Cultural Resources.* Please also refer to Master Response GEN-2.

<u>Comment IND11-ORAL-7</u>

We want what is best for all life, not just salmon. Of course, we want what benefits the salmon but not at the cost of everything else. For years, we have asked to include offshore effects to salmon such as ocean fishing from international commercial fishermen, ocean degradation, changing water temperatures due to geoengineered weather and, of course, radiation poisoning from Fukushima. Somehow, these questions just never get answered. The blame is always the dams.

The so-called solution is also dam removal. Alternatives have been offered. Objections have been raised. The process just continues to roll on out like 5G. It doesn't seem to matter what the negative health impacts will be to all life.

Dam removal is the be all end all, and it is a complete fraud and will, in fact, destroy life up and down the river for years and in places perhaps forever. I know what it has done to—to me and yet still we fight.

Response to Comment IND11-ORAL-7

Please refer to Master Response GEN-1. With respect to the commenter's concern regarding how the EIR considered ocean conditions for salmonids, please refer to response to comment ORG30-13.

<u>Comment IND11-ORAL-8</u>

This July, I was under mandatory evacuation for the second time in four years. Please wrap your head around that sentence. The day after I walked my daughter in the Fourth of July parade from the R Ranch stables in the little town of Hornbrook, it was on fire. For several years now, we have brought up over and over again the importance of these reservoirs for fire suppression.

For over nine years, I was on the volunteer fire department. My husband was awarded Siskiyou County Firefighter of the Year in 2008. My daughter was just a few months old then. We live literally right next door to the fire station.

My daughter is ten. She has had to be evacuated twice in her life. First, four years ago when she was six and again this summer.

As a mom, this lake has saved my life both times. I need you to understand that at a very basic level. We've gone through so many fires in the past few years and just in the past few months. Paradise being the latest, deadliest, and most horrifying.

Since then, Jon Lopey, our sheriff, wrote an article on the front page of the Siskiyou Daily News outlining what to do in the event of a fire in response to a need to help save lives. In that article, he tells people what specific actions to take. He validated my survival instinct when he told people to go into bodies of water if they can.

I had that in my head just less than six months ago. I was figuring out how to protect my two cats, dog and daughter if the fire came as close as it did four years ago. I was going to take her and the animals down under the bridge and put a fire shelter over our heads and stay there if we needed to.

When the lake was drained as far down as I've ever seen it in December, I realized I would no longer be able to do that if they took the dams out. It's one thing to go and try to be submerged in a large body of water like a lake for the sustained period of time but altogether different in a swift moving river. How is that going to keep us altogether in that scenario?

I was filled with anxiety and post traumatic stress while driving from just around the corner where I live into my job into Yreka which is 40 minutes away. This is my life. All these thoughts that occurred to me while I try to go to work, homeschool my daughter, and just be a wife, mother, and daughter myself.

I've turned into some always-on-guard, hyper vigilant activist trying to make a difference in this upside down world while we—that has become the new normal.

I worked as a waitress in town. And the amount of fire firefighters that I've fed over the past year and talking to them about dam removal, they all comment how insane it is to remove these reservoirs. None of them can say anything publically because they jobs limit them but, personally, all of them have been against it.

They know the difference between fighting fires with a limited water source to an unlimited water source. They know the difference between a few single holding tanks versus a large, open body of water. They know the difference between being able to dip water out of the lake or a swift moving river with fluctuating water levels, bank and slope stability, dusty conditions, wind conditions, et cetera.

There is no way to replace the ability to fight fires without added loss to lives and property without these reservoirs. It's a no-brainer. No science can be spun to say that these reservoirs didn't play an irreplaceable part of the ability of these fire fighters to deal with these catastrophic life-threatening events.

People died. Water is life. Water is protection against loss of life.

As a human being walking on this planet, if you are not affected by the basic understanding of a family's loss due to fire, don't you—and that you would knowingly reduce a person's ability to protect life by lowering their accessibility to water, then I would argue that one is not human, which I think is often the case in processes like this. We go before a board of people who did not know us, who have no idea where we live or how we live, yet are making decision that affect our everyday lives.

Response to Comment IND11-ORAL-8
Please refer to Master Responses HAZ-2 and GEN-2.

Comment IND11-ORAL-9
I finally overcame the pain to begin to read the draft document that is supposed to be a prelude to the definitive word on this process. And, again, the stress and anger and frustration rears up from zero to 60 in nothing flat. I read the part about the roads and I can feel my eye twitching.

Look, there's only one road in and one road out, Ager Beswick. That road is our lifeline literally. It is the road for the school bus, emergency vehicles, ambulances, doctors appointments which, for our elderly community, is huge; kids after-school sports practices, games, cheer, dance and music lessons, shopping and going to and coming home from work.

It is our everything road. It's a 40-minute drive to town. Any delay is unacceptable.

Response to Comment IND11-ORAL-9
Please refer to Volume I Section 3.22.5 *Transportation and Traffic – Potential Impacts and Mitigation* (starting on page 3-1069) for a discussion of transportation-related impacts. As noted in comment ORG47-56, Klamath River Renewal Corporation (KRRC) has committed to addressing all potential traffic conflicts as part of their Final Traffic Management Plan (TMP). KRRC states that they are committed to ensuring that the TMP *"will maintain efficient and safe movement of the vehicles through the construction zone covered by activities in the Definite Plan".* KRRC's also states that the *"Final TMP would be informed by KRRC's contractor's specific measures and methods for construction and input received from relevant local jurisdictions."* The TMP specifically describes a public input process.

Comment IND11-ORAL-10
If the KRRC was serious about being a good neighbor and improving the quality of our lives, it would have chosen to improve Copco Road, a dirt road where it would not impact anyone's life and it would have improved it for everyone by creating a more usable road for—for all. And this is my problem with the whole dam scam by the KRRC and all the stakeholders trying to improve our lives.

Response to Comment IND11-ORAL-10
Please refer to Master Responses GEN-1 and GEN-2. Comments on the Definite Plan should be submitted to the Klamath River Renewal Corporation (KRRC).

Comment IND11-ORAL-11

You don't know us, you don't know who we are, you don't know how we work, you don't know how it will impact us. You don't think of how much of our money you spend. You don't count how many hours, years, and finances we have lost due to this ongoing environmental threat to our very well-being. The arguments are exhaustive. The stresses and stressors have been huge. The toll has been negative to life.

Friends who believe the newspaper, the TV, and the reports all just tell us, "Hey, it's a done deal, get used to it, the dams are coming out."

What effect do you think this has on us? What health impacts do you think it has? What do you think it does to water quality when the river and the lake is lied about, the science spun, the facts denied, the properties devalued, the river—the people ignored, the government betrayal obvious and the disrespect blatant?

We're going through PTSD from the Boles fire, from the Oregon Gulch fire, the Delta fire, the Klamathon fire, the fires downriver, the Paradise fire, and all the other fires from our friends and relatives outside the area in Santa Rosa, Santa Barbara, Malibu, and out of state. Serious life-threatening issues are being faced by the people. And we're having to take time out of our lives and days and nights and meeting after meeting and public comment period after public comment period.

Are you listening? No dam removal. Our sheriff has told you, our supervisors have told you, the residents have told you, the people have told you, "no, no, no dam removal."

It makes me angry. It makes me crazy. It makes me the kind of person I don't like to be having to go through this one more freaking time.

The impacts to my life, to the lives of the fish, the animals, the wildlife, the warm water ecosystem, the birds that come every year, the plant life, all life is impacted by you who are reading this.

We have been told by our governor that these fires are the new normal. It is completely unacceptable to keep putting our men and our women on the front lines in harm's way when they're up geoengineered intentional fires created with directed energy weapons like Athena by Lockheed Martin and other DOD and not yet revealed to the public technologies.

Response to Comment IND11-ORAL-11

Please refer to Master Responses GEN-1, GEN-2, TER-1, and HAZ-2.

<u>Comment IND11-ORAL-12</u>
Historically, the U.S. Military and its corporate benefactors have used weapondry [sic] far in advance of its enemies such as with rifles against the Native Americans, Howitzers against Japanese Swords, biotechnology against an unsuspecting public and with nano particulates and heavy metal toxins and biological agents being sprayed every day, our firefighters need our help in protecting themselves against these new horrific advances in weather warfare as outlined in the military manual Owning the Weather by 2025.

These heroes are our husbands, wives, fathers, mothers, aunts, uncles, grandparents, sons and daughters and nieces and nephews. Fire season is now year round. That is time away from their homes, their families, children while their live-—while they fight all over the state and country and are not there to protect their own home.

Response to Comment IND11-ORAL-12
The comment's assertion that the U.S. military is spraying biological agents, nano particulates, and heavy metal toxins on the public is not sufficiently detailed such that the State Water Board can address the concern in this comment response. Further, this portion of the comment does not focus on the sufficiency of the EIR in identifying and analyzing the possible impacts on the environment and ways in which the significant effects of the project might be avoided or mitigated (CEQA Guidelines section 15204(a)).

<u>Comment IND11-ORAL-13</u>
The Water Board should no longer be complicit in denial of these realities and be doing their job in protecting the water quality by going after the real terrorists who are using these toxins in our everyday environment. Water sampling shows these things are in our environments as well as soil samples. There are lab results from all over the globe showing this but, specifically to California and Siskiyou County, the results are conclusive.

Why hasn't the Water Board addressed any of these public health concerns? Why is denial and suppression the agenda rather than truly fulfilling public safety?

Response to Comment IND11-ORAL-13
Please refer to response to comment IND11-ORAL-12.

<u>Comment IND11-ORAL-14</u>
We know for a fact that there have been several omissions in the draft document as to the exact number of wells sampled, which clearly if there's any incomplete information will lead to an incomplete conclusion.

Response to Comment IND11-ORAL-14
Please refer to Master Response GRW-2.

Comment IND11-ORAL-15

We also know that these reservoirs provide a large natural firebreak that a free-flowing river cannot protect against.

Response to Comment IND11-ORAL-15

Please refer to Master Response HAZ-2.

Comment IND11-ORAL-16

I experience that firsthand in the Oregon Gulch fire as we moved from our home on Mallard Road to my parent's cabin on Ager Beswick on the south side of the lake. The north side was completely engulfed because—but because we were at a wide part of the lake at my parent's cabin, it provided sanctuary for us.

Like I said, we live right next door to the fire station. Station 210 was the incident command center for the Oregon Gulch fire. Theoretically, I should have felt the safest there. Apparatus, fire personnel equipment were all staged right next door, but that fire was outside my living room window. Our front door facing the raging fire. Heavy winds picked up at 10 o'clock that night and there were four humble heroes from Santa Barbara in wildland gear protecting my home. I chose to go to the cabin the next day because it was too terrifyingly close.

At the time, we had four cats, two dogs and my six-year-old daughter and it was too much to try and manage. You need to realize that for people to evacuate what that entails. Maybe it's an epigenetic trigger, but you have to focus on the essentials and what you can carry or keep contained in the event of pets or small children. Flames are coming at you. The trees and the mountains you love are burning alive.

I was thinking of my neighbors who are all over 70 with a few exceptions in their 60s. Phil and I are the younger ones here. Few are able to afford to go to a hotel. Sleeping in a gym or on the fairgrounds with pets and livestock? Come on.

Friends with chickens, goats, horses, sheep and cattle, ducks and dogs are not able to just stand around and just round them up at an instant and do what? Go where? For how long?

People are going to stand. They're going to shelter in place. They're going to fight for their survival. Are you standing with us? Are you protecting the water truthfully?

Response to Comment IND11-ORAL-16

Please refer to Master Responses HAZ-2 and GEN-2.

Comment IND11-ORAL-17

The water quality is bad coming in from Oregon. It leaves cleaner after the reservoirs.

Response to Comment IND11-ORAL-17

Please refer to Master Responses WQ-1 and PAP-1.

Comment IND11-ORAL-18

These reservoirs provide habitat for many species that will simply cease to exist going from a warm water environment to a free-flowing river. The bass, crappie, yellow perch, catfish, bluegill, pumpkinseed, frogs and other amphibians and reptiles, the migratory birds like the osprey, the arctic and Caspian terns, the gulls, the turkey vulture, the white pelicans, the swan, the specks, the mergansers, spoon-billed beak, wood ducks, mallard and sandhill crane are—and large mammals like the bighorn sheep, elk, deer, bear and mountain lion, all of God's creatures that come—have become dependent on this water system.

Yes, many of them were introduced. Most people in America were introduced. It's a fact. It's what makes America what it is. We are a melting pot protected by—we're all supposed to be free. We're supposed to be protected by the Constitution. We're supposed to care for one another.

Response to Comment IND11-ORAL-18

Please refer to Section 3.3.5 *Aquatic Resources - Potential Impacts and Mitigation* for a comprehensive analysis of the potential impacts of the Proposed Project on aquatic resources, including non-native fish in the Lower Klamath Project reservoirs. Volume III Attachment 1 presents the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response TER-1 for a summary of how the EIR analyzes the effect of removing the Lower Klamath Project reservoirs on wildlife habitat, including raptors other birds.

Schmidt, Bill

Comment IND7-ORAL-1, Speaker Card

Do you Have A way to clean the water as well as the Dams?

Response to Comment IND7-ORAL-1

Thank you for your comment. Please refer to Master Responses WQ-1 and PAP-1.

Comment IND7-ORAL-2

MR. SCHMIDT: I'm Bill Schmidt. B-I-L-L, S-C-H-M-I-D-T. I live on the Klamath River.

One of my main things is, okay, the dams were built. Your science says that the water quality above the dams is worse than below the dams because it's natural. Okay. You said you—you reviewed that there's a couple times a year that it *wasn't – it wasn't good. Okay. You can put a snorkel in – in Iron Gate and cool your water and aerate it.*

Response to Comment IND7-ORAL-2
Please refer to Master Responses WQ-1 and WQ-2. In addition, multiple technologies have been tested by PacifiCorp to minimize the water quality impacts of the dams, including a powerhouse intake curtain for improving water temperature and turbine venting for improving dissolved oxygen conditions downstream of the dams. To date, available water quality data do not indicate that these technologies can sufficiently improve water quality downstream of the dams to meet water quality objectives. Please refer to Section 3.2.2.2 *Water Quality – Environmental Setting – Water Temperature* and Section 3.2.2.5 *Water Quality – Environmental Setting – Dissolved Oxygen* for further details on these technologies. Volume III Attachment 1 presents the final Section 3.2 *Water Quality*.

<u>Comment IND7-ORAL-3</u>
As far as fish habitat, historically, you have some archaeological finds up in the Upper Klamath. They found fish bones, but they didn't find any fish heads. What does that say? It says it carried the fish for a long ways. They—they probably caught 'em down about the Shasta River, maybe up to where the Iron Gate is, because Iron Gate had—has a natural reef to start with and, above that, the canyon gets narrow, deep, hot and on.

Response to Comment IND7-ORAL-3
Please refer to Master Response AQF-4.

<u>Comment IND7-ORAL-4</u>
So I—if you remove the dams with the sediment, you're going to kill the river for decades. And if you kill it for over three years, then you don't have any salmon that runs at all.

Response to Comment IND7-ORAL-4
Please refer to Master Response AQF-10 and Potential Impacts 3.3-1, 3.3-4, 3.3-7, 3.3-8, and 3.3-9 in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts.* Substantial declines in the abundance of coho and chinook salmon population are not expected for more than one-year class (i.e., one generation). Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Silva, Veronica

<u>Comment IND61-ORAL-1</u>
MS. SILVA: Okay. Hi. My name is Veronica Silva. That's V-E-R-O-N-I-C-A, S-I-L-V-A.

So the decisions being made in this room tonight do not only stay in Siskiyou County. The Klamath River weaves so many communities inextric-—inextricably together. This is something we know and we see.

In agreement with the findings of the Draft EIR, I am urging California to issue the dam removal permit. The narrative—the myth that we're hearing even in this room that agriculture is pitted against dam removal is simply not true. It's dangerous and it's divisive. Dam removal will not impact irrigation delivery or agriculture. In fact, it benefits the systems that we all rely on.

Removal of the dams would not only improve water quality but would also restore critical native fish populations on which fisheries, tribal communities, all communities and their local economies rely.

Please remove the dams. That is all I have to say.

Response to Comment IND61-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Staats, Jenny

Comment IND29-ORAL-1
MS. STAATS: Hi. My name is Jenny Staats, J-E-N-N-Y, S-T-A-A-T-S.

And I just wanted to talk about some of the potential impacts to dam removal that I see and some impacts that I'm already seeing.

I've been a part of the fight to remove dams for the last 15 years. I was like a kid then. I think some of the folks here would think maybe I still look like a kid now which is awesome. It also means that I have, you know—I have maybe, like, 60 years left to keep on doing this. But I'm not going to need to because I feel like this is a moment where I can be here to celebrate the work that people have done thus far to get us to where we are now.

When I first started this, I was an educator. I'm still an educator now. And one of the impacts that I've seen with the youth I work with is just a really positive self-identity and really positive self-esteem when it comes to issues about the river, when it comes to fighting for the river and fighting for water quality. And that's something that I think is going to happen or continue to happen when these dams come down.

You know, we talk about the impacts to the environment but also the – the social impacts of this have already been so great and – and will be when the dams come down so –

UNIDENTIFIED SPEAKER: Are you not listening to what's going on?

MS. STAATS: So, you know, people try to say that this is like a fish versus farmers issue or like conservative or lefties with progressives, but that's never been what's it about. There's deeper root issues here.

And, you know, having – working with kids and being able to see within their eyes their understandings of what these things really are about. And it's that difference between, like, a paradigm of fear of scarcity and fear in general, an exploitation and power over people versus, like, mutual aide and sharing and a holistic way of looking at community health.

And I live in – I'm a settler in the Karuk tribe and central [phonetic] territory. I'm an EMT with the volunteer fire department. I see people on their worst days in their worst emergencies. I'm who shows up when people are having physical crisis, mental crisis. And from that perspective, I think the impacts are going to be just so far-reaching when we see healthy water and healthy people due to dam removal. This isn't going to kill us all. This is going to – it's going to be saving lives.

And there was a – you know, people speaking about things that were written from the 1850s, and I think it's important to look at who was writing those things at that time and kind of the history that's been expressed was in 1850 when the State of California was being created. That was also when the Act for the protection of Indians which was for – basically, for slavery was happening. And so at this point in time as a settler on the river, I feel really honored to have this opportunity to be a part of making things right again, making things right and healthy for all the people on this river.

So thank you for being here and continuing this work going forward.

Response to Comment IND29-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Still, Nita

<u>Comment IND41-ORAL-1</u>
Our Father Mother Principle created this earth as well as We the People, and told us to take dominion over the earth and all thereon. Yet you and all of the thousands of agencies which have been created by our government have put us on the bottom of the list and made fish, animals, bugs, birds and the environment more important than We the People.

You have taken our Liberty's, Rights, Freedoms, Lives, Liberties, Properties and Water, as well as our Happiness and trashed them by using and creating laws which remove all that we cherish and with which we are able to function.

You need to wake up and see what you have done and are doing. We voted over 79 % to keep the Dams. We do not want the beauty or usefulness of the

Klamath River destroyed! Keep the Dams in place, they give us clean air, cleaner water, and reservoirs to fight all of the fires! The KRRC was not voted on the do any thing, yet they seem to be part of an unauthorized group usurping, without legal Authority, our Rights.

Response to Comment IND41-ORAL-1
Thank you for your comment. Please refer to Master Responses GEN-1, WQ-1, and HAZ-2.

Comment IND41-ORAL-2
My name is Nita Still, N-I-T-A, S-T-I-L-L.

And I'm just a person that would like to see the dams stay there because it would make the rivers beautiful.

Our father-mother principal created earth as well as we, the people, and told us to take dominion over the earth and all thereon. Yet, you and all of the thousands of agencies which have been created by our government have put us on the bottom of the list and made fish, animals, bugs, birds, and the environment more important than we, the people.

You have taken our liberty, rights, freedoms, rights, liberties, properties, and water as well our happy nation, trashed them by using and creating laws, which remove all that we cherish and with which we also function.

The Endangered Species Act is what—you need to wake up and see what you have done and are doing. We voted over 79 percent to keep the dams. We do not want the beauty or usefulness of the Klamath River destroyed.

Keep the dams in place. They give us clean air, cleaner water, and the reservoirs to fight all of the fires.

The KRRC was not voted on to do anything, yet they seem to be part of an unauthorized group usurping, without legal authority, our rights.

Response to Comment IND41-ORAL-2
Please refer to Master Responses GEN-1, WQ-1, and HAZ-2.

Tibbetts, Isabella

Comment IND27-ORAL-1
MS. TIBBETTS: My name is Isabella Tibbetts, I-S-A-B-E-L-L-A, T-I-B-B-E-T-T-S.

I'm a private citizen and an indigenous woman. I traveled from Southern Oregon in support of the mov-—of the removal of these four dams. The lower four Klamath dams blocks hundreds of miles of historic spawning grounds while *creating—for salmon while creating conditions that cause fish diseases and parasites.*

The dam reservoirs will host—most—massive blooms of toxic algae each year posing health risks to people and animals who rely on these rivers.

I agree with the Draft EIR of—of the removal of these dams, that is—it is the only alternative that complies with California's Clean Water Law. Removal of these dams will help bring salmon back to the Yurok, Klamath, Karuk, and Hoopa Valley tribes and help restores the coastal fishing industry.

I am here as an ally with all people who are impacted by these dams. Help restore the salmon to our streams. Remove these dams for the people, the water, and the salmon.

Thank you.

Response to Comment IND27-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Utley, Chloe

Comment IND10-ORAL-1
MS. UTLEY: My name is a Chloe Utley. That's C-H-L-O-E, U-T-L-E-Y.

And I am an individual community member living in the Orleans area, and I came here to offer my wholehearted support in the removal of the dams and gratitude for all of the people that worked so hard for so many years. There's the 15 years of the campaign, but then there's the generations and generations of people before that that have lived their lives committed to the health of the rivers.

And I support the removal of the dams and we've come so far that I just want the process to continue. And I also support tribal sovereignty and the efforts of the local tribes to the commitment to restore and maintain the health of the river and their people and the salmon.

And this dam removal is about this community and this place, but it's also about the planet. And this is an action that the rest of the world can look to and really gain inspiration from. So this, I think, ultimately is something that our communities can be so proud to be a part of as our entire planet faces really transformative crisis and change, making a move to remove dams that should never have been built and honor tribal sovereignty on their land is something that is crucial to the survival and the thriving of our species and our planet, so I support it.

And thank you.

Response to Comment IND10-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Warner, Grace

Comment IND25-ORAL-1, Speaker Card
SUPPORT ALL 4 DAMS BEING REMOVED

Response to Comment IND25-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND25-ORAL-2
MS. WARNER: Hi. My name is Grace Warner, G-R-A-C-E, W-A-R-N-E-R.

I live in Josephine County, Oregon, and I traveled down here to voice my strong support for the full removal of all four dams. I believe and support the Karuk, Yurok, Klamath and Hoopa Valley tribes in their position that the removal of these dams is what is best for the health of the river, the salmon, and their people.

I also want to express gratitude to all the people who have fought to bring us to this moment and thank you to you all for being here.

Thanks.

Response to Comment IND25-ORAL-2
Comment noted.

2.4.2 Arcata Public Meeting—February 6, 2019

This section presents comments received on the Draft EIR during the Arcata public meeting on February 6, 2019, and the State Water Board's responses to those comments. Oral comments (including written comments submitted at the public meeting) and responses in this section are organized alphabetically by affiliation name, and for individuals, by last name, first name, following the set of commenters with affiliations. To determine whether your comment is associated with another meeting location, please refer to Table 2-3.

Table of Oral Comments and Responses for the Arcata Public Meeting

County of Humboldt, Steve Madrone

Comment LA2-ORAL-1, Speaker Card
Humboldt Cty. Supports DAM Removal

Response to Comment LA2-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment LA2-ORAL-2
MR. MADRONE: How's that? Great.

Good to see this big turn out this evening. So, as first speaker, I just want to say that Humboldt County is fully supportive of removing these dams and is in support of the Tribes in that regard.

We recognize that there are going to be short-term impacts from doing this. But the long-term benefits far outweigh all of that. And so I'm just going to keep my comments very brief so others get a chance to speak.

And, you know, we look at all of the various mitigation measures and other things that are recommended. That seems adequate to me to be able to move forward with this project. It's long overdue. It's time to stop the damage or the dam-age, however you want to look at that.

So I am very excited to be here in support of this effort. Appreciate the work of the State Water Board in regards to protecting our water. Clearly our water quality has lots of problems.

Anyway, so clearly removing these dams does provide tremendous long-term benefits to our water quality, both in temperature as well as all the pollutants from the blue algae and other things. So I'm just going to leave it at that at this point. Perhaps I might make some comments later with my time. At this point, I just wanted to say we're fully supportive with the Tribes in our community to make this happen. So let's get started, get it done.

Thank you.

Response to Comment LA2-ORAL-2
Please refer to Master Response GEN-1.

Comment LA2-ORAL-3
MR. MADRONE: It is a full circle that we live in. A circle of community and salmon and everything else.

So you've received a letter from our board, the board of supervisors from Humboldt County. Just mailed, I believe, yesterday and supporting dam removal. And I just want to make it clear that the Humboldt County Board *supported that letter unanimously. And for anybody that knows our board here in Humboldt County, that is no small achievement, right?*

So a unanimous decision on our part to move that forward. The supervisor from this district, Supervisor Wilson, wanted to be here tonight. He's at a meeting in freshwater working with that community working on watershed planning and a lot of important things. So lots going on in our community.

I did want to say a couple more things. Thank you for the chance to come up again.

First of all, the draft EIR concludes that the dam removal improves water quality. They got that right. This includes getting rid of the blue-green algae and fish disease problems below the dams. But I agree with Denver Nelson and Felice that this is a beginning. It's a good beginning. We absolutely need to do this. But we have to be looking at these other dams as well.

The draft EIR says that the sediment impacts will be temporary while the long-term benefits are stronger runs of salmon and better water quality. Excellent point.

The draft EIR clarifies that dam removal will not affect irrigated agriculture. It will not affect irrigated agriculture. None of the dams we are removing provide agricultural diversions. And I know you all know that. But that's an important thing because that gets confused in the discussions open upriver. The draft EIR clarifies dam removal will not affect summer river flows that's controlled further upstream, the BOR project.

It's also true that power rates will be lower for the customers with dam removal because keeping the dams with the necessary repairs and building fish ladders costs more than the electricity is worth.

We're seeing the same thing on the Eel River. That will be next.

Response to Comment LA2-ORAL-3
Comment noted.

Comment LA2-ORAL-4
Furthermore, this was a comment about removing the dams removes some water storage for fires. We are certainly having some pretty catastrophic wildfires. But that too can be mitigated with off channel storage. In the Mattole River we've done a lot of work with storage and forbearance.

I think we're all going to be storing our winter rain water very soon here, all of us and forbearing from pumping from our creeks and rivers in the summer time so that the salmon have what they need in the river to survive. So having that *storage is another way to solve a lot of our problems including firefighting supplies.*

Response to Comment LA2-ORAL-4
Comment noted.

<u>Comment LA2-ORAL-5</u>
So in sum, the Humboldt County Board of Supervisors and, I believe, many people in our community agree that the key findings of the document, we agree with those key findings and we support the proposed project. It is time for balance and healing. It is time to stop the dam-age, the damage. And it's time to undam the Klamath.

Response to Comment LA2-ORAL-5
Please refer to Master Response GEN-1.

Del Norte Economic Development Corporation, Eli Naffah

<u>Comment ORG11-ORAL-1, Speaker Card</u>
for the economic development of the region & the growth of commercial & recreational salmon fishing

Response to Comment ORG11-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment ORG11-ORAL-2</u>
MR. NAFFAH: Eli, E-L-I, Naffah, N-A-F-F, like Frank, A-H.

I'm here—I am president of the Del Norte Economic Development Corporation. And I used to be city manager in Crescent City.

And we've been trying to grow the local economy. And having lived in southern California before and then also in the Bay Area and then 17 years between Humboldt and Del Norte, we really need to focus on whatever economic opportunities we do have. And the fishing industry is one great opportunity that we could build upon. Crescent City and northern California is the number one harbor—Crescent City's the number one harbor as far as generating the crab fishing. And I think we have a great opportunity, if we can get the Klamath dams removed, so that we can bring the salmon industry back and hopefully have the Crescent City Harbor thrive like it did before.

I see a lot of activity now even with the crab. And I think we can have so much more activity with the salmon. As the Economic Development Corporation, we're always interested in creating jobs between the recreational and the commercial fishing industries. You know, again, building on the businesses and helping those businesses grow and succeed. So our region, unlike some of the benefits that you might have in the metropolitan area, where you can have—you know, *like Silicon Valley and so on, there's limited opportunities that we have here. We need to try to capitalize on those opportunities. And growing the fishing industry would be a huge benefit.*

Response to Comment ORG11-ORAL-2
Please refer to Master Response GEN-2.

Environmental Protection Information Center, Native Rights Council, Amber Jamieson

<u>Comment ORG2-ORAL-1, Speaker Card</u>
I support the Klamath Dam Removal Project

Response to Comment ORG2-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment ORG2-ORAL-2</u>
MS. JAMIESON: I'm Amber Jamieson, J-A-M-I-E-S-O-N. And this is my son, Madrone, M-A-D-R-O-N-E.

And I work for the Environmental Protection Information center. And I'm on the board of directors for the Nature Rights Council. And I support the Klamath Dam Removal Project. I want to applaud you for the progress you've made towards decommissioning the dams and also encourage you to act swiftly because our salmon runs are disappearing at an alarming rate.

Today the Fish and Game Commission listed the Salmon River spring Chinook as a candidate species under the California Endangered Species Act. So this means that they're now getting full protections until permanent protection can be put into place and determinations made to do that.

This is very relevant because last year was one of the lowest wild spring Chinook runs in the Klamath River.

As Regina said, you know, when we did the fish counts on the Salmon River, there were only a few hundred left.

So unless we expedite the dam removal process, we're going to miss our chance to restore the Klamath salmon fisheries. And the dams are blocking, you know, the upper basin which is the main habitat for the spring Chinook.

And so, if we don't get these dams out right away, spring Chinook fisheries may not survive. So this is my seven-year-old son, Madrone. He's been fortunate enough to grow up in a family with a fish biologist. My husband (Inaudible.) is at a Fish and Game hearing otherwise, he would be here testifying himself.

But we're on the brink of losing it all. Although he's seen fish spawning in the wild, you know, they might not be there for much longer.

So these fisheries are not only the lifeblood of river communities and the tribes, but we see how they're also a keystone species that holds our rivers, our forests, and the ocean ecosystem I balance.

So for these reasons, I urge you to move as swiftly as possible, within all your capabilities to get these dams off of the Klamath River so that we can begin restoring the salmon fisheries before it's too late.

Thank you for your work.

Response to Comment ORG2-ORAL-2
Please refer to Master Response GEN-1.

Friends of Del Norte, Eileen Cooper

Comment ORG10-ORAL-1
MS. COOPER: Eileen Cooper, E-I-L-E-E-N, C-O-O-P-E-R. I'm vice president of Friends of Del Norte. And we have been following this process for a very long time. And it's exhaustive. We so appreciate all of the hard work that this agency has put into making sure that this analysis addresses what it needs to address here. And we, at this point, feel that we cannot waste another stitch of time.

The salmon need our help. Way back when this process started, I was wondering: Wow, 2020 is so far off. Will the salmon still be here to help them?

And here we are, almost there. And they're waiting. We got lucky. We may not be so lucky in the near future if we don't take this action now. The salmon face longer, dryer summers. We see this happening, and so please do not delay and make this happen. Make this, what could be a dream come true, real.

And we appreciate your great effort. More needs to be done in the future, definitely. But this would be a great stride forward.

Response to Comment ORG10-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Friends of the Eel River, Scott Greacen

Comment ORG19-ORAL-1
MR. GREACEN: My name is Scott Greacen, S-C-O-T-T, G-R-E-A-C-E-N. I'm conservation director for Friends of the Eel River.

We strongly support Klamath dam removal. And I want to echo the urgency that my colleagues have – those guys have expressed.

Response to Comment ORG19-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG19-ORAL-2
I want to pull back a little bit and think about the larger significance of this process. It's really important to learn how to fix our mistakes. We all make 'em. But we've got to learn how to make things better after we make them. And as your work shows, some dams make sense, but some don't. And those that don't make sense should be removed. And this process is really, really important because, to restore fisheries, to do justice, we need to understand what it is we've done wrong and how we've messed things up.

So this is a historic opportunity, not only for the Klamath but, as others have pointed out, for California and for the greater American west. We've got a lot of other dams that need to come out. Not all of them, but some of them. And your work here and all the efforts that have brought this movement to this moment is ongoing to echo in river canyons all over this country.

Response to Comment ORG19-ORAL-2
Please refer to Master Response GEN-2.

Green Party of Humboldt County, Erik Rydberg

Comment ORG50-ORAL-1, Speaker Card
It's time for watershed renewal

Response to Comment ORG50-ORAL-1
Thank you for your comment.

Comment ORG50-ORAL-2
MR. RYDBERG: (Inaudible.) Ashokawna is my watershed which is the Russian River. I just want to second what our young relatives just said about culture, how these things are absolutely dependent on our watersheds that we've had for thousand of years. And also Scott who just recently said this. It's much bigger. Its decades and decades of struggle of local people that are Wiyot or Yurok or Hoopa relatives here. But that struggle, the success of that struggle has ripple effects for communities that have been in similar struggles throughout California.

My family's been a part of fighting for our watershed for decades. The dams warm the springs. The dam destroyed our basket-making materials through the years of the California Indian Basket Weavers Association that my family's been involved with. We had to simply—all of the effects of these dams have just caused such damage to culture, to our animals, our non-human relatives.

So success here—hard fought success here for all these people, our indigenous relatives, will have the kind of ripple effects for other people who are fighting in other watersheds, tributaries of this watershed we're fighting for here.

It's so important that this happen. Especially in this time of climate change, including the reason these dams are here in the name of this industrialized progress that has caused such disaster all over the globe. We're in a time of change, a time of realizing that, you know, progress for profit or for means of producing energy that are becoming irrelevant really compared to other things that are optional. We're in a time where we are going to ned a change, massive change.

And this is one of those things that has such ripple effects in such positive ways for all of our indigenous relatives, for everyone who has made this their home now, who are burying their dead on our indigenous lands, now made it their home, it's going to have positive ripple effects throughout the State of California and serve as an example for the rest of the country and the globe. Because what's happening here is a very human situation that is happening all over the globe.

And we need to collectively, as human beings, realize that the earth—we have no other option. The earth is the only place we have to live. And, you know, fossil fuels. We can't just burn gases and oil and get out of anything. We're going to need our non-human relatives. We're going to need our watersheds. And we're going to need our forests to continue to survive and raise our children and other generations.

Response to Comment ORG50-ORAL-2
Please refer to Master Response GEN-2.

Comment ORG50-ORAL-3
So I beg you to take a look at what's being asked here today—tonight and push forward for the removal of the Klamath dam. Thank you.

Response to Comment ORG50-ORAL-3
Please refer to Master Response GEN-1.

Green Party of Humboldt County, Move to Amend, Kelsey Reedy

Comment ORG13-ORAL-1, Speaker Card
Strongly support the findings of the Water Board staff that the proposed project of complete dam removal is the environmentally superior alternative.

Response to Comment ORG13-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG13-ORAL-2

MS. REEDY: Hello. My name is Kelsey Reedy, K-E-L-S-E-Y, R-E-E-D-Y. And I'm here as the chair of the Green Party of Humboldt County and the coordinator of the Humboldt Move to Amend. And we're here in full support of the removal—the complete removal of the dam. And this is a pretty obvious thing for all of what it is that we stand for. We stand for, you know, the rights of nature. We should be putting the life of water and the life of the creatures that are surviving off of the water ahead of profit.

It is always people over profit; always planet over profit.

And so we fully support the removal.

Response to Comment ORG13-ORAL-2

Please refer to Master Response GEN-1.

Klamath River Renewal Corporation, Dave Meurer

Comment ORG7-ORAL-1

MR. MEURER: Good morning. My name is Dave Meurer, M-E-U-R-E-R. I'm the community liaison for the Klamath River Removal Corporation. I'm speaking on their behalf tonight.

Klamath River Removal Corporation is part of a cooperative effort to reestablish the natural vitality of the Klamath River to support all communities in the basin. KRRC's job is to take ownership of four PacifiCorp dams and to remove those damns, restore formerly inundated lands and implement required mitigation measures in compliance with all applicable federal, state, and local laws and regulations.

KRRC is seeking regulatory permits to accomplish this project including water quality sensor in the State of California.

Response to Comment ORG7-ORAL-1

Thank you for your comment.

Comment ORG7-ORAL-2

The DEIR is an impressive and thorough review of the potential benefits and impacts of removal of the Lower Klamath Project hydroelectric dams on the Klamath River. KRRC commends the water board and staff and your consultant for its work on this analysis. We think there's quite a bit community members and stakeholders to learn from it.

The DEIR shows the proposed project to be environmentally superior compared to the six alternatives to the project that the water board analyzed in terms of both project benefits, negative impacts. The report shows that most potential *impacts from the project are small and short term and can be reduced with mitigation.*

It also shows many project effects are beneficial in the short and long term which is an important finding for those who are interested in the long-term health of the Klamath River and community and the ecosystems that depend on it.

The DEIR shows the proposed project protects water quality by restoring the free-flowing conditions of the river and insures volitional fish passage and that the project will be a boom to salmon and steelhead populations. Many of the species expected to recover following dam removal are tribal trust species that are important to the culture and health of some tribes on the Klamath River.

The DEIR also shows an expected increase in recreational and commercial fishing industries.

KRRC is pleased with these findings in the DEIR and looks forward to the final EIR in obtaining other required permits and then implementing the project, including mitigation measures to enhance benefits and reduce adverse impacts.

KRRC will be submitting written comments regarding this DEIR in the near future. We are encouraged that this DEIR brings KRRC one step closer to project approval.

Response to Comment ORG7-ORAL-2
Please refer to Master Response GEN-1.

Pacific Coast Federation of Fishermans Association/HEMA, Dave Bitts

Comment ORG6-ORAL-1, Speaker Card
SUPPORT DAM REMOVAL FOR FISH

Response to Comment ORG6-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG6-ORAL-2
MR. BITTS: I'm up. Okay. Good. That's B-I-T-T-S. I'm a locally-based commercial salmon fisherman. And I'm speaking on behalf of the Pacific Coast Federation of Fishermen's Associations.

We represent commercial salmon fishermen from Crescent City to Santa Barbara. And we are – although most of the fish we catch come from the Sacramento River, we do catch some Klamath fish. We're utterly dependent on large, robust populations of Klamath fish in the ocean in order to get the opportunity to go fishing at all and hopefully to catch a lot of those Sacramento River fish.

We have been working on dam removal for close to 20 years. We've been working side by side with the Tribes and, for the most part, arm and arm with them. And it has been, I think, a very fruitful process for all of us.

Response to Comment ORG6-ORAL-2
Please refer to Master Response GEN-2.

Comment ORG6-ORAL-3
Felice is right. Clearing these dams out is not going to fix everything. But it's probably the single biggest step that can be taken to improve water quality below the dams, obviously to open up habitat above to make life better for fish in the river and make life more abundant, maybe better for all the people on the river. And in the ocean we depend on these fish. I find some irony that we need a water quality certification to take the step that's going to improve the water quality. But I guess that's the way it is.

And four of these things that are listed are nutrients, organic enrichment, (Inaudible.), temperature and blue green algae, this is the single biggest thing that can be done to deal with all of those problems.

Response to Comment ORG6-ORAL-3
Comment noted.

Comment ORG6-ORAL-4
One thing that concerns me quite a lot—I've seen this for the first time in the overview section here—alternative of four-damn removal with no hatcheries.

Now, I think we're all hoping that eventually, no hatcheries will be needed. But it's been my understanding that there is funding in the project proposal to operate the existing hatchery or replacement for it for eight years or thereabouts. And I would hope that we are prepared to evaluate the progress of increased natural runs in the river and adjust the hatchery outflow accordingly until hopefully, eventually, we don't need the hatcheries anymore. If we just shut them down immediately, I think that would be a mistake.

Thank you.

Response to Comment ORG6-ORAL-4
The Lower Klamath Project EIR presents a range of reasonable alternatives to the Proposed Project. Volume I Section 4.1 *[Alternatives Selection/Overview]* (pages 4-1 to 4-15) discusses 17 potential alternatives in relation to the Proposed Project's underlying purpose and objectives, six of which are examined in detail. Of these six alternatives, two involve removal of all four Lower Klamath Project dams, and four involve two or three dams remaining in place. Potential impacts and beneficial effects are identified for each of these alternatives in the EIR and

each will be fully considered by the State Water Board before certifying the EIR (CEQA Guidelines section 15090).

As stated in Volume I Section 4.1.1.1 *[Alternatives Selection/Overview] Alternatives Carried Forward for More Detailed Analysis* (page 4-6), the No Hatchery Alternative emerged from scoping concerns regarding the water source for the Iron Gate Hatchery, and in light of uncertainty regarding whether the Fall Creek Hatchery (FCH) could be timely reopened.

Pacific Coast Federation of Fishermans Association, Regina Chichizola, Malcom Chichizola

<u>Comment ORG17-ORAL-1</u>
MS. CHICHIZOLA: My name is Regina Chichizola, C-H-I-C-H-I-Z-O-L-A, here with Malcolm.

Malcolm, do you want to say anything?

MR. CHICHIZOLA: Save the salmon. That's all I've got.

Response to Comment ORG17-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment ORG17-ORAL-2</u>
MS. CHICHIZOLA: I was here in Yreka yesterday so I'll try to keep it short. But it was a lot harder to concentrate in Yreka because there were a lot of people opposed to dam removal.

Response to Comment ORG17-ORAL-2
Comment noted.

<u>Comment ORG17-ORAL-3</u>
But, as you know, dam removal will create a lot of jobs and help water quality in the Klamath River and help get rid of the fish disease issues that we've been dealing with.

I've been working on dam removal now for 15 years, and I've testified to this board quite a lot. And I wanted to speak to some of the misconceptions that came up yesterday because I have been studying dam removal in the Elwha River and other places. And a lot of times there are a lot of complaints that there's going to be sediment issues and flooding and things of that nature, yesterday, in Yreka. When in reality, these are not flood control dams as you guys know. And these dams create the green algae creating these water quality issues.

But also what happened in the Elwha River is that the sediment that was released created quite a lot of a habitat including new habitat for clams and oysters. And it really helped the fisheries, even beyond the salmon.

So I think it's important that people realize that and also realize that some of the—of that sediment is gravel that needs to move throughout the river and that that gravel movement will really help with the Shasta Fish Disease.

So some of the things being brought up as problems such as the release of the toxic algae or the sediment are actually things that are good and part of a dynamic watershed and dynamic river.

So I wanted to speak to the misconceptions from Yreka last night because it was hard to deal with them while we were there. So thank you for that.

I also wasn't to say I hope that you guys can get this permit done as quickly as possible because the Klamath Salmon and especially the spring Chinook Salmon don't have very long to wait.

Last year I was part of the Salmon River fish dives. And I think there was a few hundred spring Chinook Salmon in the Salmon River which is one of the last wild runs that the spring Chinook have.

And the Spring Chinook are very important to the native people as the first fish that come up the river. And a lot of people don't have a food source for that part of the year without spring salmon. And not having a food source leads to a lot of disease issues, heart disease, diabetes, and things like that that people replace salmon as a healthy food source with unhealthy foods such as commodities.

So spring salmon is especially important here and they don't have long to go. They're really facing extinction right now. So I urge California to move as quickly as possible for dam removal for those reasons and because of the poor quality of the river and also bring the salmon home to the basin to the cold, spring fed creeks which I think is really important in light of climate change.

As we know, salmon are really going to be harmed by climate change. And dam removal is one of the only ways to get salmon to habitat that is going to be spring fed instead of snowmelt fed due to climate change. So that upper basin—the watersheds are a lot different. And that's why it's important to bring them up there too.

So I know that climate change wasn't something that's been brought up in some of the past analysis and now it is. And I think that's really important. And with that, I just wanted—not going to take up all my time because I don't need to. But undam the Klamath. Please, do it quickly and for all the people in the State of

California including the people in Yreka who will get a lot of jobs out of it in the end and a healthy tourism industry.

Thank you.

Response to Comment ORG17-ORAL-3
Comment noted.

Pacific Coast Federation of Fishermans Association, Institute for Fisheries Resources, Vivian Helliwell

Comment ORG21-ORAL-1, Speaker Card
In support of Dam Removal, salmon returning

Response to Comment ORG21-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG21-ORAL-2
MS. HELLIWELL: Hi. My name is Vivian Helliwell, V-I-V-I-A-N, H-E-L-L-I-W-E-L-L. I'm watershed conservation director for Pacific Coast Federation of Fishermen's Associations for which Dave Bitts was just speaking as president.

And our membership relies on a harvestable surplus beyond a sustainable viable population of fish in these rivers. And so after the escapement goals are met, then we need more fish than that in order to have a coastal economy of commercial fishing. We've been shut down in the Klamath for over 20 years. And we rarely have any fishing opportunity on any fish that come through that area so that we avoid catch of Klamath River fish.

Response to Comment ORG21-ORAL-2
Please refer to Master Response GEN-2.

Comment ORG21-ORAL-3
We expect and hope from the evidence that's been presented in these alternatives that the runs will be able to improve because of taking these dams out and accessing the hundreds of miles of habitat above them. And, you know, we have—what? 387 miles of wild and scenic below the dams. A total of 286 miles on the Klamath River so far.

None of these dams would be able to be built today without fish ladders or access for the runs above them. So we're in a new era where we take better care of the fish. They've encountered so much disease when they come back in from the bad water quality that we've been losing incredible opportunity to stimulate the coastal economy and have healthy local fish. Instead, we have fish flown from in Alaska in our market place that people can't even afford to eat. Flying salmon.

Local salmon would really help the health of the local economy and the health of the people who can eat the local salmon. The Klamath River process of decommissioning resonates with the Eel River that frames the Klamath management zone in the ocean. Our third largest river—salmon-producing river in California.

Response to Comment ORG21-ORAL-3
Please refer to Master Response GEN-1.

Comment ORG21-ORAL-4
The State of California has a policy for supporting naturally-sustained runs of salmon. And so now we have dams on the Eel River that are up for relicensing. And Pacific Gas and Electric, PG and E, has decided to orphan their—abandon their license application. And so those damns are going through a similar process that are modeled on the Klamath River next to it.

So again, it would allow fish to go above a dam that was built with no fish ladder. Scott dam, 130 feet tall and produces negligent non-money making amount of electricity. But the water's very important on the other side of the hill and the Russian River.

So there's some negotiation that needs to take place. The Klamath negotiations are an example of how that can be accomplished. And, of course, we need to go through the same FERC process for either auctioning off the process, either relicensing or decommissioning of those dams. They're going to have to have volitional fish passage.

And so we will continue to participate, talking with our neighbors, trying to meet everyone's needs as we have been on the Klamath and try to get those fish back and give them a wider range of opportunity in the upper rivers, especially facing climate change.

Response to Comment ORG21-ORAL-4
Please refer to Master Response GEN-2.

Comment ORG21-ORAL-5
So we look forward to the improvements that we hope that these dam removals will make in the Klamath River. And as Mr. Pace said, we still have work to do on water quality other than this.

So it's an ongoing process. And we're willing to be part of it, happy to be part of it, work with all of our neighbors to make it happen.

Response to Comment ORG21-ORAL-5
Please refer to Master Response GEN-1.

Seventh Generation Fund for Indigenous Peoples, Inc., Carlrey Arroyo

Comment ORG51-ORAL-1, Speaker Card

I stand with the Yurok, Klamath, Hupa, Karuk, & Tolowa people in Dam Removal. The salmon need water flows to increase to continue to live a healthy life. From the Blue Algae to the sediment, it will only get worse if the dams are not removed.

Response to Comment ORG51-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment ORG51-ORAL-2

Sediment - & Flood control dam

New habitat (toxic Algae)

Sea Sashta

Spring shanook (few 100)

First Fish that comes up the River

Pacificore – 20 mil

4/5 dams

Response to Comment ORG51-ORAL-2

Please refer to Master Response GEN-1.

Comment ORG51-ORAL-3

MS. ARROYO: Carlrey Arroyo. I want to say thank you to the Wiyot people for allowing me to be here today. And I also want to thank all of the Klamath and salmon people who have been on the front lines for decades. Thank you all for continuing this fight. And I'm sorry that you have to continuously repeat your trauma and the connection you all have to the salmon over and over and over again.

Thank you all.

Response to Comment ORG51-ORAL-3

Please refer to Master Response GEN-2.

Comment ORG51-ORAL-4

I just want to uplift the voices of all the folks who spoke today. And say that undamming the Klamath will have many benefits long term. I want to thank Regina for clarifying the misconceptions about the sediment that many people have because --

I don't want to hurt anybody's ears.

MS. RAGAZZI: If you step back.

MS. ARROYO: Okay. Cool. I'll just hold it.

Cool. I lost my train of thought. But basically, I support the undamming of the four dams now. And hopefully the fifth one that the person earlier spoke to which should have been included in this DEIR as well. But I stand with all the indigenous people in undamming Klamath and especially the little ones who shouldn't have to come um here and say: Bring the salmon home.

Response to Comment ORG51-ORAL-4
Please refer to Master Response GEN-1.

Yurok Tribe, Frankie Joe Myers

Comment TR7-ORAL-1, Speaker Card
a Lot!

Response to Comment TR7-ORAL-1
Thank you for your comment.

Comment TR7-ORAL-2
MR. MYERS: I am Frankie Myers, F-R-A-N-K-I-E, M-Y-E-R-S.

I'd like to start out by saying thank you to the Wiyot people for allowing us to come and meet in their territory on this matter tonight.

Response to Comment TR7-ORAL-2
Comment noted.

Comment TR7-ORAL-3
I reiterate Chairman James. The Yurok Tribe strongly supports moving forward with the project. We appreciate the water board's effort to thoroughly vet out the project. We feel like it has been done so in a good way, in a good manner. The salmon for us are the soul of our people. It's the heartbeat of where we come from. And in that light, we want to make sure that, whatever we do moving forward is in the best interest of the river and the salmon.

We'd like to thank the board for allowing that to take place, to make sure that this is going to be the best option for the river. And we believe that it is.

We've waited a long time for this. And we've worked many, many hours. We have sacrificed time. Individuals have given their lives to this project. We feel *like we've done the consultation necessary. We've done the signs necessary to move it forward.*

And I will, once again, encourage the Board to move forward for the health of the river, for the health of the salmon, for the health of the Yurok people, and for the health of the world in general. We believe that all things are connected, and we are a part of the world. A healthy river is a healthy community. It's a way to bring us back into balance.

And although you may not share my beliefs, you support them. And I want to tell you thank you.

Response to Comment TR7-ORAL-3
Please refer to Master Responses GEN-1 and GEN-2.

Yurok Tribe, Joe James

Comment TR6-ORAL-1
MR. JAMES: Good evening. Joe James, Yurok Tribal Chairman. I want to thank the staff of the State Water Resources Board for their work and their continued work to move forward for the removal of all these dams.

I want to speak on behalf of the tribal government, on behalf of myself, of my children, my ancestors before me.

Response to Comment TR6-ORAL-1
Thank you for your comment.

Comment TR6-ORAL-2
We are looking and delighted for the year of 2021 to walk the river banks of the Klamath River pre-dam removal, to be part of that is what was always out in front of us, being able to walk the banks of the river knowing our river system, our natural resources, our fish.

For the Tribes, it's been a long battle to be on the front lines. And we couldn't have done it without the assistance of our partners, the county, the residents of Humboldt, Del Norte County, the tribes along the Klamath River. This is truly a team effort and what we have been moving forward for It's getting exciting to—knowing that the process is coming near and we actually support and encourage the removal of the four dams immediately.

As I mentioned, we've had a lot of people that worked hard on this—on this project. And it means a lot to us. And the river is our livelihood, our culture. Its our way of life. That's who we are. That's why we are so emotional, so demanding, so straightforward because we know what the river not just provides for the Yurok, what it also provides for the community that will benefit from it.

And I thank you for your time.

And, again, Yurok tribal government strongly encourages you to move forward with this process. At the same time, we are also, on one end, already waiting for the dams to come down.

Thank you for your time.

Response to Comment TR6-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

Yurok Tribe, Mike Belchik

Comment TR8-ORAL-1
MR. BELCHIK: Hello. My name is Michael Belchik. That's spelled B-E-L-C-H-I-K.

Pardon my voice. But so anyway I've been working for the Yurok Tribe as a senior water policy analyst for 23 years. And the last 20 of it has been spent trying to get these dams off this river. At its heart, this project is a reservation project. That's what this is about.

Response to Comment TR8-ORAL-1
Thank you for your comment.

Comment TR8-ORAL-2
Water quality's part of it too. But this would be the largest fish restoration project in the history of the world. And it's time to do it. I think personally this is, literally, about the 500th, maybe more, meeting. This is about the 100th public meeting that I've been to. We have PacifiCorp's application, FERC EIS, the (Inaudible.) EIS, and now this EIS which is quite thorough and pretty high quality. But all in all, with the scientific supporting documents, I think we have well over a hundred thousand pages of studies, peer-reviewed studies, and it's time for action now. The salmon need it.

Response to Comment TR8-ORAL-2
Comment noted.

Comment TR8-ORAL-3
First of all, dam removal is effective. When we see what happened on the Condit Dam and Elwha Dam and we started off to get a pattern, especially in the Pacific northwest, where the fish recover much faster in the river, much faster than people give it credit for. It's obviously good for water quality, including the toxic algae. The Klamath River's posted for blue-green algae every year.

As Regina mentioned, one of the most important aspects of this project is being able to get fish to the cold water. We can't get the cold water to the fish with the *dams there. The dams need to come out so that the fish can get to the large cascade springs like J.C. Boyle and up in the Williamson, that springer country. Speaking of springers, this dam removal will open up hundreds of miles of habitat.*

And it's an ambitious project. We want to resurrect a lost run of spring salmon on the Upper Klamath River. This will help springers throughout the basin, which have been petitioned to be listed. We're losing them on South Fork Trinity. This geographic and genetic diversity will help the overall runs of the spring salmon.

The fish disease on the Klamath River has reached crisis proportions. We've litigated successfully over it with our partners on the river. And its requiring very large flows to move sediment because sediment—the dams are locked in place. Dam removal is going to free up the sediment movement and take a lot less water to make it healthy, be what it was before. So it's been a long road from when we started off mentioning dam removal early in the meetings, we were literally laughed out of the room. We weren't given serious consideration. (Inaudible.) People have gone there. And I see that now—I've been working on this 24 years. And I see the next generation of young native leaders coming in. And it's time—it's time to take these dams out and manage this as a free-flowing river system.

Response to Comment TR8-ORAL-3
Please refer to Master Responses GEN-1 and GEN-2.

Yurok Tribe, Toby Vanlandingham

Comment TR9-ORAL-1
MR. VANLANDINGHAM: Hello. I'm Toby Vanlandingham, T-O-B-Y, VA-N-L-A-N-D-I-N-G-H-A-M.

I am tribal council member relating the Weitchpec District. I'd like to reiterate what the chair and vice chair said that, naturally, the dam removal is good for everyone. And as someone who's actually had children jump in the river, come out with rashes, I look forward to the day where my grandchildren and great grandchildren will live in a time—think I got that from vice chairman—that they won't know what dams are that are going through our water and way of life.

Response to Comment TR9-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR9-ORAL-2
So on behalf of 6,200 Yurok Tribe members, we agree that dams need to come down. And we're appreciative at this point in time where we're almost to that point in life where we can live a better life.

So I'd just like to thank everyone in saying let's get this process started because we're ready. We're more than ready. We've got generations of children that are going to be grateful for the fight that the people that have come before us went through to get this done. And we appreciate the water board for doing their due diligence. So thank you all. So on behalf of 6,200 Yurok Tribe members, we agree that dams need to come down. And we're appreciative at this point in time where we're almost to that point in life where we can live a better life.

So I'd just like to thank everyone in saying let's get this process started because we're ready. We're more than ready. We've got generations of children that are going to be grateful for the fight that the people that have come before us went through to get this done.

And we appreciate the water board for doing their due diligence. So thank you all.

Response to Comment TR9-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

Benson, Craig

Comment IND12-ORAL-1, Speaker Card
Support for the project

Response to Comment IND12-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND12-ORAL-2, Speaker Card
Concerns: 15.1 Million cu. Yds of sediment may create chronic turbidity exceeding SSC threshold of 100 mg/L over two week period.

Response to Comment IND12-ORAL-2
Please refer to Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3for analysis of the increases in suspended sediment concentration (SSC) due to release of reservoir sediment currently trapped behind the Lower Klamath Project dams. Modeling of reservoir sediment transport indicates between 36 and 57 percent of the 15.1 cubic yards of sediment trapped behind J.C. Boyle, Copco No. 1, and Iron Gate dams would erode during drawdown, with the remaining sediments remaining in place and consolidating (drying out and decreasing in thickness) after dam removal (USBR 2012a). Modeling of reservoir sediment transport also indicates SSCs would be expected to resume modeled background levels (i.e., existing conditions) in the long term, regardless of the water year type (i.e., dry, normal, or wet conditions) present during dam removal (USBR 2012a). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment IND12-ORAL-3, Speaker Card
Also incomplete analysis of bedload increase impact on embeddedness of gravel (salmon redds)

Response to Comment IND12-ORAL-3
Please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-9 regarding the potential impacts of bedload on salmon redds. There would be no significant impact to coho salmon. Please also refer to Master Response GEO-1 and Master Response AQF-7. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*.

Comment IND12-ORAL-4
MR. BENSON: Good evening. What he said.

My name is Craig—is that better? Okay.

My name is Craig Benson, C-R-A-I-G, B-E-N-S-O-N.

I'm a natural resource professional speaking on behalf of myself. I'm a resident in Eureka.

First, I wanted to thank you for making such a robust public process, having it in multiple locations, especially for coming out to the coast and, in particular, being close to the university so that students can experience and witness a robust and meaningful public process.

I am in favor of the actions and preferred alternative. And sometimes in work one has to do a little bit of harm to do an awful lot of good. And I think that's the case with this project. You know, there may be one step backwards. But there is clearly a hundred steps forward. And I, personally, can live with that ratio. And I hope others can as well.

Response to Comment IND12-ORAL-4
Please refer to Master Response GEN-1.

Comment IND12-ORAL-5
It's no surprise to me that one speaker spoke of input on the sediment and turbidity section of the draft EIR. That's an association that, while it is good, could be better in terms of being the academic rigor and being robust in explanation to assuage people's fears about what sediment might do. 15. 1 million cubic yards of sediment behind dams is an awful lot of sediment. I don't want the image of how many thousands of dump trucks that transfers into.

I think that there's—the concerns that I have is that the sediment—that the turbidity spike could easily exceed that 20 percent of background that's called for *in the document at least for a period of time. It seems almost certain to me that that turbidity spike could exceed 100 milligrams per liter over a two-week period, at least in the short term, the first couple of years, 'til that is scoured out, you know, behind the dams.*

And that was also the experience of the Elwha river that was referenced earlier. And I just want to be sure that those turbidity spikes don't exceed a fish kill threshold which that's where some of the harm could take place.

Also I didn't see a really robust analysis of the courser sediments and the expected increase in stream beds and, you know, impacting the health of the spawn and travels downstream the dams. And if those could be addresses a little bit better in the draft EIR that might assuage some of those fears.

Response to Comment IND12-ORAL-5

For information on the quantity of sediment stored behind the dams and potential for sediment erosion, transport, and deposition, please refer to Volume I Section 3.11.2.5 *Geology, Soils, and Mineral Resources – Environmental Setting – Reservoir Sediment Storage and Composition* (pages 3-754 to 3-758) and Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775), which are partially modified in Volume III Attachment 1. Estimates of sediment volumes and deposition are based on sediment modeling described in USBR (2012a). Please also refer to Master Response GEO-1.

Note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both sets of SRH-1D simulations that were undertaken by the U.S. Bureau of Reclamation (i.e., forty eight 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

Regarding exceedance of the 100 mg/L SSC threshold, please refer to Volume I Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3 (pages 3-84 to 3-106). This is a *significant and unavoidable* short-term impact.

Regarding the differences of the Proposed Project from other dam removal projects, please refer to the response to IND15-ORAL-3.

Volume I Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-9 (pages 3-315 to 3-323) discusses the potential impact of bedload on salmon redds. There would be *no* *significant impact* to coho salmon. Please also refer Master Responses GEO-1 and AQF-7.

Lincoln, Bernadette

Comment IND5-ORAL-1

MS. LINCOLN: I'm switching with Jene. My name's Bernadette Lincoln. I'm a Tlingit Indian. My family consists of—we represent Tlingit, Crow, Wailaki, Pomo, Yurok, Karuk, and Tamawak in our home.

My children are traditional dancers. My son just became a jump dancer. I'm a very proud mother. Both my kids are bush dancers. We eat traditional food in my house. I used to teach traditional cooking. But now it's only for birthdays because we can't get our hands on it.

I want to thank K'nek'nek' Lowery, if he's still here who said what I wanted to say for my kids: We have no candlefish anymore in the rivers, no freshwater clams.

My daughter's name—just to give you an example of how important the river is to the Yurok people, my daughter's name is Little Frog; my son's name is Canoe Boy. Those are traditional names. And last year, summer rain, and we heard a noise downtown Eureka behind Walmart. And my daughter said, "What is that noise?"

And I said, "What noise are you talking about?"

"That noise. What's that loud noise?"

It was frogs. My Yurok daughter, named Little Frog, didn't know what that noise was.

Remember, I'm a traditional foods person. I teach native cooking. My husband's a linguist. He does language restoration.

Response to Comment IND5-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND5-ORAL-2

So bringing back the salmon, bringing back the rivers, bringing them back to life is so important to our culture and in so many ways, not just birthdays.

And so I just plead with you that you talk to your hearts and ask what's the right thing to do and that you vote in favor of taking the dams down.

Response to Comment IND5-ORAL-2

Please refer to Master Responses GEN-1 and GEN-2.

Lowry, K'neK'neK'

<u>Comment IND33-ORAL-1, Speaker Card</u>
I don't see why people invented water pressure energy. There are lots more harmless ones to choose from.

Response to Comment IND33-ORAL-1
Thank you for your comment.

<u>Comment IND33-ORAL-2</u>
MR. LOWRY: I'm K'nek'nek' Lowry. And this is my brother, Boy. My name is K, apostrophe, N-E-K, apostrophe, N-E-K, apostrophe.

We don't need dam power for our power. We have solar power and wind power. If we don't do something quick about these dams: Bye-bye, salmon.

So take action or we're going to suffer a loss of salmon. I and other Yurok children are the future of the tribe. So we can make a change. Salmon is the core of Yurok culture and the food. My family has fished the Klamath River since time (Inaudible.). Walk now.

Response to Comment IND33-ORAL-2
Please refer to Master Responses GEN-1 and GEN-2.

Lowry, Merry

<u>Comment IND39-ORAL-1, Speaker Card</u>
I've been working with Native youth and non-native youth for 20 years and this process gives hope for many youth and their families

Response to Comment IND39-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

<u>Comment IND39-ORAL-2</u>
MS. LOWRY: My name's Merry Kate Lowry, M-E-R-R-Y, K-A-T-E, L-O-W-R-Y. I've been an educator here in Humboldt County for about 20 years working with native and non-native youth and community and families. And when FERC first came here and there were hearings, brought some native youth that were my students. And—and they spoke. And for some of them, that was the first time that they had ever done any public speaking. It was really empowering.

And through the process, I've seen youth, high school, as well as elementary school students understand that their culture was being endangered after the fish kill. And I remember the fish kill and the energy that went through the community and their worry and seeing the process develop, where allies have come together with native communities and the healing has happened from generation and the generation before from genocides.

So these are healing, bringing people together. And there's native youth and non-native youth. Everybody's looking and there's hope. There's hope. And I think that's one of the biggest things that I have seen in this process that's kind of magical. And that, a lot of times, doesn't get into these meetings.

Response to Comment IND39-ORAL-2
Please refer to Master Response GEN-2.

Luckey, Donna

Comment IND20-ORAL-1, Speaker Card
While I'm a new resident (AUG. 2018), I have been aware of the water quality issues, especially for salmon habitat, since 1978. [I was the North Coast Field Representative for the State Coastal Conservancy then.]

Response to Comment IND20-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND20-ORAL-2, Speaker Card
I support the removal of the dams.

Response to Comment IND20-ORAL-2
Please refer to Master Response GEN-1.

Martin, Rosada

Comment IND47-ORAL-1, Speaker Card
I've been recreating on the Klamath River (camping, fishing, floating, etc) my whole life.

Response to Comment IND47-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND47-ORAL-2, Speaker Card
The survival of the salmon and the overall health of the river is deeply important to me and removal of the dams is critical to this.

Response to Comment IND47-ORAL-2
Please refer to Master Response GEN-1.

Comment IND47-ORAL-3
MS. MARTIN: My name is Rosada Martin, R-O-S-A-D-A, M-A-R-T-I-N. I just wanted to speak up tonight because I was a commercial river guide for about 15 years. And the first time I ran—I floated the Klamath, I was about 10 years old. And I've floated rivers all over California. And it was my livelihood all through my 20s and 30s.

And often the clients would ask me, you know what's the best river to run in California? What would you recommend?

And I would always list off rivers like the Smith, the Cal Salmon, the King, the Merced. And suddenly, it dawned on me that these are all rivers that are free-flowing. And, therefore, the water quality is super high, the fish count is healthy.

And I could never recommend the Klamath and it breaks my heart because all the dams on the river create this poor water quality and the algae and the scum that lives on the side of the river. And the fish are dying. And it just breaks my heart that I can't recommend this river to float and enjoy. And I think the tourism potential is great on this river. If we could improve the water quality and get the fish count up, we could get people coming up here to run this river and fish. And that could, you know, contribute greatly to the economy and the quality of the area.

So it's just another thing to take into account is the potential for tourism. And if you take care of the river, the people will want to come there. And if you take care of the fish, people will want to come there.

Response to Comment IND47-ORAL-3
Please refer to Master Responses GEN-1 and GEN-2.

McCovey, Jene

<u>Comment IND59-ORAL-1</u>
MS. MCCOVEY: (Inaudible.) Jene McCovey.

I was born in 1951 in the big Hoopa Hospital. They took my mom up there when the mouth—from the mouth of the Klamath River. And they asked my father, his sister if they would take me so that they could earn money for the winter because the Klamath at that time, in 1951, there were three canopies there. And we were talking tonight about the underground aquifers that are coming out of the—up out of the Klamath watershed and how it's going to be the water that our fish are going to come to. And we're talking about the—talking about the babies.

So when you talk about the 2002 fishtail, our people were on Pecwan Creek. And we were dancing the dance that we balance the world between good and bad. We borrowed the dance with the medicine from the spirit world. There's a place at the dance ground where the spirits come to dance because they're not in the spirit world; they're with us. The door of this time—we bring all of time together.

So the center man raises the basket upriver to those who have gone on before us and downriver to those who come after us. And then they all soothe the audience which is a present. The creator gave us this job.

And so we were doing our dance. We were doing what we were meant to do. How we left creator's spirit world and come here to be who we are. I came here to be my parent's child. And they gave me away so they could go fish. And at that time, it was the first year of a ten-year plan for the Klamath River. The United States government got this plan going. They did not heed the scientists. They did not listen of what was needing.

So depending on whose story you listen to, the kill was 60,000 adults or 90,000 adults. But what they haven't talked about much was the 300,000 babies that have no place to grow, that when—if you were the eagle flying on top of the mountains, come down, you see this gray snake. And there's this blue ribbon in it. That's the river. There's no habitat. And so from 2019, 2020, 2021, this forum here has a cumulative effect on that moon stock and the quality of water.

There's no q in the law when you compare an (Inaudible.) fish with a potato or alfalfa or cattle. The salmon can only come back to its native stream by creator's design. By our prayers, we make this happen. But the cumulative effect above and beyond this forum has to deal with the quality water. And it's now. It's now.

Response to Comment IND59-ORAL-1
Thank you for your comment. Please refer to Section 3.2 *Water Quality* and Section 3.3 *Aquatic Resources.* More specifically, for analyses of potential short-term impacts on salmonids due to dam removal, please refer to Potential Impacts 3.3-1, 3.3-4, 3.3-7, 3.3-8, 3.3-9, and 3.3-10 of Section 3.3.5 *Aquatic Resources – Potential Impacts and Mitigation.* Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality* and 3.3 *Aquatic Resources*. Please also refer to Master Response GEN-2.

Comment IND59-ORAL-2
I would like to say that our tribal government has the control of the reservation. But we are the keepers of the waters for the fish. So all the water from the mouth of the river on up the river as we all need to be taking care of that. We all need to be responsible, helping our tribal people, our indigenous people continue on with dances, continue on with helping the (Inaudible.)

I think to share with you is we have the audiences and the jump dance. We have the fire where the medicine goes, and you have the dances. Then behind the dances are the spirit world. In—I won't say where it's at. But the dance ground at the lagoon. My lady friend went to the dance and said, "Jene, I saw a thousand spirits."

I said, "Where did you see a thousand spirits? Tell me."

And she says, "Well, you know when we went over the lagoon, there's a big wall. And the dancers are there." She says, "We've been watching the dance." And *one said there was a row of dancers watching behind the dancers. Then there was another row of spirits, and they were watching the audience. Then there was a third row, and she looked back over the lagoon. And there was nothing there.*

When the dance started she heard the spirits behind her in the lagoon. And she said there was a thousand spirits.

And so it behooves us that—I think that those spirits are the ones who are coming. And we have to save this place and the moon stock. And I think this is one of the most precious things I could share that, as human beings, here walking on this earth and understanding that we're in connectivity with the trees. For the fires that have burned and the forests that have been logged and the bedrock is inundated with waste. And it needs to be cleaned. And so it's a big job, but this is—a cumulative effect is recognizing that we can't be clear cutting. We can't be cutting our trees. That's our oxygen. We're completing with (Inaudible.).

We have to really take a look at what we're doing and how we're doing it. And these little kids talking about how—it's something I would like to share for them. And it's how we're connected, why our dances are important, and why we were dancing that day, that Sunday before the Monday that the fish kill came in 2002 that our dances have the (Inaudible.) off the big red headdress. And there's a big tall feather that sits on top of it. And it twittles. It's engineered to sit on the—our person's head. And it twitters in the wind.

And so dancers are here, the men in the fire, the spirit is there. And then the audience—the audience looks on the dancers. When they see that, it reminds us that when that salmon's going up the river and his tail fin is up, out. And it twitters. And it reminds us why we pray, why we do it.

The creator has set us to and how it is important. So when the little people go and they watch the elders dance and they see those feathers, they know that that's the heart of their prayer. And its not just for our people; it's for humanity. We are the children of mother Earth. And we're—she's in trouble.

And in 2002, that was the first President Bush. And I wouldn't put it past to destroy what's left of our stream. And we need to be vigilant and know that it could be—it is 1849 again. The mentality that we are battling against is atrocious. And we need to be wise in how we choose our battles.

Response to Comment IND59-ORAL-2

Please refer to Master Response GEN-2.

Mees, Meriel

Comment IND38-ORAL-1, Speaker Card

Undamming the Klamath will improve the health of both salmon and human beings. The harmful effects of the dam have been well documented (see Ron Reed & Kari Norgaard 2010). The rapid ecological recovery of watersheds after dam removal is also well known. I fully support removing the dams

Response to Comment IND38-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND38-ORAL-2

MS. MEES: My name is Meriel Melendrez Mees. That's M-E-R-I-E-L, M-E-L-E-N-D-R-E-Z, M-E-E-S. And now my name has taken half of my time. But I wanted to come and contribute my voice to this public process because even though I'm a new resident here, I'm very grateful to be able to live and study on unseeded Wiyot Territory.

I'm a graduate student in the environment and community masters program at HSU And I'm speaking for myself tonight. But our program seeks to find the connections—I mean, actually, just look to destroy the divide between people and nature. And the Klamath undamming process is a really clear example of that.

Response to Comment IND38-ORAL-2

Please refer to Master Response GEN-2.

Comment IND38-ORAL-3

It's well documented the damage that the dams have done to both the salmon and people's health. And I think that we all understand the good that will come from removing these dams. So I simply wanted to lend my voice in support of that.

Response to Comment IND38-ORAL-3

Please refer to Master Response GEN-1.

Nelson, Denver

Comment IND16-ORAL-1

MR. NELSON: D-E-N-V-E-R, N-E-L-S-O-N. It's propitious that I speak after Jene because I was her doctor when she had her accident. I've been—I've lived in Eureka for about 40 years. I've had a place up on the Klamath River for about 30 years because I like to fish there. And I love the river. When I first became interested in the Klamath River, I wasn't interested in dam removal. I was interested in the government not building the Ah Pah Dam. So many of you younger people here, you probably don't even know about the Ah Pah Dam.

But it was going to be 900 feet tall. And it was going to divert any (Inaudible.) of the flow of the Klamath River to the Central Valley. It's still on the books, you know. And if you drive down the Central Valley to southern California you can get an idea. There's a lot more of them than there are of us. And if you sort of follow what's going on in the government, it's possible that that dam diversion could still be built. But it hasn't been built.

Response to Comment IND16-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND16-ORAL-2
And so then I've been to hundreds of meetings like this. And I think we've made some progress to get four dams removed. But it's important to keep in mind there are actually seven dams on the Klamath River. Felice, where ever he is, was right that there's dam at Keno that completely blocks the flow above that is the Link Dam which diverts flow of the outflow of the Klamath lake to irrigation district and downriver.

The upper Klamath Lake is probably where all of the toxic products come from. And removing four dams is not going to fix a lot of these problems. So I'm very much in favor of removing the four dams. But I don't think that we should stop there.

Response to Comment IND16-ORAL-2
Please refer to Master Response GEN-1.

Ohman, Scott

Comment IND48-ORAL-1, Speaker Card
For the tribes, commercial & recreational fishermen, rafters, the economic health of our region, the environment, and the wildlife, the removal of these dams is long overdue.

Response to Comment IND48-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND48-ORAL-2, Speaker Card
Electricity can be generated elsewhere. Which is a more valuable commodity? Potatoes or Salmon?

Response to Comment IND48-ORAL-2
Comment noted.

Comment IND48-ORAL-3
MR. OHMAN: Hi. My name is Scott Ohman, S-C-O-T-T, O-H-M-A-N. And I'm—unlike many of the people you've heard speak tonight, I am not an engineer. I am not a lawyer. I am not a professional. All I know is I'm 42 years old. I grew

up in Humboldt County. One of my first memories is swimming and rafting with my family on the Klamath and Trinity Rivers. And throughout my life, I've watched these already damaged rivers from my childhood be destroyed by these dams.

Last summer I was up on the Klamath River, launched just below the dam, floated about 40 miles. We thought—it's early July. We brought three different forms of water purification with us. We brought filters. We brought tablets. We brought multiple levels. And we thought that would be sufficient for our needs, that we could take water from the river for our needs over this five-day trip. And we found, immediately upon arrival, that that was not the case. It was already posted, warned by the rangers that this water is not drinkable under any conditions, even boiled.

Additionally, again, early summer, early July, we could see areas of the rivers, slow moving areas, that were just choked. You didn't want to get in the water. Several of us developed rashes throughout the trip.

And I'm going to paraphrase the words of the youngest member of our group who said: How is this possible? How is this allowed? If that was a polluting factory upriver that was killing fish, that was giving people rashes, that was making the water undrinkable, there would be massive lawsuits. That factory would be fined. It would be shut down. We wouldn't be talking about a 20, a 40-year process. We wouldn't be talking about a process that we've been discussing my entire life. It would be taking action immediately.

So I just want to echo what many other people have said, that—and I want to thank everybody who's been in this fight even longer than I've been alive. But the time is now. Let's take down these dams.

Response to Comment IND48-ORAL-3
Please refer to Master Responses GEN-1 and GEN-2.

Paniak, Walter

Comment IND54-ORAL-1
I support removal of the four Klamath dams.

Response to Comment IND54-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND54-ORAL-2
The lower four Klamath River dams block hundreds of miles of historic salmon spawning grounds while creating conditions that cause fish disease and parasites in the river. The dams' reservoirs host massive blooms of toxic algae each year, posing health risks to people and pets using the river. The dams are a leading cause of salmon declines in the Klamath Basin. The Water Board's

draft EIR supports what dam removal advocates have said all along—dam removal helps alleviate these conditions.

Response to Comment IND54-ORAL-2
Comment noted.

Comment IND54-ORAL-3
California's draft EIR looks at potential impacts associated with the removal of the lower four Klamath River Dams as compared to a no project alternative, partial dam removal, construction of fish ladders, removal of only three dams, and removal of only two dams. In the end, the Water Board staff finds that, "In looking at the range of benefits and impacts the State Water Board has identified the Proposed Project as the environmentally superior alternative."

Response to Comment IND54-ORAL-3
Comment noted.

Comment IND54-ORAL-4
I agree that the removal of four dams is the only alternative that complies with California's clean water laws. Dam removal will also help bring salmon back to the Yurok, Klamath, Karuk and Hoopa Valley Tribes, and help to restore the North Coast fishing industry and related coastal economy.

Response to Comment IND54-ORAL-4
Comment noted.

Comment IND54-ORAL-5
Dam removal benefits rate payers by saving them money, and local economies by creating dam removal and fishing jobs, and will not impact flows or irrigation deliveries.

The North Coast and Klamath River communities are economically depressed, and much of the area is classified as a food desert. The loss of salmon has widespread health, economic and cultural impacts. In many years there are extremely few, or no, salmon for Tribal people. This has created a situation where the Klamath's native communities have suicide rates that are 12 times the national average and diabetes and heart disease rates that are over three times the national average. Bringing back the salmon will help right this wrong while providing local jobs.

Response to Comment IND54-ORAL-5
Please refer to Master Response GEN-2.

Comment IND54-ORAL-6
Removing the dams would also support California goals as they relate to environmental justice and Tribal consultation.

Response to Comment IND54-ORAL-6
Comment noted.

Comment IND54-ORAL-7
This is why California must act to remove four dams on the Klamath River by issuing a dam removal permit.

Response to Comment IND54-ORAL-7
Comment noted.

Pce, Felice

Comment IND23-ORAL-1, Speaker Card
PacifiCorp must mitigate now; SWRCB should require it as per Hoopa Tribe claims & court victory.

Response to Comment IND23-ORAL-1
Thank you for your comment.

Comment IND23-ORAL-2, Speaker Card
PC must put up more $ if needed

Response to Comment IND23-ORAL-2
Comment noted.

Comment IND23-ORAL-3
MR. PACE: Felice Pace, P-A-C-E. I'm with the local North Group of the Sierra Club, but here I'm speaking for myself. And I'm speaking mostly to the people here because it's important that we use this opportunity to understand—better understand this process.

The world—I've been a climate activist for about 35 years. I've lived 35 years up on the Scott. And now I live in Klamath Glen near the mouth of the river on the Yurok Reservation which I'm grateful to live on and grateful to be able to be here at this meeting on Wiyot land.

Response to Comment IND23-ORAL-3
Please refer to Master Response GEN-2.

Comment IND23-ORAL-4
If the world was perfectly just, PacifiCorp would be responsible for removing the dams which they own which have become nonperforming assets. It's because, if they were relicensed with the requirements that have already been decided on by an administrative law judge due to the work of some great biologists, they would lose an estimated $20 million a year. That's from the California Energy Commission, I believe.

The KHSA is a sweetheart deal for a one percent corporation as a result at tax payer and rate payer expense, rate payers and customers. I'm both. But if they get the dams out, I can live with that. And we should be able to live with it. (Inaudible.) But if more money is needed, it's the stockholders that should step up. They're not contributing anything right now. And that may be the case.

Also delays serve the corporation which gets to continue making money without having to do very much to help salmon. And I'm very hopeful that—Hoopa Tribe just won a lawsuit that I think will help us with that and get more mitigation for water quality and Coho. The water board should require that PacifiCorp do a lot more to help salmon until the dams are actually out.

Response to Comment IND23-ORAL-4
Please refer to Master Response GEN-2.

Comment IND23-ORAL-5
If the Klamath's Renewal Corporation fails – I hope it doesn't—and we have representatives here if you want to meet them later. The Hoopa Tribe will be there to make sure the dams come out. They won that lawsuit. They put a lot of time and money into it. Their recent victory assures that the interim measures will better protect salmon. I hope we'll see that too. And the water board should require that be implemented now.

But folks, if they have the delusion that the dams remove—the removal of four dams – PacifiCorp owns five on the Klamath, by the way—will fix all the Klamath's problems, the Bureau of Reclamation will still control the Klamath flows and will do all they can, as they have in the past, to minimize those flows in order to maximize the delivery of irrigation water to federal irrigators.

Response to Comment IND23-ORAL-5
Please refer to Master Response GEN-2.

Comment IND23-ORAL-6
So if folks have the delusion, they should also rethink the delusion that removing four dams will solve the water quality problems. As you've heard in the very excellent presentation, it will make some substantial help to water quality.

Response to Comment IND23-ORAL-6
Comment noted.

Comment IND23-ORAL-7
However, a fifth PacifiCorp dam, Keno, will be transferred—should have been part of this process by the way. Shouldn't have been deferred to later – will be transferred to reformation and will remain. That deal has been done already but not implemented. It receives—Keno, the next dam up the river, at the top of the

Cascade Canyon, right before it enters the Cascade Canyon from the upper basin in the river that is, it receives the most of the highly polluted federal irrigation water from 200,000 irrigated acres. It has the worst water quality in the whole basin.

That water leaves Keno and flows down the Klamath River. Fixing Klamath water quality requires fixing Keno. And the water board, PacifiCorp, and (Inaudible.) are remiss in not making that happen.

That's all about—that's about all I have to say. Thank you all for coming. Great to see all these young people here for a change. At a lot of these hearings it's just us old folks.

But I have a few copies of this which I'll leave in the back for anybody that wants it. Thank you

Response to Comment IND23-ORAL-7
Please note that Keno Dam is in Oregon. Actions of the Proposed Project in Oregon are described in general terms in the Lower Klamath Project EIR, but the discussion of actions in Oregon are limited to those with the potential to adversely impact the California environment. Oregon's Department of Environmental Quality (ODEQ) issued a separate water quality certification for the Proposed Project that addresses water quality impacts in Oregon, including removal of the J.C. Boyle Dam complex. Federal Energy Regulatory Commission (FERC) and other federal agencies will analyze impacts of the Proposed Project in both states.

Ryerson, Diane

Comment IND17-ORAL-1, Speaker Card
Want the 4 dams removed primarily to promote salmon recovery; salmon are vital to well-being of our indigenous neighbors and I want to support them.

Response to Comment IND17-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND17-ORAL-2
I support removal of the four Klamath dams.

Response to Comment IND17-ORAL-2
Please refer to Master Response GEN-1.

Comment IND17-ORAL-3
The lower four Klamath River dams block hundreds of miles of historic salmon spawning grounds while creating conditions that cause fish disease and parasites in the river. The dams' reservoirs host massive blooms of toxic algae each year, posing health risks to people and pets using the river. The dams are

a leading cause of salmon declines in the Klamath Basin. The Water Board's draft EIR supports what dam removal advocates have said all along—dam removal helps alleviate these conditions.

Response to Comment IND17-ORAL-3

Comment noted.

Comment IND17-ORAL-4

California's draft EIR looks at potential impacts associated with the removal of the lower four Klamath River Dams as compared to a no project alternative, partial dam removal, construction of fish ladders, removal of only three dams, and removal of only two dams. In the end, the Water Board staff finds that, "In looking at the range of benefits and impacts the State Water Board has identified the Proposed Project as the environmentally superior alternative."

Response to Comment IND17-ORAL-4

Comment noted.

Comment IND17-ORAL-5

I agree that removal of four dams is the only alternative that complies with California's clean water laws. Dam removal will also help bring salmon back to the Yurok, Klamath, Karuk and Hoopa Valley Tribes, and help to restores the North Coast fishing industry and related coastal economy.

Response to Comment IND17-ORAL-5

Comment noted.

Comment IND17-ORAL-6

Dam removal benefits rate payers by saving them money, and local economies by creating dam removal and fishing jobs, and will not impact flows or irrigation deliveries.

The North Coast and Klamath River communities are economically depressed, and much of the area is classified as a food desert. The loss of salmon has widespread health, economic and cultural impacts. In many years there are extremely few, or no, salmon for Tribal people. This has created a situation where the Klamath's native communities have suicide rates that are 12 times the national average and diabetes and heart disease rates that are over three times the national average. Bringing back the salmon will help right this wrong while providing local jobs.

Response to Comment IND17-ORAL-6

Please refer to Master Response GEN-2.

Comment IND17-ORAL-7

Removing the dams would also support California goals as they relate to environmental justice and Tribal consultation.

Response to Comment IND17-ORAL-7

Comment noted.

Comment IND17-ORAL-8

This is why California must act to remove four dams on the Klamath River by issuing a dam removal permit.

Response to Comment IND17-ORAL-8

Comment noted.

Silvaggio, Anthony

Comment IND13-ORAL-1, Speaker Card

I want to state my support for the Full Removal of the lower four Klamath River dams. The draft environmental impact report, the TRIBES, and fisheries experts all agree that this is in the best interest of the River. The Dams need to be Removed now! We need to act swiftly as the fisheries are on the verge of collapse

Response to Comment IND13-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Wagenaur, Brian

Comment IND14-ORAL-1, Speaker Card

It is well past time for the dams to come down to revitalize the Klamath's salmon run, as the Yurok tribe and other tribal Nations rely on it for their cultural lifeways. And also as a high quality Nutritiun source which has been stolen from them. Bringing the river back to free-flowing conditions will benefit the many, not just a select few.

Response to Comment IND14-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

2.4.3 Orleans Public Meeting—February 7, 2019

This section presents comments received on the Draft EIR during the Orleans public meeting on February 7, 2019, and the State Water Board's responses to those comments. Oral comments (including written comments submitted at the public meeting) and responses in this section are organized alphabetically by affiliation name, and for individuals, by last name, first name, following the set of commenters with affiliations. To determine whether your comment is associated with another meeting location, please refer to Table 2-3.

Table of Oral Comments and Responses for the Orleans Public Meeting

Karuk Tribe, Craig Tucker

Comment TR12-ORAL-1

MR. TUCKER: My name's Craig Tucker, C-R-A-I-G, T-U-C-K-E-R, a consultant for the Karuk. I just—couple things. I want to really thank the staff from the—from the water board.

Response to Comment TR12-ORAL-1

Thank you for your comment.

Comment TR12-ORAL-2

Think you guys are given this really enormous task to put these documents together as quickly as possible. I'm really impressed that you guys were able to do this. And I think, for the most part, you really nailed it.

The Karuk Tribe agrees with the fundamental conclusions that the watter board makes, that full project removal is the best way to improve water quality and fisheries on the Klamath. And that's what this document concludes. And so we support that and appreciate the hard work that went in from you guys and the folks that work with you for you to get there. So just share. I don't know. I'll talk for them.

Response to Comment TR12-ORAL-2
Please refer to Master Response GEN-1.

Comment TR12-ORAL-3
And I want people here to know that, you know, a lot of folks here have been to this—feel like you've been to this same meeting all over again. We've had these same kinds of meetings around PacifiCorp's attempts to get any license and negotiated a settlement that was going to go through congress. So we had another round of EIR, EISs from that. So this is like round three on the EIR, EIS process for dam removal. And, you know, there's going to be another round because once we get through this with the state, I presume we'll have an EIS from FERC that will also have hearings.

So I know it feels like you've been getting up and getting down and issuing these same emotional heartfelt talking points again and again and again, folks. 2

But we're going to do it until these dams are out, right?

So I just want to say thanks. We will have comments that we'll file in writing. I think most of the concerns we have are more cosmetic than anything else. For example, we don't think we own rights to foremost expert on Karuk (Inaudible.). We'll provide some other sources for that.

But for the most part, we really are proud of the document that you guys produced. And we stand behind it.

Response to Comment TR12-ORAL-3
Comment noted.

Karuk Tribe, Kathy McCovey

Comment TR10-ORAL-1
Lifelong Resident + Land owner on the Klamath River, member of Karuk Tribe. Worked for USDA Forest Service for 40 years.

Discuss Water Quality & Salmon Impacts on me

Response to Comment TR10-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

<u>Comment TR10-ORAL-2</u>

MS. MCCOVEY: My name is Kathy McCovey. My name is Kathy McCovey, K-A-T-H-Y, M-C-C-O-V-E-Y. I was born and raised on the Klamath River, Happy Camp. But my people come from Somes Bar Village of (Inaudible). I fished with my grandfather all my life on the fall dip net fishing, remember eating many salmon. My first memory is eating salmon. And I'm currently taking a fire refresher class. So thank you for letting me go first. I'll say this real quick.

I'm a lifelong resident of the Klamath River for 61 years. I own property in Happy Camp and—in the town of Happy Camp and on Indian Creek. And I also own property at Johnson's 50—50 acres through which the Klamath River in its entirety flows.

Response to Comment TR10-ORAL-2

Please refer to Master Response GEN-2.

<u>Comment TR10-ORAL-3</u>

I support the removal of the four dams on the Klamath River. The Klamath River water quality has deteriorated to the point that fish die yearly. And I cannot go into the river from July to November. Then, I hope the rains come to flush the river out so that I can enter the river and the animals can enter the rivers. Even my dogs, I keep my dogs out of the river that time of year.

Response to Comment TR10-ORAL-3

Please refer to Master Response GEN-1.

<u>Comment TR10-ORAL-4</u>

I just turned 61 yeas old. I got sick last February. I went from weighing 155 pounds to weighing 117 pounds. My stomach hurt and I could not eat. I learned I was getting sick from beef and beef by-products from food from the store. I switched my diet. I learned that salmon, with its omega and its oils, that it could help cure me. I started eating it, and it did.

The elders say that's what happens. I got older. I ate fish—I mean, I ate beef. All my life, I ate the white man's food. And now I can't eat it anymore.

You know, our people said a long time ago, the older people said when the white people came they brought the white man's food. The younger boys—the younger boys and the younger people, they ate it and the middle-aged people. But the old people wouldn't eat it. They didn't like that white man's food. Then, after a while, everybody started eating white man's food. And the elder people said: They're going to get sick. What's going to happen to our people? Oh, what will happen to our people?

And it's coming true. It is really coming true. When I switched to salmon, I started gaining weight back. I could eat anything. Now, I'm 125 pounds. I'm shooting for 135. That's my strongest weight. But it's because of salmon.

I went downriver and I asked the Yuroks for salmon because I was sick. And they gave me salmon. I got salmon for eight months.

And what I mean to say, sometimes in this rural area salmon is the only food that the older people who are limited in income can get here on the river that is fresh and nutritious. As Orleans, Happy Camp, Weitchpec, Pecwan and Hoopa are considered food deserts. We live in a land for thousands of years where our people excelled and lived and were healthy. And we have one of the strongest ceremonial centers on this earth.

But now, we don't have food. We don't even sell meat down in Orleans. Hoopa doesn't even have a store. We need our salmon to come up our river to insure that we will continue to survive as Karuk people as we have for thousands of years.

Thank you for your time. I have to go to fire training.

Response to Comment TR10-ORAL-4

Please refer to Master Response GEN-2.

Karuk Tribe, Josh Saxon

<u>Comment TR11-ORAL-1</u>

MR. SAXON: A little taller than Kathy. J-O-S-H, S-A-X-O-N, executive director of the Karuk Tribe. And I—first of all, I know Kathy's gone now. But that's a pretty powerful message. And I would echo those comments as well.

Response to Comment TR11-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-2.

<u>Comment TR11-ORAL-2</u>

But also I would like to point out that mitigation in particular, you know, from the tribe's perspective, the single biggest mitigation for fish for the Klamath River system is dam removal. And we can sure try to do other things in the process of dam removal to alleviate impacts. But in the greater scheme of things, dam removal is the number one reason why we have the degradation of water quality and the impacts to our fishery on the Klamath River.

The other one I would like to make is in terms of fisheries' restoration. I think a lot of our energy moving in that direction has been largely impacted by, not only funding, but there's a sense that we need to do more and more in terms of pre-imposed dam removal. And from our perspective the more involved the Karuk Tribe is in that process, I think the better our data will be in terms of how we can *continue to monitor and alleviate restoration concerns, both pre-dam removal, during dam removal, and after dam removal.*

Response to Comment TR11-ORAL-2
Please refer to Master Response GEN-1.

Karuk Tribe, Leaf Hillman

Comment TR13-ORAL-1
MR. HILLMAN: My name is Leaf Hillman, L-E-A-F, H-I-L-L-M-A-N.

I'm the director of natural resources and environmental policy for Karuk Tribe and a resident of this valley. And I will speak both in my professional capacity as well as my personal capacity.

Well, I have been involved in this project for—since before it became a project, for many years now. I understand the process of where we're at now and the draft EIR. And I encourage folks to move forward expeditiously to, at long last, accomplish what many of us believe is the most important work of our lifetimes in terms of reversing the many impacts and degradations that this basin has suffered over the years from any number of sources.

Response to Comment TR13-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR13-ORAL-2
Dam removal is the single most important thing that we can do in our lifetimes to promote the cause of healing and restoration in this basin. I encourage folks to say this is about the—continue to hear some of the same things that have been repeated over the years about we need to do more studies. I would propose that the time for studying has past and the time to remove the dams is upon us and that we need to stay focused on the task at hand which is removing dams on the Klamath River.

There will be those who want to create issues with—for the sake of dragging the process out. I don't know. This is probably—I'm note sure what year it was now. But somewheres in—around 2006 or something like that, it doesn't seem that long ago. But it's been a couple of years ago. And at that time, we had a—a hearing similar to this over across the river over at the tribal office over there. And we had—a lot of our elders were there at that time and a lot of folks who have since—are no longer with us today. And I was a much younger man at that time.

And my auntie said, "I want to go to this meeting because I want to tell the government what they have to do to do the right thing." And she couldn't hear very good. And she was blind. And at that time, she had broken her hip and she couldn't walk. But she still wanted to go to the hearing. And she wanted to look *at the people who were there from FERC who were there conducting this hearing.*

And there was a table like this seated. And because she's blind and she couldn't hear very good, she asked me to sit her down in front of the table so she could kind of see shadows because she wanted to be able to hear them and kind of see what she could see.

It was frequently uncomfortable. I packed her into the building and I put a chair right in front of the table and set her in front of the FERC people that were there conducting this hearing.

I asked her if she wanted to speak. And you know how people who can't hear kind of speak a little loud at times. And so I whispered in her ear. I said, "Do you want to speak?"

And she said, "You damn right I want to speak."

I said, "What do you want to tell them?"

And she said, I want to tell them to go to hell.

Of course, the whole room heard her. And so—but she insisted on speaking and giving testimony. And when she gave her formal testimony she said, "I'm 86 years old. And if someone would give me some dynamite, I would float into that dam and blow it up. Because I've lived my life."

And that would be a fitting thing to do because she felt like she would be contributing and her life would have been worthwhile if she could blow up the dams.

Turns out—and I tell you that story because, of course, she's no longer with us today. But a lot of people who testified at that hearing with a great deal of passion and have seen a lot of things on this river over the years felt as strongly as she did.

We have a new generation now. Younger people who—who have never known really. You know, it's like—I've only been alive for 50 some odd years. And in my lifetime, a lot of younger people here today can't remember the things that I've seen in my lifetime on this river. Each generation, we lose more.

And each generation likes to say we want to leave things better than we found it for the next generation. We all aspire this for our children, that we leave them something that may be better than the way we found it. We want to provide them with a better life and more opportunities than we've had. And I fear that we're going the opposite way at this point. And I think the last couple of generations of *people have suffered under the burden of wanting to provide better opportunities and a better life for our people, for our kids, and not being able to do that. Not for the lack of trying.*

Response to Comment TR13-ORAL-2
Please refer to Master Response GEN-2.

Comment TR13-ORAL-3
But the dams on the Klamath River are a scourge to our communities. And short of removing these dams, we can't fix the problems that are—we have on the Klamath. But with removing dams on the Klamath River, we have an opportunity, for the first time in a couple generations, to leave a better world than we came into.

I was born right across the river from this place, a few years ago. And I've never left this community. This is the community that I was born and raised in and am connected to. And I am in the process of—I won't say I'm ever done raising my kids. But I have children in the range—my youngest one is 14. Oldest one is 39, something like that.

And every one of those kids in between, each of those kids have a little different experience with the Klamath River than the one before them. And that experience is common and that's—each successive kid knows a little bit less about the Klamath River because they have—there's less of it to enjoy and to help sustain in a physical sense and a spiritual sense.

We are salmon people. We're connected to this place, this river, the fish. Spring Chinook Salmon listing, we've petitioned for that listing, not because we think that there's a law of Endangered Species Act that's going to save them. We think the last ditch effort to try to do something. It's not a silver bullet. But if we don't do something, it's the cascading effects of these dams, it's cumulating rapidly. And so I encourage folks to keep your eye on the ball and let's remove the dams on the Klamath River. And let's restore the Klamath River to some semblance—let's give it a chance.

If we do nothing to restore the Klamath Basin besides remove dams, well, that's something. Because giving the fish and the system an opportunity to heal itself, which—turns out it's better equipped to heal itself than we'll ever be to restore it.

So just allowing it to recover, it will do that. Fish will recolonize the upper basin whether we do anything or not. All we've got to do is get these dams out of the way and let the fish figure it out.

Response to Comment TR13-ORAL-3
Please refer to Master Responses GEN-1 and GEN-2.

Karuk Tribe, Sinead Talley

Comment TR14-ORAL-1

My name is Sinead Talley, S-I-N-E-A-D, last name, T-A-L-L-E-Y. I'm an Orleans community member; lived here for most of my life. I'm of the generation that Leaf was speaking about that has never seen a time without dams on the Klamath River. And I guess I hadn't thought about preparing any remarks for what I was going to say. But I can only speak to my own experience. And that's as a person who entered the work force here. And I grew up in the community.

My first job was at the Mid Klamath Watershed Council here in town as a stewardship intern which quickly fell into interest in becoming a fisheries technician a couple years later. So I did seasonal work for six summers along the Klamath before entering my current job now as grants agreements coordinator at the Department of Natural Resources.

So I've been working in and along the river in some capacity for most of my life for the last decade. And I guess all I can really say is that I've seen grown-ups seeing the work that people have been doing to get dams removed. And that's been really impactful not only on my development but in the work I have done in and along the river where, especially during the years that I was a fisheries technician with some of the worst years of California droughts that—you know, going—we were taking crews out, not only with, you know, air quality masks on for some of—or to get rid of some of the smoke impacts but also going down into the river basin and trying to count fish where there are no fish, trying to—I can remember there were times where we couldn't even make our crews get into the water because the quality was so poor. It smelled like propane in and around any time you got near the water and that's been more and more routine each year.

Response to Comment TR14-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR14-ORAL-2

The fact that there's still opposition to dam removal after so much evidence has clearly delineated the very real impacts this is having, not only on the salmon that we rely on—I'm standing here today with fish underneath my nails and my breath probably smells terrible because I am, fortunately, still able to eat fish and salmon here along the river. I don't know that's going to continue.

Last year—in 2018, I believe, was the second lowest count ever recorded of Spring Chinook in the Salmon River during the Salmon River dives. If I'm not mistaken it was somewhere around 115 fish returning from what used to be a run of hundreds of thousands. And we're a primary source of food for a cut of people.

So like I said, I have—I don't know where I'm going with this except to say that this is absolutely imperative that this not be postponed any longer. Because as—I've been grateful to work and learn from many people in this room who have taught me a lot about living along the river and what that means and how to engage and contribute in a meaningful way.

So that's what I'm trying to do right now, as much as my voice is shaking. And I'm not sure what I'm exactly trying to say, but—yeah. If—I can't understand why this would be delayed any longer. And, as much as it's humanly possible to continue to push for a dam removal, I think that's what we all have a responsibility as human beings to do, especially in light of the fact that climate change is increasingly impacting our populations of all fish and wildlife and beings that live along this river already.

So yeah, I don't have a lot more to say than that. And I hope that some of the people that we were waiting on to hear from today are also able to speak to this because I know there's people who have dedicated their lives to this work. And that's not for nothing. Or it shouldn't be at least, because even—I remember when I was working for the Mid Klamath Watershed Council, we would actually survey, not only from—not only mid Klamath tributaries. But we actually traveled, at least a couple times a season, all the way to Iron Gate.

And to see how impactful that is, even just to see this huge unnatural structure blocking this entire river system and to know downstream, being someone who lives downstream of that, what kind of impact that's having on our people.

I mean, to see—even just to see—going out into the field and have that—come back not seeing fish day after day, even though you're going a thousand feet up every week that you're expected to go, that's demoralizing. It's absolutely devastating. It was to myself in my own mental health when I worked there. I can't tell you how impactful that was on my depression and anxiety about the state of the world that we live in which seems to be increasingly worse by the day.

But—so yeah. Anything that we can do to mitigate those impacts is absolutely essential. And I would—I would urge anyone who is in a position to do something about that to take a step forward and to make that a priority.

Response to Comment TR14-ORAL-2

Please refer to Master Responses GEN-1 and GEN-2.

Klamath Justice Coalition, Dana Colegrove

Comment ORG5-ORAL-1

MS. COLEGROVE: Hi. Dana Colegrove, D-A-N-A, C-O-L-E-G-R-O-V-E.

I'm here to say we need to remove the dams. Please do the permitting process as fast as you can because time is running out. You guys, the first time they said dam removal: Oh, yeah, 2012.

Oh, yea, 2012.

Now, it's 2020. And now, it's 2021. Now is it even going to be dam removal? I see you guys have a list: Well, maybe we'll take out one, maybe we'll take out two, maybe we'll take out none. That's not acceptable.

Thank you.

Response to Comment ORG5-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Klamath River Renewal Corporation, Dave Meurer

Comment ORG8-ORAL-1
MR. MEURER: Good afternoon. My name is Dave Meurer. I'm the community liaison for the Klamath River Renewal Corporation, speaking on their behalf today.

Klamath River Renewal Corporation is part of a cooperative effort to reestablish the natural vitality of the Klamath River to support all communities in the basin.

KRRC's job is to take ownership of four PacifiCorp dams and remove these dams, restore formerly inundated lands and implement required mitigation measures in compliance with all applicable federal, state, and local laws.

KRRC is seeking regulatory permits to accomplish this project including the water quality certification by the State of California.

Response to Comment ORG8-ORAL-1
Thank you for your comment.

Comment ORG8-ORAL-2
The DEIR is an impressive and thorough review of the potential benefits and impacts of removal of the Lower Klamath Project hydroelectric dams on the Klamath River.

KRRC commends the water board staff and their consultant for its work on this analysis. Think there's quite a bit for community members and stakeholders to learn from.

The DEIR shows the proposed project to be environmentally superior compared to the six alternatives to the project that the water board analyzed in both terms of project benefits and negative impacts. The report shows that most potential *impacts from the project are small and short term and can be reduced with mitigation. It also shows many project effects are beneficial in the short and long term which is an important finding for those who are interested in the long-term health of the Klamath River and the community and to the ecosystems that depend on it.*

Response to Comment ORG8-ORAL-2
Comment noted.

Comment ORG8-ORAL-3
The DEIR shows the proposed project protects water quality by restoring the free-flowing condition of the river and insures volitional fish passage and that the project will be a boom to salmon and steelhead populations. Many of the species expected to recover following dam removal are tribal trust species that are important to the culture and health of some tribes on the Klamath River.

The DEIR also shows an expected increase in recreational and commercial fishing industries.

Response to Comment ORG8-ORAL-3
Comment noted.

Comment ORG8-ORAL-4
KRRC is pleased with these findings in the DEIR and looks forward to the final EIR in obtaining other required permits and then implementing the project, including mitigation measures to enhance benefits and reduce adverse impacts.

KRRC will be submitting written comments regarding the DEIR in the near future. We are encouraged that this DEIR brings KRRC one step closer to project approval.

Response to Comment ORG8-ORAL-4
Comment noted.

Mid Klamath Watershed Council, Mitzi Wickman

Comment ORG15-ORAL-1
I support dam removal on the Klamath River.

Response to Comment ORG15-ORAL-1
Thank you for your comment. Please also refer to Master Response GEN-1.

Chichizola, Regina

Comment IND43-ORAL-1
MS. CHICHIZOLA: Well, there's a story that I haven't told yet that I thought that I should.

MS. RAGAZZI: So state your name.

MS. CHICHIZOLA: Regina Chichizola, C-H-I-C-H-I-Z-O-L-A.

Last summer, because the river was in such bad shape and there were no spring salmon, we actually had to go—to beg tribal members from the Yurok tribe to catch fish from the ocean to donate them to the first salmon ceremonies for the Karuk Tribe. And no one was able to catch any.

So then we had to beg fishermen to donate some salmon for the first salmon ceremonies (Inaudible.). And people were going to charge a bunch of money because they couldn't find any free salmon either. Finally they were able to catch them. But it took, like, three separate people driving to the coast and putting four salmon from one cooler to another to get salmon to the first salmon ceremonies for the Karuk Tribe this year, which I just think is something that is really intense and hard.

And it was a lot of drama for people to even, like, ask each other and to, like, face the fact that they had to ask commercial fishermen. I mean, these are salmon fishermen that were begging commercial fishermen to get salmon to the first salmon ceremonies. And it was just really a lot of work and really heartbreaking. And it was so that four salmon could be cooked for ceremonies and everyone could get like a bite, a couple bites of fish.

Response to Comment IND43-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND43-ORAL-2
So anyway, I have talked a lot at these hearings. It's just something I hope never happens again once you get these dams down. And I hope that the permits can be issued quickly so that they can start to recover fast.

But we're also buying time for these guys.

And I have wanted to tell that story for a while so you guys just really understood how much work it is to just even try to do the most basic things because you can't have a first salmon ceremony without any salmon.

So anyway—so please take the dams down, and that is it. And I still think you guys should leave if they're not here, since they're taking so long.

Response to Comment IND43-ORAL-2
Please refer to Master Response GEN-1.

Dosch, Stefan

Comment IND50-ORAL-1
I support the removal of these dams and the return of the Klamath to a healthy habitat for fish and people alike. This is a long time coming, please continue with this dam removal.

Response to Comment IND50-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND50-ORAL-2
MR. DOSCH: Hi. My name's Stefan Dosch, S-T-E-F-A-N, D-O-S-C-H. And I wasn't going to speak today. But I just wanted to speak to the comments that have been brought up about silt. And a fisheries biologist at the Yreka hearings—I'm kind of using this as a moment to speak to everybody, not just the board things about that.

Response to Comment IND50-ORAL-2
Comment noted.

Comment IND50-ORAL-3
And it was pointed out that EIR describes that the amount of silt that's going to be released in this project is actually within the accepted fluctuation in silt. This is an incredibly silt moving river.

So the fish survived a period of unregulated hydraulic mining where people were just washing mountains into the river. And the fish survived that. And so I think that this is the point that I think you guys can take away is that you should have a good timeline that really shows that the plan is for it all to happen in winter months and in January and times when the high flow is going to take care of that.

So I think that's been—I don't know. It's been considered a lot in the process. But I do understand that it hasn't gotten across to everybody, you know, the right way because maybe there's a better way to talk about things which show timelines and this and that or comparisons and stuff.

Response to Comment IND50-ORAL-3
Comment noted. Please refer to Volume III Attachment 1 Section 2.7 *Proposed Project* Figure 2.7-1 that shows the timing of reservoir drawdown between January and March, which is also the period of greatest sediment transport (see Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-3), along with the distribution and life-history timing of aquatic species in the Klamath Basin.

Comment IND50-ORAL-4
Other than that, I just want to say that I support the --

I talked at the Yreka hearing. So I didn't know if I was supposed to use time twice.

MS. RAGAZZI: You're welcome to do that.

MR. DOSCH: All right. Well, then yeah. I go out on the Klamath and Salmon Rivers counting salmon carcasses with the kids. And they're really hopeful that this will happen. That's what gives them hope for the future.

So thanks. And keep doing it for them and for everybody who's alive here and—yeah. Especially the fish that can't come in here and tell you what they're experiencing because they're the ones who know. And we just get to see and think we know this and that.

So just share. I don't know. I'll talk for them.

Response to Comment IND50-ORAL-4
Please refer to Master Responses GEN-1 and GEN-2.

Eckert, David

Comment IND15-ORAL-1, Speaker Card
Drawdown + mitigation measures

Response to Comment IND15-ORAL-1
Thank you for your comment.

Comment IND15-ORAL-2
I'm David Eckert, E-C-K-E-R-T. I'm in favor of the dam removals but I have some fears about the mitigations involved in water quality control.

Response to Comment IND15-ORAL-2
Please refer to Master Response GEN-1.

Comment IND15-ORAL-3
In 1969, they blew up Sweasey Dam on the Mad River and they lost an entire run of salmon that year due to the siltation of the lower Mad River and also all the holes filling in with silt and sand. And also smothered the fish because their gills filled up with the silt. And on the Elwha River in the Olympic Peninsula where they just removed a dam, it actually created a new delta in the Puget Sound. And the amount of silt involved was incredible. And I fear the loss of one or two seasons of fish when we talk about the silt removal from behind the dams. A cubic yard is three by three by three. That's about a pickup load of silt.

Can you imagine your pickup couple feet deep in silt? Now picture 15 million pickup trucks of silt being dumbed into the Klamath River.

And what doesn't get washed out the bottom, they propose using mining techniques of hydraulically mining the silt into the river and some of the four reaches. And I think it needs a closer look than mechanical removal with excavators or hydraulic dredging to remove as much silt from that reservoirs before the dam removal so we don't lose two or three runs.

In the '64 flood, a great deal of the hydrological aspects of the river were changed with the movement of gravel parts. And it's taken over 50 years. And the changes have just started to mediate where there's bedrock showing again.

And I think we should keep in mind not to sacrifice and potentially eliminate salmon with two or three runs being eliminated because of the silt being washed down the river as to the beneficial properties of having the temperature and dams removed for the spawning.

Response to Comment IND15-ORAL-3

The dams proposed to be removed are located at the transition of the upper and lower portions of the Klamath Basin; natural sediment production per unit area in the volcanic Upper Klamath Basin is relatively low, and natural sediment production in the Middle and Lower Klamath Basin is relatively high. This means that the release of reservoir sediment during dam removal under the Proposed Project would occur in a geographic area that normally experiences high sediment loads during winter storms, thus lessening the potential impacts compared with dam removal projects that have occurred in river basins that experience relatively lower natural sediment production. One aspect of the Proposed Project that is different from many other dam removal projects is that the reservoir sediments have a high water content (approximately 80 percent by volume) and the majority of sediments stored behind the reservoirs are fine-grained (clays and silts), while the channel bed downstream of the dams is predominantly coarse (e.g., cobbles and larger) (Stillwater Sciences 2008). Sediment modeling was undertaken to assess the potential impacts of the release of this sediment (Stillwater Sciences 2008; USBR 2012a). The results were used in developing Potential Impact 3.11-5 (pages 3-765 to 3-775) in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation*, and Potential Impacts 3.3-1, 3.3-4, 3.3-7, 3.3-8, and 3.3-9 in Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts.* Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources*. Please also refer to Master Response GEO-1 and Master Response AQF-10. Substantial declines in the abundance of coho and chinook salmon populations are not expected for more than one year class (i.e., one generation).

Note that Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 has been clarified to discuss reach-averaged sediment deposition or erosion and bed elevation change results of both sets of SRH-1D simulations that were undertaken by the U.S. Bureau of

Reclamation (i.e., forty eight 2-year simulations and three 50-year simulations) (USBR 2012a). The clarifying edits do not change the conclusions or significance determinations in Potential Impact 3.11-5. Please refer to Volume III Attachment 1 Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 for the revisions.

As described in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments* Potential Impact 3.2-3, mechanical dredging of reservoir sediments is not feasible. Sediment jetting is proposed by the Klamath River Renewal Corporation (KRRC) as a way to support targeted erosion of the reservoir sediments during the drawdown process and maximize subsequent transport of the eroded sediments to the ocean. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

The 1964 flood was the largest discharge event in the 1963−2015 period of record for the Klamath River downstream of Iron Gate Dam, with a maximum flow of 25,000 cubic feet per second (cfs) and a recurrence interval close to 50 years. The water flow during reservoir drawdown would be approximately 14,912 cfs, which is equivalent to a 10-year recurrence interval flood (for a slightly longer period of record 1961–2016). The conditions associated with drawdown of the Lower Klamath Project are not expected to be analogous to the 1964 flood. During drawdown of the Lower Klamath Project reservoirs, there would be lower water flow and the river would be maintained within the existing channel, such that there would not be high-intensity rainfall-induced hillslope and channel erosive processes, as occurred during the 1964 flood.

Comment IND15-ORAL-4

MR. ECKERT: David Eckert, E-C-K-E-R-T. Sorry. I'm not a very good public speaker. I don't follow my notes enough, and I left one thing out. Another concern under the mitigation process is the drawdown rates. You're speaking about one to two feet per day on the drawdown. And many of those geological areas are hydrologically connected to the lake itself. And you've got to be very careful to drawdown slow enough so that the ground water around the lake and the soils that are supported by the lake have a chance to drain out. Otherwise, you're going to have some very large landslides and kick up that number of dirt and silt ending up having to be dealt with at a later date.

Response to Comment IND15-ORAL-4

For explanations of reservoir drawdown periods, rates, and sediment discharge, please refer to Volume I Section 2.7.2 *Proposed Project – Proposed Project – Reservoir Drawdown* (pages 2-54 to 2-60), Volume I Section 2.7.3 *Proposed Project – Proposed Project – Reservoir Sediment Deposits and Erosion During Drawdown* (pages 2-60 to 2-69), Section 3.2.4.2 *Water Quality – Impact Analysis and Approach – Suspended Sediments*, and to the Definite Plan (Appendix B to Volume I). Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Regarding the potential for landslides to occur during drawdown, please refer to Potential Impact 3.11-3 (pages 3-761 to 3-765) in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation,* and to Master Response GEO-2.

Englert, Lissa

Comment IND35-ORAL-1, Speaker Card

PLEASE, LETS DO THIS NOW. I LIVE AT THE CONFLUENCE OF THE SALMON + KLAMATH. I HAVE LIVED HERE 20 YEARS AND IN THIS SHORT PERIOD OF TIME I HAVE WATCHED THIS RIVER DIE AND WITNESSED THE NEAR EXTINCTION OF THE SALMON SPECIES. I SUPPORT THE REMOVAL OF THE DAMS!!!

Response to Comment IND35-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Kertzman, Eileen

Comment IND21-ORAL-1, Speaker Card

I support the dams coming down. I believe the Klamath River will become healthy again once the dams are opened and the salmon will stand a chance to recover and be free of disease.

Response to Comment IND21-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-1.

Kinney, Isaac

Comment IND26-ORAL-1, Speaker Card

Please find and implement most expeditions & safe ways

Response to Comment IND26-ORAL-1

Thank you for your comment.

Comment IND26-ORAL-2

MR. KINNY: Isaac Kinny. I want to say thank you to the Karuk people and the Karuk Tribe Council for cultivating this relationship to have this comment period here today.

Again, I'm Isaac Kinny. I live in the village of Weitchpec. I'm from the village of Weitchpec (Inaudible.)

Response to Comment IND26-ORAL-2

Comment noted.

Comment IND26-ORAL-3

I want to really echo a lot of what the previous speakers have said. Complex issues need to be dealt with. And, again, understanding that indigenous people have the best solutions to a lot of the issues we're dealing with. Not just keeping us at the table but actually empowering indigenous communities to be the decision makers. That's a big part of our thinking. The opportunity's here. There are many challenges.

Response to Comment IND26-ORAL-3

Comment noted.

Comment IND26-ORAL-4

Again, we're talking about—I think that's—the silt comment is really important to take into effect of the safety of not just the people implementing this transfer and of this taking down of the dam but the safety of the fish and the other ecosystem that these dams have really impacted and detrimented for years.

So again, to understand, there's regional solutions that have to happen, making sure the investments of economic development are also in the communities making sure that we're not creating systems of dependency for maintenance and the work after the dams are done.

Response to Comment IND26-ORAL-4

For information on fine sediment erosion, transport, and deposition, please refer to Potential Impact 3.2-3 in Section 3.2.5.2 *Water Quality – Potential Impacts and Mitigation – Suspended Sediments*, Potential Impact 3.11-5 (pages 3-765 to 3-775) in Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation*, and Master Response GEO-1. Although there would be a *significant and unavoidable* short-term increase of turbidity, there would be no significant fine sediment deposition. Therefore, mitigation is not required for fine sediment in the long term. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Regarding the safety of dam removal workers, please refer to Volume II *Appendix B: Definite Plan* – Section 3 *FERC Compliance and Dam Safety.*

Comment IND26-ORAL-5

Ownership of the land once the dams are coming down and the maintenance agreements have to go to the indigenous people of that land. It cannot stay in the US government's ownership anymore unless its under that tribal trust jurisdiction. That has to be key, I think, to the long-term planning of what we're talking about.

Response to Comment IND26-ORAL-5

Comment noted.

Comment IND26-ORAL-6

The big opportunity is to have that capital, especially from the other private sectors, right? PacifiCorp, our main stakeholders, right, in this whole project. We all need to make sure that we take that responsibility and not let anyone just walk away and say: Okay. I'm good. Ya'll take care of it now.

Because that is happening far too much. It's happening far too much. The agreements are being trampled on and tread on far too much. The urgency is now. Everybody sees it. We're all voting for it.

As the federal agency, you have a stake as well. Just like us as the community to voice what we need, the government and the agencies have the responsibility to respond. We have to make sure that these—our relatives that cannot speak are continued to be on our minds when we're implementing all of our projects. Let's not create this climate change BS where we're just researching and we're not implementing. That's unacceptable as well.

We have to make sure that, if we're really going to look at the next generation—my kids have three kids that, right now, again, have many challenges that we have to—they're going to have to come up with. Let's make sure to give them the proper foundation to work from it.

And what does that mean?

It means changing who owns the land, the rights to this freshwater, right? We're only using—one percent of the world's water is only freshwater. That's why it's so valuable. That's why it's worth more than gold. We need to protect these systems that have been in place for millions of years. Let's protect the regenerative systems that have been here, for we cannot dominate them with things like dams.

And that's a big, big reason why I'm here today is to talk for the youth because I feel I'm still working on what we need to really do, for myself, right?

For me, I've made sure to prioritize. These are the things that we need to prioritize are the regenerative systems. Because systems will set us free. But, as we see, under the capitalistic system, we are not free. We're having to come and beg for land that was taken, water that was taken. This is freshwater.

Our rate of desalinating saltwater is not sustainable for the population that lives on this earth. So we must protect this freshwater. And we must all do what we can. We have no other choice for the urgency to be done fast and be done—I shouldn't say fast—in the best way that's fast and being able to be done in a safe way for the people and for the species that live within this ecosystem.

We have to be—think relative here and take all of our resources, all of our ideas have to come to the top. It's going to be not just public sector, but the private sector. And that investment has to happen. Because the ways that things have been managed so far are not working. We have to throw that book out.

We need to make sure that any of the frameworks, again, are not just used to suppress indigenous people and people who do not have that capital right now, but to lift them up and create equity in the human beings. Because the type of money that we're seeing is not going to be the type of money we're going to see in 15 years, in 20 years. It's going to be a lot more relational economics. And water's one of the biggest things people are going to try and commodify. But you can't do it.

You've been trying to commodify the land, the water, and the air for far too long. Those are not regenerative systems.

So that's why I want to really make sure to understand, too, how this goes into the other public comments that I've done because this is too much. Let's get to work. We have to do this. And again show us the whole timeline, not just your perspective. Again, the federal agencies are just one piece of this whole thing. Traditional, ecological knowledge has to be protected as well. Do not just take the knowledge and use it for your own betterment. Make sure the indigenous people that have taught us all these things, to where governments are made from, that they're paid back.

How do you do that?

Starts with land ownership.Starts with actual sovereignty and nation building between the U.S. government and the federally recognized tribes and the state recognized tribes and the locally recognized tribes. For these are the communities that have continued to be pushed down.

We have to continue to work together. And so that's what I want to say.

Response to Comment IND26-ORAL-6
Comment noted. Please note that the California State Water Board is not a federal agency.

Myers, Jesse

Comment IND30-ORAL-1, Speaker Card
Keep Dam Removal on Track

Response to Comment IND30-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND30-ORAL-2

MR. MYERS: Good afternoon. Jesse Myers, M-Y-E-R-S, J-E-S-S-E.

I'm grateful and proud to call this my home here in Orleans, the community. I operate a wood shop utilizing the sustainable approach on resource materials producing all kinds of wood stuff. Raising a family utilizing cultural ideals to pry food for my children and my community. And I feel this gives good connection to the land. I also volunteer with the OVFD to further my commitment to safety and the well being of people in this town.

Response to Comment IND30-ORAL-2

Please refer to Master Response GEN-2.

Comment IND30-ORAL-3

I come here today, taking off some time from work—to voice my support for the full removal of four dams. Over the past 20 years, I've bonded with this river and these people in this town and connected to this river through fishing, swimming, boating, rafting, playing, enjoying it. This gives me a sense of flowing connection to live that I'm very grateful for.

Seeing the quality of the water and the health of this river system deteriorate over the past 20 years, it's sad. Fear of toxic algae affecting my children and dogs separates me from this life-giving source at times of the year.

So I ask: Keep dam removal on track; grant the permits; draft the certificates of water quality; remove the dams. And we will renew the health of the river which will renew the health of the people. Thank you.

Response to Comment IND30-ORAL-3

Comment noted.

Reise, Blythe

Comment IND8-ORAL-1, Speaker Card

As the owner for 26 year of a fishing/recreation business I have seen the decline of the fishery (salmon & steelhead) and have experienced summer algae levels in the river that have hurt my business

Response to Comment IND8-ORAL-1

Thank you for your comment. Please refer to Master Response GEN-2.

Comment IND8-ORAL-2, Speaker Card

I am in favor of dam removal as the only viable remedy for the water quality issues & the fishery

Response to Comment IND8-ORAL-2

Please refer to Master Response GEN-1.

<u>Comment IND8-ORAL-3</u>
MS. REIS: Hi. My name is Blythe Reis. I am the owner of a fishing and recreation business here on the Klamath River in Orleans. I've spoken at a few other removal hearings, but I wanted to go on the record as saying that, as a business owner for the last 26 years, I've seen a lot of changes. When I came into the fishing—the cabin business, the fishing was fair, not great. It had already gone into decline. But then I saw it go into really serious decline over the years. And I lost a bunch my business that way. Where now they're all going to Alaska and British Columbia.

So we decided to embark on trying to focus on a summer recreational business. And we're very successful at that actually. But recently the algae in the river has begun to affect that business as our alternative.

Response to Comment IND8-ORAL-3
Please refer to Master Response GEN-2.

<u>Comment IND8-ORAL-4</u>
And so I feel hit by—from both sides. And I think that dam removal is a really good option for the future. I don't think the status quo is going to work, period, in the long run and even now.

And even though I feel that it might hurt my business in the short term, maybe the first year or two, I feel like our generation needs to take some hits to secure the long-term future of both the fishery and the Klamath River as a living, breathing being.

I guess that's it. All right.

Response to Comment IND8-ORAL-4
Please refer to Master Response GEN-1.

Robbi, Marc

<u>Comment IND36-ORAL-1, Speaker Card</u>
Issue the permit – Take the dams down

Response to Comment IND36-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

<u>Comment IND36-ORAL-2</u>
MR. ROBBI: Hi. I'm Marc Robbi, R-O-B-B-I. I'm a long-time resident, property and business owner here in Orleans. We have an organic farm and nursery business.

Response to Comment IND36-ORAL-2
Comment noted.

Comment IND36-ORAL-3
I would like to thank you once again for coming out to hear our comments on dam removal. I urge you to okay the current permit proposal and keep the dam removal process going as fast as possible.

Response to Comment IND36-ORAL-3
Comment noted. Please also refer to Master Response GEN-1.

Comment IND36-ORAL-4
As I've stated before in previous hearings over the years, these dams are causing terrible damage to our river's health and salmon and all of us who cherish and depend on them.

Loss of salmon is particularly hard on the health of our native community. The continued existence of these salmon-killing dams is truly an act of genocide and suppression of their culture.

Response to Comment IND36-ORAL-4
Comment noted.

Comment IND36-ORAL-5
The awful water quality exasperated by the dams also has a direct negative impact on my family, not allowing us to swim in the polluted waters that flow right past our home. We haven't fished for salmon for several years now due to the extremely low returns. The joy of watching my son reel in a big salmon has been taken away as well as the health and nutrition they used to supply.

Response to Comment IND36-ORAL-5
Please refer to Master Response GEN-2.

Comment IND36-ORAL-6
These are big takings from us. They impact the quality of our life, our property values, our freedom to life and liberty as given to us under the constitution.

Response to Comment IND36-ORAL-6
Comment noted.

Comment IND36-ORAL-7
We want the dams removed quickly so these (Inaudible.) Further, I would like to talk about the other positive impacts dam removal will have on the entire community of the Klamath basin.

Removing the dams will create jobs and have a very positive impact on the region's economy, both in the actual dam removal and also in the many remediation efforts that are and will take place. Already members of this community have been employed to secure seed sources for revegetating the removal area.

As the owners of a native plant nursery, we rarely grow and sell plants for reclamation projects. We see this as a large economic opportunity this project will bring.

The future of mankind is dependent on reclaiming and repairing the damage we have done to our only home, the earth. Our economy is now dependent on the emerging restoration economy. We must repair the damage done, restore our natural system before it is too late and give jobs to our rural people when doing this important work.

Please, do everything in your power to insure this dam removal project continues and moves forward at top speed.

Response to Comment IND36-ORAL-7
Comment noted.

Short, Barbara

Comment IND4-ORAL-1, Speaker Card
Re longitudinal water quality & fisheries decline/depth of run

Response to Comment IND4-ORAL-1
Thank you for your comment.

Comment IND4-ORAL-2, Speaker Card
Re Due Diligence, sufficient evidence. Dams must come down now no more delay.

Response to Comment IND4-ORAL-2
Please refer to Master Response GEN-1.

Comment IND4-ORAL-3
MS. SHORT: Hi. My name is Barbara Short, S-H-O-R-T. I'm the principal at the school here. I apologize for not being able to come over earlier, but I was subbing for a teacher and so I had a lot of students.

In 1979, I worked for California Department of Fish and Game upriver—the Klamath all the way up to Iron Gate. I did rotations at the dam site. At that time, which was 40 years ago, the professionals in the field were discussing already the decline in the Klamath fisheries as related to lack of access for fish passage and water quality, 40 years ago.

In the time since then, I personally witnessed the steady decline of water quality and decrease in fish with a spike around 20 years ago and then another spike around 15 years ago and then another spike around ten years ago. And the decline has been measured repeatedly. The fish run, I don't believe we can call the fish run declining. It's pretty much gone. So anything from here forward is recovery.

The run of my youth was minimal compared to the run of my elders. And that run is gone. There's almost no evidence of fish in our rivers. It's heartbreaking.

I have been writing letters and testifying at these hearings for probably 20 years. Fifteen years ago I had a junior high class here. I was a teacher at that time. And, you know, we had the big fish kill. But we were still seeing these recurring juvenile kills. We have juvenile kills every year. And the kids notice it because they play by the river.

So we devoted a whole half year project-based learning to studying the health of our river system. And this involved examining different species, including indicator species. This involved writing to Siskiyou County and the—oh, the county in Oregon just over the line is—I'm failing on the name.

But we got crop records. We got water records. And these kids tracked across reports. And we created a picture of increasing extraction of water from the river system co-occurring with spikes in alfalfa and things that 30 years before had not been grown or were grown in minute levels compared to that time when we examined the records and looking at the growth of algae and whatnot in the river.

They wrote letters to fisheries' biologists at OSU to discuss this problem. The internet was still not really functional here. We had to be old school. And we were the group that broke the news locally around (Inaudible.) Shasta which they adjusted that name.

And all of the research the kids did really pointed to how this cycle was supported by the poor water quality related to the dams. And it was very empowering and powerful for them to feel like: We understand the problem; now this is something we can address.

They all wrote letters to the hearing boards. Many of them are professionals who testified today because they are grown up now and have been motivated to work in natural resources.

I am disheartened that conversations of concern from 40 years ago and at least two decades of data gathering, specific to the issues surrounding the dams, which are twofold—I mean, water quality, fish passage. And the decline here of *our water and other dependent species beyond the salmon has only steepened. It's heartbreaking.*

And I work in this system. I understand regulations and due diligence very well. I believe you all and who you represent have spent inordinate amounts of time making sure everybody was heard examining and cross-examining all of the scientific evidence, taking into account the economic impacts on the people above the dams. And we need to stop now and make the correct decision which is to bring down the dams because the ultimate responsibility is to the health of the river system.

I understand the pain of the people above the dams with their perceived economic loss. When I worked for Fish and Game and even for a few years beyond that, we had numerous fishing lodges in Orleans. There were, like, six of them. There were two or three in Somes Bar. There were many in Happy Camp, Syad (phon.).

This river would be choked with drift boats during tourist season. You couldn't find a turnout to pull over because every turnout had a Winnebago with people who stayed for a few weeks or a month. And that brought a lot of economy in here. It created a sense of health, there was some flow.

As far as native families, everybody's smoke house was full all the time. Rotation after rotation. We ate salmon a lot. We had salmon burgers. We had salmon steaks. We had, you know, barbecued salmon. We had dried salmon, smoked salmon.

The loss of the fish and the water quality, we can't have dogs and kids in the river at certain periods in the summer. This is unconscionable. And I find this absolutely heartbreaking that this has been allowed to go on when the evidence has been here for almost four decades.

Response to Comment IND4-ORAL-3
Please refer to Master Response GEN-2.

Comment IND4-ORAL-4
So thank you for coming here and listening to everybody once again. Because I've been doing—I've done this many times. And I hope that we can finally move forward. I have had 2020 in my brain for a long time. I will be very disappointed if we aren't physically moving ahead. And that's one year from now. We need to physically move ahead now.

So thank you very much for all of the due diligence. And let's go get those dams down.

Response to Comment IND4-ORAL-4
Please also refer to Master Response GEN-1.

Stender, Laura

Comment IND34-ORAL-1, Speaker Card
I support the removal of the Klamath Dams

Response to Comment IND34-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Stoats, Stormy

Comment IND52-ORAL-1, Speaker Card
I am in support of the removal of Klamath dams. Thank you for helping us get this far in the process.

Response to Comment IND52-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

2.4.4 Sacramento Public Meeting—February 15, 2019

This section presents comments received on the Draft EIR during the Sacramento public meeting on February 15, 2019, and the State Water Board's responses to those comments. Oral comments (including written comments submitted at the public meeting) and responses in this section are organized alphabetically by affiliation name, and for individuals, by last name, first name, following the set of commenters with affiliations. To determine whether your comment is associated with another meeting location, please refer to Table 2-3.

Table of Oral Comments and Responses for the Sacramento Public Meeting

Auburn Dam Council, Ken Payne

<u>Comment ORG22-ORAL-1, Speaker Card</u>
PROCESS, IT SEEMS THAT THIS EIR IS PREMATURE + OUT OF SEQUENCE TO THE PROCESS.

Response to Comment ORG22-ORAL-1
Thank you for your comment. Please refer to EIR Section 1 *Introduction* (pages 1-1 to 1-8) for a description of the authorization, purpose, and use of the Lower Klamath Project EIR, an overview of the EIR scope and content, a discussion of the EIR process, and a description of public involvement and agency consultation in preparing the Draft EIR.

<u>Comment ORG22-ORAL-2</u>
MR. PAYNE: Yes. Ken Payne, K-e-n P-a-y-n-e. I guess it is an understatement to say that's a tough act to follow. And I'm sort of speechless after hearing from Ms. Bacigalupi.

I used to work in this building on the 11th floor for the Department of Toxic Substances Control. And at that time I was working in Resource Recovering. Since that time I've worked in Permitting and even before that Site Mitigation. But we had a process for everything. There was a process for permitting. There was a process for recycling hazardous waste. There's a process for site cleanup. Several different processes for site cleanup. But it's my understanding that the process for this EIR and for this project has not been followed.

Response to Comment ORG22-ORAL-2
Please refer to response to comment ORG22-ORAL-1.

<u>Comment ORG22-ORAL-3</u>
First of all, it's my understanding that in order for this project to go forward, FERC has to agree to transfer the license to KRRC, which it hasn't done. FERC would also have to decide to remove the dams, which it hasn't done. So the Water Board is really analyzing an incomplete (unintelligible)process.

If FERC decides to remove the dams then there would have to be a new environmental impact statement done. The last one was done in 2012 and it's—it would be—it would have to be updated.

The other part of my understanding is that since the 2012 Environmental Impact Statement was never acted upon by the FERC, Federal Energy Regulatory Commission, there was never a record of decision, then the CEQA process is really—cannot be based on that Environmental Impact Study since it was never really adopted. It's really not—in a sense, not legalized because there was no record of decision.

Anyhow, that's my exertion to the Board today, that there's a process to follow for every project, for every permit, for every site cleanup, and for everything else. For every recyclable material there's a process to follow. And so the process has to be followed, otherwise you can never get to the end.

So I think it's a little bit cart before the horse right now and things should probably hold off until-- until everything—the rest of the process catches up.

Response to Comment ORG22-ORAL-3
Please refer to Master Response CEQ-2.

The Lower Klamath Project EIR is a separate document from the 2012 KHSA EIS/EIR and it has undergone a separate process from that prior environmental review. Please refer to Volume I Section 2.6.4 *Proposed Project – Project Background – Prior/Related Environmental Reviews* (pages 2-24 to 2-25) for a discussion of why the State Water Board determined it should develop a separate EIR, rather than adopting one of the existing environmental reviews of the Klamath Hydroelectric Project (KHP).

Klamath River Renewal Corporation, Matt Cox

Comment ORG23-ORAL-1
MR. COX: Thank you. My name is Matt Cox, M-a-t-t C-o-x. I'm the communications director for the Klamath River Renewal Corporation. I'm speaking on their behalf.

Klamath River Renewal Corporation is part of a cooperative effort to reestablish the natural vitality of the Klamath River for all communities in the basin. KRRC's job is to take ownership of the four PacifiCorp dams then remove these dams, restore formerly inundated dams and implement required mitigation measures in compliance with all applicable federal, state and local laws.

KRRC is seeking regulatory permits to accomplish this project including water quality certification by the State of California.

The DEIR is an impressive and thorough review of the potential benefits and impacts of removal of the Lower Klamath Project hydroelectric dams on the Klamath River. KRRC commends Water Board staff and your consultants for its work on this analysis, and we think there is quite a bit for community members and stakeholders to learn from it.

The DEIR shows the proposed project to be environmentally superior compared to the six alternatives to the project that the Water Board analyzed in terms of both project benefits and negative impacts.

The report shows that most potential impacts from the project are small and short term, and can be reduced with mitigation.

It also shows many project effects are beneficial in the short and long term which is an important finding for those who are interested in the long-term health of the Klamath River and the communities and ecosystems that depend on it. The DEIR shows the proposed project protects water quality by restoring the free-flowing condition of the river and ensures volitional fish passage and that the project will be a boom to salmon and steelhead populations.

Many of the species expected to recover following dam removal are tribal trust species that are important to the culture and health of some tribes on the Klamath River.

The DEIR also shows an expected increase in recreational and commercial fishing industries. KRRC is pleased with these findings in the DEIR and looks forward to continued work with regulators and communities to finalize the EIR and other permits and then implement the project including mitigation measures to enhance benefits and reduce adverse impacts.

KRRC will be submitting written comments regarding that DEIR in the near future. We are encouraged that this DEIR brings KRRC one step closer to project approval.

Response to Comment ORG23-ORAL-1
Thank you for your comment.

Trout Unlimited, Samuel Sedillo

<u>Comment ORG24-ORAL-1, Speaker Card</u>
Thank you for taking a hard look at removing the dams to restore the river.

Response to Comment ORG24-ORAL-1
Thank you for your comment.

<u>Comment ORG24-ORAL-2, Speaker Card</u>
Klamath R is our org #1 priority. We believe that removing the dams is key to restoring salmon/steelhead runs.

Response to Comment ORG24-ORAL-2
Please refer to Master Response GEN-1.

<u>Comment ORG24-ORAL-3</u>
MR. SEDILLO: Hi. My name's Samuel Sedillo, and that's spelled S-a-m-u-e-l S-e-d-i-l-l-o, and I'm here representing Trout Unlimited.

I work here in California as the public lands coordinator. And the Klamath River is our organization's number one priority. And ourselves along with many of the sportsmen and women and guides that use the river believe that dam removal is *the key to restoring salmon and steelhead runs up along the Klamath. We believe that a collaborative plan is the key to addressing the concerns of those regarding utility and the concerns of those regarding the fish. We believe that any dam removal should follow the clean water rule moving forward.*

And lastly, we really appreciate the State Water Board taking a hard look at dam removal to restoring the river. And with that I'd just like to say thank you for having us here and having the meeting.

Response to Comment ORG24-ORAL-3
Please refer to Master Response GEN-1.

Yurok Tribe, Joelene McCovey

Comment TR15-ORAL-1
MS. McCOVEY: Okay. (Unintelligible.) Hello, my name is Jolene McCovey. I am a Yurok woman from the Village of Srey-gon. My last name is spelled M-c-C-o-v-e-y.

So the Yurok people have lived along the Klamath River since time and memorial; it is an integral part of our culture, our spirituality and our food source. I'm so thankful for all of the things that this river has provided for my people. Since time beginning—well that's bad—but I'm also aware and observed the detrimental impacts of the dams. Our water flows are too low. The river is too warm. This allows algae and disease to flourish which is making our fish sick. It is killing them. Our traditional spawning grounds are inaccessible, right? So these are very, very negative impacts.

Traditional knowledge and cultural wisdom tell us that in order for our river to be healthy once begin, it needs to be restored into its original being; the form that it was before these dams were imposed, right? In order to do that the dams need to come down. This is our relief.

Response to Comment TR15-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR15-ORAL-2
The scientific studies that have been performed and conducted support Yurok belief that dam removal is the most efficient and best way to restore a healthy river. But removing these dams our water flows will be stronger. The water will be colder. Disease will be flushed. Algae will not grow as easily. Our fish will be healthier; they will be stronger; their spawning grounds will be accessible once again. Our spring coho salmon will return. This will feed our people. It will nourish our spiritual. It will support our culture.

This is immensely important to me. This is important for my children. This is important for my children's children. Fighting for this is important and for all those *who came before and fought for me to be in this place to speak today. I support dam removal. I support being a good steward of the land. And I support Yurok people reclaiming what is ours.*

Response to Comment TR15-ORAL-2
Please refer to Master Response GEN-1.

Yurok Tribe, Melissa Eidmar

Comment TR16-ORAL-1
Yurok member, urban Indian, family relies on salmon and Klamath is an important space for our people.

Response to Comment TR16-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

Comment TR16-ORAL-2
Dams have caused harm for too long and need to be removed so our people and our river can begin healing.

Response to Comment TR16-ORAL-2
Please refer to Master Response GEN-1.

Comment TR16-ORAL-3
MS. EIDMAN: I'm Melissa Eidman. My last name is spelled E-i-d-m-a-n. I'm here to talk really briefly. I think that both Virginia and Jolene gave excellent stories here for you to hear.

I'm coming from an urban Indian perspective. I was born and raised here in Sacramento but my home has always been on my reservation. My mom took me home always. We always played in the river. That place is so special to my heart. And our family has had ties to this river for generations, generations that go longer than my memory go. And the salmon have been a primary source of food for—for many of my family members.

And I just wanted to say really briefly that these dams have caused so much harm and disease for so long. And it's time that they are removed so that both our people and our river can heal. That's our role in this world as world keepers and world makers and balancing of the world, were (unintelligible) people, we're world renewal people. We don't just pray for our world. We pray for the whole world. Even those that are opposing this. Even those that want the dams to stay. We are praying for them. We are praying for their people. We's praying them as well. It doesn't have to be a battle at odds. We all should be working on this together.

Response to Comment TR16-ORAL-3
Please refer to Master Response GEN-2.

Bacigalupi, Debbie

<u>Comment IND55-ORAL-1</u>
NEW SPEAKER: Hi. My name is Debbie Bacigalupi, D-e-b-b-i-e B-a-c-i-g-a-l-u-p-i. And I'd like to start off by saying I've been to many meetings now over the decades from when USGS was holding public comment meetings in the town of Yreka to some meetings here in this very room where we sat in a big circle with cooperating agencies, cooperating federalists. And it has been really maddening to just hear all the questions, the concerns, the "if," "well maybe," "perhaps." For the largest dam destruction project in worldwide history, it would seem to me that we should be certain.

The DEIR also shows an expected increase in recreational and commercial fishing industries. KRRC is pleased with these findings in the DEIR and looks forward to continued work with regulators and communities to finalize the EIR and other permits and then implement the project including mitigation measures to enhance benefits and reduce adverse impacts.

KRRC will be submitting written comments regarding that DEIR in the near future. We are encouraged that this DEIR brings KRRC one step closer to project approval.

Response to Comment IND55-ORAL-1
Thank you for your comment.

<u>Comment IND55-ORAL-2</u>
I've interviewed over the years and not be using words like "well maybe," "it could." For example with the sediment, there is over 20 million cubic yards of sediment. That's like, if you laid it out flat, it's like 12,500 miles, half way around the earth of pollutants that would wash out to sea. Over 60 plus years is the estimate.

And even the EIR, the original EIR and EISs admit this. The original peer reviews admit this. In fact, they even stated—and I read these because I had to provide public comment, it's hours and hours of reading. We have spent our time, our energy, our own money traveling to different conference—or different meetings throughout the state, and I'm sure we can go even beyond to Washington, D.C., which people have to try and say wait a minute, we're missing so many pieces in this big puzzle.

So why are we—why are we on this agenda to destroy dams instead of get down to the truth. There are so many conflicting stories even within the original peer reviews. And so my concern is that we're not using common sense, base solutions, evidence-based solutions.

Response to Comment IND55-ORAL-2

The quantitative uncertainty of the stored sediment behind the Lower Klamath Project dams has been accounted for, as explained in ORG46-8. For information on sediment erosion, transport, and deposition following dam removal, please refer to Volume I Section 3.11.5 *Geology, Soils, and Mineral Resources – Potential Impacts and Mitigation* Potential Impact 3.11-5 (pages 3-765 to 3-775) and Master Response GEO-1. The EIR, including the analyses of stored sediment and sediment erosion, transport, and deposition, is based on technical modeling (USBR 2012a) and scientific analysis. Information regarding the sediment transport modeling is consistently presented in the EIR and is clarified and amplified in Master Response GEO-1 in response to public comments.

Comment IND55-ORAL-3

As an aside, I got my master's in evidence-based theory. And I can tell you, I can use any kind of evidence for any kind of outcome I want. And—but, you know, I believe that the people deserve the truth.

And with this project it is so huge and it's going to impact so many people. My request for—you know, is that we slow down and we really, really look at all evidence not just a focused evidence.

Response to Comment IND55-ORAL-3

Under the California Environmental Quality Act (CEQA), evidence is used in the following way:

If there is substantial evidence, in light of the whole record before the lead agency, that the project may have a significant effect on the environment, an environmental impact report shall be prepared (Pub. Res. Code, § 21080, subd. (d)).

Substantial evidence includes fact, a reasonable assumption predicated upon fact, or expert opinion supported by fact (Pub. Res. Code, § 21080, subd. (e)(1)).

Substantial evidence is not argument, speculation, unsubstantiated opinion or narrative, evidence that is clearly inaccurate or erroneous, or evidence of social or economic impacts that do not contribute to, or are not caused by, physical impacts on the environment (Pub. Res. Code, § 21080 (e)(2)).

The purpose of an environmental impact report is to provide public agencies and the public in general with detailed information about the effect which a proposed project is likely to have on the environment; to list ways in which the significant effects of such a project might be minimized; and to indicate alternatives to such a project (Pub. Res. Code, § 21061).

As stated in Volume I Section 1.1 *Introduction – Authorization, Purpose, and Use of EIR* (page 1-1), the State Water Board is the Lead Agency responsible for complying with the CEQA for the Lower Klamath Project License Surrender (Proposed Project). This environmental impact report (EIR) was prepared in conformance with CEQA.

Comment IND55-ORAL-4
I have a couple of examples. And I'm glad somebody brought up climate change. Something that I really like to do is see and hear things for myself, that's why I'm here; I'm not from Sacramento. I'm from just below the Oregon border, just below the Klamath River. But I like to go to meetings and conferences all over so that I can hear for myself what's going on.

I've flown over the Klamath. I've interviewed all—a bunch of different tribal members including the Karuk who have said off camera that when—if and when those dams come out they fear a future of flooding again. Which means in the past before the dams were in there was flooding.

Response to Comment IND55-ORAL-4
Please refer to Master Responses FLD-1 and GEN-2.

Comment IND55-ORAL-5
I've interviewed Fish and Game employees who work at the Iron Gate hatchery just last year—I got all these things on camera and on video—and the Fish and Game Wildlife employees who are waiting to retire, the only reason they are not saying anything is because they have a retirement pension waiting. They don't want to get fired. But what they said—so when I was asking them about the different fish runs—there is one fish run that is completely protected so it has very few fish compared to the other fish runs.

So the fish runs—if you haven't been to the fish hatchery, you should go and investigate it for yourself and talk to the employees who work there. So the Fish and Game employees who are waiting to retire but don't want to say anything because they don't want to get fired because they don't want to miss out on their retirement would tell you—if they think that you're not for dam removal, let me tell you that—the truth. And what they see. These guys have worked at this hatchery—this is their career.

So I asked them—okay, so there's this fish run that has tons of fish labeled, "Chinook." Actually, there's a couple. And then you see all these nets and it says "coho." And my question to them was, "Why are there so few coho?"

And he said, well—first of all, I said, "Why the netting?"

And he said, "Because these are fragile fish compared to the Chinook."

So I said, "If they are fragile fish, why is there so many fewer fish in this tank than there are in the Chinook tanks?"

And he said, "Because we are required to keep the fish count low."

"Why?"

And his answer was, "Because it's all about dam removal."

So if we keep the fish count low, the coho, then we have a low number of returning fish and therefore we can keep the number low and therefore say this is required. We need to get these dams destroyed because there's too few fish.

Go interview. I don't mean to sound—I'm nervous—I don't mean to sound mean, but go interview them. Go interview them.

Response to Comment IND55-ORAL-5
Section 3.3.5.6 *Aquatic Resources – Potential Impacts and Mitigation – Fish Hatcheries* and Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* Potential Impact 3.3-9 provides a detailed analysis of the effect of ending hatchery production for coho salmon after eight years under the Proposed Project. Based on available information, it is anticipated that benefits from dam removal and cessation of hatchery operations would increase adult returns by more than the loss of hatchery progeny. Please refer to Volume III Attachment 1 for final Section 3.3 *Aquatic Resources*.

Further, under existing conditions and the Proposed Project, all production of coho salmon is constrained by a Hatchery Genetic Management Plan (HGMP) for the Iron Gate Hatchery (CDFW and PacifiCorp 2014), which redefined the operation of this hatchery from a mitigation hatchery to one now operated to protect and conserve the genetic resources of the Upper Klamath population unit of the Southern Oregon/Northern California Coast (SONCC) coho salmon Evolutionarily Significant Unit (ESU). Included in the HGMP are defined monitoring and evaluation activities to evaluate effects of the hatchery activities on the abundance, productivity, spatial structure, and diversity of the SONCC coho salmon and the magnitude or relative impact of the hatchery program on other actions that influence SONCC coho salmon.

Comment IND55-ORAL-6
In March of 2015, there's a Mary Nichols, California Air Resource Board. She testified in Washington, D.C. on a topic called Carbon Dioxide Emission Rules. And in the questioning it was talking about greenhouse gases and is California meeting theirs. And she agreed with one of the congressmen that if we included the Klamath River, the hydroelectric energy, the clean, green, renewable energy dams that provide drought control, fire control, fire suppression, irrigation, recreations—and it's just a gorgeous river, I have spent over 20 years on that—on and around that river—she admitted that California right now would be meeting if not exceeding our greenhouse gas emissions goals if we included the

Klamath and hydro in our renewable energy mix. So why are we destroying them?

Response to Comment IND55-ORAL-6
This comment pertains to a portion of the Draft EIR that was recirculated on December 21, 2019. Please refer to the recirculated document (*Greenhouse Gas Emissions and Energy*).

Comment IND55-ORAL-7
I just got back from the most recent United Nations Framework Convention on Climate Change Conference in Poland. I was in a panel discussion with Cathy Woollums, the senior vice president of and the chief sustainability officer of Berkshire Hathaway, another Warren Buffet—just like PacifiCorp, another Warren Buffet company.

And in the panel discussion question part I asked her about the Klamath. And I corrected her on a statement. And this is a public—this was a public panel discussion—and I corrected her on a statement where she said that their—their customers across the board are receiving—are paying lower rates. And I corrected her and I said that is not true. Because in the Klamath area we are being charged, PacifiCorp, owned by Warren Buffet, we rate payers are being charged for dam destruction, which is to me just disgusting.

Response to Comment IND55-ORAL-7
Please refer to Master Response ENR-1.

Comment IND55-ORAL-8
It's—it's—it's disgusting that there are over almost 80 percent of the voting population in Yreka voted to retain those dams, keep them. And this also happened in the—in southern Oregon in Klamath Falls. They voted overwhelmingly, people who live with and are impacted immediately by those dams, voted overwhelmingly we want to keep our clean, green, renewable energy.

Response to Comment IND55-ORAL-8
Please refer to Master Response GEN-1.

Comment IND55-ORAL-9
And then, you know, we haven't even looked at the truck and haul. So if we are going to go through with the largest dam destruction in worldwide history, wouldn't it make sense to see if there is even habitat suitable to sustain the coho salmon. Those studies have not been done. So that to me common-sense-wise seems like a very, very good first step in this whole thing.

Response to Comment IND55-ORAL-9

Please refer to Volume I Section 4.4 *Alternatives – Continued Operations with Fish Passage Alternative* (page 4-99) for the analysis of continued operations with fish passage, including trap and haul.

Comment IND55-ORAL-10

I look outside and—oh, and you know, I love it. I did—I was born in Mt. Shasta but raised here in Sacramento and one of my favorite nutritional stores is Elliott's. And I love Elliott's. It's got, like, the best food. I love my raw milk. I love my, you know, clean food. And it's so fun to see in that refrigerator blue-green algae from the Klamath as a health supplement for human beings. So—and that comes from the Klamath River.

Response to Comment IND55-ORAL-10

Please refer to Master Response GEN-2.

Comment IND55-ORAL-11

Lastly, I want to say that, you know, pulling up to the EPA building today in Sacramento, California, I was saddened to see across the street a bunch of tents and tarps of our homeless problem. And it would seem to me that we have bigger issues than – on – in California than a project, a worldwide project that has been nothing but in all these meetings if you continue to go to them with the experts, the experts cannot answer the questions. They say "maybe." They will use words like, "Well, perhaps if we take out the dams." "Well, how much is it going to cost?" "Well, we're not sure." "What are you going to do with the sediment?" "Well, we think." All these uncertain, not positive, not complete answers.

But there are homeless people out there right now just across the street from this EPA – this government building, and it seems to me that cooperative federalists have more urgent, life-saving matters than destroying dams that are in almost perfect condition and that people question, question, question the political agenda behind it.

Response to Comment IND55-ORAL-11

Please refer to Master Responses GEN-1 and GEN-2.

Comment IND55-ORAL-12

And so, this—these dams are, for those who don't live up there like we do, they are 24/7 reliable energy dams. They provide over nine hours of flood control. If there is going to be a flood, people are given over nine hours to get out of there. You take out those dams and just like Jody Wadell said of the Karuk tribe, "If those dams come out we don't know if we'll be able to survive, because we've had floods in the past that have destroyed towns down river from Iron Gate."

Response to Comment IND55-ORAL-12
Please refer to Master Responses GEN-1 and GEN-2.

Comment IND55-ORAL-13
And one more thing—sorry—Rex Casalia phonetic) is a rancher who's lived on the Klamath just below the Iron Gate dam his entire life. That means before the Iron Gate dam went in, which is where the hatchery is, which is where the Fish and Game employees would tell you this is nothing but a political agenda. Rex Casalia remembers as a child growing up walking across the river and his feet didn't get wet. So—and this is many times throughout the year, throughout the years.

So, if it's all about coho and giving them more habitat to swim upstream, before the dams were in the coho would need wings to fly upstream in certain years. So is this really about protecting the coho? Because let me tell you, they wouldn't make it upstream. Or is this another agenda? Because for so much uncertainty, it seems like this is an agenda. It's not based on science. It's not based on fact. It's based on feelings.

Thank you for letting me share.

Response to Comment IND55-ORAL-13
Please refer to Master Responses GEN-2 and AQF-4.

Feher, Rick

Comment IND57-ORAL-1
MR. FEHER: (Unintelligible.) F-e-h-e-r.

The last speaker seemed to be part of the process and I can find faults in the process and I respect that the process is—the process seems to be that the public can comment in CEQA proceedings. The comments and answers are required to be provided but I—I want to—and can I ask a question of Parker, because he's been involved in this for a long time.

Was it accurate that FERC was not a party to the agreement?

Response to Comment IND57-ORAL-1
Thank you for your comment.

Comment IND57-ORAL-2
MS. RAGAZZI: So we're not responding to comments today. So it's fine for you to ask –

MR. FEHER: So the process wins then, I guess. So if the process wins I will just say something supportive of dam removal, of the river and the long view, the long-term vision.

Big concrete obstructions, river people who I know, a brother who is in the river reporting along with his observations speaking with Fish and Game—the fish runs are in trouble and it's critical. And that means that I agree with Thomas which is the first speaker that, you know, that occurs there's a process that must be followed. That seems to be a fall-back position when wanted to do something like build a freeway or something in the 1950's. Of course that's going backward in time. We're not there.

We have completely different set of procedures, very much different. (Unintelligible.) But there is an emergency like after let's—let's say after (unintelligible) thought that certain freeways need for people to move. Well, this needs to be restored on an emergency basis (unintelligible). With populations declining year after year and over the long-term there may be some variation. But it's not a happy situation for people. The possibility that the river can be restored at (unintelligible) project in Oregon—Washington State, excuse me, that the gill rot removal was—books that I've read quite successful in the—for instance (unintelligible)

I anticipated writing something. I'm usually better doing that, submitting comments in writing and I anticipate (unintelligible) and procedural issues. And I hope you don't get drowned in procedural issues (unintelligible) with the agreement.

Response to Comment IND57-ORAL-2
Please refer to Master Response GEN-1.

Hendrick, Veronica

<u>Comment IND450-ORAL-1</u>
MS. HEDRICK: (Unintelligible.) Virginia Hedrick. (Unintelligible.)

I want to thank my niece for her words, sharing about the importance and the cultural significance of the Klamath River.

I live here in the Sacramento Valley and I have for over a decade. I'm raising five children here. I was born and raised on the Yurok reservation. I am the youngest of ten.

Everyone else lives back home within the Klamath basin and on ancestral territory, and what I've learned as a Sacramento resident is that all of these things are connected, right? So for our Sacramento River to be healthy, water is diverted from the Trinity River. The Trinity River is a major tributary to the Klamath River. So if the Klamath River is not doing well, the Sacramento River won't do well.

And as indigenous people we've long understood the connection of water and life, and forest and trees and, you know. Right now we hear stories and we know about, you know, cap and trade and exchanging one health for another health. And I think when we talk about Klamath dam removal we have to talk about it in that scope, that it's not just everyone down river from those dams. The rivers and the water basins are so widely connected that here in the Sacramento Valley and the rest of California we have to think about those impacts to who we are.

And, you know, I always encourage where ever people are to think about where the water is coming from that you're drinking. If you're buying a bottle of water from the store, where was it bottled? Is it tap water? Is it spring water? Who's losing for you to be able to have that bottle of water? You go into a restaurant here in Sacramento—I talk to Sacramento residence here and they don't know. They don't know that the Trinity River water is diverted to the Sacramento River. They don't even know where the headwaters of the Sacramento River is or the Feather River.

So my children are also Midu and they are from the headwaters of the Feather River. And people don't know that. They don't know that the Feather River is a tributary to our basin here or what the impacts of those dams are and to this valley.

I spent a number of years living in Los Angeles and well understand what the people of the Owen Valley are giving up for the Los Angeles water. For that dust pool that is created in the Owens Valley is so that Los Angeles can have water.

And I know in the scope of it seems like it doesn't make sense of it, why we're talking about this, but as Indian people we well understand that. And my family, we have a story that my namesake Queen James has shared with us, my great, great aunt, that there was a time where people were polluting the river and we had a lot of illegal dumps happening and they were flowing into the river and the river was full of trash. And she went down to the river, and the river spirit came out of the water and spoke to her and warned her that if you keep treating the river this way and you have me dammed in seven places, if you keep treating the river this way I will go and so will the people.

And I think for many people we have thought that meant Yurok people, that Yurok people would go. But what I want to tell the people in this room and people who are listening is that it's not a literal interpretation. It's all people. Human life will go without water. We will all go.

Response to Comment IND450-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-2.

<u>Comment IND450-ORAL-2</u>
And I think, you know, we're having these large, political discussions at the national level about global warming and impacts to the environment. And we have an opportunity in California to do the right thing. We have an opportunity to engage in one of the largest dam removals to restore health. Not only for Indian people but for all people upstream and downstream, that these kind of upstream changes have the opportunity to make widespread impact.

Response to Comment IND450-ORAL-2
Please refer to Master Response GEN-1.

<u>Comment IND450-ORAL-3</u>
Many people don't care if we have fish to eat. They don't care about indigenous people on the Klamath River. I just heard a public comment around a cannabis grow on the Klamath River and people calling it their ancestral territory and saying they've been there since 1973. People don't care. That's something I've understood. That people don't always care about indigenous people and our rights. But you should care about yourself. We should care about who we are and the children that you're raising and the water that they might have access to or not have access to.

I took my child recently on a field trip to the Nimbus Dam here. And we talked about the life cycle of fish, and they talked about, you know, the spawning grounds and we watched them do this man-made spawning in front of them.

But what they didn't talk about is why. Why it's occurred this way. Or the 600 miles of spawning ground in the Folsom area and the basin that are no longer accessible to fish. Why we have a fish hatchery. Why we have manipulated our planet in this gross, gross way. And the mis-education to our youth and our young people, and have to pull my son aside and say this is what's happening here. This is a man-made interplay because they built a dam and cut off spawning ground to fish who have been here long before us.

We have a fish in our river, the sturgeon, who's prehistoric, pre-dates the human as we know it today that has—dates back to an earlier time when spirits walked among us.

Response to Comment IND450-ORAL-3
Please refer to Master Response GEN-2.

<u>Comment IND450-ORAL-4</u>
So who we think we are in this small frame right now, we talk about Klamath dam removal. And many of you are showing up to a job and, you know, you're policy analysts, and you have the impact of one thing. And today when we ask you that we want to give comment I want to appreciate and respect that you turn these back on, that you made time for this space. That that's important. And that you

as an individual play a role in this, that you're hearing a story today. And what our old Indian people tell us is stories have power. So when you hear this story you have to do something about it. You have a personal responsibility.

And so I want to appreciate that you took that personal responsibility, you heard our words, you put it back on. For this reporter here who is a storyteller in his own right, in a way that Indian people have been doing since the beginning of time, that that's his responsibility is to share these stories and to communicate with people in a way in which we live, and behave, and care-take this land, that we all as humans have that responsibility.

It's not about who gets what and who needs water and who needs food. We all need it. It's our responsibility to care-take this world. It's our responsibility to care-take the Klamath River even if you live six hours away. Even if you may not realize the impact it has to you and to the people who come after you and the generations that you will never meet and that we'll never see, the impacts, the decisions we make today will have for generations to come.

In 2002 we had a mass fish kill on the Klamath River. At the time my grandmother was in her late 70's, early 80's. And from her porch, from our porch we could smell death. A smell I hope none of you in this room ever have to smell, or fear, or know what that feels like to smell death in your home. And she was immediately triggered back to this time, does this mean the river's going? Where we as people, as humans, not as Yurok people exactly, but as humans, will this world as we know it, is it changing?

We didn't know about gill rot the day we saw these fish washing up on our shore. We didn't know what it was caused. We didn't know that it was water flow right away. We didn't know all the scientific things that would come out of it, or that our scientists at Yurok tribe and Karuk tribe and Hupa tribe, all the science that would come out of it. My grandma didn't know it at that time, but she knew something was wrong and that this was one of the most horrific things she had seen.

And let me tell you, she went to boarding school. She moved over 13 hours from her home and went to boarding school. And yet this fish kill was one of the most horrific things she had seen.

It's not about our personal impact, what it means to us. It's about a global impact. It's about the impact to this people and the world. And we have to as stewards of this land—whether you choose to be or not, you're a steward of this land—we have to do the right thing in this case. We have to.

And I know there was people here earlier that supported keeping the dams up and maintaining the dams. And maybe their families have livelihoods based on water that's held on the upper basin. We know that the federal government *removed people to the upper Klamath basin and they have farms there and they feel like they have that trust responsibility. And again, I just want to say it's not about that. It's not about the politics. It's not about who wins and who loses. It's about us as human people being good stewards of this land.*

So, again, I just want to thank you for reopening this, for taking the time, for hearing my story, for hearing the story that came before me, the stories that come after me, for the many people in this room who we don't see who are here with us. The old ones who wish they could be here and will watch this dam removal. That's what's important.

When we talk about Indian people, a lot of us think about, like, oh, 500 years ago. In California it's recent memory. It wasn't 500 years ago for us. California became a state in 1852. It's recent memory for us. My grandmother's mom. So my great grandmother was born in a time when non-Indian people first came.

And I'm taking a lot of time because I know—I know there's not a huge line. That's recent memory. And I'm young; I'm in my 30's. I'm young. And I'm telling you about my great, great grandmother. It's recent memory.

And I'm hoping that my children who span the ages from 18 to two will live to see a time when the Klamath dams are gone and that their children will only hear about these things in story. And the people in the Sacramento Valley and upriver from us and downriver—that's how we as Yurok people orient ourselves in the world—that we'll all feel the positive impact from that. And that the people who are now supporting/maintaining the dams will also benefit from that.

Response to Comment IND450-ORAL-4
Please refer to Master Response GEN-2.

Jones, Marva

<u>Comment IND56-ORAL-1</u>
MS JONES: (Unintelligible.) Marva Jones. I'm (unintelligible.) And I come here to speak on behalf of dam removal.

It is our only choice. We know that we're killing the river right now with the diseases going on there and the blue-green algae that's affecting the river. I mean, we can't even swim in the river. And it's affecting our fish family as we all know. And Oregon is already on board and has approved the petition to go forward. And I'm just here to support dam removal. And just like Thomas said, it's a direct link of the healthiness of our health. And it's a direct link of our wellness. So obviously we need to restore the river. (Unintelligible.)

Response to Comment IND56-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Joseph, Thomas

Comment IND58-ORAL-1, Speaker Card
Take Down the Dams

Response to Comment IND58-ORAL-1
Thank you for your comment. Please refer to Master Response GEN-1.

Comment IND58-ORAL-2
NEW SPEAKER: Thank you. My name is Thomas Joseph. First name T-h-o-m-a-s, last name, J-o-s-e-p-h, and I'm here as a Hupa tribal member on the Trinity River, which is the largest contributory to the Klamath. And I'm here to support all methods and measures to dam removal.

This is the second presentation that I attended and, you know, I support dam removal. And you guys have outlined the necessities of it and why we do need to move forward.

Response to Comment IND58-ORAL-2
Please refer to Master Response GEN-1.

Comment IND58-ORAL-3
But I also want to recognize that the Klamath River is a living entity, that she breathes, that she knows how to communicate, and have relationships, and that she—she has a spirit. And all of your documentation has failed to recognize that.

And the State of California has failed in their neglect of recognizing the relationship of Mother Earth and the land that they live on, and it has caused grave turmoil not just here locally by the destruction of our local rainforest, and our rivers, and our streams, and our water quality and air quality, but it has caused tremendous travesties worldwide. And it's at the fault of us. It's at the fault of this state. It's at the fault of the citizens. And that we need to change that path not just for the protection of the Klamath River, you know. She's been locked up for a long time.

We reflect our environment. California had a problem with locking up its citizens after it had a problem with locking up its rivers. We will always reflect our environment. But the more that we continue to abuse her and disrespect her the more pain our communities will feel.

And we know that people of color will probably be the primary bearers of those effects of climate change. But it's going to effect all of us.

And these dams need to come down so we can start to recognize how we can rebuild this relationship, that we can start to understand and have a greater understanding on how we can live in a non-destructive manner. We need to not *just do this for northern California, but we need to set a precedence. We need to show the world and the citizens of California that things have to change.*

And I guarantee, when we see the Klamath River run free, we will see the power of her restoration and the example that she'll give our communities to how to restore our communities back to livable standards, how to be in community with each other, how to be in relationship with each other. She's waiting to give us that example.

Response to Comment IND58-ORAL-3

Please refer to Master Response GEN-2.

Comment IND58-ORAL-4

So I urge you to move forward. I hope that these tactics of delay aren't continued. We were promised 2020. Now we're promised 2021. The State has a long history of delay tactics. We need to move forward promptly, not just for the restoration of the Klamath River, but for all of us.

Response to Comment IND58-ORAL-4

Comment noted.

2.5 Written Comments and Responses – Recirculated Portions of the Draft EIR

This section presents written comments received on the recirculated portions of the Draft EIR and the State Water Board's responses to those comments. For comments that do not pertain to the environmental analyses presented in the portions of the recirculated Draft EIR, please refer to Master Response R-1. Written comments and responses in this section are organized by comment affiliation type. To determine which affiliation your comment is associated with, please refer to Table 2-4 or Table 2-5.

Table of Written Comments and Responses

2.5.1 Local Agencies

This section presents written comments received on the recirculated portions of the Draft EIR from local agencies and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by agency name. To determine whether your comment is associated with an affiliation type other than local agencies, please refer to Table 2-4 or Table 2-5.

Table of Written Local Agency Comments and Responses

County of Siskiyou, Paul S. Weiland

Comment RE-8-1

We are writing on behalf of Siskiyou County ("County") to express our significant concerns regarding the Recirculated Portions of the Draft Environmental Impact Report ("Recirculated DEIR") for the Lower Klamath Project License Surrender ("Project") prepared by the California State Water Resources Control Board ("State Board") pursuant to the California Environmental Quality Act, Cal. Pub. Res. Code, § 21000 et seq. ("CEQA"). The County's full range of concerns is included in SWCA's "Comments on the Lower Klamath Project Draft Environmental Impact Report – Recirculated Sections," attached hereto as Exhibit A, and the County's "Comments re Draft Environmental Impact report for the Lower Klamath Project License Surrender, Federal Energy Regulatory Commission Project No. 14803," attached hereto as Exhibit B.

Response to Comment RE-8-1
Thank you for your comment.

For responses to comments provided by Siskiyou County on the Draft EIR please refer to Volume III Section 2.3.2 *Public Comments and Responses – Written Comments and Responses – Local Agencies – County of Siskiyou, Ashley J. Remilllard* and Volume III Attachment 1. Please refer to the response to comments RE-8-1 to RE-8-14 for a response to the comments submitted on the Recirculated Draft EIR by Siskiyou County (dated February 6, 2020).

Comment RE-8-2
As the State Board is aware, the Klamath River Renewal Corporation ("KRRC") and PacifiCorp have submitted applications to the Federal Energy Regulatory Commission ("FERC") for hydropower license transfer and surrender to decommission and remove four lower Klamath River dams—three of which are located within Siskiyou County. On multiple occasions, the County has expressed its concerns regarding the potential impacts of dam removal on imperiled species, water quality, and the overall health of the Klamath River ecosystem, as well as other environmental and societal impacts, including air quality, climate change, cultural resources, hazardous materials, and traffic impacts, in addition to socioeconomic impacts on the local community. See, e.g., PacifiCorp, 162 FERC ¶ 61,236 at ¶ 28 (Mar. 15, 2018). The County therefore has a strong vested interest in ensuring that the public is appropriately and lawfully informed of the Project's entire range of consequences.

Response to Comment RE-8-2
Comment noted.

For responses to comments provided by Siskiyou County on the Draft EIR please refer to Volume III Section 2.3.2 *Public Comments and Responses – Written Comments and Responses – Local Agencies – County of Siskiyou, Ashley J. Remilllard* and Volume III Attachment 1. Please refer to the response to comments RE-8-1 to RE-8-14 for a response to the comments submitted on the Recirculated Draft EIR by Siskiyou County (dated February 6, 2020).

Please note that under CEQA, potential effects from implementing a project, such as reductions in property values, loss of property tax revenues, and increases in energy costs, that are solely social or economic in nature, do not constitute an effect (i.e., an impact) to the physical environment (see also Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA*).

Comment RE-8-3
On February 26, 2019, the County submitted comments to the State Board, attached hereto as Exhibit B, detailing the County's serious concerns regarding the Draft Environmental Impact Report for the Lower Klamath Project ("DEIR").

As explained in the County's prior comments, the DEIR failed to satisfy the requirements of CEQA and its implementing guidelines, 14 Cal. Code Regs. §§ 15000 et seq. ("CEQA Guidelines"), and thereby failed to provide the public with an adequate assessment of the significant environmental effects associated with implementation of the Project. In response to the vast array of public comments, on December 21, 2019, the State Board chose to recirculate only the Air Quality and Greenhouse Gas Emissions sections of the DEIR. Virtually none of the County's previously submitted concerns were addressed in the narrowly focused Recirculated DEIR. We therefore incorporate the County's prior comment letter (Exhibit B) here in its entirety.

Response to Comment RE-8-3
The comment refers to the prior comments submitted by Siskiyou County on the Draft EIR (dated February 26, 2019) and states that very few of the County's comments were addressed in the Recirculated Draft EIR. Please refer to Master Response R-1.

For responses to comments provided by Siskiyou County on the Draft EIR please refer to Volume III Section 2.3.2 *Public Comments and Responses – Written Comments and Responses – Local Agencies – County of Siskiyou, Ashley J. Remilllard* and Volume III Attachment 1. Please refer to the response to comments RE-8-1 to RE-8-14 for a response to the comments submitted on the Recirculated Draft EIR by Siskiyou County (dated February 6, 2020).

Comment RE-8-4
While the County appreciates the State Board's efforts to address the DEIR's shortfalls regarding its analysis of the Project's potential impacts on air quality and greenhouse gas emissions, the Recirculated DEIR remains inadequate. As set forth in SWCA's technical comments (Exhibit A), which the County fully incorporates herein, the Recirculated DEIR warrants additional revisions in order to sufficiently comply with CEQA Guidelines.

Response to Comment RE-8-4
Comment noted.

Please refer to the response to comments RE-8-8 to RE-8-14 for a response to the technical comments provided by SWCA Environmental Consultants.

Comment RE-8-5
In addition to the comments presented by SWCA regarding the air quality and greenhouse gas emissions analyses, the County adds that its ongoing concern regarding the issue of concrete waste disposal remains unaddressed in the Recirculated DEIR. This is especially concerning in light of the potential presence of unnaturally occurring asbestos that may have been intentionally placed in the dams for strengthening purposes. According to the Siskiyou County Demolition Ordinance's requirements for dam removal, all components

and structures associated with the dam must be completely removed and reclaimed to conditions that existed prior to dam construction. Siskiyou County Code Title 10, Chapter 13 (adopted Oct. 1, 2019). Additionally, the County requires that all dam components be recycled to the maximum extent practicable, and that all materials are sampled and analyzed for adverse contamination and dealt with appropriately. Id. The Recirculated DEIR does not adequately discuss how the presence of asbestos will be addressed during demolition activities, and the County thus cannot knowledgably comment on whether the demolition plans violate the Siskiyou County Demolition Ordinance.

Response to Comment RE-8-5

The comment states that the County's concerns about concrete waste disposal remain unaddressed in the Recirculated Draft EIR. The comment states this is concerning because there is the potential that asbestos may have been placed in the dams for strengthening purposes. The comment also makes reference to the Siskiyou County Demolition Ordinance's requirements for dam removal (adopted October 1, 2019), which requires the following: 1) that all components and structures associated with the dam must be completely removed and reclaimed to conditions that existed prior to dam construction; 2) that all dam components be recycled to the maximum extent practicable; and 3) that all materials are sampled and analyzed for adverse contamination and dealt with appropriately. The comment concludes that the Recirculated Draft EIR does not adequately discuss how the presence of asbestos will be addressed during demolition activities and, therefore, the County cannot properly comment on whether the demolition plans will violate the Siskiyou County Demolition Ordinance.

Please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-4 for a discussion of the handling of asbestos-containing materials during deconstruction activity. As stated in the discussion for Potential Impact 3.9-4 (page RE-3-42), "Asbestos-related work (i.e., abatement and disposal of asbestos containing materials) will be performed by Klamath River Renewal Corporation (KRRC) and its representatives in compliance with, as relevant, local, state, and federal regulations including California Division of Occupational Safety and those implemented by the Siskiyou County Air Pollution Control District (SCAPCD) (KRRC 2019e). Compliance with applicable regulations related to the handling of hazardous materials is included as Mitigation Measure HZ-1 *Hazardous Materials Management* in Section 3.21 *Hazards and Hazardous Materials*." Please refer to Volume III Attachment 1 Section 3.21.5 *Hazards and Hazardous Materials – Potential Impacts and Mitigation* for the final Mitigation Measure HZ-1.

Please refer to Master Response CEQ-2 for a discussion of federal preemption and the applicability of local regulations to the Proposed Project.

Comment RE-8-6

Moreover, the County has heard through the KRRC's contractors that certain proposed bridge improvements are being stricken from the 2018 Definite Plan to save costs. It is unclear what other cost-saving modifications are being made to the plan, which makes intelligently commenting on the Project infeasible. Given the lack of a technical and financial feasibility determination, as well as the recent changes to the Project and the pendency of information, the current state of the Project can in no way be deemed stable. As such, the DEIR and its recirculated portions remain inadequate for failure to sufficiently define the Project. The State Board's decision to proceed with environmental review prior to KRRC having a stable project plan approved by FERC is thwarting CEQA's goals by precluding informed public and agency participation and will be an impediment to the State Board's informed decision-making. The CEQA analysis should therefore not be undertaken until the point at which the Project becomes stable.

Response to Comment RE-8-6

The Draft EIR prepared by the State Water Board for the Lower Klamath Project License Surrender provides a clear, sufficiently detailed project description to adequately analyze and disclose the environmental impacts of the Proposed Project as well as a comparison of the impacts of the Project Alternatives. Minor changes that do not result in a change in the physical environment, such as potential changes in the proposed bridge improvements, do not impede public disclosure of any environmental impacts.

Comment RE-8-7

For the foregoing reasons, and as further discussed in detail in Exhibits A and B, the County requests that the State Board revise the Recirculated DEIR to address the County's unresolved concerns. Please do not hesitate to contact us with questions.

Response to Comment RE-8-7

Comment noted.

Comment RE-8-8

1. *It is recommended that more robust sampling of the dams be conducted to ensure protectiveness of human health. Aggregate materials are locally sourced and are unlikely to include naturally occurring asbestos, but it is unclear if asbestos containing material may have been purposefully added to the dam for structural integrity during construction. Though it is generally accepted to take chip samples of the concrete rather than a core sample, the thickness of the concrete dam in this case would likely require core samples to definitively determine that the structure does not have varying asbestos content. During construction of the dam, the construction schedule may have varied and there could be different ingredient aggregate used on the dam construction throughout the process. Core samples would be a more robust sampling method to ensure that health impacts do not occur. Additionally,*

from reading through the recirculated EIR, it is not entirely clear what method was used to take the samples from the dam (what type of samples were taken from the dams and how many), so this should be explained in greater detail for the benefit of the reader.

Response to Comment RE-8-8

The comment recommends that more robust sampling of the dams be conducted to ensure protectiveness of human health in relation to the potential for asbestos to have been added to dam concrete. The comment states that although it is common to take chip samples of concrete, the thickness of the dams would likely require core samples to definitively determine whether asbestos is present. The comment also states that core samples would be a more robust sampling method to ensure that health impacts do not occur. The comment concludes that it is not clear in the Recirculated Draft EIR what sampling method was used (i.e., what type of samples were taken and how many), so greater detail should be provided for the benefit of the reader.

As the commenter notes, locally-sourced aggregate materials utilized to construct the dams were unlikely to include naturally occurring asbestos and so it is unlikely that naturally occurring asbestos would be present in the dam. This assessment is supported by sampling of the concrete structures associated with the Lower Klamath Project. In order to determine if naturally occurring asbestos was present in concrete structures associated with the Lower Klamath Project, a preliminary screen for asbestos was conducted through bulk concrete samples sourced from accessible concrete at each of the dam developments. These samples were collected in accordance with the Polarized Light Microscopy (PLM) California Air Resources Board (CARB) 435 Method. This method is used to determine the asbestos content of serpentine aggregate, or naturally occurring asbestos, in concrete. The CARB 435 PLM method is a conservative analytical method that would have also identified added asbestos in addition to naturally occurring asbestos (R. M. Manley, LLC, pers. comm., March 2020).

Concrete samples were crushed using a mill to produce a material of which the majority is less than 200 Tyler mesh (0.75 microns). The California Air Resources Board defines naturally occurring asbestos as having >0.25% asbestos by PLM point count. The analytical results were reported in percent asbestos as derived from a 400 PLM point-counting technique, which yields a detection limit of 0.25%. The testing did not detect asbestos at this level (R. M. Manley, LLC, pers. comm., March 2020).As discussed in the response to comment RE-8-5 and in the Recirculated Draft EIR, in the unlikely event that previously unidentified asbestos-containing materials are encountered during demolition activities, they will be handled in accordance with relevant legal requirements. If naturally occurring asbestos is encountered either during bedrock-disturbing activities, or in concrete during demolition activities, Klamath River Renewal Corporation (KRRC) or its representatives will handle the naturally occurring asbestos in accordance with, as relevant, the federal

Environmental Protection Agency's (EPA's) fact sheet, Naturally Occurring Asbestos: Approaches for Reducing Exposure (March 2008) and the Guide to Normal Demolition Practices Under the Asbestos NESHAP (September 1992) (see Recirculated Draft EIR Section 3.9.5 Air Quality – Potential Impacts and Mitigation Potential Impact 3.9-4). The Recirculated Draft EIR also explains that detectable asbestos above 0.1 percent was identified in several materials in the non-dam structures proposed for demolition (e.g., surfacing materials, thermal system insulation, and miscellaneous materials) and describes that asbestos-related work will be performed by KRRC and its representatives in compliance with relevant local, state and federal regulations to reduce potential impacts to workers and other sensitive receptors (see Recirculated Draft EIR Section 3.9.5 Air Quality – Potential Impacts and Mitigation Potential Impact 3.9-4 and Volume III Attachment 1 Section 3.21.5 Hazards and Hazardous Materials – Potential Impacts and Mitigation Mitigation Measure HZ-1).

Comment RE-8-9

2. *It is recommended that there be a more explicit explanation of the basis for selecting a particular mitigation measure in accordance with CEQA Guidelines 15126.4(a)(1)(B). It may provide more context to explain why the chosen mitigation measures were agreed upon while others that were deemed feasible, but will not be implemented, were not selected.*

Response to Comment RE-8-9

The comment refers to Appendix N *Air Emissions Modeling for the Lower Klamath Project* and Appendix O *Greenhouse Gas and Energy Modeling for the Lower Klamath Project* from the Recirculated Draft EIR and recommends that there be a more explicit explanation of the basis for selecting a particular mitigation measure. The comment does not identify specific mitigation measures.

Please refer to Master Response CEQ-2 as it relates to the authority of the State Water Board, federal preemption, and the feasibility of the recommended mitigation measures discussed in the Recirculated Draft EIR. In addition, the following discussion provides additional explanation of the basis for selecting the mitigation measures to reduce impacts from the Proposed Project's construction activity.

As discussed in Recirculated Draft EIR Section 3.9 *Air Quality* and Appendix N *Air Emissions Modeling for the Lower Klamath Project*, the Proposed Project's construction activity would exceed the Siskiyou County Air Pollution Control District's thresholds of significance for particulate matter that is 10 micrometers or less in diameter (PM_{10}) and nitrogen (NO_X). The Air Quality (AQ) Mitigation Measures chosen for the Proposed Project's construction activity are consistent with measures that are recommended by air district's throughout the state (e.g., Sacramento Metropolitan Air Quality Management District [SMAQMD], South Coast Air Quality Management District [SCAQMD], Bay Area Air Quality

Management District [BAAQMD], San Joaquin Valley Air Pollution Control District [SVAPCD], etc.) to provide substantial reductions in the emissions of PM_{10} and NO_X. These are also mitigation measures that Klamath River Renewal Corporation (KRRC) and their contractor have determined can be feasibly implemented for the Proposed Project considering the nature of the project (i.e., dam removal), the proposed construction techniques, and the site conditions specific to the Lower Klamath Project facilities. As a result of implementation of the dust control measures in Mitigation Measures AQ-4 and AQ-5, PM_{10} emissions will be reduced to less than significant. Although the exhaust control measures in Mitigation Measures AQ-1 through AQ-3 have the potential to result in substantial reductions in the emissions of NO_X, due to the uncertainty identified in Recirculated Draft EIR Section 3.9 *Air Quality* (page RE-3-27), emissions of NO_X would remain significant and unavoidable. Although there are other mitigation measures recommended in Appendix N that could further reduce emissions of PM_{10} and NO_X from the Proposed Project, implementation of these measures would not reduce NO_X to a less than significant level.

As discussed in Recirculated DEIR Section 3.10 *Greenhouse Gas Emissions and Energy*, the Proposed Project's construction activity would exceed the no net increase threshold for greenhouse gas (GHG) emissions. The GHG Mitigation Measure (GHG-1) was selected for the Proposed Project's construction activity as it would require the purchase of carbon offsets to fully offset construction-related GHG emissions and reduce impacts to less than significant. As discussed in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (page RE-3-82), Mitigation Measures AQ-1 through AQ-3 are likely to also provide small GHG emission benefits. The explanation for not purchasing carbon offsets as mitigation for GHG emissions from the exposure of reservoir sediments to aerobic conditions and from the natural functioning of restored riverine, wetland, and terrestrial habitats (i.e., the natural 'fast carbon cycle'), is provided in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-89 to RE-3-90 and RE-3-93 to RE-3-94). Please also refer to Volume III Section 2.3.2 *Public Comments and Responses – Written Comments and Responses –Organizations – Klamath River Renewal Corporation, James G. Moose* for the comments submitted by Remy, Moose, Manley LLP on behalf of KRRC (dated February 6, 2020) as it relates to the reasoning for KRRC not agreeing to purchase carbon offsets for GHG emissions generated by the natural 'fast carbon cycle'.

<u>Comment RE-8-10</u>

3. *In the table titled "Construction Activity (grading and earthmoving) for the proposed project……" (RE-A-16), the D6 Dozer Quantity for Copco 1 and 2 are 0.7 and 0.3 respectively. We can assume that the equipment is allocated between the two sites (since the sum of the equipment add up to a whole number of Copco 1 and 2), but it is recommended that an explanation of the methodology is added because it is not immediately clear to a reviewer. This*

issue with Copco No. 1 and 2 occurs in multiple tables throughout Appendix A of N/O. Please add footnotes to tables wherever this occurs. This will explain the methodology as it is not intuitive why the equipment quantity would not be a whole number.

Response to Comment RE-8-10

The comment requests additional explanation be added to Appendix N *Air Emissions Modeling for the Lower Klamath Project* and Appendix O *Greenhouse Gas and Energy Modeling for the Lower Klamath Project* of the Recirculated Draft EIR to describe how equipment quantities were split between Copco 1 and Copco 2. Based on the comment provided, Appendix N Attachment A was revised to clarify the methodology for allocating equipment use between Copco No. 1 and Copco No. 2. Please refer to Volume III Attachment 2 Appendix N Attachment A for these revisions.

Comment RE-8-11

4. *To calculate maximum short-term emission rates from fugitive dust from roads, KRRC should not use "natural mitigation." From AP-42 Chapter 13.2.1: "Equation 1 may be extrapolated to average uncontrolled conditions (but including natural mitigation) under the simplifying assumption that annual (or other long-term) average emissions are inversely proportional to the frequency of measurable (> 0.254 mm [0.01 inch]) precipitation by application of a precipitation correction term. The precipitation correction term can be applied on a daily or an hourly basis". This is meant to be applied over a long-term averaging period to determine average annual or other long-term emissions. The reference to daily or hourly basis is in terms of the precipitation data available and does not imply that the "natural mitigation" can be used to calculate daily or hourly emissions. The same concept applies to 13.2.2. "Unpaved Road Calculation". KRRC should either recalculate or make it clear that the maximum daily emission rate is variable, and an average annual emission rate is used to represent emissions from this source.*

Response to Comment RE-8-11

The comment states that the "natural mitigation" adjustment factor (Equation 2 of Chapter 13.2.2 Unpaved Roads in the Environmental Protection Agency's [EPA's] AP-42 documentation) should not have been used to estimate maximum daily dust emissions from aggregate movement or vehicle travel on unpaved/paved roads.

The documentation for quantifying dust emissions on page 13.2.2-6 of EPA's AP-42 (USEPA 1995) explains that the natural mitigation (i.e., natural soil moisture) adjustment can be used to extrapolate emissions to annual averages. However, it also explains that site-specific information is preferred rather than default parameters. As shown on page RE-A-125 of Attachment A of the Recirculated Draft EIR, local moisture data (i.e., days/year of precipitation), based on

California Emissions Estimator Model defaults for Siskiyou County, were used in the modeling to adjust the dust emission factors to the local conditions. In addition, it should be noted that because the dust emission factor was based on annual average precipitation data, it is possible that daily and annual variations in rain could affect soil moisture content, and therefore dust emissions. For example, days or years with more precipitation and higher soil moisture content would result in less fugitive dust, while the opposite scenario is also possible.

As explained in Section N.3 of Appendix N, multiple phases of construction were overlapped to obtain maximum daily emissions and all modeling was based on conservative assumptions of daily construction activity. Peak construction activity assumptions are shown in Table RE-N-4 of the Recirculated Draft EIR. Overall, the methods, assumptions, and model inputs used to quantify dust emissions are well documented within Appendix N and associated Attachment A and are consistent with industry standards. No revisions are necessary.

Comment RE-8-12

5. On page RE-A-126, the references to various sections of AP-42 are incorrect. All say 13.2.4 which is the reference to aggregate storage piles. Also, table header 1 "aggregate storage piles" is repeated on each page. This is misleading since what is being calculated are fugitive dust emissions from multiple sources including aggregate storage piles, unpaved and paved roads, and bulldozing.

Response to Comment RE-8-12

The comment states that incorrect references were cited on page RE-A-126 of Attachment A in Appendix N of the Recirculated Draft EIR and that the header of the table is repeated on each page. Based on the comments provided, the header of the table on page RE-A-124 was revised to clarify what is being calculated and include references to footnotes 2 to 6. In addition, footnotes 2 to 5 on page RE-A-126 have been revised to provide the correct chapter numbers. Please refer to Volume III Attachment 2 Appendix N Attachment A for these revisions.

Comment RE-8-13

6. Add "Diesel fuel Usage" above last three columns of table on page RE-A-165, RE-A-177, RE-A-200 so units are clear.

Response to Comment RE-8-13

The comment requests that "Diesel Fuel Usage" be added to several table headings in Attachment A of Appendix N of the Recirculated Draft EIR, for additional clarity. The table heading "Diesel Fuel Usage" was added to the last three columns of the table on page RE-A-165, RE-A-177, and RE-A-200 as requested. Please refer to Volume III Attachment 2 Appendix N Attachment A for these revisions.

Comment RE-8-14

7. *It is recommended that the State Water Board discuss more substantively impacts related to windblown dust emissions from the exposed sediments on the reservoir banks and explain whether the moisture content of the exposed banks would be sufficient to limit windblown dust, and what, if any mitigation would be applied. Considering the size of the reservoir basins that would be exposed post-drawdown, it should also be discussed whether windblown dust emissions as well as fugitive dust from construction activities may contribute to cumulatively considerable effects. For instance, Owens Lake and Salton Sea have been experiencing large-scale dust/air pollution events, so it should be discussed to what degree the dust from the proposed project may be similar to these events.*

Response to Comment RE-8-14

Please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs. As discussed in Master Response R-2, it is not anticipated that the Proposed Project will have a significant impact on windblown dust from the Project reservoirs.

As discussed in Recirculated Draft EIR Section 3.9 *Air Quality*, the Proposed Project's construction activity would exceed the Siskiyou County Air Pollution Control District's thresholds of significance for particulate matter that is 10 micrometers or less in diameter (PM_{10}). As a result of implementation of the dust control measures in Mitigation Measures AQ-4 and AQ-5, PM_{10} emissions will be reduced to less than significant. As discussed in Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-29 to RE-3-30), although there is the potential for short-term impacts from windblown dust not accounted for in the particulate matter emissions estimates, it is not anticipated that the additional emissions from windblown dust would result in a change to the significance determinations. As discussed in the Recirculated Draft EIR and Master Response R-2, this is due to the physical properties of the reservoir sediments, seasonally wet conditions during reservoir drawdown, and implementation of the restoration plan following reservoir drawdown).

Potential cumulative impacts from windblown dust are not anticipated to occur primarily due to the following:

1. no other construction projects that would have the potential to generate windblown dust have been identified in the project area;
2. any other construction projects that could potentially occur at the same time as the Proposed Project would have to comply with similar fugitive dust requirements and mitigation measures; and
3. any potential windblown dust generated would be a localized effect and would not be expected to contribute to a cumulative impact.

As discussed in Recirculated Draft EIR Section 3.24.9 *Air Quality Cumulative Effects* (pages RE-3-111 to RE-3-113), non-project activity types within the air quality Area of Analysis (i.e., areas within the Limits of Work and Siskiyou County as a whole) include forest and wildfire management projects, wildfires, and industrial development projects. The air quality cumulative effects discussion concludes that particulate matter emissions from the Proposed Project, which includes fugitive dust from construction and windblown dust, would not result in significant cumulative impacts in combination with the other non-project activities. The explanation for this determination is provided on pages RE-3-111 to RE-3-113 of Recirculated Draft EIR Section 3.24.9 *Air Quality Cumulative Effects*.

2.5.2 Native American Tribes

This section presents written comments received on the recirculated portions of the Draft EIR from Native American Tribes and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by tribe name. To determine whether your comment is associated with an affiliation type other than Native American Tribes, please refer to Table 2-4 or Table 2-5.

Table of Written Native American Tribes Comments and Responses

Yurok Tribe, Joseph L. James

<u>Comment RE-2-1</u>

The Tribe is committed to advocating for dam removal in the most environmentally safe way possible and supports mitigation measures that will limit any environmental harms associated with dam removal. While there may be some short-term negative environmental impacts; overall, the removal of these dams will have huge environmental benefits for the species, people, and tribes relying on a healthy Klamath River.

Response to Comment RE-2-1

Thank you for submitting comments on the Recirculated Sections of the Draft EIR. This comment expresses the opinion that the impacts of the project are outweighed by the benefits. Comment noted.

<u>Comment RE-2-2</u>

The Tribe provides the following specific comments related to the Recirculated Portions of the Draft Environmental Impact Report for the Lower Klamath Project License Surrender ("RPDEIR"). First, the impacts listed in the RPDEIR regarding the air quality associated with NOx and PM10 emissions from pre-construction, dam removal, and restoration work are highly conservative assumptions. While these emissions are of concern, the mitigation measures listed in the RPDEIR will significantly reduce the harms to air quality and the Klamath River Renewal

Corporation ("KRRC") has committed to these measures to minimize these emissions.

Response to Comment RE-2-2

The comment states that the impact determinations in Recirculated Draft EIR Section 3.9 *Air Quality* associated with nitrogen (NOx) and particulate matter that is 10 micrometers or less in diameter (PM10) are conservative and that the mitigation measures listed in the Recirculated Sections of the Draft EIR will significantly reduce impacts. Comment noted.

Comment RE-2-3

Second, the RPDEIR finds the Project will cause a significant increase in greenhouse gas (GHG) emissions based on the legal analysis that a net increase in GHG is potentially significant. While this is true and every public agency and private entity should aggressively work to limit GHG emissions, the overall environmental benefit from dam removal must be considered in this Project. A healthy Klamath River will restore the ecosystem of the basin and allow for natural processes to return. Restoring the health of the environment will have many known and unknown benefits to serve as carbon sinks to help reduce GHG emissions and strengthen the area's climate crisis resiliency for future generations.

Response to Comment RE-2-3

The comment provides explanation of the commenter's opinion that the environmental benefits of the project will outweigh the potentially significant increase in greenhouse gas (GHG) emissions. Comment noted.

Comment RE-2-4

The Tribe is supportive of the mitigation measure of purchasing carbon offsets for the GHG emission resulting from the construction equipment needed for dam removal. However, we do not support the purchase of carbon offsets to remediate GHG emissions resulting from dewatering the reservoirs and restoring natural riverine processes. Furthermore, we request that any purchase of carbon offsets be done locally, if possible, to ensure the local communities impacted by GHG emissions receive benefits associated with this mitigation measure.

Response to Comment RE-2-4

The comment relates to the purchase of carbon offsets to reduce greenhouse gas (GHG) emissions impacts from the Proposed Project and requests that the purchase of offsets be done locally. Comment noted. Air quality does not fall within the scope of the State Water Board's water quality certification authority, and thus the State Water Board cannot ensure implementation of mitigation measures aimed at reducing air quality impacts.

2.5.3 Organizations

This section presents written comments received on the recirculated portions of the Draft EIR from organizations and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by organization name. To determine whether your comment is associated with an affiliation type other than organizations, please refer to Table 2-4 or Table 2-5.

Table of Written Comments and Responses from Organizations

Fly Fishers International, C. Mark Rockwell

<u>Comment RE-12-1</u>

The Northern California Council, Fly Fishers International (NCCFFI), a party to and signer of the Klamath Hydroelectric Settlement Agreement (KHSA) of April 2016, hereby submits comments in support of KRRC on the above referenced Recirculated Portions of the Draft EIR for the Lower Klamath Project License Surrender (RPDEIR).

- *The RPDEIR uses highly conservative assumptions to estimate NOx emissions from construction equipment. KRRC is committed to measures that will minimize these NOx emissions. (These measures will be proposed as conditions for license surrender.) NCCFFI supports the KRRC's mitigation which will fully protect public health.*
- *The RPDEIR proposes to find that the project will cause a significant increase in greenhouse gas (GHG) emissions. It uses a legal threshold that any net increase in GHG emissions is potentially significant. KRRC has committed to obtain carbon offsets for GHG emissions resulting from construction equipment. NCCFFI supports this commitment which will fully offset construction-related GHG emissions.*
- *The RPDEIR proposes to find that dewatering reservoirs and restoring natural riverine processes will also cause significant GHG emissions. KRRC will not offset these emissions. It would not be good public policy to spend public funds for carbon offsets for natural riverine processes. NCCFFI supports the State Water Board's finding in the FEIR that GHG*

emissions associated with natural riverine processes are not an adverse impact.

Response to Comment RE-12-1

Thank you for submitting comments on the Recirculated Sections of the Draft EIR. The comment states that the Recirculated Draft EIR uses highly conservative assumptions to estimate nitrogen (NOx) emissions from construction equipment and expresses support for the mitigation measures proposed by Klamath River Renewal Corporation (KRRC), which the commenter believes will be protective of public health. The comment states that the Recirculated Draft EIR finds that greenhouse gas (GHG) emissions will be significant based on a no net increase threshold. The comment expresses support for KRRC's commitment to fully offset GHG emissions from construction equipment through the purchase of carbon offsets. The comment states that the Recirculated Draft EIR finds that dewatering and restoring the reservoirs to natural riverine processes will cause significant GHG emissions. The comment states that it would not be good public policy to spend public funds to mitigate this impact. The comment expresses support for the finding that GHG emissions associated with natural riverine processes are not an adverse impact. Comment noted.

Klamath River Renewal Corporation, James G. Moose

Comment RE-11-1

Please accept the following comments from the Klamath River Renewal Corporation (KRRC) on the above-referenced environmental document, in which the State Water Resources Control Board (State Water Board) has recirculated revisions to limited portions of the original Draft Environmental Impact Report (EIR) for the Lower Klamath Project License Surrender project (Project). As you know, KRRC is the applicant for the proposed water quality certification addressed therein. Although KRRC does have comments on the new document, KRRC supports the State Water Board's current intention of completing and certifying a Final EIR by no later than April 1, 2020, as set forth in correspondence last July to the Federal Energy Regulatory Commission (FERC). KRRC does not believe its limited comments will affect the Board's ability to meet that deadline.

As you know, KRRC seeks this certification in connection with its larger effort before FERC to obtain the approvals needed to remove four hydroelectric dams from the portion of the Klamath River within the State of California, pursuant to the terms of the Amended Klamath Hydroelectric Settlement Agreement (2016) (KHSA). KRRC appreciates the hard work shown in the Recirculated Portions of the Draft Environmental Impact Report (RPDEIR). As is discussed below, KRRC generally agrees with the conclusions set forth in the document, with just one exception.

Response to Comment RE-11-1
Thank you for submitting comments on the Recirculated Sections of the Draft EIR. Comment noted.

Comment RE-11-2
The primary purpose of these comments is to confirm certain assumptions and understandings set forth in the RPDEIR with respect to KRRC's intentions and commitments regarding various issues. As the document acknowledges, the State Water Board lacks regulatory authority over the main subjects addressed in the RPDEIR, namely, mitigation for air pollutant and greenhouse gas (GHG) emissions. These issues are beyond the State Water Board's jurisdiction because these topics are outside the Board's statutory mission to protect water quality, as created by the California Legislature,[1] and because of the preemptive effects of the Federal Power Act (16 U.S.C. § 791a et seq.).[2] The RPDEIR identifies air quality and GHG mitigation to which it believes the KRRC has committed for the purpose of its license surrender application pending before FERC. KRRC intends to implement these measures after FERC approves KRRC's pending surrender application. The RPDEIR also makes representations regarding theoretically available additional mitigation for GHG emissions associated with natural riverine processes, to which KRRC is not committed. As is explained below, this letter confirms that the State Water Board's findings on these points are correct.

Response to Comment RE-11-2
Comment noted.

Comment RE-11-3
KRRC parts company with the RPDEIR only with respect to its "conservative" conclusion that the proposed dam removals pursuant to the KHSA would be inconsistent with the 1993 Energy Element of the Siskiyou County General Plan. KRRC sees no such inconsistency, for reasons explained below.

Response to Comment RE-11-3
The comment expresses disagreement with the conclusion in the Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would conflict with the County of Siskiyou General Plan Energy Element. As discussed in the Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (page 3-104), the Energy Element generally promotes further development of renewable energy sources in the county, and removal of an existing renewable energy source could conservatively be considered to conflict with such policies in the Energy Element. Such a conflict would not be an impact that can be feasibly mitigated and, therefore, the Recirculated Draft EIR concludes that the Proposed Project would result in a significant and unavoidable impact because it conflicts with a local plan.

Although the commenter does not believe that the Recirculated Draft EIR is in error, it disagrees that the Proposed Project is inconsistent with the Energy Element for the reasons stated in the comment letter, including in comments RE-11-15 through RE-11-25. In sum, the commenter disagrees that the County's General Plan applies to the project due to federal preemption under the Federal Power Act. Even if the General Plan applies, however, the commenter does not agree that the Proposed Project would be inconsistent with the Energy Element, in part, because the Energy Element largely focuses on prospective development projects and does not contain policies specifically addressing whether the County favors maintaining existing dams or other power generation facilities. Although the Energy Element generally promotes further development of renewable energy sources in the County, the commenter opines that, by itself, this emphasis within the Element is not a sufficient basis for finding the Proposed Project to be inconsistent.

Consistent with the fundamental purpose of CEQA, the Recirculated Draft EIR discloses to the public the likely environmental impacts of the Proposed Project. This disclosure allows decisionmakers and the public to make informed decisions about the project, ways in which significant effects may be mitigated, and alternatives to the project. The analytical approach to assessing the Proposed Project's potential conflict with the Energy Element is a conservative one, but it serves to provide meaningful information for environmental assessment and thus apprise interested persons of the potential environmental consequences of the entire project. Moreover, the issue of whether the County Plan is preempted is subject to legal dispute among the commenters, see letter to Ms. Michelle Siebal, State Water Board, and Mr. Anton Porter, Federal Energy Regulatory Commission, from Mr. Paul Weiland on behalf of Siskiyou County, dated Feb. 18, 2020.

No change is made to the determination in the EIR based on the comments on the Energy Element.

Comment RE-11-4

The KRRC appreciates that the updated air quality analysis found in the RPDEIR addresses comments regarding the dated nature of the modeling used in the Draft EIR. That issue has been put to rest by the updated analysis, which uses current technical methodologies.

Response to Comment RE-11-4

The comment expresses the commenter's appreciation that the updated air quality analysis in the Recirculated Draft EIR addresses comments regarding the dated nature of the modeling used in the Draft EIR. Comment noted.

Comment RE-11-5

On pages RE-3-35 and RE-3-36, the RPDEIR lays out a number of construction-related air pollution control measures to which the State Water Board believes *that KRRC has committed. These commitments are set forth in so-called Mitigation Measures AQ-1 through AQ-5. Through this letter, KRRC is confirming with the SWRCB that, indeed, KRRC is committed to carrying out these measures, despite the SWRCB's lack of any legal authority to impose them. The State Water Board's significance conclusions premised on these commitments are therefore sound.*

Response to Comment RE-11-5
The comment confirms Klamath River Renewal Corporation's (KRRC's) commitment to implement the air quality mitigation measures AQ-1 through AQ-5 in the Recirculated Draft EIR and concludes that the significance conclusions premised on these commitments are sound. Comment noted.

Comment RE-11-6
These commitments reflect KKRC's overall commitment to employ all reasonable control air quality control measures to minimize the emissions associated with construction, dam removal, and restoration activities. These measures will be sufficient to protect public health, as the State Water Board has concluded on page RE-3-34, where the text states that "it is not reasonably foreseeable to conclude that the project would result in significant health impacts," despite NOx emissions that cannot feasibly be brought down below the applicable significance threshold employed in the RPDEIR.

Response to Comment RE-11-6
The comment expresses the commenter's opinion that the air quality mitigation measures Klamath River Renewal Corporation (KRRC) has committed to implement will be sufficient to protect public health. Comment noted.

Comment RE-11-7
The RPDEIR includes a substantial amount of new information and analysis on the subject of GHG emissions and energy usage. This new information fully addresses comments on the Draft EIR.

The Draft EIR had dealt with GHG emissions under two broad categories of impacts, which were determined to be less than significant:

- *generation of GHG emissions, either directly or indirectly, that would exceed 10,000 MT C02e; and*
- *conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions.*

Response to Comment RE-11-7
The comment expresses the commenter's opinion that the new information and analysis on Greenhouse Gas emissions and energy usage in the Recirculated Draft EIR fully addresses the comments on the Draft EIR. Comment noted.

<u>Comment RE-11-8</u>

The RPDEIR, in contrast, addresses a total of four categories of GHG-related impacts:

- *generation of direct GHG emissions from construction activity and operations (Potential Impact 3.10-1);*
- *generation of direct GHG emissions from reservoir sediments during drawdown that would exceed a no net increase threshold (Potential Impact 3.10-2);*
- *generation of direct GHG emissions from conversion of the reservoir areas to riverine, wetland, and terrestrial habitat types, that would exceed a no net increase threshold (Potential Impact 3.10-3); and*
- *generation of indirect GHG emissions from continued power production for the PacifiCorp PCA (Potential Impact 3.10-4).*

Of these four categories, one can be mitigated to a less than significant level (3.10-1); two are deemed significant and unavoidable (3.10-2 and 3.10-3); and the last is deemed to be less than significant (or nonexistent) (3.10-4).

Response to Comment RE-11-8

The comment summarizes the impacts and significance determinations related to Greenhouse Gas emissions impacts in the Recirculated Draft EIR. Comment noted.

<u>Comment RE-11-9</u>

The RPDEIR also addresses three new related impact categories dealing with the energy production and consumption. Under these new categories, significant effects would occur if the project would:

- *result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operations (Potential Impact 3.10-5);*
- *result in a substantial impact on local and regional energy supplies and/or on requirements for additional capacity (Potential Impact 3.10-6); and*
- *conflict with or obstruct a state or local plan for renewable energy or energy efficiency (Potential Impact 3.10-7).*

Response to Comment RE-11-9

The comment summarizes the three new impact categories related to energy production and consumption in the Recirculated Draft EIR. Comment noted.

<u>Comment RE-11-10</u>

KRRC has no objection to the State Water Board's use of a "no net increase" significance threshold for the generation of GHG thresholds. The use of this threshold addresses comments lodged against the Draft EIR. We do note that, under this threshold, any project that results in GHG emissions -thus, any *construction project-would have a potentially significant impact, thus emphasizing the importance of mitigation.*

Response to Comment RE-11-10
The comment addresses the use of a "no net increase" significance threshold for Greenhouse Gas emissions in the Recirculated Draft EIR. Comment noted.

Comment RE-11-11

With respect to the first category of GHG-related impacts (Potential Impact 3.10-1), the RPDEIR is correct in stating on page RE,.3-82 that "the KRRC has agreed to purchase carbon offsets per GHG Mitigation Measure ENR-1." Thus, notwithstanding the fact that the State Water Board lacks any legal authority by which it can impose such a measure, KRRC intends to carry out Mitigation Measure ENR-1, which contemplates the purchase of "carbon offsets," as it appears in the RPDEIR (seep. RE-3-83). The State Water Board's significance conclusion premised on this commitment is therefore sound. KRRC thus agrees that the proposed project will not cause significant effects relating to the generation of direct GHG emissions from construction activity and operations. Mitigation Measure ENR-1 will ensure the avoidance of any net increase in GHG emissions from construction and operations activities (Potential Impact 3.10-1).

Response to Comment RE-11-11
The comment confirms Klamath River Renewal Corporation's (KRRC's) intention to carry out Greenhouse Gas Mitigation Measure ENR-1 and characterizes the significance conclusion premised on this comment as sound. Comment noted.

Comment RE-11-12
With respect to the next two categories of GHG-related impacts (Impacts 3.10-2 and 3.10-3), which address GHG emissions from the exposure of previously submerged reservoir sediments to aerobic conditions and from the natural functioning of restored riverine, wetland, and terrestrial habitats, KRRC does not object to the conclusions that these effects are significant and unavoidable.

KRRC does not intend to pursue carbon offsets to address these effects and that requiring such offsets are outside of the State Water Board's jurisdiction. KRRC urges the Board, in ultimately adopting CEQA findings for water quality certification for the project, to embrace KRRC's reasoning discussed below as one ground (along with preemption) for finding that carbon offsets are not feasible mitigation for Impacts 3.10-2 and 3.10-3.[3]

Response to Comment RE-11-12
The comment does not object to the conclusion that Potential Impact 3.10-2 and Potential Impact 3.10-3 are significant and unavoidable. The comment states that Klamath River Renewal Corporation (KRRC) does not intend to pursue the purchase of carbon offsets to address these effects. Comment noted.

Comment RE-11-13

KRRC is committed to carrying out the proposed project in the most environmentally sensitive manner possible. KRRC recognizes that many natural processes, by their very nature, involve the generation of carbon dioxide as part of the natural carbon cycle. To the extent that regulatory efforts to address climate change could be a factor in undermining efforts to restore environmental conditions that, in their natural state, would be part of that natural cycle, such efforts could have counterproductive effects, by dramatically raising the costs of environmental restoration or by making such restoration prohibitively expensive and thus financially infeasible.

Impact 3.10-2 and 3.10-3 both deal with GHG emissions that are part of the natural carbon cycle. The RPDEIR has the following to say about Impact 3.10-2:

> *[T]he CARB Scoping Plan primarily focuses on anthropogenic sources of GHG emissions from construction and ongoing operational emissions from stationary industrial projects with high rates of fossil fuel combustion emissions or the construction and increased power and transportation needs from newly constructed residential or commercial projects. Other than mitigating any related construction emissions, the CARB Scoping Plan does not contain guidance on assessing or mitigating the potential GHG emissions impacts from dam removal and habitat restoration activities. Generally, the Scoping Plan encourages the rehabilitation of natural ecosystems as part of the state's climate solution. The sediment release associated with this restoration project would result in the release of methane and oxidation of the sediment deposits, which is conservatively estimated to result in a one-time release of 19,350 MTC02e of GHG emissions. The majority of these emissions would occur within six months of reservoir drawdown. As noted above, these GHG emissions would have occurred gradually on an annual basis if the dams had not been built. As such, the temporary GHG emissions associated with Lower Klamath Project reservoir sediments are part of the natural 'fast carbon cycle'. Although these GHG emissions would exceed the no net increase threshold, reductions of emissions from the natural fast carbon cycle are not part of the Scoping Plan strategies for achieving the GHG reductions for 2030 and beyond. Therefore, the emissions from reservoir sediments during drawdown would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.*
>
> *(RPDEIR, pp. RE-3-89 -RE-3-90 [italics added].)*

KRRC agrees with the State Water Board that the proposed project is not inconsistent with state climate policies. Indeed, the project is totally consistent with state climate policy, which looks to healthy natural lands as part of an overall solution to climate change worldwide. Although the natural carbon cycle will *continue as rivers flow freely, wetlands serve their ecological functions, and plants live, die, and decay, the GHG emissions that occur are part of the natural functioning of Nature. Such emissions are not problematic. Loading up huge additional costs on environmental restoration projects subverts effective solutions such as dam removal.*

This logic is even more compelling with respect to Impact 3.10-3, where the State Water Board made the following observations:

> *Conversion of the impounded areas of the four Lower Klamath Project reservoirs to free-flowing riverine habitats has the potential to result in long-term changes in total annual GHG emissions from aquatic and terrestrial habitats within the reservoir footprint. ****
>
> ***
>
> *While the reservoir contribution to GHG production would be zero under the Proposed Project, and the increase in riparian (forest) areas in the Hydroelectric Reach would result in more carbon sequestration compared with existing conditions, the addition of restored riverine habitat would result in roughly 60 percent more annual GHG emissions from the Hydroelectric Reach area under the Proposed Project. This would be an exceedance of the no net increase threshold for GHG emissions and would be a significant impact.*
>
> *However, as discussed in Potential Impact 3.10-2, freshwater streams and rivers serve as large, natural sources of CO2 in regional and global carbon budgets (Tranvik et al. 2009, Butman and Raymond 2011, Raymond et al. 2013, Deemer et al. 2016). Riverine oxidation of organic matter to produce CO2 is part of the natural cycling of carbon between the atmosphere and freshwater and terrestrial ecosystems. As the focus of the Lower Klamath Project is to restore the Klamath River and the habitat that it provides for anadromous fish, it would not be reasonable or feasible to reduce the amount of restored riverine habitat, or to inte1fere with the natural processing of carbon in the river, as a means of reducing annual GHG emissions under the Proposed Project.*
>
> ***
>
> *While the additional GHG emissions above the current baseline cause a significant impact based on the no net increase emissions threshold, it does not conflict the CARB Scoping Plan or other applicable plans, policies, or regulations adopted for the purpose of reducing the emissions of GHGs. The nature of the GHG emissions that would result from the conversion of the reservoir areas to restored natural systems under the Proposed Project differs from the human-caused or fossil-fuel-based emissions that are inventoried under state emissions*

> *assessments, and for which CARB has developed comprehensive emissions reductions plans in order to reach statewide goals. * * **
>
> *As indicated in the CARB Scoping Plan, the rehabilitation and maintenance of natural and working lands is identified as part of the state's climate solution. * * **
>
> *The Proposed Project is consistent with the goals of the Scoping Plan related to the rehabilitation of natural and working lands, since it proposes to remove the Lower Klamath Project dam complexes and restore the various habitat types associated with this section of the Klamath River watershed, and since reductions of emissions from the natural 'fast carbon cycle' are not part of the Scoping Plan strategies for achieving the GHG reductions for 2030 and beyond.*
>
> *(RPDEIR, pp. RE-3-90, RE-3-93, RE-3-94 [italics added].)*

The purchase of offsets to address the GHG emissions associated with Impact 3.10-3 is especially problematic, in that the GHG emissions at issue will essentially occur forever, or for at least as long as the natural conditions that the proposed project seeks to create remain in place. No entity, including the KRRC, has the financial means to purchase viable offsets that must continue forever. KRRC also submits that it would be an absurd public policy outcome for such offsets to be undertaken as mitigation for a project to restore lands to their natural conditions, consistent with state climate policy. Indeed, such an outcome would appear to be contrary to the whole purpose of CEQA, which is to protect the natural environment against human-caused degradation. KRRC believes that, in enacting CEQA, the California Legislature never intended that the law be used to frustrate, rather than facilitate, efforts to preserve or restore natural ecological wonders such as free-flowing rivers supporting robust anadromous fisheries. If GHG mitigation were required for restoration projects of the kind KRRC is undertaking, then no landowner in California with a degraded watercourse crossing its property would have any incentive to cooperate in the restoration of such a watercourse, for fear of mitigation obligations that would persist as long as the restored waters kept flowing.[4]

Response to Comment RE-11-13

The comment addresses Impacts 3.10-2 and 3.10-3, which deal with greenhouse gas (GHG) emissions that are part of the natural carbon cycle, and the infeasibility of purchasing offsets to address associated GHG emissions. Comment noted.

<u>Comment RE-11-14</u>

KRRC agrees with the conclusions in the RPDEIR that all of the following potential impacts will be less than significant without mitigation: 3.10-4 (generation of indirect GHG emissions from continued power production for the

PacifiCorp PCA); 3.10- 5 (result in the wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operations), and 3.10-6 (result in a substantial impact on local and regional energy supplies and/or on requirements for additional capacity). More specifically, KRRC agrees that (i) PacifiCorp will be able to successfully replace lost hydroelectric power with sources of electricity that are not derived from fossil fuels; (ii) that the proposed project will not use energy in a wasteful or inefficient manner; and (iii) that the removal of the dams at issue will not have substantial impacts on regional or local energy supplies or necessitate the construction of new power plants.

Response to Comment RE-11-14
The commenter agrees with the significance determinations for Impacts 3.10-4, 3.10-5, and 3.10-6. Comment noted.

Comment RE-11-15
With respect to Potential Impact 3.10-7, KRRC agrees that the proposed project will not conflict with or obstruct a state plan for renewable energy or energy efficiency. Indeed, as the RPDEIR explains, the project does not conflict with California policies favoring renewable energy production and is consistent with state policies related to the restoration of degraded natural lands.

KRRC respectfully disagrees, however, with the State Water Board's conclusion that the project is inconsistent with the Siskiyou County Energy Element, adopted in 1993. KRRC also does not agree that this alleged inconsistency will result in a significant unavoidable environmental effect. KRRC has several reasons.

Response to Comment RE-11-15
Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-16
First, the County's General Plan simply does not apply to the project, due to federal preemption under the Federal Power Act. (See footnote 2, supra.) Rather, the Element only applies to the County itself and to private applicants proposing projects requiring some sort of discretionary County approval under its General Plan. One of the significance thresholds employed by the State Water Board in this context asserts that a significant effect would result if the project would "[c]onflict with or obstruct a state or local plan for renewable energy or energy efficiency." KRRC suggests that, in the Final EIR, this threshold be modified to read as follows: "[c]onflict with or obstruct <u>*an applicable*</u> *state or local plan for renewable energy or energy efficiency." This change would bring the threshold into line with one of the questions that lead agencies should address from the sample Initial Study checklist promulgated by the California Natural Resources Agency, as found in Appendix G to the CEQA Guidelines. That question is*

whether a proposed project would"[c]onflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases[.]" (Cal. Code Regs., tit. 14, div. 6, ch. 3, appen. G, sample questions, § VIII, italics added.) This inquiry echoes a requirement found in CEQA Guidelines section 15125, subdivision (d), that EIRs "shall discuss any inconsistencies between the proposed project and applicable general plans, specific plans, and regional plans." (Italics added.)[5] Because the Siskiyou County General Plan does not apply to the project, KRRC believes that the State Water Board should not have treated the perceived inconsistency with the Energy Element as creating a significant environmental effect cognizable under CEQA.

Response to Comment RE-11-16

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

<u>Comment RE-11-17</u>

Second, KRRC does not agree that, even if the General Plan applied, the project would be inconsistent with the Energy Element. As the RPDEIR text concedes, "[t]he Energy Element focuses on energy efficiency and minimizing the impacts of any future renewable development. The Energy Element is primarily forward looking and does not specifically address the removal of the Lower Klamath Project facilities or contain any policies related to maintaining such facilities." (PRDEIR, p. RE-3-104, italics added.)

Response to Comment RE-11-17

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

<u>Comment RE-11-18</u>

KRRC parts company with the State Water Board when the RPDEIR goes on to reason as follows:

> *Nevertheless, the Energy Element generally promotes further development of renewable energy sources in the county, and removal of an existing renewable energy source could conservatively be considered to conflict with such policies in the Energy Element. Such a conflict would not be an impact that can be feasibly mitigated. Therefore, this would be a significant and unavoidable impact.*

This conclusion speculates about intent and is inconsistent with the plain meaning of the General Plan. KRRC respectfully urges the State Water Board to reconsider and change its determination in the Final EIR. As the PRDEIR notes, *the Element "does not specifically address the removal of the Lower Klamath Project facilities or contain any policies related to maintaining such facilities."*

Response to Comment RE-11-18

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-19

Notably, California law "does not require ... an exact match between the project and the applicable general plan." (San Franciscans Upholding the Downtown Plan v. City and County of San Francisco (2002) 102 Cal.App.4th 656, 678; see also Friends of Lagoon Valley v. City of Vacaville (2007) 154 Cal.App.4th 807, 817.) "Rather, in determining whether a project conflicts with a general plan, 'the nature of the policy and the nature of the inconsistency are critical factors to consider.'" (Spring Valley Lake Assn. v. City of Victorville (2016) 248 Cal.App.4th 91, 100 (Spring Valley), quoting Families Unafraid to Uphold Rural etc. v. Board of Supervisors (1998) 62 Cal.App.4th 1332, 1341.) Thus, "[a] project is inconsistent with a general plan 'if it conflicts with a general plan policy that is fundamental, mandatory, and clear.'" (Spring Valley, supra, 248 Cal.App.4th at p. 100, quoting Endangered Habitats League, Inc. v. County of Orange (2005) 131 Cal.App.4th 777, 782.) "[G]eneral ... plans attempt to balance a range of competing interests. It follows that it is nearly, if not absolutely, impossible for a project to be in perfect conformity with each and every policy set forth in the applicable plan.... It is enough that the proposed project will be compatible with the objectives, policies, general land uses and programs specified in the applicable plan." (Sierra Club v. County of Napa (2004) 121 Cal.App.4th 1490, 1510-1511, italics added.)

Under these legal standards, the removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate dams and associated facilities will not be inconsistent with the 1993 Siskiyou County Energy Element. That document, which is now nearly 27 years old, is mainly informational, and contains only a relative handful of actual goals and policies, which are found starting on page 167 of the Element. Nearly all of the policies relate to proposed prospective development projects, and the policies include no language specifically addressing whether the County favors maintaining existing dams or other power generation facilities already in place.

Response to Comment RE-11-19

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

<u>Comment RE-11-20</u>

Although the Energy Element includes an extended discussion of hydropower resources as they existed within the County in 1993 (see pages 135 through 145), nothing in this discussion purports to require that the County oppose efforts to remove existing hydro facilities in which it had no ownership interest and over which it had no regulatory control. In fact, the discussion notes some of the environmental drawbacks associated with hydroelectric power within the County. For example, on page 140, the Element acknowledges that "[s]ome hydro projects can present migration barriers to the passage of upstream and downstream anadromous fish." (Energy Element, p. 140.) With respect to the possibility that new dams might be built, the text notes the potential for conflicts with natural resources "such as fish, scenic qualities, and competing water uses, e.g. agricultural applications." (Id., p. 144.) "The most notable consequence from hydro conflicts is expected to be environmental, where negative impacts to surrounding uses could have moderate to severe impacts on fish and wildlife, water quality, other water uses, and scenic qualities." (Ibid.)

Response to Comment RE-11-20

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

<u>Comment RE-11-21</u>

Notably, by its own terms, the 1993 Energy Element's "planning horizon is the year 2010. This approximate 20-year time frame is considered to be the longest planning horizon that is reasonable without becoming unreliably speculative." (Energy Element, p. 6.) As the text notes, "[e]nergy conditions can change relatively fast, making it important to maintain a current, factual basis for policy and implementation decisions." The fact that, by its own terms, the Energy Element is now stale is another reason why the State Water Board, in the Final EIR, should alter its conclusion with respect to Impact 3.10-7.

Response to Comment RE-11-21

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

<u>Comment RE-11-22</u>

In 1993, when the Siskiyou County Board of Supervisors adopted the County's Energy Element, the County could not have foreseen the future changes in California law that, over the course of the last two decades, have required electric power providers such as PacifiCorp to purchase renewable energy on a large scale. As the PRDEIR itself discusses in connection with Impacts 3.10-4 and 3.10-7, PacifiCorp is subject to stringent California statutes requiring the *increasing use of renewable energy over time. The PRDEIR explains that, due to its efforts to comply with these laws, PacifiCorp will be able to replace the lost electricity associated with dams to be removed by relying instead on clean sources of electricity such as solar and wind power. (See PRDEIR, pp. RE-3-95 – RE-3-99, RE-3-105.) Thus, the proposed dam removals will not undermine the County's general policy preference for an increase in the amount of energy used within the County coming from renewable resources.*

Response to Comment RE-11-22

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-23

It is true that the Energy Element contains the following policy (on page 175), which on its face might appear to apply to the project:

> *The technically and environmentally-sound use of renewable energy resources for direct application and power generation purposes. An objective of this goal is increasing the amount of current local renewable use, and sustaining such use over time without adverse effects to energy resources or the surrounding environment.*

It is clear, however, from both the language of the goal and from the policies that implement it that the policy is purely forward-looking, and only applies to new projects being proposed for the first time. The most grammatical reading of the goal is that the County should increase the amount of renewable energy use beyond what was in place in 1993, and that, once new sources are in place, their use should be sustained over time. This interpretation is reinforced by the four specific policies intended to implement the goal, all of which are forward-looking and only apply to new projects.[6]

Response to Comment RE-11-23

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-24

Even if the goal is understood to apply to the project, the project would be consistent with the goal, in that the dams cannot be left in place "without adverse effects to ... The surrounding environment." Indeed, the ongoing adverse environmental effects associated with keeping the dams in place are the very reason why the dams are being removed.

Response to Comment RE-11-24
Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-25
In short, even if we assume for the sake of argument that the 1993 Siskiyou County Energy Element applies to the project, there is simply no "fundamental, mandatory, and clear" policy therein with which the project would be inconsistent. KRRC agrees with the State Water Board that "the Energy Element generally promotes further development of renewable energy sources in the county"; but this emphasis within the Element is not, by itself, a sufficient basis for finding the project to be inconsistent with the Element. This is especially so in light of other conclusions within the PRDEIR to the effect that the project will not lead to an increased use of fossil fuels by PacifiCorp and will not in any way undermine state climate policy.

Response to Comment RE-11-25
Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Comment RE-11-26
For the reasons discussed above, the RPDEIR assists the State Water Board in ensuring that its upcoming Final EIR will satisfy all applicable requirements of CEQA relating to the analysis of air quality, greenhouse gas emissions, and energy. As the Board correctly discerned, KRRC is willing to undertake aggressive air quality mitigation to reduce its construction-related emissions to the extent feasible and is also willing to purchase carbon offsets to render the GHGs emitted during construction, restoration, and operations. KRRC will implement these commitments through the management plans that it will propose as conditions of license surrender.

Response to Comment RE-11-26
The comment summarizes Klamath River Renewal Corporation's (KRRC's) commitments to undertake air quality mitigation. Comment noted.

Comment RE-11-27
KRRC will not, however, purchase offsets to address emissions that represent the normal functioning of a free-flowing river, wetlands, and other terrestrial habitat. Such mitigation would be contrary to public policy. Although KRRC urges the State Water Board to change its conclusion with respect to Impact 3.10-7, this difference of opinion does not indicate that the Board has erred under CEQA with respect to that issue. KRRC simply believes that the more

persuasive, and correct, conclusion with respect to that issue is that the project is not inconsistent with the Siskiyou County Energy Element.

Response to Comment RE-11-27
The comment states that Klamath River Renewal Corporation (KRRC) will not purchase carbon offsets to address emissions that represent the normal functioning of a free-flowing river, wetland, and other terrestrial habitat. Comment noted.

Please refer to the response to comment RE-11-3 related to the conclusion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* that the Proposed Project would result in a significant and unavoidable impact due to inconsistency with the Siskiyou County Energy Element.

Native Fish Society, Kevin P. Bundy

Comment RE-16-1
This firm represents the Native Fish Society in matters relating to the proposed Lower Klamath License Surrender Project ("Project"). On behalf of our client, we have reviewed the Recirculated Portions of the Draft Environmental Impact Report ("RDEIR") and respectfully submit these comments to help ensure that agency decision- makers fully comply with the California Environmental Quality Act ("CEQA"), Public Resources Code § 21000 et seq., and the CEQA Guidelines, California Code of Regulations, Title 14, § 15000 et seq. ("Guidelines").

Response to Comment RE-16-1
Thank you for your comments.

Comment RE-16-2
The RDEIR does not consider many of the topics discussed in the Prior Comments. Nor does it respond to issues raised in the Prior Comments for the most part. Moreover, the EIR as a whole does not contain the full analysis requested in the coalition comments on the scoping document. All of the Prior Comments thus remain relevant and applicable to the EIR as a whole. The comments that follow focus primarily on the RDEIR's analysis of greenhouse gas ("GHG") emissions and energy impacts, as well as its updated discussion of the No Hatchery Alternative.

Response to Comment RE-16-2
Comment noted. For responses to comments provided by the Native Fish Society on the Draft EIR please refer to Volume III Section 2.3.4 *Public Comments and Responses – Written Comments and Responses – Draft EIR – Organizations, Kevin P. Bundy and Mark Sherwood* and Volume III Attachment 1. Additionally, please refer to Master Response R-1.

Comment RE-16-3

The RDEIR fails to disclose, analyze, and propose adequate mitigation the Project's GHG emissions and energy impacts in accordance with CEQA.

Response to Comment RE-16-3

Comment noted. Please refer to the response to comments RE-16-4 to RE-16-21 for a response to the specific issues raised about the adequacy of the Recirculated Draft EIR.

Comment RE-16-4

The RDEIR uses a "no net increase" threshold to measure the significance of GHG emissions. (RDEIR at RE-3-68.) Accordingly, any increase in GHG emissions over existing conditions is considered significant. This is not an unreasonable threshold per se, but it is a quantitative threshold; accordingly, the RDEIR's significance conclusions in relation to the threshold must be supported by a quantitative analysis and evidence. "[W]hen [an] agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method." (Center for Biological Diversity v. Department of Fish & Wildlife (2015) 62 Cal.4th 204, 228.)

Response to Comment RE-16-4

The commenter asserts that, because the State Water Board's "no net increase" significance threshold for greenhouse gas (GHG) emissions is quantitative in character, CEQA required that the State Water Board support its significance conclusions with "quantitative analysis and evidence."

The State Water Board notes that its analysis of GHG-related impacts is supported by quantitative analysis and substantial evidence. Notably, though, the CEQA Guidelines and CEQA case law recognize that lead agencies have discretion to employ qualitative analyses where appropriate. CEQA Guidelines section 15064.4, subdivision (a), provides that "*[a] lead agency shall have discretion to determine, in the context of a particular project, whether to: (1) [q]uantify greenhouse gas emissions resulting from a project; and/or (2) [r]ely on a qualitative analysis or performance based standards*." (Italics added.)

Thus, CEQA allows both quantitative and qualitative analysis of GHG-related impacts. What ultimately matters is whether substantial evidence and reasoned analysis support a lead agency's impact conclusions. Here, as explained below, the State Water Board quantified the vast majority of the GHG emissions associated with the Proposed Project, and chose not to quantify only one limited category of emissions – operational emissions – for which it is readily apparent that existing levels of GHG emissions will drop significantly compared to baseline conditions.

Contrary to the commenter's assertion, the use of a no net increase threshold of significance did not necessitate quantification of operational emissions. A no net increase threshold means that any increase in GHG emissions over existing conditions is considered significant. A no net increase threshold did not require quantification of operational emissions because it could be reasonably determined that future operational emissions will be less than existing conditions. The Proposed Project is unique because it involves the removal of most facilities that currently generate GHG emissions. This would eliminate operational GHG emissions from the four Lower Klamath Project facilities, which under existing conditions currently generate emissions from employee traffic, maintenance equipment, and releases of minor amounts of SF_6 from gas insulated switchgear equipment. Relative to existing conditions, the hatcheries will be the only source of operational emissions after removal of the dams. Therefore, the Proposed Project is different from most projects that typically propose new land uses that would result in increased GHG emissions.

The "quantitative method" that demanded research and documentation of "quantitative parameters" according to the court in the case cited by the commenter (*Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 62 Cal. 4th 204, 228) entailed the use of a numeric GHG reduction target for the state as a whole to evaluate the cumulative impacts of a specific land use development project. The case did not address a qualitative comparison to a no net increase threshold and is not relevant to the adequacy of the analysis in the Recirculated Draft EIR.

<u>Comment RE-16-5</u>

The RDEIR fails to provide an adequate quantitative analysis here because it does not quantify emissions from the two hatcheries that would continue to operate for eight years under the Project. The RDEIR attempts to quantify GHG emissions from virtually every other component of the Project, from construction to reservoir drawdown to sediment mobilization. (See RDEIR at RE-3-72 to -75.) For the Iron Gate and Fall Creek Hatcheries, in contrast, the RDEIR states only that because emissions from operation of the hatcheries are "expected" to be lower than emissions from the four existing Lower Klamath Project facilities plus Iron Gate Hatchery (RDEIR at RE-3-70 to -71), "no net increase" in emissions would occur as a result of maintaining Iron Gate Hatchery and reopening Fall Creek Hatchery. (RDEIR at RE-3-81.) The RDEIR reaches the same conclusion regarding energy impacts. (RDEIR at RE-3-77.)

Response to Comment RE-16-5

The commenter asserts that the Recirculated Draft EIR includes an inadequate GHG-related impact analysis because the document "does not quantify emissions from the Iron Gate and Fall River fish hatcheries, which would continue to operate for eight years under the Project." The commenter faults the State Water Board for assuming that operational GHG emissions from these two hatcheries under the Proposed Project would be lower than the existing operational GHG emissions occurring from the existing Iron Gate Hatchery and the four existing Lower Klamath Project facilities.

In addressing Potential Impact 3.10-1 – Generation of direct GHG emissions from construction activity and operations – the Recirculated Draft EIR addressed four broad categories of activities involving GHG emissions: Pre-Dam Removal Activities; Dam and Powerhouse Deconstruction; Restoration (Seeding); and Construction Activity and Hatchery Operations. (See Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* Tables RE-3.10-7, RE-3.10-8, RE-3.10-9, and RE-3.10-10) Pre-Dam Removal Activities, which include GHG-emitting activities include the following: Fall Creek hatchery (FCH) modification; access, road, bridge, and culvert replacements; recreational facility removal; flood improvements; Yreka water supply pipeline relocation; seed collection; invasive exotic vegetation control; and Iron Gate hatchery modification. In the first three of the four tables within the discussion of Potential Impact 3.10-1, GHG emissions from every category of emissions-generating activities is quantified. Within the fourth table, emissions are quantified for all construction-related activities and for restoration. Only operational emissions – a single category of activity – are not quantified. Rather, within the table, the words “no net increase” appear, with a footnote.

As this fourth table (RE-3.10-10), with its footnote, reflects, once the dams are fully removed, the only remaining operations – and thus the only remaining sources of operational GHG emissions – will be two hatcheries: the Iron Gate Hatchery, which is currently operational; and the Fall Creek Hatchery, which has not operated since 2003. Under the Proposed Project, the combined fish production of these two facilities, which will only last eight years, will be less than the current production at the Iron Gate Hatchery. (See Volume I Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery* Table 2.7-13 [page 2-80].) Under existing baseline conditions, in contrast, ongoing operational GHG emissions are being generated by the Iron Gate Hatchery plus the four Lower Klamath Project facilities, and associated employee traffic, maintenance equipment, and releases of minor amounts of SF_6 from gas insulated switchgear equipment. Quantification of these baseline emissions are not publicly available.

In summary, the Recirculated Draft EIR, in assessing Potential Impact 3.10-1, quantified all categories of emissions sources except one – operational emissions. The State Water Board took this approach because current baseline operational GHG emissions are plainly significantly higher than operational GHG emissions would be under the Proposed Project, and because quantification of the current operational emissions were not publicly available.

The State Water Board’s approach and methods here were wholly appropriate and within the agency’s reasonable and informed discretion. There was no need to quantify the difference between current operational GHG emissions and future operational GHG emissions because there is no question that the reduction in future emissions levels will be substantial. As the Recirculated Draft EIR makes clear, the vast majority of GHG emissions from construction and operations for the Proposed Project will be associated with pre-dam removal activities, dam and powerhouse removal, associated construction activities, and restoration activities. These emissions are all quantified, as set forth in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* Tables RE-3.10-10, RE-3.10-11, and RE-3.10-12. Once the dams are removed and the formerly inundated areas are restored, very substantial amounts of existing operational GHG emissions will have simply gone away. All that will remain will the two hatcheries, and only for eight years.

Under the Proposed Project, GHG emissions from employee traffic (except for hatchery employees), maintenance equipment, and releases of minor amounts of SF_6 from gas insulated switchgear equipment would all be eliminated entirely. And GHG emissions from the Iron Gate Hatchery would go down, as the hatchery would operate at a reduced level of activity and production. Although the Fall Creek Hatchery, which has not produced fish since 2003, would be reinstated under the Proposed Project, causing GHG emissions that are not currently occurring, these “new” operational emissions will represent only a portion of the operational emissions that are currently occurring. Importantly, fish production levels at the combined operations at the Iron Gate Hatchery and the reinstated Fall Creek Hatchery will decrease compared with existing conditions at just the Iron Gate Hatchery. (See Volume I Section 2.7.6.1 *Proposed Project – Proposed Project – Hatchery Operations – Iron Gate Hatchery* Table 2.7-13 [page 2-80].) Thus, any “new” emissions at the Fall Creek Hatchery will be offset by decreased emissions at the Iron Gate Hatchery (see Recirculated Draft EIR Section 3.10.4 *Greenhouse Gas Emissions and Energy – Impact Analysis Approach* (page RE-3-71) and the absence of the dams and powerhouses. And hatchery operations will continue only for eight years under the Proposed Project. In short, there can be no doubt that, with all other current operational GHG emissions simply going away, there will be an overall decrease in operational emissions.

Given the order of magnitude difference between current operational emissions and expected future operational emissions, and the lack of available information quantifying baseline emissions, there is no need to quantify the difference in this one category of GHG-emitting activities (project operations). The vast majority of existing GHG operational emissions will cease to occur, and the two hatcheries will operate at production levels lower than levels currently occurring at the Iron Gate Hatchery. Under the no net increase threshold, the important fact was that operational emissions under the Proposed Project would be only a portion of currently occurring operational emissions. Quantifying the precise extent of the dramatic drop-off in operational GHG emissions was unnecessary in order to demonstrate a substantial decrease in operational emissions.

Note that, although commenter insists that quantification of this category was required, the practical consequence of the absence of quantification could redound to the benefit of the environment. Under Mitigation Measure ENR-1 (Purchase of Carbon Offsets), the State Water Board expects that the Klamath River Renewal Corporation (KRRC) will purchase and retire carbon offsets for an estimated 20,128 MTCO2e of construction GHG emissions. This number is derived from Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* Table RE-3.10-10 (Unmitigated Direct GHG Emissions Inventories for Construction Activity and Hatchery Operations). This number (20,128 MTCO2e) would have been lower if KRRC had received quantified credit within the table for the fact that projected operational emissions will be less than baseline operational emissions.

Comment RE-16-6

The RDEIR's approach is impermissible for several reasons. First, it omits critical information about the Project. The Project explicitly includes operation of the two hatcheries for eight years. Yet the GHG and energy analysis—which quantifies both construction and operational emissions from all other components of the Project—fails to disclose both emissions and energy usage from hatchery operation. The RDEIR's statement that hatchery operations will result in "no net increase" in emissions or energy usage (see RDEIR at RE-3-77, -81) is merely conclusory and unsupported by any analysis. An "EIR must contain facts and analysis, not just the bare conclusions of the agency." (Bakersfield Citizens for Local Control v. City of Bakersfield (2004) 124 Cal.App.4th 1184, 1197 [quotation omitted].)

Response to Comment RE-16-6

Please refer to the response to comment RE-16-5.

Comment RE-16-7

Second, the RDEIR improperly—and misleadingly—treats the hatcheries as having no emissions. Even the RDEIR's conclusory "no net increase" statement suggests that GHG emissions and energy usage from hatchery operations will be greater than zero; nothing in the RDEIR supports a conclusion that the hatcheries will have zero emissions. Yet Table RE-3.10-10 (RDEIR at RE-3-81) effectively treats operational hatchery emissions under the Project as zero by failing to add them to the sum of other Project construction emissions. As a result, the quantitative "Total Emissions" figures provided in the RDEIR omit emissions associated with hatchery operations, and are thus incomplete and inaccurate. Omission of information about hatchery emissions and energy usage prejudices both informed decision-making and development of adequate mitigation, and deprives the RDEIR's significance conclusions of necessary evidentiary support. (See Center for Biological Diversity, 62 Cal.4th at 228.)

Response to Comment RE-16-7

The commenter asserts that the State Water Board's analysis assumes that the two hatcheries will have no GHG emissions. This assertion is incorrect, for reasons explained at length in the response to comment RE-16-5. The State Water Resources Control Board recognizes that hatchery operations will have some level of GHG emissions; but these levels will be below the current, baseline level of operational emissions. Thus, there is no need to quantify the exact amount of operational reductions that would occur under the Proposed Project.

If the difference in operational GHG emissions between existing conditions (i.e., the four Lower Klamath Project facilities and Iron Gate Hatchery) and the operation of the two hatcheries post-dam removal were quantified, there would be a significant reduction in operational GHG emissions post dam removal. If this reduction in operational emissions were compared to construction GHG emissions in Table RE-3.10-10, as the commenter suggests, the GHG emissions from construction and operation of the Proposed Project would be less than estimated in the Recirculated Draft EIR. This would also result in fewer carbon offsets being purchased to mitigate GHG emissions from construction of the Proposed Project. As such, not quantifying the reduction in operational emissions between existing conditions and post dam removal conditions is conservative, because it overestimates the GHG emissions from construction and operation of the Proposed Project relative to existing conditions.

Comment RE-16-8

Third, by comparing energy emissions from one component of the Project—ongoing operations at two hatcheries—to total existing emissions from all four dams and one hatchery, the RDEIR offers a meaningless and misleading comparison. The comparison CEQA requires here is between the proposed Project as a whole (removal of the dams plus operation of two hatcheries) and existing environmental conditions (operation of the four dams and Iron Gate Hatchery), not between one component of the proposed project and existing conditions. (See CEQA Guidelines § 15125(a); see also Friends of Oroville v. City of Oroville (2013) 219 Cal.App.4th 832, 842–843 [rejecting GHG analysis where EIR improperly compared project emissions to inappropriate standards and failed to quantify emissions from component of project].) Indeed, by separating out hatchery operations from the rest of the Project and concluding they will cause "no net increase, the RDEIR engages in improper "piecemeal" analysis. Under CEQA, the "project" that must be analyzed is the "whole of an action" under consideration. CEQA Guidelines § 15378(a). CEQA thus clearly prohibits an approach by which "environmental considerations . . . become submerged by chopping a large project into many little ones," each with lesser effects, in order to avoid analysis of the project in its entirety. (Bozung v. Local Agency Formation Com. (1975) 13 Cal.3d 263, 283–284.) Here, the RDEIR effectively segments ongoing hatchery operations from the rest of the Project in order to dismiss their GHG and energy impacts as insignificant. This is unlawful.

Response to Comment RE-16-8

The commenter contends that the State Water Board impermissibly contrasts the operational emissions from the two hatcheries under the Proposed Project to emissions not only from the existing hatchery, but also from dam operations. To the commenter, this comparison amounts to a kind of improper piecemealing, as the State Water Board's approach allegedly fails to properly analyze "the whole of the action."

Through this argument, the commenter essentially suggests that the State Water Board acted beyond the bounds of its discretion as a lead agency to isolate the category of operational GHG emissions and opt not to quantify that one category of emissions.

As noted above under the response to comment RE-16-7, the Proposed Project is unique because it involves the removal of most facilities whose operation currently generate GHG emissions and uses energy. Relative to existing conditions, the hatcheries will be the only source of operational emissions after removal of the dams. Since the two hatcheries will be the only remaining operational facilities at the various project sites once the dams are removed, and operational emissions are expected to decrease, the State Water Board properly compared existing operations against future operations.

As described in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy*, the Proposed Project has three potential sources of GHG emissions besides the hatcheries: short-term construction emissions, emissions from the exposure of reservoir sediments to aerobic conditions for six months after drawdown, and ongoing emissions from the conversion of the reservoir areas to riverine, wetland, and terrestrial habitat types. These sources of emissions are quantified and compared to the no net increase threshold.

As discussed above under the response to comment RE-16-7, if the difference in operational GHG emissions between existing conditions (i.e., the Lower Klamath Project dams and associated facilities and Iron Gate Hatchery) and the operation of the two hatcheries post-dam removal were quantified, there would be a significant reduction in operational GHG emissions post dam removal. If this reduction in operational emissions were compared to all other potential sources of emissions (i.e., the whole of the action), the GHG emissions from the Proposed Project would be less than estimated in the Recirculated Draft EIR. This would be even more true if the ongoing reductions in GHG emissions from continued power production for the PacifiCorp PCA were compared to all other sources of GHG emissions (direct and indirect) related to the Proposed Project.

Therefore, not quantifying the significant reductions in GHG emissions that would occur for operational emissions after removal of the dams is conservative, because it overestimates the GHG emissions from the Proposed Project relative to existing conditions. Contrary to the commenter's assertion, this methodology provides a worst-case scenario for GHG emissions from the Proposed Project as opposed to segmenting the analysis in order to dismiss the impacts as insignificant.

Friends of Oroville v. City of Oroville (2013) 219 Cal.App.4th 832, cited by the commenter, in inapposite. In that case, the court held that a city's analysis of the GHG impacts of a project to replace and expand a Wal-Mart store was invalid because the city compared the emissions of the new store, which had been quantified, to GHG emissions state-wide, and concluded they were insignificant. The court faulted the city for its failure to quantify the GHG emissions of the existing store and mitigation measures in order to allow for a comparison of the GHG emissions of the new store, with mitigation, to the emissions of the existing store. The city erred in *Friends of Oroville* by using a flawed point of comparison for purposes of evaluating the significance of the project's GHG emissions. That case does not stand for the proposition that an agency may not conduct a qualitative analysis of the GHG emissions of one component of a project, and a quantitative analysis of the GHG emissions of the remainder of the project.

<u>Comment RE-16-9</u>

Fourth, and finally, the RDEIR does not justify its failure to quantify hatchery emissions. Nowhere does the RDEIR explain why, of all the construction and operational emissions quantified in the document, hatchery emissions could not also be quantified. Put another way, the RDEIR fails to explain or justify its apparent decision to pursue a qualitative analysis of GHG emissions and energy impacts from one portion of the overall Project. As shown in the literature review attached as Exhibit A and accompanying scientific materials, there are ample resources available to support at least a good-faith effort to quantify emissions from the hatchery component of the Project and include them in the analysis. The Board therefore should undertake this analysis, and make a determination as to whether this portion of the EIR should be recirculated, before proceeding with the Project.

Response to Comment RE-16-9

The commenter faults the State Water Board for failing to explain why it chose not to quantify operational emissions, but cites no authority indicating that, where an agency exercises its discretion under CEQA Guidelines section 15064.4 to qualitatively assess GHG-related impacts, the agency must provide a written justification for that choice. The State Water Board knows of no such requirement. In any event, its reasons are set forth above in the responses to comments RE-16-5 through RE-16-8.

<u>Comment RE-16-10</u>

The RDEIR proposes a single mitigation measure that addresses only a portion of the Project's GHG emissions. Mitigation Measure ENR-1 would require the applicant to purchase and retire carbon offsets for the Project's construction emissions. Offsets could be purchased from the California Air Resources Board ("CARB"), California Air Pollution Control Officers Association ("CAPCOA"), the Siskiyou County Air Pollution Control District, or "any other equivalent or verifiable registry" dealing in carbon credits. Offsets also would be required to *meet several "criteria," including that they be real, "additional/surplus," quantifiable, enforceable, validated, and permanent. (RDEIR at RE-3-83.) Mitigation Measure ENR-1 does not, however, require any offsets for the Project's operational emissions.*

Response to Comment RE-16-10

As discussed in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* (pages RE-3-70 to RE-3-84), the only source of operational GHG emissions from the Proposed Project post dam removal would be from the operation of two hatcheries, the Iron Gate Hatchery, which is currently operational; and the Fall Creek Hatchery (FCH), which has not operated since 2003. Operational emissions under current conditions (i.e., of the four Lower Klamath Project dams and associated facilities and Iron Gate Hatchery) are anticipated to be significantly greater than the reduced operation of Iron Gate Hatchery combined with the re-instated operation of Fall Creek Hatchery. This is because existing emissions generated by operation of the Lower Klamath Project dams and associated facilities (e.g., employee traffic, maintenance equipment, releases of minor amounts of SF_6 from gas insulated switchgear equipment, etc.) would be eliminated, and production levels at the two hatcheries post-dam removal would decrease relative to current conditions. Thus, overall, it is anticipated that there would be a net decrease in operational emissions post dam removal as compared to existing conditions. Based on the no net increase threshold, operational emissions from the hatcheries would be less than significant and no mitigation is required. (See, e.g., Recirculated Draft EIR Section 3.10.4 *Greenhouse Gas Emissions and Energy – Impact Analysis Approach* [pages RE-3-70 to RE-3-71], Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* [page RE-3-80].)

The other potential sources of emissions besides construction emissions would be generated by the natural 'fast carbon cycle' (i.e., emissions from the exposure of reservoir sediments to aerobic conditions for six months after drawdown and ongoing emissions from the conversion of the reservoir areas to riverine, wetland, and terrestrial habitat types) and indirect emissions from continued power production for the PacifiCorp PCA.

The explanation for not purchasing carbon offsets as mitigation for GHG emissions generated by the natural 'fast carbon cycle', is provided in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-89 to RE-3-90 and RE-3-93 to RE-3-94). Requiring mitigation for GHG emissions that occur from the normal functioning of a free-flowing river, wetlands, and other terrestrial habitat would be inconsistent with state policy and would have the potential to discourage future restoration activities in the state.

Please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-95 to RE-3-99 and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area and the company's proposed transition to renewable energy sources to comply with State Renewable Portfolio Standards. As discussed on page RE-3-98, this transition to renewable energy sources will ensure that there will be not net increase in GHG emissions from continued power production by PacifiCorp after removal of the dams.

Comment RE-16-11

Mitigation Measure ENR-1 is inadequate in a number of ways. First and foremost, the actual effect of GHG offset credits on overall atmospheric emissions is inherently uncertain. (See Haya et al. 2016; attached as Exhibit B.) Even the most rigorous offset protocols—such as those established by CARB for compliance with California's Cap and Trade program—are beset with uncertainties and likely overestimate emissions reductions. (See Haya 2019; attached as Exhibit C.)

Response to Comment RE-16-11

The comment states that Mitigation Measure ENR-1 is inadequate because the actual effect of GHG offset credits on overall atmospheric emissions is inherently uncertain. State agencies, including the California Air Resources Control Board and the California Natural Resources Agency, have recognized offset credits as a means of addressing GHG emissions and mitigation (see, e.g., CARB 2017b; CNRA 2009). The CEQA Guidelines expressly identify offsets as a means of mitigating a project's emissions. (CEQA Guidelines section 15126.4(c)(3).) The CARB Scoping Plan identifies the purchase of carbon offsets as a viable method to reduce or eliminate the impact of GHG emissions and the use of carbon offsets to mitigate GHG emissions.

Mitigation Measure ENR-1 requires that purchased offsets must comply with CEQA Guidelines Section 15126.4(c)(3) and must be issued by the California Air Resources Board, Climate Action Reserve, California Air Pollution Control Officers Association, the APCD, or any other equivalent or verifiable registry. In addition, the reductions must be real, additional/surplus, quantifiable, enforceable, validated, and permanent. (Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* [page RE-3-83].) This mitigation measure is consistent with state policy supporting offsets as a means of addressing GHG emissions.

Comment RE-16-12

Second, Mitigation Measure ENR-1 fails to incorporate adequate standards to ensure offset quality. The measure identifies a few sources of offsets, but does not provide any evidence that offsets purchased from those sources or "any other equivalent or verifiable registry" will meet adequate standards. CARB may issue offsets for purposes of Cap and Trade compliance, but it does not typically issue *voluntary offsets for other purposes (such as CEQA mitigation). CAPCOA nominally operates a GHG offset exchange (http://www.ghgrx.org/), but as of January 31, 2020, no GHG credits were listed as available. (See GHGRx home page; attached as Exhibit D.) It is not clear that the Siskiyou County APCD has any functioning GHG offset program, or that any credits issued by the APCD would meet adequate standards.*

Response to Comment RE-16-12

The comment states that Mitigation Measure ENR-1 is inadequate because it fails to ensure adequate standards to ensure offset quality. As discussed in the response to comment RE-16-11, the California Air Resources Board (CARB) Scoping Plan identifies the purchase of carbon offsets as a viable method to reduce or eliminate the impact of GHG emissions. The Scoping Plan also states that California Air Pollution Control Officers Association (CAPCOA) has developed the GHG Reduction Exchange (GHG Rx) for CEQA mitigation and that it may also be appropriate to utilize offsets issued by a recognized and reputable voluntary carbon registry.

Although carbon offsets may not currently be available from the CAPCOA GHG Rx, there are other sources of carbon offsets for CEQA mitigation that are acceptable to CARB and currently have offsets or forecast mitigation units available. As indicated on the 'Offset Project Registries' page on the CARB website, these include the American Carbon Registry, Climate Action Reserve, and Verra.

As stated in Mitigation Measure ENR-1, any carbon offset that is used to reduce the Project's GHG emissions must meet the requirements of CEQA Guidelines Section 15126.4(c), be issued by certain entities or other equivalent or verifiable registry, and be real, additional/surplus, quantifiable, enforceable, validated, and permanent. By the very terms of the mitigation measure, any offset must in part represent reductions actually achieved, be readily accounted for, acquired through legally binding commitments or agreements, and verified by a reliable third party. Therefore, this measure provides an enforceable commitment that GHG offsets purchased pursuant to the criteria listed in Mitigation Measure ENR-1 would in fact offset the quantity of GHG emissions needed to reduce the Proposed Project's construction-related emissions to a less than significant level.

Comment RE-16-13

Absent specific requirements for evaluating the protocols used by these (and other) registries to issue credits, there is no evidence that the measure's standards will be met. On the contrary, there is ample evidence that offset credits available on the voluntary market do not constitute real, additional emissions reductions. For example, one study of offsets under the Kyoto Protocol's Clean Development Mechanism—which is still used by some offset registries, such as Verra—concluded that 85% of the reductions credited to the programs were questionable. (See Cames et al. 2016; attached as Exhibit E).

An open-ended list of possible sources of credits is not an adequate standard for mitigation.

Response to Comment RE-16-13
Comment noted. Please refer to the responses to comments RE-16-11 and RE-16-12 related to the adequacy of Mitigation Measure ENR-1.

Comment RE-16-14
Third, the measure's reference to "other equivalent or verifiable registr[ies]" introduces further uncertainty about what standards might apply, and how they might be evaluated. The measure provides no standards for determining what other registries might be "equivalent or verifiable," and does not identify the person or entity responsible for making this determination. As a result, the measure fails to satisfy CEQA's requirement that mitigation measures be "fully enforceable." (CEQA Guidelines § 15126.4(a)(2).) Moreover, the measure improperly defers mitigation by failing to articulate "specific performance standards" for offset quality verification and the "potential action(s)" necessary to achieve those standards. (Id., § 15126.4(a)(1)(B).)

Response to Comment RE-16-14
The comment states that Mitigation Measure ENR-1's reference to "other equivalent or verifiable registry" fails to satisfy CEQA's requirement that mitigation measures be fully enforceable because there are no standards for determining what registries might be equivalent or verifiable (CNRA 2009).

CEQA requires a mitigation measure to be fully enforceable, which implies that it must be real and verifiable. Here, the mitigation measure is fully enforceable. The Klamath River Renewal Corporation (KRRC) has committed to purchasing and retiring carbon offsets for a specific quantity of construction greenhouse gas (GHG) emissions, and to including this commitment in its proposal before FERC. As discussed in the responses to comments RE-16-11 and RE-16-12, the offsets must meet certain criteria, including being verified through accurate means by a reliable third party. Thus, the mitigation measure identifies a numeric standard for the total quantity of offsets and criteria by which the offsets will be evaluated.

Comment RE-16-15
Fourth, the RDEIR's requirement that offsets be "additional/surplus" is vague and insufficient. "Additional" and "surplus" are not necessarily the same thing. While "surplus" generally refers to an emissions reduction not otherwise required by law or regulation, "additional" also means that the action would not have been undertaken for any other reason—in other words, that the emissions reductions embodied in the credit would not have occurred but for the offset program. (See Health & Safety Code § 38562(d)(2) [to be additional, reductions must be "in addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur"; emphasis added]; Cal. Code Regs., tit. 17, §§ 95802(a)

("'Additional' means, in the context of offset credits, greenhouse gas emission reductions or removals that exceed any greenhouse gas reduction or removals otherwise required by law, regulation or legally binding mandate, and that exceed any greenhouse gas reductions or removals that would otherwise occur in a conservative business-as-usual scenario"; emphasis added].) This two-part "additionality" requirement simply reflects basic physics: an offset credit based on reductions that would have happened anyway, for whatever reason, does not actually offset anything.

Response to Comment RE-16-15
Comment noted. Please refer to the responses to comments RE-16-11 and RE-16-12 related to the adequacy of Mitigation Measure ENR-1. The terms of the mitigation measure make clear that any offset must not be "already planned or required by regulations or policy (i.e., double counted)." This concept is consistent with CEQA Guideline Section 15126.4(c), which refers to "offsets that are not otherwise required," and other laws that generally require emissions offsets to be surplus or additional (CNRA 2009).

Comment RE-16-16
Finally, the RDEIR fails to justify its conclusion that operational GHG emissions from the Project cannot be mitigated. The RDEIR claims that mitigation for emissions from reservoir drawdown and sediment release is infeasible "in light of federal preemption," and because these emissions are part of the "fast carbon cycle" and thus would be unenforceable without the applicant's agreement. (See RDEIR at RE-3-89, -93 to -94.) These conclusory, unexplained statements cannot support a finding of infeasibility. "An EIR that incorrectly disclaims the power and duty to mitigate identified environmental effects based on erroneous legal assumptions is not sufficient as an informative document." (City of San Diego v. Board of Trustees of California State University (2015) 61 Cal.4th 945, 956 [quotation omitted].) The RDEIR fails to explain and justify its refusal to propose mitigation for the Project's non-construction emissions.

Response to Comment RE-16-16
The comment states that the Recirculated Draft EIR fails to justify its conclusion that operational GHG emissions from the Proposed Project cannot be mitigated. Comment noted.

Please refer to the response to comment RE-16-10 for information regarding why mitigation is not required for other potential sources of GHG emissions from the Proposed Project. Also please refer to CEQ-2 Master Response for a discussion of Federal Power Act Preemption of State and Local Authority. In addition, the explanation for not purchasing carbon offsets as mitigation for GHG emissions generated by the natural 'fast carbon cycle', is provided in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-89 to RE-3-90 and RE-3-93 to RE-3-94).

Comment RE-16-17

The omissions and inadequacies in the RDEIR's GHG and energy analysis detailed above undermine a full and robust discussion of the No Hatchery Alternative. The RDEIR simply concludes that the No Hatchery Alternative would result in greater emissions reductions relative to existing conditions than the proposed Project. (RDEIR at RE-4-23.) While this conclusion is likely correct, it can and should be supported with adequate data and analysis.

Response to Comment RE-16-17

The commenter appears to agree with the Recirculated Draft EIR's conclusion that, compared with the Proposed Project, the reduction in operational GHG emissions compared to existing baseline operations would be greater under the No Hatchery Alternative, in that no hatchery operations would continue. The commenter advocates a greater level of detail to support this conclusion. See the responses to comments RE-16-5 through RE-16-9, which explain why the State Water Board operated within its discretion in opting not to quantify its analysis of operational GHG emissions. Because this approach was reasonable, there was no need to quantify the operational emissions of project alternatives.

Comment RE-16-18

Correcting the deficiencies discussed above would facilitate the alternatives analysis CEQA requires. Specifically, quantification of emissions from hatchery operations under the proposed Project would enable a more meaningful comparison among alternatives—and would likely show that the GHG and energy benefits of the No Hatchery Alternative are considerable.

Response to Comment RE-16-18

See the response to comment RE-16-17. The State Water Board does not agree with the commenter that a meaningful comparison between the EIR alternatives is not possible without quantification of GHG emissions from operational activities. The State Water Board acknowledges that the GHG emissions of that alternative would be less than those of the Proposed Project due to the absence of hatchery operations. Given that the vast majority of GHG emissions will come from non-operational activities, however, and given the global scale of climate change, the differences in GHG emissions between the Proposed Project and the No Hatchery Alternative are relatively minor.

Comment RE-16-19

Moreover, quantification would further demonstrate that adoption of the No Hatchery Alternative would result in certain, measurable reductions in emissions that could reduce the Project's reliance on uncertain GHG offsets.

Response to Comment RE-16-19

See responses to comments RE-16-5 through RE-16-8, RE-16-17, and RE-16-18. In light of the extent of federal preemption under the Federal Power Act, the State Water Board lacks jurisdiction and legal authority to require the Klamath

River Renewal Corporation (KRRC) to obtain carbon offsets, which do not relate to water quality issues. Instead, the State Water Board has suggested Mitigation Measure ENR-1 based on KRRC's representation of its willingness to pursue such credits to mitigate for GHG emissions from construction activities. A reduction in operational emissions would not affect the extent to which KRRC must invest in carbon offsets to mitigate its construction-related GHG emissions. For these reasons, the quantification requested by the commenter would not reduce the project's reliance on GHG offsets.

Comment RE-16-20

That said, even without correction of these deficiencies, the RDEIR clearly shows that the Project as proposed cannot be approved, and that the No Hatchery Alternative must be adopted in its stead. CEQA prohibits a public agency from approving a project that has significant environmental impacts if there are feasible alternatives or mitigation measures that would reduce or avoid those impacts. (Pub. Resources Code§§ 21002, 21002.l(b).) Moreover, before approving a project despite significant environmental impacts, the agency must expressly find that mitigation measures or alternatives identified in the EIR are infeasible. (Pub. Resources Code§§ 2108l(a)(3).)

Response to Comment RE-16-20

The commenter asserts that the State Water Board must adopt the No Hatchery Alternative because it would avoid or reduce significant project impacts. This comment concerns the CEQA findings that the State Water Board must make before deciding whether and under what conditions to approve the Proposed Project. No response is necessary.

Comment RE-16-21

The Board cannot make a defensible finding that the No Hatchery Alternative is infeasible on this record. As discussed in the Prior Comments, the No Hatchery Alternative is both feasible and environmentally superior to the proposed Project. Nothing in the RDEIR-notwithstanding its flaws-shows otherwise. Indeed, the RDEIR confirms that the No Hatchery Alternative "accomplishes the applicant's stated goals" and would reduce GHG and energy impacts relative to the Project. (RDEIR at RE- 4-23 to -24.) The Board therefore must adopt the No Hatchery Alternative.

Response to Comment RE-16-21

The commenter asserts that the State Water Board must adopt the No Hatchery Alternative because it is feasible and environmentally superior to the Proposed Project. Please refer to the response to comment RE-16-20.

Native Fish Society, Mark Sherwood

Comment RE-1-1

We are submitting the following comments that fully support the proposed decommissioning of all four Lower Klamath Project dams and the license *surrender, which will improve the biological conditions in the Klamath watershed to benefit sensitive and threatened wild, native fish species, as well as the human and environmental communities who depend on the health of these iconic fish species. Our coalition continues to stress support for decommissioning the four Lower Klamath Dams (Iron Gate, Copco 1 & 2, and J.C. Boyle). Decommissioning all four dams is critical to the recovery and long-term protection of these iconic fish species that provide important subsistence for tribal fisheries, economies for commercial and sport fishing communities along the California and Oregon coast, and sustains the many plants and animals dependent on the return of marine nutrients that contribute to overall watershed health.*

Response to Comment RE-1-1

Thank you for your comment.

Comment RE-1-2

Our concerns are centered on the significant environmental impacts that would result from the Project's proposed hatchery operations, and the lack of description for how the proposed hatchery operations would contribute to the recovery of the watershed's imperiled fish species. Additionally, we found the RDEIR's analysis of GHG and energy impacts deficient and the proposed mitigation for GHG impacts inadequate.

Response to Comment RE-1-2

The comment states the commenter's concerns are centered on the significant environmental impacts that would result from the Proposed Project's hatchery operations and the lack of description for how the proposed hatchery operations would contribute to the recovery of the watershed's imperiled fish species. The comment generally concludes that the commenter found the Recirculated Draft EIR's analysis of greenhouse gas (GHG) and energy impacts deficient and the proposed mitigation for GHG impacts inadequate.

Please refer to the response to comments RE-16-1 to RE-16-21 for a response to the specific issues raised by the Native Fish Society about the adequacy of the Recirculated Draft EIR's analysis of GHG and energy impacts.

Sierra Club, John Livingston

Comment RE-9-1

1. *In the future it would be very helpful if copies of the documents were available at the Redding Public Library in Redding, Ca.*

Response to Comment RE-9-1

Thank you for your comment. Comment regarding library availability of documents is noted.

Comment RE-9-2

2. *The decommissioning air quality impacts related to construction activities can be reduced by frequent application of water to all exposed surfaces. This includes the actual dam and concrete demolition areas, haul roads and reservoir areas that have not been stabilized to prevent dust movement. Firm enforcement of dust control measures must be incorporated into the deconstruction contract specifications.*

Response to Comment RE-9-2

Please refer to Master Response CEQ-2 regarding preemption of state authority over certain mitigation measures under the Federal Power Act. Please note, Klamath River Renewal Corporation (KRRC) has committed to implement Mitigation Measure AQ-5 – *General Construction Dust Control Measures* to reduce emissions of particulate matter that is 10 micrometers or less in diameter (PM_{10}) to less than significant. For measures that are outside of the State Water Board's water quality certification authority, KRRC has committed to propose that the mitigation measures be included in the Federal Energy Regulatory Commission (FERC) license-surrender order. (See KRRC's Water Quality Certification Application, December 3, 2019 [KRRC 2019a], Attachment B.)

Comment RE-9-3

3. *Greenhouse gas emissions during construction can be reduced by enforcing the mitigation measures to utilize low carbon emitting equipment. The measures presented should be included in the project specifications and enforced to prevent outdated construction equipment from being used.*

Response to Comment RE-9-3

Please refer to Master Response CEQ-2 regarding preemption of state authority over certain mitigation measures under the Federal Power Act. Please note that Klamath River Renewal Corporation (KRRC) has committed to implement Air Quality Mitigation Measures AQ-1 – *Off-Road Construction Equipment Engine Tier*, AQ-2 – *On-Road Construction Equipment Engine Model Year*, and AQ-3 – *Heavy-Duty Trucks Engine Model Year* to primarily reduce emissions of nitrogen (NOx). As discussed in Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (page RE-3-82), these Air Quality Mitigation Measures include the use of newer, low-carbon-emitting equipment that are likely to reduce greenhouse gas emissions generated from implementation of the Proposed Project. Additionally, the KRRC has committed to the purchase of offsets for construction-related greenhouse gas emissions. Please see Mitigation Measure ENR-1 - *Purchase of Carbon Offsets*. For measures that are outside of the State Water Board's water quality certification authority, KRRC has committed to propose that the mitigation measures be included in the Federal Energy Regulatory Commission (FERC) license-surrender order (KRRC 2019a).

<u>Comment RE-9-4</u>

4. Removal of the hydroelectric portion of the dams should be replaced with new renewable energy projects in northern California. This project provides an opportunity to find locations for solar and wind facilities when properly designed and constructed can provide clean electricity for use in northern California.

Response to Comment RE-9-4

Please refer to Recirculated Draft EIR Section 3.10.2 *Greenhouse Gas Emissions and Energy – Environmental Setting* (pages RE-3-64 to RE-3-65) and Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-95 to RE-3-99, and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area, PacifiCorp's Integrated Resource Plan (IRP), and the company's proposed transition to renewable energy sources to comply with California's Renewable Portfolio Standards. As mentioned in Recirculated Draft EIR Section 3.10.2 *Greenhouse Gas Emissions and Energy – Environmental Setting*, PacifiCorp's latest IRP (2019d) states that between 2018 and 2020, PacifiCorp will have increased the percentage of renewable energy resources in its portfolio by 70 percent. This shift towards procuring renewable energy sources is expected to replace the lost power generation from the hydroelectric portions of the Lower Klamath Project, including for areas serving Northern California.

Siskiyou County Water Users Association, Rex Cozzalio

<u>Comment RE-7-1</u>

The first two 'Draft' pages alone predict the tone and predetermined 'decisions' of not only the 'recirculated' portion of the EIR, but of the entire EIR itself. Stillwater Sciences, along with several other closely intertwined entities, have been personally and jointly profiting from their position creating anecdotal revisionist regional history and 'modeled scientific support' promoting Klamath destruction from the agenda beginning. Unfortunately, in the face of nearly a billion dollars and decades of devastating confiscatory regulatory implementations based upon the constructed 'best available science' miserably failing in virtually EVERY 'objective' aspect, the ONLY alteration in agenda direction has been in their alterations to assure continued self-benefit through the cleaver creation of unaccountable 'Adaptive Management'.

Though the California State Department of Water Resources (SWR) publicly declares objectivity, it is an overt lie from any perspective. The Commission is appointed by, and to carry out, the environmental policies at the pleasure of the Governor. In every past 'Water Crisis Plan' and the current 'Water Management' draft 'Report', the Governor has specifically instructed that Klamath Dams' destruction is his high priority to be facilitated by his State Agencies. Water Resources has worked hand in hand with the Governors declared agenda objectives by 'justifying' their own enhanced authority, 'revising' Klamath 'impairments' to accommodate KHSA 401 permit coercion, and increasing *'discretionary' power throughout the entire so-called 'Agreements' compelling Klamath destruction. At no time has SWR wavered in support of that agenda regardless of ignored extensive presented historical documentation and empirical evidence contradicting agenda premise.*

It is unsurprising, if disconcerting that, as equally seen throughout the whole of the original draft EIR, in its entirety this 'Report' continues the Agency and Author mutually beneficial relationship towards a common objective. Carefully crafted to demonstrate a legally defensible 'paper trail' assessment, anyone with more than superficial knowledge of the Klamath region, environment, and history, cannot but appreciate the well-crafted parsed, exclusionary, assumptive, inconsistent rationalizations, and disconnected conclusions all geared towards a biased outcome.

If that were not true, the thousands of submissions acknowledged as received by State Water Resources (SWR) pertaining to the draft EIR, many of which reference history and evidence refuting EIR conclusions by adding and/or expanding upon inclusions and omissions throughout the Draft, would have caused the ENTIRE document to be opened for recirculation and revision, not just a small portion responsive to selective submissions furthering a legally defensible outcome. Consistent in its past record, SWR and its sub agencies have repeatedly received much of the agenda-contradicting history and data irrefutably contradicting Agency 'conclusions' in past agenda proceedings relative to Klamath destruction, only to end up eliminated through inaccurate 'summaries', dismissive responses, or ignored completely. Based upon past history, it is unlikely that anything different will be expected here. Given the continuing implemented agenda policy-directed 'environmental' failures to date, and given the ignored historical documented experience and current empirical data which irrefutably prove Klamath Project environmental benefits, one thing is abundantly and 'robustly' clear. 'Sustainability', the 'environment', and even the 'fisheries' are NOT the objectives of this directed agenda outcome, they have been and are merely the pawns used to bring about effective resource confiscation from the most affected and vested owners WITHOUT compensation or accountability for imposed environmental and economic damages, placing ALL resources under personally benefitting control of a relative few having little concern, continuity of knowledge, and even LESS consequence for failed 'decisions'. This EIR offers NO evidence contradicting that continued objective.

Response to Comment RE-7-1

Thank you for your comment letter on the Recirculated Portions of the Draft EIR. This comment includes several paragraphs explaining the commenter's opinion of the Proposed Project, the administrative process, and the adequacy of the analysis in the Draft EIR. The comment does not provide specific information about the environmental analyses presented in the portions of the Recirculated Draft EIR for the Proposed Project. Please see Master Response R-1 for information on comments not relating to recirculated portions of the Draft EIR.

Comment RE-7-2

This 192 page EIR portion is a compendium of contradiction and agenda marketing too extensive and pointless to detail here, with a complete inclusion of highlights and individual comments being available upon request. If consistent with prior offers to provide SWR with the entire texts of referenced studies and documents directly refuting Agency stated conclusions, we will have a very long wait. Therefore, only a few specific major issues of the many deficiencies contained will be discussed.

Response to Comment RE-7-2

The comment relates to the commenter's opinion of the adequacy of the analysis in the recirculated portions of the Draft EIR and how the commenter intends to address the analysis. Comment noted.

Comment RE-7-3

It appears that the authors have no difficulty making inherently conflicting claims, readily known inaccurate statements, selectively chosen 'considerations', and 'discussion' disconnected conclusions. Even though acknowledgement of obvious facts are detailed, such as 'significant' Project destruction impacts upon health, property use values, GHGs, noise, dust, and odors, there invariably seems no evident recommended sanctions of impacts, as though SWR acknowledgement of damages unwillingly imposed upon others is sufficient in itself for SWR to unaccountably grant approval.

Response to Comment RE-7-3

The comment suggests that there are no recommended mitigation for impacts. Please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-25 to RE-3-44) and Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-77 to RE-3-105) for a discussion of potential impacts and mitigation measures.

Comment RE-7-4

Examples such as stating the much greater health impacts of dust upon older individuals are later dismissed since the demographics of Copco and Iron Gate are 'unknown'. Seriously? SWR 'experts' purported in-depth evaluations seem unaware of the few keystrokes needed to obtain readily available public demographic information?

Response to Comment RE-7-4

The comment's assertion that the Recirculated Draft EIR dismisses health impacts due to unknown demographics at Copco and Iron Gate reservoirs is incorrect. The discussion of dust impacts acknowledges, apart from number of people, that it is based on age, health, and genetic sensitivity. Although a quantitative analysis on human health impacts is not possible, the EIR discusses the potential impacts qualitatively. Please refer to Recirculated Draft EIR Sections 3.9.4 *Air Quality – Impact Analysis Approach* and 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-32 to RE-3-35) for a discussion of health impacts from construction activities.

Additionally, please refer to Volume I Appendix B: *Definite Plan* and Appendix B: *Definite Plan* –Appendix H *Reservoir Area Management Plan* for a description of the restoration plan for the reservoirs.

Comment RE-7-5

Claiming Authors' knowledge gained from 'similar' project destructions, the potential dangers of dust are mentioned, and then minimized due to 'replanting', distance, 'sparse residential populations', and 'lack of discovered asbestos', when ANY minimal awareness of those 'Projects' reveal TREMENDOUS problems from failed plantings and dust damaging the health and quality of life of those local residents resulting in ongoing lawsuits.

Response to Comment RE-7-5

Please refer to Master Response R-2 for a discussion of the potential for windblown dust to be generated after drawdown of the reservoirs and vegetation establishment efforts.

Please refer to Recirculated Draft EIR Section 3.9.2 *Air Quality – Environmental Setting* and Section *3.9.5 Air Quality – Potential Impacts and Mitigation* (pages RE-3-15, RE-3-16, and RE-3-42) for a discussion of asbestos and related impacts, and Volume I Appendix B: *Definite Plan* and Appendix B: *Definite Plan* Appendix H *Reservoir Area Management Plan* for a description of the restoration plan for the reservoirs.

Comment RE-7-6

SWR finding 'no evident asbestos' and therefore concluding 'no potential airborne sediment toxicity' inspires profound confidence when ANYONE from the region knows the extremely HIGH amounts of naturally occurring arsenic, boron, and other endemic heavy metals likely to be concentrated in sediment pockets, such as mercury that used to be panned from upstream river banks in the 1800's to be used for gold and silver amalgamation downstream.

Response to Comment RE-7-6

Please refer to Recirculated Draft EIR Section 3.9.2 *Air Quality – Environmental Setting* and Section *3.9.5 Air Quality – Potential Impacts and Mitigation* (pages RE-3-15, RE-3-16, and RE-3-42) for a discussion of asbestos and related impacts, Section 3.2.2.8 *Water Quality – Environmental Setting – Inorganic and Organic Contaminants – Sediment Contaminants* for a discussion of reservoir sediment contaminants, and Master Response R-2 for a discussion of the potential for windblown dust to be generated after drawdown of the reservoirs. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*.

Comment RE-7-7

Claiming the 'significant' impacts will be 'insignificant' due to the expansive Project, Authors' seem to suddenly utilize different numbers than the previously stated millions of cubic yards of exposed sediments and the KRRC described site specific destruction work immediately adjacent to lake residents cited within the very 'Definite Plan' which SWR is supposed to be evaluating. Apparently those damages are ok, since SWR considers the area 'sparsely populated' and therefore declare the hundreds of residents 'insignificant'.

Response to Comment RE-7-7

Please refer to Recirculated Draft EIR Section 3.10.4 *Greenhouse Gas Emissions and Energy – Impact Analysis Approach* (page RE-3-74) and Table RE-3.10-12 (page RE-3-87) for a discussion of the estimated sediment volumes in the reservoirs.

Please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-32 to RE-3-35) for a discussion of health impacts from construction activity.

Comment RE-7-8

Regarding 'climate change', It makes little sense in this context and purpose to give a 14 page mass marketing extensive, if biased, Agency policy mandated 'climate change' opinion perspective. The problem is, much of the information presented has equally, if not greater, credentialed research challenging that perspective, such as definitive impact solar cycles far more identifiably climatologically impacting than the fractional percentage increases in GHGs, questioning SWR assertions, effects, and conclusions. Much of the 'predicted' hypothesis has empirically proven repeatedly defective over the past 50 years. Many of the 'data' points have little support, major predictive divergence, alternative causations, and/or no credible confirmation. Other CONFIRMED data of geological cycles over eons from ice core studies shows the repetitive cycle we are in to be one of GREAT concern, with the world at the repetitively seen current PEAK point of temperatures preceding a precipitous descent into glaciation, a condition previously occurring WITHOUT prior human influence and FAR more perilous to human (and other species) survival. Under that scenario, the dictated 'policy' position's destructive actions could equally be either of LITTLE beneficial consequence, NO consequence, or DETRIMENTAL to future survival. NO WHERE is there ANY scientific support that imposing NO 'anthropogenic impacts' will prevent those natural cycles from occurring or their ensuing 'natural' devastation to species. Depending upon the confluence of variable conditions, it is logically JUST as likely that the current 'anthropogenic impacts' may help DEFER or LESSEN that disaster. The variables of 'NATURE' CARE NOT for the survival of ANY species, including Man. ONLY through the INTENTIONAL 'anthropogenic impacts' to MINIMIZE future uncertainties can mankind manage the variabilities of Nature to provide the long term consistent surplus of resources necessary for continuity of man and species alike. The *ability to minimize uncertainties is directly proportional to the PROGRESS of knowledge and technology. Only the continuing increase of individual options and quality of life encompassing the greatest percentage of individuals, allowing for the surplus resources, discretionary time, and diverse number of approaches required to rapidly enhance knowledge and solutions necessary to reduce future uncertainties offers the highest potential to MAXIMIZE Progress. However, the current policy directed regulatory agenda using imposed oppression to 'minimize' anthropogenic impacts by DESTROYING past cumulative improvements to quality of life and consistent availability of surplus production for the majority, in fact REDUCES potential adaptive options and discretionary resources, thereby IMPEDING progress and placing the eventual ability of mankind to survive Nature's variables at FAR GREATER RISK. While it is reasonably responsible under any scenario to maximize progress and minimize likelihood of unknown outcomes, SWR policies and their EIR are adversarial to both. Regardless of 'climate change' perspective, by any rationale the 'Draft' EIR policy promoting 'climate change' presentation lies outside the intended EIR scope and pointedly details 'climate change' perspective policy bias. Policy bias inescapably limits objective consideration of information and options which could increase potential for survival and 'sustainability' of all species, including Man. By limiting consideration of information and options relevant to realizing stated goals within its own purported context due to a directed policy perspective, the EIR becomes inherently inaccurate, illogical, and hypocritical.*

Response to Comment RE-7-8

The comment expresses disagreement with the climate change discussion in Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy*. Comment noted.

Comment RE-7-9

SWR repeatedly demonstrates those qualities when addressing issues, such as effectively dismissing massive 'natural' perpetual INCREASED GHGs and permanently DEGRADED downstream water quality after Project destruction in favor of the SWR UNASSESSED currently empirically challenged 'preference' of 'volitional fish travel' for which they have no technical expertise; or SWR's determination of overall destruction detriments being minimized due to their presumed "benefits" of volitional salmon travel, when recent "submitted but unconsidered" sentinel fish and polychate/certomyxa shasta studies now indicate HIGH likelihood of resultant compounding disease, complete and irreversible failure of "volitional" stated benefits, and long term devastation to the Klamath fisheries.

Response to Comment RE-7-9

Regarding natural greenhouse gas (GHG) emissions, please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-84 to RE-3-95) for an analysis of potential GHG emissions impacts from the natural 'fast carbon cycle'.

The recirculated portions of the Draft EIR do not include an analysis of water quality impacts. Please refer to Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* Potential Impact 3.2-1 to Potential Impact 3.2-14 for an analysis of potential downstream water quality impacts. Please refer to Volume III Attachment 1 for the final Section 3.2 *Water Quality*. Similarly, the recirculated portions of the Draft EIR do not include an analysis of impacts to fish. Please refer to Section 3.3.5.9 *Aquatic Resources – Potential Impacts and Mitigation – Aquatic Resource Impacts* for a discussion of potential impacts to fish species. Please refer to Volume III Attachment 1 for the final Section 3.3 *Aquatic Resources.*

In addition, please see Master Response R-1 regarding comments not relating to recirculated portions of the Draft EIR.

Comment RE-7-10

By their own presented scenario, it is inescapable that destroying the CURRENTLY EXISTING 'GREEN' reliable renewable energy to be replaced by 'carbon footprint' dense NEWLY MANUFACTURED facilities producing inconsistent power after years of interim fossil fuel substitution is INCONSISTANT to SWR stated intent. Even though they are forced to acknowledge the obvious MAJOR detriments to local power distribution, EIR authors effectively MARGINALIZE the drastic and 'unavoidable' detriments to regional power costs, availability, stability, safety, and security for regional communities and TENS of THOUSANDS of residents. They effectively dismiss, sidestep, or ignore the massive unaddressed and/or unmitigated harm to affected residents, regional infrastructure, economic stability, and the very Klamath environment they claim to protect. No matter WHAT convoluted mutilation of reason subsequently cobbled within the EIR to achieve assigned outcome from a conflicted agenda, under NO amount of this SWR presented hyperbole can they 'justify' a 'determination' of 'no significant impact' for the loss of renewable and consistently available resources.

Response to Comment RE-7-10

Please refer to Recirculated Draft EIR Section 3.10.3 *Greenhouse Gas Emissions and Energy – Environmental Setting* and Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-64 to RE-3-65, RE-3-95 to RE-3-99, and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area, PacifiCorp's Integrated Resource Plan, PacifiCorp's proposed transition to renewable energy sources to comply with California's Renewable Portfolio Standards, and for a discussion of potential impacts to local and regional energy sources.

See also Volume I Section 5.4 *Social and Economic Factors Under CEQA* for a discussion of the scope of the CEQA analysis as it relates to social and economic factors.

Comment RE-7-11

It should be clear to any reading of the original 'Draft' and this selectively 'recirculated' portion, that the EIR is inherently and fatally biased and flawed, purposely selectively limiting both holistic and regional 'considerations', impacts, inputs, causes, and unaccountable irreversible consequences of KNOWN Project destruction environmental and regional damages. Given SWR's own self-structured unaccountable EIS stated policy perspective bias, it is clear that ANY prescribed eventual 'determination' by SWR offers little credibility and even LESS reliability. Similar prior submissions to SWR and sub Agencies' in its procedural steps to a predetermined unaccountable agenda outcome, delivered by regional residents suffering destruction costs and consequences over years of prior Klamath related comment periods, can no doubt once again expect the same level of prior inclusion… none. However, it is hopefully clear to FERC by virtue of that bias and limited consideration, that the SWR Klamath EIR offers no comprehensive or objective value for the purposes of determining PacifiCorp-KRRC License Transfer or Surrender.

Response to Comment RE-7-11

The comment is a concluding paragraph that expresses the commenter's opinion of the adequacy of the analysis in the recirculated portions of the EIR and the State Water Board permitting process. Comment noted.

2.5.4 Individuals

This section presents written comments received on the recirculated portions of the Draft EIR from individuals and the State Water Board's responses to those comments. Written comments and responses in this section are organized alphabetically by last name, first name. To determine whether your comment is associated with an affiliation type other than individuals, please refer to Table 2-4 or Table 2-5.

Table of Written Comments and Responses from Individuals

Alderton, Janet

Comment RE-14-1

Thank-you for this opportunity to comment on the recirculated portions of the Draft Environmental Impact Report (EIR) for the Lower Klamath Project license surrender of the Federal Energy Regulatory Project.

I have carefully studied the recirculated portions of the Draft EIR sections and appendices related to air quality, greenhouse gas emissions, and energy analysis found at:

Recirculated Portions of the Draft EIR:

- *Recirculated Sections of the Draft Environmental Impact Report for the Lower*
- *Klamath Project License Surrender*
- *Appendix N: Air Emissions Modeling for the Lower Klamath Project*
- *Appendix O: Greenhouse Gas and Energy Modeling for the Lower Klamath Project*

Although the project will impact air quality and produce greenhouse gas emissions, I have concluded that the benefits of the proposed project, which consists of the decommissioning and removal of the J.C. Boyle, Copco No. 1, Copco No. 2, and Iron Gate Dams and associated facilities located on the Klamath River, greatly outweigh the potential negative impacts.

I strongly support returning the Klamath River to free-flowing conditions and providing fish passage in the portion of the Klamath River currently occupied by the Lower Klamath Project.

I retired as a biologist from the University of California at Berkeley in 2005. Since 2005 I have been focused on the restoration of salmon habitat in the western United States. This project will restore vital salmon habitat along the Klamath River.

Response to Comment RE-14-1

Thank you for submitting comments on the Recirculated Sections of the Draft EIR. The comment expresses support for the project and concludes that the benefits of the project outweigh the potential impacts. Comment noted.

Beardsmore, Loy and John

Comment RE-10-1

When we submitted our comments for the Scoping meetings we did present our beliefs that there would be air quality issues, specifically with toxic dust storms, *as occurred after the Condit Dam removal, despite your claim that not one comment received mentioned air quality.*

Response to Comment RE-10-1

Comment noted. Section 3.9 *Air Quality* of the Recirculated Portions of the Draft EIR for the Lower Klamath Project License Surrender (Recirculated Draft EIR), acknowledges comments related to air quality that were received during the Draft EIR public comment period. Comments received during the Draft EIR public comment period pertaining to air quality, greenhouse gas emissions, and energy consumption were considered during development of the Recirculated Draft EIR.

For air quality health impacts associated with the Proposed Project, please refer to the *Health Impacts* portion under the Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-1, which discusses potential human health impacts from exposure to criteria air pollutant emissions and Potential Impact 3.9-4 for a discussion of the Proposed Project's potential to create a significant hazard to sensitive receptors near construction sites through exposure to substantial toxic air contaminant concentrations during construction activities. Additionally, please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs.

<u>Comment RE-10-2</u>

The above statements now hold even more credibility that the SWRCB, is "recirculating" PART of the DEIR, not recirculating the ENTIRE DEIR, failing to address our comments and concerns, as well as those of PacifiCorp, and Siskiyou County. Many of the previous submissions during the comment period which reference local history and scientific evidence refuting the DEIR should have led the SWRCB to recirculate the entire DEIR for comments and not just these narrow sections. By the Water Board not doing so, they are acting prejudicially by marginalizing the unavoidable detriments of this project.

Response to Comment RE-10-2

Comment noted. Please refer to Master Response R-1 and Volume III Section 2 *Public Comments and Responses* and Volume III Attachment 1 for comment responses related to the Draft EIR.

<u>Comment RE-10-3</u>

Incomplete/omitted/obsolete data seem to be a pattern with the Water Board as also evidenced in the lawsuit brought by the Department of Justice and the U.S. Department of the Interior, against the California SWRCB for failing to comply with the California Environmental Quality Act (CEQA). The environmental analysis by the Water Board hid the true impacts of your plan. CEQA requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts. This is a pattern with the SWRCB *that cannot be ignored. You are being negligent in not addressing all comments and concerns and lack of mitigation as it relates to this ever-changing project.*

Response to Comment RE-10-3

Please refer to Master Response R-1. All comments received during the public comment period for the Notice of Preparation (NOP) were considered during development of the Draft EIR. All comments received during the Draft EIR public comment period have been considered and responded to in the Final EIR. Comments received during the Draft EIR public comment period pertaining to air quality, greenhouse gas emission, and energy consumption were reviewed and considered during development of the Recirculated Draft EIR.

Comment RE-10-4

This is what we previously submitted in our comments on Air quality. "Regarding air quality, the sediments left behind will cause problems for residents around the reservoirs, especially Copco, and yet there is NO mention of this in the DEIR!! Look at the Condit Dam removal when they encountered toxic dusts storms when people experienced Mercury poisoning. What about when these sediments from the Klamath dams become airborne? What about the PCB's, evidence of DDT, etc.? In past drawdowns of Copco Lake, there were days when dust from the sediments became airborne. Where are the plans to mitigate this for homeowners that live around the lakes? The only mention of dust issues relates to during dam deconstruction, but there are absolutely no plans to mitigate sediment dust issues after dams are removed! Again, the Definite Plan and DEIR are a plan/report that is far from definitive or complete!"

Response to Comment RE-10-4

Please refer to Master Response R-2 for a discussion of the potential for windblown dust to be generated after drawdown of the reservoirs.

Comment RE-10-5

Finally, the Recirculated version acknowledges some of our concerns, still doesn't adequately address airborne sediments and it doesn't address the soil testing of banks and slopes which have not been studied. It also fails to adequately address asbestos and chemicals released into the air which can become airborne and there are no mitigations tied to these toxic releases.

Response to Comment RE-10-5

Please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs.

Please refer to Recirculated Draft EIR Section 3.9.2.6 *Air Quality – Environmental Setting – Toxic Air Contaminates* for a discussion of the potential for naturally occurring asbestos to be encountered during implementation of the Proposed Project. Additionally, please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-4, which evaluates the Proposed Project's potential to create a significant hazard to sensitive receptors (e.g., residents and recreationists) near the construction sites through exposure to substantial toxic air contaminants (including asbestos) during construction activities. As discussed in the Recirculated Draft EIR, an investigation concluded that it is unlikely that the bedrock in the Lower Klamath Project boundary and the concrete used to construct the dams contain naturally occurring asbestos. Although unlikely, if naturally occurring asbestos is encountered either during bedrock-disturbing activities, or in concrete during demolition activities, Klamath River Renewal Corporation (KRRC) or its representatives will handle the naturally occurring asbestos in accordance with, as relevant, the federal Environmental Protection Agency's (EPA's) fact sheet, *Naturally Occurring Asbestos: Approaches for Reducing Exposure* (March 2008) and the *Guide to Normal Demolition Practices Under the Asbestos NESHAP* (September 1992) (KRRC 2019e).

Comment RE-10-6

The Recirculated version uses the nearest air quality monitoring station in Yreka (located at 525 South Foothill Drive), which is the closest monitoring station to the Proposed Project in the NPAB. Your report states, "This monitoring station is centrally located in Siskiyou County and is the main station that measures criteria air pollutants in the county. As such, this monitoring station is considered representative of air quality in Siskiyou County."

Response to Comment RE-10-6

Recirculated Draft EIR Section 3.9.2.3 *Air Quality – Environmental Setting – Monitoring-Station Data and Attainment-Area Designation* has been revised to clarify that the monitoring station is considered representative of ambient air quality in Siskiyou County and site-specific conditions may vary. Please see Volume III Attachment 2 Section 3.9.2.3 *Air Quality – Environmental Setting – Monitoring-Station Data and Attainment-Area Designation* for this revision.

Comment RE-10-7

The Water Board uses this for convenience, but it is not indicative of what will occur around Copco and it does need to be recalculated. The report states, "Annual average wind speeds in Siskiyou County are approximately 6.1 miles per hour and predominantly blow from the south. (Western Regional Climate Center 2016)."

This again is inaccurate information as it pertains to Copco. In the mornings, the winds tend to run down the Klamath River Canyon from the east and in the afternoons, the winds run the opposite way, from the west or northwest. The topography around Copco and the river canyon create their own micro climate and we would challenge the accuracy of the data above.

Response to Comment RE-10-7

The commenter is concerned the Air Quality Environmental Setting inaccurately describes wind patterns around Copco Reservoir and the river canyon. Please note, the Air Quality Environmental Setting identifies the prevailing wind pattern in Siskiyou County and provides annual average wind speeds in Siskiyou County. Annual average wind speeds may not represent wind speeds on a specific day or location within Siskiyou County as it is an average of wind speeds observed over a year time period. Nonetheless, this information adequately represents the environmental setting.

Comment RE-10-8

The Recirculated version states, "Following drawdown of the reservoirs and prior to the establishment of ground vegetation from reseeding, there is the potential for windblown dust to be generated from the exposed sediment deposits remaining in the reservoirs. Once reseeding occurs, it typically takes a minimum of four weeks for vegetation to be established to reduce the potential for windblown dust. Considering that reservoir drawdown would occur in the winter months (January to March), it is anticipated that the seasonally wet conditions would substantially reduce the potential for windblown dust until the establishment of vegetation. However, there is the potential for short-term impacts from windblown dust not accounted for in the particulate matter emission estimates.

The Recirculated report states, "As noted above, high concentrations of criteria air pollutants and toxic air contaminants can result in adverse health effects to humans. Some population groups are considered more sensitive to air pollution and odors than others; children, elderly, and acutely ill and chronically ill persons, especially those with cardio-respiratory diseases, such as asthma and bronchitis. Sensitive land uses are facilities that generally house more sensitive people (e.g., schools, hospitals, nursing homes, residences, etc.). The areas surrounding Iron Gate Dam, Copco No. 1 Dam, and Copco No. 2 Dam are sparsely populated with few sensitive land uses".

If you live around Copco or Iron Gate this will create adverse health effects. There are children (some of which are home schooled), many elderly, acutely and chronically ill persons living around the reservoirs, but because the report states that these are "sparsely populated areas", there is not a "significant impact". Tell that to the people living here, and again, no real viable plans to mitigate or compensate these residents for the adverse health effects of these pollutants, or compensation for ongoing health issues.

Response to Comment RE-10-8

The Recirculated Draft EIR Section 3.9.3 *Air Quality – Significance Criteria* (page RE-3-20) lists five criteria used when determining if the Proposed Project would have a significant impact. The criteria included:

1. Exceed the Siskiyou County Air Pollution Control District (SCAPCD) emissions thresholds for stationary sources in Rule 6.1 (Construction Permit Standards for Criteria Air Pollutants).
2. Substantially conflict with or obstruct implementation of the California Regional Haze Plan.
3. Result in a cumulatively considerable net increase of any criteria pollutant for which the SCAPCD is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).
4. Expose sensitive receptors to substantial toxic air contaminant concentrations.
5. Create objectionable odors adversely affecting a substantial number of people.

The significance criteria and potential impact analysis did not rely on the number of sensitive receptors exposed to substantial toxic air contaminant concentrations when evaluating if the Proposed Project would have a potential impact. As listed in Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-1, it was determined that the Proposed Project would have a significant and unavoidable impact with mitigation for nitrogen (NOx) emissions, No Significant Impact with Mitigation for particulate matter that is 10 micrometers or less in diameter (PM_{10}) emissions, and No Significant Impact for (reactive organic gases [ROG]), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter that is 2.5 micrometers or less in diameter ($PM_{2.5}$) emissions.

Additionally, as listed in Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-4, it was determined that the Proposed Project would have no significant impact with inclusion of Mitigation Measure HZ-1 Hazardous Materials Management. This determination was based, in part, on an analysis of dilution of concentrations of mobile source emissions of diesel PM10 decreasing by 60 percent at a distance of approximately 300 feet (Zhu et al. 2002) and 70 percent at a distance of approximately 500 feet (CARB 2005), while the closest residences are located approximately 850 feet away from the construction sites where the major construction activity associated with the Proposed Project would occur.

The significance criteria and potential impact analysis relied on the number of people exposed to objectionable odors, namely, a "substantial number of people," when evaluating if the Proposed Project would have a significant and unavoidable impact. This criteria is consistent with the Siskiyou County Air Pollution Control District that addresses odor impacts through Rule 4.2 (Nuisance Section 24243), which states "No person shall discharge from any source whatsoever, such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety of any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property."

Please refer to the Health Impacts portion under Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-1, which discusses potential human health impacts from exposure to criteria air pollutant emissions and Potential Impact 3.9-4 for a discussion of the Proposed Project's potential to create a significant hazard to sensitive receptors near construction sites through exposure to substantial Toxic Air Contaminant (TAC) concentrations during construction activities. Additionally, please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs and revegetation of reservoir sediments.

Comment RE-10-9

We do not see plans to mitigate the sediment dust issues that will occur with the drying sediments, if revegetation is unsuccessful, from March and beyond, nor the additional green-house gas emissions accounted for, when trying to mitigate these dust storms.

Response to Comment RE-10-9

Please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust-related contaminants to be generated after drawdown of the reservoirs and revegetation of reservoir sediments. As discussed in Master Response R-2, windblown dust from reservoir sediments is not anticipated to be a significant impact. Additionally, please note, the emissions from equipment that will be used for restoration activities have been accounted for in the conservative assumptions used to estimate the GHG emissions from construction activities.

Comment RE-10-10

The above statements assume that revegetation would occur and, if not, then fall hydro seeding might be needed again as well. How would a failure of revegetation result in a short-term impact? A second seeding right before winter and freezing temperatures seems useless as any vegetation will die off during the winter months resulting in at least another year before revegetation could occur, hardly a short-term impact. Again, where do you account for a second reseeding/replanting of vegetation. In the meantime, the dust storms will continue, until such time, as revegetation occurs.

Response to Comment RE-10-10

Please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs and revegetation of reservoir sediments.

Comment RE-10-11

In the Definite Plan the restoration activities mention grading of the reservoir footprints, placement of irrigation pipe and sprinklers, and planting of trees. The Recirculated version only refer to "aerial hydro seeding", and even this only refers to it taking place at Iron Gate and not at Copco. This Recirculated plan does not mention any of these projected plans and the air quality effects of the vehicles and manpower needed to perform these actions will produce. In addition, they only address the first year after reservoir drawdown, while the Definite Plan says this would be an ongoing plan until revegetation is complete. That being said, this report is deficient. They would also use water trucks. I have repeated asked where the water will come from to fill these trucks, to irrigate vegetation during restoration activities, and, also during dam deconstruction, but have yet to receive a single answer from the SWRCB or the KRRC.

Response to Comment RE-10-11

Please refer to Volume II Appendix B *Definite Plan* and Volume II Appendix B: *Definite Plan –Appendix H* for a description of the restoration plan for the reservoirs.

Please refer to Recirculated Draft EIR Appendix N for a discussion of the construction schedule and construction activities used to model emissions of criteria air pollutants. All restoration activities included in the Definite Plan were incorporated into the emissions estimates prepared for the Proposed Project. As such, the analysis in the Recirculated Draft EIR considers potential air quality impacts of all proposed restoration activities. The Recirculated Draft EIR includes a statement about hydroseeding activities to make the point that fall hydroseeding may be necessary to supplement areas where spring hydroseeding was unsuccessful. As indicated in Volume II Appendix B: *Definite Plan Appendix H*, vegetation establishment efforts may extend for several years to ensure the successful establishment of vegetation. The emissions estimates for restoration activities included conservative assumptions to account for these potential activities.

Klamath River Renewal Corporation (KRRC) has committed to obtain water required for dust suppression, irrigation, and other project-related activities in compliance with all applicable regulatory requirements.

Comment RE-10-12

As for mitigation measures, here is what the Recirculated report states, "Blasting-related Dust Control Measures-Dust control measures will be incorporated to the maximum extent feasible during blasting operations at Copco No. 1 Dam. The following control measures will be used during blasting activities as applicable: Conduct blasting on calm days to the extent feasible. Wind direction with respect *to nearby residences must be considered. Design blast stemming to minimize dust and to control fly rock."*

Here we have underlined the key words. The odds of this project working on days of no/little wind will just not happen, as we have previously stated, there are daily prevailing winds. Contractors will not halt work for these reasons and there will be no mitigation.

Response to Comment RE-10-12
The comment asks questions about the implementation of blasting-related dust control measures. Comment noted.

Comment RE-10-13
Contractors will not halt work for these reasons and there will be no mitigation. Additionally, what entity will be overseeing such dust control measures? How will this be enforceable? We do not see this addressed in the Recirculated DEIR.

Response to Comment RE-10-13
Klamath River Renewal Corporation (KRRC) has committed to implement Air Quality Mitigation Measures AQ-4 – Blasting-related Dust Control Measures and AQ-5 – General Construction Dust Control Measures to reduce emissions of particulate matter that is 10 micrometers or less in diameter (PM_{10}) to less than significant. For measures that are outside of the State Water Board's water quality certification authority, KRRC has committed to propose that the mitigation measures be included in the FERC license-surrender order. (See KRRC's Water Quality Certification Application, December 3, 2019 [KRRC 2019a], Attachment B.)

Comment RE-10-14
Odor impacts. The Recirculated versions states, "It is not anticipated that the Proposed Project would create objectionable odors affecting a substantial number of people and thus would not result in a significant impact. Ultimately, the Proposed Project is anticipated to substantially reduce the annual occurrence of odors from algae blooms since this section of the Klamath River would be restored to a free- flowing condition."

Again, the report minimizes the impacts of odors, as well as the insubstantial number of people. It says that people would remain indoors. That is not a minimal impact to people living around Copco and Iron Gate. They blame the odors on the algae.

Response to Comment RE-10-14
The comment expresses disagreement with the analysis of odor impacts in Recirculated Draft EIR Section 3.9 *Air Quality*. Please see response to RE-10-8 regarding significance criteria for odors and its relation to the Siskiyou County Air Pollution Control District.

Comment RE-10-15
The algae blooms in Irongate and Copco reservoirs are always cited as a problem, but at the end of last summer, an extensive list of reservoirs and lakes were cited to have this problem. If one were to follow that line of thinking, then they should also be looking to eliminate dams such as Shasta and Oroville because they have the same issues. The Upper Klamath Lake has an extensive algae problem and the Water Board does not address the "source" of the problem because it is outside of their purview.

Response to Comment RE-10-15
Comment noted. Please see Master Response R-1 for information on comments not requiring a CEQA response.

Comment RE-10-16
The report is also working on the assumption that the Klamath River would be restored to a "free flowing river". Once again, the report attempts to downplay the impacts and does not use historical data in arriving at their conclusions. Historically, the Native Americans named the river the Klamath, meaning "stinky river" because it was not free flowing, had stagnant water that created algae, and that resulted in objectionable odors and this was pre-dam era.

Response to Comment RE-10-16
Please see Master Response R-1 for information on comments not requiring a CEQA response.

Comment RE-10-17
As you will see below, Climate change will exasperate algae blooms in the river, especially as wildfires are expected to proliferate. During years after a wildfire, there can be dramatic increase nutrient levels such as phosphorus, nitrogen, and potassium in the streams and river. This can exacerbate algae blooms. The idea that eliminating the dams and reservoirs will eliminate problems with algae is ludicrous at best and a flimsy justification for dam removal as it relates to water quality and odor impacts.

Response to Comment RE-10-17
Please see response to RE-10-8 regarding significance criteria for odors and its relation to the Siskiyou County Air Pollution Control District (SCAPCD).

To the extent the comment addresses the Proposed Project's purposes and does not pertain to the environmental analyses presented in the portions of the Recirculated Draft EIR for the Proposed Project, please see Master Response R-1 for information on comments not relating to recirculated portions of the Draft EIR.

Comment RE-10-18

Most notably, there is nothing in this Recirculated report that adequately addresses all effects of Climate Change as the project will affect air quality, greenhouse gas emissions, and energy consumption. See the reports below:

Response to Comment RE-10-18

Comment noted. The comment relates to the adequacy of the discussion of climate change in the Recirculated Draft EIR.

Comment RE-10-19

See the California Fourth Climate Change Assessment – Statewide Summary Report (CEC 2018a). States:

California is already experiencing the effects of a changing climate, and these impacts are projected to worsen, even with only moderate increases in global GHG emissions. These effects include, but are not limited to, increasing temperatures, greater variability in precipitation levels, reductions in the amount of precipitation falling as snow, more frequent and severe forest wildfires, and rising sea levels that cause increased coastal flooding and erosion, as discussed further below.

Increasing frequency and severity of wildfires: Wildfire characteristics are determined by both natural and anthropogenic factors. Climate change, combined with anthropogenic factors, has already contributed to more frequent and severe forest wildfires in the western U.S. Wildfires have also been occurring at higher elevations in California, which is a trend that is projected to continue as climate change worsens. Changing vegetation patterns in the state due to climate change will also affect the location and characteristics of fires (CEC 2018a).

Projected changes in climate conditions are expected to result in a wide variety of effects in the Klamath Basin, based on projections developed for the broader Pacific Klamath Basin include changes to stream flow, temperature, precipitation, groundwater, and vegetation changes. In general, climate model projections include:

<!--[if !supportLists]-->● <!--[endif]-->Increased average ambient air and water temperature
<!--[if !supportLists]-->● <!--[endif]-->Increased number of extreme heat days
<!--[if !supportLists]-->● <!--[endif]-->Changes to annual and seasonal precipitation, including increased frequency and length of drought, less winter snow and more winter rain, and changes in water quality
<!--[if !supportLists]-->● <!--[endif]-->Increased heavy precipitation
<!--[if !supportLists]-->● <!--[endif]-->Reduced snowpack and snow melt, resulting in less runoff during the late spring through early autumn

<!--[if !supportLists]-->● <!--[endif]-->Vegetation changes
<!--[if !supportLists]-->● <!--[endif]-->Groundwater hydrology changes
<!--[if !supportLists]-->● <!--[endif]-->Changes to annual stream flow

Intergovernmental Council on Climate Change states, "Generally, global impacts from climate change include increases in mean temperature in most terrestrial and marine regions, hot extremes in most developed regions, heavy precipitation in several regions, and the probability of drought and precipitation deficits in some regions. Furthermore, temperature increases amplify the exposure of small islands, low-lying coastal areas and deltas to the risks associated with sea-level rise for many human and ecological systems, including increased saltwater intrusion, flooding, and damage to infrastructure (IPCC 2018).

Evidence of observed climate change impacts are the strongest and most comprehensive for natural systems. Many terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change. Many land and ocean ecosystems and some of the services they provide (e.g., habitat, cycling of water and nutrients) have already changed due to climate change. Some impacts may be long-lasting or irreversible, such as the loss of some ecosystems (IPCC 2018).

On January 3, 2020, the state of California released its draft Water Resilience Portfolio. The document was created through a joint effort of several California agencies, including the California Natural Resources Agency, the California Environmental Protection Agency and the California Department of Food and Agriculture. It recommends numerous actions to help the state deal with its deepening water woes. Among these recommendations are calls for increasing water storage within the state. Those values are increasingly at risk as California confronts more extreme droughts and floods, rising temperatures, depleted groundwater basins, aging infrastructure and other challenges magnified by climate change."

The state of California with the SWRCB, governor, legislature, and the department of natural resources are so intent on removing the Klamath Dams, that neutrality, specifically with the Water Board, that they are ignoring their own studies. The California draft Water Resilience Report is a bipolar report. You cannot claim water woes, and then promote eliminating it, but only on the Klamath River. You cannot state there will be more extreme drought, rising temperatures, and depleting groundwater basins, and then promote dam removal with clean energy and water storage that can be used for many purposes such as fire suppression in the face of increasing wildfire, flushing of an infected river, replenish water tables, and possible uses not even contemplated.

Response to Comment RE-10-19

Comment noted. The comment cites to information on climate change but does not provide substantial evidence explaining why impacts not already identified as significant would be potentially significant. The reports cited by the commenter, the *California Fourth Climate Change Assessment – Statewide Summary Report* (CEC 2018a) and the *Intergovernmental Panel on Climate Change (IPCC) Summary for Policy Makers* (IPCC 2018), were used in development of the Recirculated Draft EIR.

<u>Comment RE-10-20</u>

So intent is the state of California to remove the dams that they pass legislation to authorize the decimation of one endangered species, the Suckerfish, to cite that the dams imperil another species of Salmon, while at the same time ignoring all signs of climate change that point to rising ocean temperatures, and rising temperatures in rivers and streams while these same endangered Salmon need cold water. The SWRCB cannot claim that Climate Change, as it relates to this project, will not have a significant effect, and most especially as it will increase the likelihood of wildfires with increased fuels IF the reservoir beds are revegetated, but also a natural fuel break that the Klamath River cannot provide, and eliminate water resources to extinguish these fires. The Air Quality indexes in and around California counties that have experienced wildfire have seen these indexes spiral upward and this has a direct impact on Climate Change. It cannot be ignored, or at the very least, minimalized by the Water Board to meet their biased goal of dam removal.

Response to Comment RE-10-20

Comment noted. The comment relates to the project purpose and the impacts of climate change on temperatures, wildfires, and air quality. For Proposed Project potential impacts to greenhouse gas emissions (GHG), please see Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (Potential Impact 3.10-1 to 3.10-4). The comment does not provide substantial evidence explaining why impacts not already identified as significant would be potentially significant. Please see Master Response R-1 for information on comments not related to recirculated portions of the Recirculated Draft EIR.

<u>Comment RE-10-21</u>

Greenhouse Gas Emissions-The Recirculated report states, "Greenhouse Gas Emissions – Greenhouse Gas Emissions and Global Climate Change<u>). In the absence of applicant agreement, such a mitigation measure would not be enforceable, and therefore not feasible."</u>

This last statement, more, or less, says it all. It brings into question the entire Definite Plan. It is ironic that the SWRCB intends to issue a water quality certification since there will be no applicant agreement to mitigate GHG emissions and it would be a significant and unavoidable impact. The DEIR goes *on to state that, "PacifiCorp explains that it uses Klamath energy, when available, (We would ask, when is it not available?) to displace higher cost, fossil generation.*

Response to Comment RE-10-21

The comment relates to the feasibility of mitigation related to greenhouse gas emissions and the use of energy generated by the hydroelectric facilities. Please refer to Master Response CEQ-2. Please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-95 to RE-3-99 and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area and the company's proposed transition to renewable energy sources to comply with State Renewable Portfolio Standards. Please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-100 to RE-3-104 and RE-3-100 to RE-3-104) for a discussion of potential impacts to local and regional energy sources.

Comment RE-10-22

In its Final License Application to FERC, PacifiCorp states that if generation were to cease at Klamath it would still be able to service its local customers." We would ask at what the costs would be for this replacement energy, as we are quite certain energy costs would increase. Our energy bills are certainly not going down. As this also relates to Energy, they tend to say one thing and then try to justify a determination of "no significant impact" for the loss of renewable, consistent, currently existing source of green energy. These statements by the Water Board are inconsistent. The SWRCB is marginalizing the significant detriment that will result in increased power costs, and negative impacts of lack of availability, stability, safety, and security for the local communities of thousands of residents.

Response to Comment RE-10-22

The comment relates to energy costs, the availability of green energy, and impacts to local energy supplies from removal of the hydroelectric facilities. Please refer to Master Response ENR-1 related to power rate increases for PacifiCorp customers. Please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-95 to RE-3-105) for a discussion of the PacifiCorp Power Control Area, the company's proposed transition to renewable energy sources to comply with State Renewable Portfolio Standards, potential impacts to local and regional energy sources, and other information related to renewable energy.

Comment RE-10-23

This statement reinforces our comments that the hydropower produced by the dams is offsetting power coming from other sources that produce GHG emissions. Granted PacifiCorp could still meet current customer needs, but at what price to the environment and does it take into consideration Climate

Change and the increased demand for energy? It also doesn't take into consideration the growing number of electric vehicles. It is projected by the National Renewable Energy Laboratory that electric vehicles could account for a 38% increase in US electricity needs by 2050. That percentage does not account for the massive power demands needed for data centers that create, transport and store virtual information. Wind and solar only currently deliver 7.6 % of US electricity. The United States Energy Administration projects that global energy consumption will rise by 50% by 2050 and there are no signs of this trend slowing down. Power grids are beginning to show the signs of strain. There are high costs associated with extending grids to remote areas and significant requirements and costs to update aging assets. We doubt that this will align with the UN Sustainable Development Goal of "access to affordable, reliable, sustainable and modern energy for all."

Response to Comment RE-10-23
Please refer to the response to comment RE-10-22.

Comment RE-10-24
The report states: "Siskiyou County Energy Element generally promotes further development of renewable energy sources in the county, and removal of an existing renewable energy source could conservatively be considered to conflict with such policies in the county's Energy Element. Such a conflict would not be an impact that can be feasibly mitigated. Therefore, the Proposed Project would conflict with a local plan supporting renewable energy sources. This would result in a cumulative energy impact and the incremental contribution of the Proposed Project would be cumulatively considerable."

The plan also goes on to state that it would conflict with this local plan supporting renewable energy sources and, thus, there would be a significant and unavoidable impact, but would meet the state's plan. Once again we find that what is best for the local area is to be sacrificed and ignored by California State agencies.

Response to Comment RE-10-24
Comment noted. The commenter is noting that the Recirculated Draft EIR identifies a significant and unavoidable impact for conflicting with a local plan as identified in Potential Impact 3.10-7.

Comment RE-10-25
Another aspect of the Recirculated DEIR that is lacking specificity is how the area's narrow roads will be clogged and the GHG that will result due to excess traffic and pollution. Also, not adequately addressed is the need for road repair, and consequent GHG resulting, to bring those roads back up to a condition, as good or better, than they were found prior to the project as promised by the KRRC. I would challenge the SWRCB to find any plans to mitigate local road repair in the Definite Plan, as that is constantly evolving.

Response to Comment RE-10-25
The comment relates to greenhouse gas (GHG) emissions generated by vehicular traffic and the construction of road improvements. Please refer to Recirculated Draft EIR Appendix O for a discussion of the construction schedule and activities used to model GHG emissions.

The estimates of construction GHG emissions from the Proposed Project does not include potential traffic congestion that could occur in the project area during the construction period. Determining emissions from potential traffic congestion would be speculative and would be subject to several variables (e.g., the type of vehicles, where congestion would occur, for how long it would occur, and how it would reduce vehicle speeds in specific areas) that could not be known at the time of calculating the estimates of GHG emissions from the Proposed Project. Please note, the Klamath River Renewal Corporation (KRRC) has committed to implement a Traffic Management Plan to ensure road safety, coordination with applicable agencies (California Department of Transportation (Caltrans), Siskiyou County Public Works and Sheriff's Departments, California Highway Patrol, California Department of Forestry and Fire Protection (CALFIRE), and other emergency response agencies), and road repair and rehabilitation.

The estimates of construction GHG emissions from the Proposed Project included all transportation-related improvements that were known at the time the estimates were calculated.

Comment RE-10-26
The plan also mentions the potential cumulative impact with short-term increases in air pollutant emissions in combination with wildfires. It ironically states: "If wildfires were to produce substantial quantities of smoke near the proposed Limits of Work during the Proposed Project construction and restoration period, there would be an adverse air quality impact. However, if the Area of Analysis is disaster-stricken, it is likely that Proposed Project construction and restoration activities would be placed on hold to protect the health and safety of workers until the wildfire is under control.

The idea of any activities would be placed on hold to protect the health and safety of workers is ironic, as residents in the area will be more at risk of wildfire with the reservoirs eliminated, with no plans to mitigate, not to mention the dust issues again. Not only will dam removal and consequent revegetation result in more fuel for fires, but the source of extinguishing any fires will now be eliminated. As evidenced by Climate Change studies, we can expect rising temperatures, extended periods of drought, and lower flows in streams and rivers that will increase the risk of wildfire. What level of hazardous air quality will the project managers decide is "unsafe" for their workers, as it's not stated in the Proposed Project, so there is no guarantee that work would be halted and not have a cumulative effect. The Recirculated report refers to the Fire Management

Plan, but again no specifics as it relates to wildfire and cumulative effects on GHG emissions from wildfire.

Response to Comment RE-10-26
The comment relates to wildfire risk and air quality, including greenhouse gas (GHG) emissions impacts from wildfires.

Please refer to the Recirculated Draft EIR, which discusses wildfires as a source of air quality impairment and increasing frequency and severity of wildfires. In particular, see Section 3.24.9 *Air Quality Cumulative Effects* (page RE-3-112), Section 3.24.10 *Greenhouse Gas Emissions and Energy Cumulative Effects* (pages RE-3-114 to RE-3-115), and Section 3.24.9 *Air Quality Cumulative Effects* Potential Cumulative Impact 3.24-34 (page RE-3-112) for an analysis of potential cumulative air quality and GHG emissions impacts, including an assessment of short-term increase in criteria air pollutant emissions under the Proposed Project in combination with wildfires.

Also, please refer to Volume II Appendix B: *Definite Plan – Appendix H* for a description of the restoration plan for the reservoirs.

Also, please see Master Response R-1 for information on comments not related to recirculated portions of the Draft EIR.

Comment RE-10-27
The proposed continued operations with fish passage only consider the use of fish ladders and don't consider additional alternatives such as fish cannons that would result in little air pollutants in comparison. Once again the DEIR and Recirculated report are based on information and technologies that are minimally over 8-10 years old. It's also ironic that they state fish ladders would take four to eight years to construct! One would ask where that time table comes from, but even so, it is stated that impacts would be less than significant.

Siskiyou County also suggested an environmentally friendly alternative such as fish passage by an alternative tunnel route, and of course this alternative is not mentioned in the report despite it costing less than fish ladders and dam removal. It would also result in the least adverse effects to the environment, while preserving almost every negative impact of dam removal. Both fish tunnels and fish cannons, have not been adequately studied by the SWRCB as viable, less impactful to GHG and air pollution.

Response to Comment RE-10-27
Please see Recirculated Draft EIR Section 4.4.9 *Air Quality - Continued Operations with Fish Passage Alternative*. The Continued Operations with Fish Passage Alternative considers potential air quality impacts of trap and haul in addition to fish ladders.

Additionally, portions of this comment do not pertain to the environmental analyses presented in the portions of the Recirculated Draft EIR for the Proposed Project. Please see Master Response R-1 for information on comments not requiring a CEQA response.

Comment RE-10-28

We would point to the words significant effect. Dam removal will have a significant adverse effect on human beings with air pollution at the very least. Even though the SWRCB claims this is a sparsely populated area, non-the-less, it is populated. We are not seeing how the homeowners around Copco are going to have these impacts mitigated, other than the Water Board to say that people should stay indoors. Many are wondering where the compensation for such adverse health cost effects will be for local residents and their loss of property values. If one wants to sell their homes, odors from drying sediments, toxic dust storms created by dam removal, and an increased risk for wildfire make their homes lose their value.

Response to Comment RE-10-28

The comment expresses concern about odor impacts, dust impacts, increased wildfires, and decreasing property values.

Please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-43 to RE-3-44) for a discussion of potential odor impacts from the Proposed Project.

Please refer to Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* (pages RE-3-25 to RE-3-36) for a discussion of potential impacts from particulate matter during construction activity. In addition, please refer to Master Response R-2 for a discussion of the potential for windblown dust to be generated after drawdown of the reservoirs.

Please see Master Response R-1 for information on comments not related to recirculated portions of the Draft EIR.

Please see Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA* (pages 5-3 to 5-12) for information regarding consideration of social and economic factors under CEQA.

Comment RE-10-29

The water board refers to the term "sparsely populated". Even the Federal Aviation Agency cannot agree as to the definition of sparsely populated, except to say that it might be defined as less than 10 people per square mile. By using the FAA's rubric, the area around Copco Lake would NOT qualify as sparsely populated. Copco covers 1.6 square miles, is approximately three miles long and the population count around the lake is slightly over two hundred people that *this project will cause residents to experience negative significant effects. The SWRCB is intending to use the term of "sparsely populated" as a measure for insignificant or significant impacts in the EIR without a clear and legally defendable definition in this legal document. I would point out that any legal document using terminology such as "sparsely populated" should require a proven legal definition of which there is none. All aspects and consequences of dam removal will have a negative effect and a significant impact on the environment and on residents around Copco, and CANNOT be mitigated. We see no discussion of compensation for future health care costs for residents, detrimental effects on everyday life, not to mention lost property values. The KRRC has referenced a "Local Impact Mitigation Fund", but admits it is only conceptual.*

Response to Comment RE-10-29

Please refer to the response to comment RE-10-8 for information on how significance criteria was applied to the assessment of potential impacts.

Additionally, please refer to the Health Impacts portion under Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-1, which discusses potential human health impacts from exposure to criteria air pollutant emissions and Potential Impact 3.9-4 for a discussion of the Proposed Project's potential to create a significant hazard to sensitive receptors near construction sites through exposure to substantial Toxic Air Contaminant (TAC) concentrations during construction activities. Additionally, please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs.

Please see Master Response R-1 for information on comments not related to recirculated portions of the Recirculated Draft EIR.

Please note that under CEQA, potential effects from implementing a project, such as reductions in property values, loss of property tax revenues, and increases in energy costs, that are solely social or economic in nature, do not constitute an effect (i.e., an impact) to the physical environment (see also Volume I Section 5.4 *Other Required CEQA Discussion and Consideration of Social and Economic Factors – Social and Economic Factors Under CEQA* [pages 5-3 to 5-12]).

Comment RE-10-30

We would restate that the SWRCB is only recirculating a selective portion of the DEIR that is biased and flawed as it relates to irreversible impacts and consequences that will potentially result in regional and environmental harm. Dam removal will contribute to increases in air pollution, green-house gases, energy consumption, and, therefore, contribute negatively to Climate Change.

Response to Comment RE-10-30
The comment relates to the commenter's opinion of the adequacy of the analysis in the recirculated portions of the Draft EIR. Comment noted.

Comment RE-10-31
For all the above reasons, the inadequate Draft EIR, all sections of the DEIR should be recirculated, this project should NOT receive a water quality certification.

Response to Comment RE-10-31
The comment is a concluding paragraph that expresses the commenter's opinion of the adequacy of the analysis in the EIR, requests recirculation of all sections of the Draft EIR, and states that the Proposed Project should not receive a water quality certification. Comment noted. The Draft EIR provides a clear, sufficiently detailed project description to adequately analyze and disclose the environmental impacts of the Proposed Project.

Gierak, Richard

Comments RE-15-1 and RE-17-1
The J. C. Boyle Dam:

- *…*
- *Provides clean, renewable, low-cost hydroelectric power for 70,000 households*

Response to Comments RE-15-1 and RE-17-1
Thank you for your comment. Please refer to Recirculated Draft EIR Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* Potential Impact 3.10-4 and Potential Impact 3.10-6 (pages RE-3-95 to RE-3-99 and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area and the company's proposed transition to renewable energy sources to replace the Lower Klamath Project hydroelectric generation and comply with California's Renewable Portfolio Standards, and for a discussion of potential impacts to local and regional energy sources.

Krizo, Jacqui

Comment RE-3-1
70,000 households receive the green clean power from our hydroelectric dams.

Response to Comment RE-3-1
Thank you for your comment. Please refer to Recirculated Draft EIR Section 3.10 *Greenhouse Gas Emissions and Energy* (pages RE-3-95 to RE-3-99 and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area and the company's proposed transition to renewable energy sources to replace the Lower Klamath Project hydroelectric generation and comply with California's Renewable Portfolio Standards.

Comment RE-3-2

Wildfires severely affect our air quality and oxygen in the river. Without firefighting capabilities, forests, wildlife and housing get totally burned up.

Response to Comment RE-3-2

Please refer to Recirculated Draft EIR Section 3.24.9 *Air Quality Cumulative Effects* (page RE-3-112) for a discussion of cumulative impacts of the Proposed Project in combination with wildfires.

Comment RE-3-3

We want to keep the water storage, ecosystems for wildlife in and near the reservoirs, flood control, recreation, clean green energy, forests, water in reservoirs for firefighting, agriculture, water quality from the dam reservoirs, and air quality that these dams provide. We have had some record runs of salmon since the dams were built.

Response to Comment RE-3-3

The comment expresses support for keeping the dams and lists numerous benefits including clean energy and air quality. Please refer to the response to comments RE-3-1 and RE-3-2 for a discussion on clean energy and air quality, respectively.

Comment RE-3-4

In your EIR we find no accountability or mitigation certainty for all the resulting destruction listed above. Will the California State Water Resources Control Board be the agency to compensate and mitigate the resulting destruction to our communities, resources and lives.

Response to Comment RE-3-4

Comment noted. Please refer to Master Response R-1.

Marquis, Tor

Comment RE-5-1

a general comment on removing a large alternative energy source. The Klamath Dam provides clean hydroelectric power , replace CO2 producing power. The US in general, has to follow the lead of the Scandinavian nations that depend largely on hydroelectric power.

Response to Comment RE-5-1

Thank you for submitting comments on the Recirculated Sections of the Draft EIR. The comment refers to alternatives to addressing the environmental problems occurring in the Klamath River basin besides removing the dams and associated hydroelectric power generation.

The comment does not pertain to the environmental analyses presented in the portions of the Recirculated Draft EIR for the Proposed Project. Please see Master Response R-1 for information on comments not requiring a CEQA response. In addition, please refer to recirculated Section 3.10.5 *Greenhouse Gas Emissions and Energy – Potential Impacts and Mitigation* (pages RE-3-95 to RE-3-99 and RE-3-100 to RE-3-104) for a discussion of the PacifiCorp Power Control Area and the company's proposed transition to renewable energy sources to replace the Lower Klamath Project hydroelectric generation and comply with California's Renewable Portfolio Standards.

Comment RE-6-1

there is a negative impact of dumping millions of gallons of polluted river water into the ocean which is already suffering from fish kills and reduced phytoplankton populations..... Phytoplankton, by the way, sequesters 30 to 50 percent of CO2 in the atmosphere.

Response to Comment RE-6-1

Thank you for submitting comments on the Recirculated Sections of the Draft EIR. This comment refers to phytoplankton and its role in CO_2 sequestration, and impacts from pollutants flowing to the ocean. Please refer to Recirculated Draft EIR Section 3.10.2 *Greenhouse Gas Emissions and Energy – Environmental Setting* (pages RE-3-52 to RE-3-53 and RE-3-63 to RE-3-64) for a discussion of the natural "fast carbon cycle." Please refer to Volume I Section 3.4.2.3 *Phytoplankton and Periphyton – Environmental Setting – Hydroelectric Reach*, Section 3.4.2.4, *Phytoplankton and Periphyton – Environmental Setting – Middle and Lower Klamath River*, and Section 3.4.5.1 *Phytoplankton and Periphyton – Potential Impacts and Mitigation – Phytoplankton* (pages 3-405 to 3-418 and 3-426 to 3-433) for information about phytoplankton in the Klamath River and an analysis of potential impacts related to phytoplankton. Please refer to Volume III Attachment 1 Section 3.2.5 *Water Quality – Potential Impacts and Mitigation* for an analysis of potential downstream water quality impacts.

Reynolds, Chrissie

Comment RE-4-1

And so it begins…. And before I begin I just want to document my journey. I am sitting here on a snowy morning getting ready to pour over 222+ pages in Appendix N and the other recirculated portions of the draft environmental impact report. People wonder what I am doing now since I quit my job so that I could continue to be engaged in this process. Well, I am going over documents that right out of the gate talk about changes to equipment estimates and I have to talk myself into calming down.

Response to Comment RE-4-1

Comment noted.

<u>Comment RE-4-2</u>

These things get put out right during the holiday season and then a brief period to make a public comment on while things just keep moving along as if they are meeting some sort of timeline. Look, the timeline that was set has passed.

Response to Comment RE-4-2

The comment relates to the timeline for recirculation of the Draft EIR and the Proposed Project. Comment noted.

<u>Comment RE-4-3</u>

I also find it ironic that this is supposed to be about air quality and greenhouse gas emissions when we are literally breathing in nano particles of barium, strontium, aluminum, coal fly ash, lithium, and other chemicals used for weather modification and ice nucleation not to mention the carbon fiber from the bunker fuel operations happening in the Pacific from the Pandarra fog, and yet, these operations are all but denied yet the proof is in the water and soil as lab tests from all over Siskiyou County have proven.

Response to Comment RE-4-3

The comment relates to weather modification. Comment noted.

<u>Comment RE-4-4</u>

As I continue to look over the voluminous pages of science-speak and look over tables I feel I need to mention some pretty basic stuff here. The wind blows twice a day here. In the morning it blows towards the dam. In the afternoon, it blows hard upriver. It is pretty much guaranteed. The amount of dust that we will all be breathing post dam removal will be unacceptable. One of the things we love about living here is that we like to keep our windows and doors open any time day or night. We like the fresh air. During past drawdown situations, the mud dries quickly and starts cracking and soon the wind picks up furthering the drying process and also creates whirlwinds of dust and debris. The winds are usually very heavy here. I have had journalists over the past summer come and interview me and I like to ask them to come around 4 in the afternoon so they can see for themselves the wind conditions. If you were here I'd show you too so you could experience daily life in this location. You could feel it for yourself.

Response to Comment RE-4-4

Please refer to Master Response R-2 for a discussion of the potential for windblown dust to be generated after drawdown of the reservoirs.

Please note, the Recirculated Draft EIR Section 3.9.2.1 *Air Quality – Environmental Setting – Meteorology* (page RE-3-3) identifies the prevailing wind pattern in Siskiyou County and provides annual average wind speeds in Siskiyou County. Annual average wind speeds may not represent wind speeds on a specific day or location within Siskiyou County as it is an average of wind speeds observed over a year time period. The information related to wind speed presented in the Recirculated Draft EIR was the best available information at the time of preparation.

Comment RE-4-5

So, I have been reading the recirculated information and it is just more of the same tone and tenure. It is so obvious that they just keep moving the field goal posts to fit whatever box they need to check instead of really doing the work of a fair and unbiased report. I get seriously disgusted at being considered "insignificant" and "inconsequential" in their findings. Really?

Response to Comment RE-4-5

The comment expresses the commenter's opinion of the adequacy of the analysis in the Recirculated Draft EIR. Comment noted.

Comment RE-4-6

Our docks and boats left to rot because they will be unusable. Our homes and lungs filled with filth and dust.

Response to Comment RE-4-6

Please refer to the Health Impacts portion under Recirculated Draft EIR Section 3.9.5 *Air Quality – Potential Impacts and Mitigation* Potential Impact 3.9-1, which discusses potential human health impacts from exposure to criteria air pollutant emissions and Potential Impact 3.9-4 for a discussion of the Proposed Project's potential to create a significant hazard to sensitive receptors near construction sites through exposure to substantial Toxic Air Contaminant (TAC) concentrations during construction activities. Additionally, please refer to Master Response R-2 for a discussion of the potential for windblown dust and associated windblown dust related contaminates to be generated after drawdown of the reservoirs.

Comment RE-4-7

They need to redo the whole eir and not just regurgitate, recirculate certain portions. It is based on purely marketed junk science and is biased and incomplete and completely disappointing in its representation of facts.

Response to Comment RE-4-7

The comment is a concluding paragraph that requests recirculation of the entire Draft EIR and expresses the commenter's opinion of the adequacy of the analysis in the Recirculated Draft EIR. Comment noted.

Ward, Brian

Comment RE-13-1

My opinion for the Klamath River water project is to leave all the dams in place and operational just as they are. They are a good source for generating electricity using natural resources. For those people in opposition to dams causing fish restriction to total river access, I would also suggest making a fish *passage device at each location needed. My idea for allowing fish to proceed upstream is to build an apparatus designed similar to a snow ski lift. It would consist of large buckets instead of seats which would dip into a funneled semi-holding pen for fish at the bottom of the dam. As these buckets moved through the water, they could gather fish congregated in the pen. As the buckets were lifted out of the water they would then be transported to the top end of the lift where they would be mechanically tilted over to dump out the water and fish. The water and fish would then be dumped into a chute or slide which took them to the river above the dam. The fish could then continue their journey up the river. A fish ladder could be used for those desiring to go down stream. The lift might be operated either by water pressure from the dam or electricity produced by it.*

Response to Comment RE-13-1
Thank you for submitting comments on the Recirculated Sections of the Draft EIR. The comment expresses opposition to removal of the dams and provides suggestions for facilitating fish passage. The comment does not pertain to the environmental analyses presented in the portions of the Recirculated Draft EIR for the Proposed Project. Please see Master Response R-1 regarding comments not relating to recirculated portions of the Draft EIR.

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3 VOLUME III REFERENCES

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