Table 4-1. Responses to Comments			
Ltr#	**Cmt#**	**Comment**	**Response**
1000	1	As a dairy producer, we are very concerned about your Substitute Environmental Document and how its proposed unimpaired flow requirements would negatively affect our operation. We have made sizeable investments throughout the years to improve the infrastructure of our facility and purchased land; specifically in the Turlock Irrigation District, because of the reliable water supply it provides us to grow the row crops needed to support our dairy animals. Feed costs for our operation accounts for the largest expense, which represent 50-60% of the total cost associated with the production of milk. Over the past several years the cost of running our farming operation has risen considerably because of the drought, environmental regulations, rising labor cost, while at the same time getting paid less for our milk. Unlike most states, California has its own system for determining what processors pay farmers for conventional milk, a complex formula that many farmers argue does a poor job of incorporating the increasing cost of feed and production. The unfortunate situation is that we cannot simply pass our costs onto consumers. If your proposed plan was implemented over the past years we would have received "ZERO" water deliveries from the Turlock Irrigation District. This would be financially devastating to our operation, as we would be unable to grow the forage needed to feed our animals, and it is too costly to purchase large quantities of forage off-site to support our livestock. Ultimately, the loss of water to grow our own crops would most likely lead us into foreclosure and lose what our family has built over generations. For these reasons, we urge you to reconsider your proposal and work with the local agencies and dairy families to take a sensible approach that is balanced and doesn't create an extreme hardship for agriculture and the hard working families and citizens who help make this region bountiful.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1001	1	My experiences have shown me the critical importance of adequate, reliable and consistent water flows to the health of aquatic ecosystems. Riparian species have co-evolved to take advantage of these flows and have integrated their life patterns with one another in such a way that they are all linked through the hydrology of the system. A significant and/or long-term reduction of presence of water can have a devastating ripple effect throughout the food web, one that, ultimately, can profoundly affect humans who are part of that chain. I only need to mention the recent closures of the commercial salmon fisheries to make that apparent. These closures, due to the diminishing numbers of salmon in the system, should come as no surprise, as our human choices about how to use our precious water resources have brought that about. We have opted to create human systems that treat water as if we, alone, are dependent upon it and as if it were an unlimited resource. Recent climatic events and predictions for the future have shown the latter to not be true, and, although we have made great strides in reduction of demand on our water, there is much more that should, and can, be done in this regard. Whether or not we like it, our water resources will become less available and reliable and we need to re-create our systems to accommodate that which we cannot change. As part of this, we need to fully recognize, accept and plan for the need to maintain our riparian resources in good health. There is plenty of scientific evidence that supports the need for this protection, starting with fish, but echoing throughout the food web. This translates into more water being left in the system and to flow unimpaired to the ocean, thereby maintaining the delicate systemic balances that protect both the riparian as well as the delta areas that are the basis of the food web. One of the amazing adaptation mechanisms the have allowed humans to evolve and dominate the earth's ecosystems is our ability to make rapid and	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		effective changes to our life patterns in the face of changing conditions. We can migrate. We can change out shelters. We can access new food sources. We can build protections against inclement weather. We can cover ourselves if cold, and shed those covers as the weather changes. All this allows us to adapt readily and quickly in order to survive. Other plants and animals do not have this ready capacity. It is in our best interests to make use of these advantages to provide both for humans and the many other species upon which we depend for survival. This is what, at last, will see us through the impending future shifts in climate and its impacts.	
1001	2	I urge you to protect our aquatic resources by setting a standard of allowing 50%-60% of freshwater flows to move through the system to the bay, and work with other entities to reduce water demand to accomplish this goal.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	1	On behalf of the Three Valleys Municipal Water District (TVMWD), I am writing in response to the State Water Resources Control Board's (Board) proposed approach to updating the Bay-Delta Water Quality Control Plan. The proposal, which bases new water quality objectives for the San Joaquin River and its tributaries on a "percentage of unimpaired flows," could lead to widespread fallowing of agricultural land and negatively affect water reliability for much of the state's population.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	2	There is concern that the update would undercut the state's groundwater sustainability goals and cripple implementation of the Brown Administration's California Water Action Plan, the coequal goals defined in the Delta Reform Act of 2009, the Sustainable Groundwater Management Act of 2014, and the Human Right to Water Act. These impacts are not in the public's interest and are inconsistent with the Administration's water policy objectives.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	3	The proposal would undermine investments in storage, adversely impact the drinking water quality of disadvantaged communities, increase groundwater overdraft in a part of the state where groundwater basins are already out of balance, and put large acreages of agricultural land out of production.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	4	Any strategy that would result in vast amounts of agricultural land going out of production and ultimately reduce water supply reliability for most Californians is irreconcilable with the policy of coequal goals and the State Water Board's statutory obligation to protect all beneficial uses of water when establishing water quality objectives.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	5	It would seem more reasonable that the Board should set aside the percent of unimpaired flows approach and heed Governor Brown's call for negotiated agreements. Such agreements have been very successful in achieving desired ecological outcomes while maintaining water supply reliability. The State Water Board should embrace a collaborative process to develop water quality objectives that incorporates the best available science, utilizes comprehensive solutions that address multiple variables, aligns with established state policies, considers economic impacts, and ensures that Bay-Delta Plan decisions enable rather than obstruct implementation of the California Water Action Plan.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1002	6	We [Three Valleys Municipal Water District] urge the Board to set aside the unimpaired flows approach and recognize that the best outcome can be achieved through comprehensive, collaborative approaches that include "functional flows" as well as non-flow solutions that contribute real benefits.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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1003	1	I live in the Airport Community where we benefit from the Tuolumne River because we live near the river; where we go all summer with my kids doing different activities such as swimming, and rowing, but this year we cannot carry out such activities because the reduced water is noticeable. If the situation continues, we will not be able to participate in any future activity.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1003	2	I would like the Tuolumne River to have more water to continue with the traditions of family summers. So I am in favor of increasing the water level from 30% to 50% which will favor all families who like to attend the river and park.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1004	1	Please do not implement the plan that would release 350,000 acre-feet more in an effort to improve salmon populations: This plan would burden local communities with a tremendous economic and environmental hardship.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1004	2	Please do not implement the plan that would release 350,000 acre-feet more in an effort to improve salmon populations: Research does not show that increased flows necessarily improve salmon numbers.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1004	3	Please do not implement the plan that would release 350,000 acre-feet more in an effort to improve salmon populations: We need to improve habitat along the river and control predators that eat salmon.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1005	1	The County of Tuolumne has a total land area of approximately 1,456,000 acres and is home to the Tuolumne River and the Stanislaus River, the two largest tributaries to the San Joaquin River. Area of Origin filings were made on the Stanislaus River by the State of California with a priority of 1927. It must be emphasized that the water for the unimpaired flows the SED is proposing will largely come from Tuolumne County, which if approved, could create significant and unmitigated physical and socio-economic impacts to this County. Although the County of Tuolumne is not a water supplier, the Board of Supervisors shares the long-term objective with our water suppliers, of developing and maintaining safe, affordable and reliable access to water for our residents, our communities and our own upstream-ecosystem. Delta water quality is not the only environmental consideration to be considered. For example, the Middle Fork of the Stanislaus River upstream of New Melones reservoir is a California designated Wild Trout Stream and management of flows for that resource are superior, in our opinion, to the delta. The Board would like to express our great concern over the inadequate analysis in the SED of these many factors as well as the shadow cast on our water supplies as created by the SED.	Please see Master Response 1.1, General Comments, for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues. In the 2016 Recirculated SED, the State Water Board acknowledged and incorporated into the analyses different designations of the Stanislaus River upstream of New Melones in Chapter 7, Aquatic Biological Resources, and Chapter 10, Recreation and Aesthetics. And in particular, noted the trout fishery upstream of New Melones (Section 7.2.3, Extended Plan Area, and Section 7.4.4, Impacts and Mitigation Measures: Extended Plan Area) and identified that significant impact could occur in response to the implementation of the plan amendments to the fisheries in the extended plan area. The State Water Board does not have authority to designated recreational, wild and scenic, or other designations of rivers. Please see Master Response 1.1, General Comments, for responses to comments acknowledging the concerns of community members.
1005	2	It should be noted that the County of Tuolumne is a member of the Joint Powers Authority that governs our Tuolumne-Stanislaus Integrated Water Resources Program. That program, initiated at the local level out of choice, has been successfully dealing with complex, multi-faceted natural resource issues for over a decade. The IRWM plan area includes virtually all of Tuolumne County and portions of Calaveras County. The IRWM is locally funded and provides a forum for resolving assistance to disadvantaged communities (most of Tuolumne County has been classified by the Department of Water Resources as a disadvantaged community), non-governmental organizations as well as our own local governments and agencies. The United States Forest Service, which manages the majority of the watersheds	This comment does not make a general comment regarding the plan amendments or raise a significant environmental issue. No further response is required.

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		in the Sierra Nevada Mountains, is also a participating agency in this venue.	
1005	3	Two of the largest water suppliers in Tuolumne County are the Groveland Community Services District (GCSD), whose surface water supply comes from the Tuolumne River and Tuolumne Utilities District, whose surface supply comes from the South Fork of the Stanislaus River. The GCSD's water supply comes via Hetch Hetchy Reservoir's mountain tunnel through a contract with the San Francisco Public Utilities Commission's Hetch Hetchy system. GCSD is an Urban Water Supplier and may contractually provide treated water to up to approximately 22,000 customers in the communities of Groveland, Big Oak Flat and Pine Mountain Lake. GCSD has a contract allotment of 4,900 acre-feet of water per year and their service area covers approximately 25 square miles in southern Tuolumne County. It bears mention that the GCSD's communities and service area encompass much of the "northern gateway" along Highway 120, to Yosemite National Park.	This comment provides information regarding water suppliers in Tuolumne County, sources of water supply for GCSD and Tuolumne Utilities District, and water supply contractual information for but does not raise significant environmental issues or make a general comment regarding the plan amendments. As such, no further response is required.
1005	4	The Tuolumne Utilities District (TUD) water supply from the Stanislaus River comes from a contract with Pacific Gas and Electric Co (PG&E). TUD's surface supplies are sourced from Pinecrest Reservoir and Lyons Dam and delivered via the PG&E main canal system to TUD. TUD provides wholesale and retail service to other water agencies as well as individual customers. TUD is also an Urban Water Supplier that supplies the Twain Harte Community Services District, the City of Sonora, and the towns of Jamestown, Columbia and numerous others. It also supplies the local hospital, the Columbia CAL FIRE Attack Base, City and County Government Centers, the County's high schools, a number of elementary schools, the local community college, Columbia Historic State Park, Railtown 1897 State Historic Park, most long-term care facilities in the County, as well as the County's probation facility and jail. In all, TUD supplies approximately 40,000 people as well as a significant year-round tourism population. TUD's current annual water use is approximately 17,000 acre-feet and its system is the anticipated source of future supplies for much of the planned areas of development under the County's General Plan.	This comment provides information regarding Tuolumne Utilities District's (TUD) Stanislaus River water supply, TUD as a water supplier, TUD's water customers, and TUD's annual water use but does not raise significant environmental issues or make a general comment regarding the plan amendments. As such, no further response is required.
1005	5	The SED proposes potential decreases in available surface water to Tuolumne County residents and your staff recommends these reductions in surface water be supplemented through groundwater supplies. Tuolumne County has no groundwater basin and all groundwater supplies are fractured rock sources with unreliable quality, quantity and sustained yield. Moreover, there is no geologic or hydrologic methodology to predict groundwater locations, depth, water quality or safety yield. Tuolumne County has seen approximately 267 wells serving 349 homes go dry in the past two years due to the consequences of sustained drought and that number continues to increase. Wells are costly to drill in the foothills and not always feasible. Wells that do go dry from over pumping may not ever recharge. In short, the only reliable water supply in the County is surface water and as noted above, that source is what the majority of its residents, businesses, communities and recreationists use.	In general, consumptive surface water use in the extended plan area is relatively small (Chapter 13, Service Providers, Section 13.2.2, Extended Plan Area, and Section 13.4.4, Impacts and Mitigation Measures: Extended Plan Area). Therefore, if water users in the extended plan area chose to increase groundwater extractions to compensate for the surface water reduction, the increase in groundwater extractions would be relatively small, and the impacts would be less than significant (Chapter 9, Groundwater Resources, Section 9.4.4, Impacts and Mitigation Measures: Extended Plan Area). The SED and plan amendments do not require or encourage increased groundwater pumping as a response to reductions in surface water. The SED merely reflects the historical local response to increase groundwater pumping when surface water availability is reduced. It will be up to local entities to determine the precise actions that would be taken in response to the implementation of the plan amendments. For further discussion on this issue, please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act.
1005	6	The analysis detailed in the SED fails to adequately address the economic impacts to upstream Counties such as Tuolumne County. The County's economy relies heavily on tourism for water-related recreation in the reservoirs of New Melones, Don Pedro and Pinecrest as well as the Wild and Scenic Tuolumne River and the trout fisheries in our streams. Unimpaired flows of 40% as well as some of the proposed non-flow measures in the SED could not only cripple Tuolumne County's recreation and tourism industries but could stifle the County's growth and development by devastating important industries in	Economic considerations for the plan area and extended plan area are described in Chapter 20, Economic Analyses, Master Response 8.0, Economic Analyses Framework and Assessment Tools, and Master Response 8.4, Non-Agricultural Economic Considerations. As described in Chapter 20, Economic Analyses, Section 20.2, Summary of Results, "the economic analyses in this chapter assess the potential economic effects of LSJR Alternatives 2, 3, and 4 and SDWQ Alternatives 2 and 3 based on how the use of certain resources may change. The economic analyses mostly rely on impacts presented in corresponding chapters and appendices in this SED." As described in Chapter 11, Agricultural Resources, Section 11.2.3, Extended Plan Area, and

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		our area such as logging and agriculture which both rely on surface water supplies for their operations.	Section 11.6, Impacts and Mitigation Measures: Extended Plan Area, there are limited agricultural resources in the extended plan area and no designated Prime, Unique, and Farmland of Statewide Importance. Much of the extended plan area is designated as nonagricultural with some acreage in grazing. Impacts are determined to be less than significant on agricultural resources in the extended plan area and as such are not evaluated in the economic analysis in Chapter 20. Similarly to agricultural resources, as described in Appendix B, State Water Board's Environmental Checklist, impacts on forestland are determined to be less than significant and therefore are not evaluated in the economic analysis in Chapter 20. Chapter 20, Section 20.3.6, Effects on Recreational Opportunities, Activity, and the Regional Economy, evaluates potential economic effects associated with recreation at the major rim reservoirs (e.g., Lake Don Pedro) and rivers (e.g., Tuolumne River) in Tuolumne County. See Table 20.2-5, Summary of Average Annual Cost and Beneficial Effects of LSJR Alternatives 2, 3, and 4 Relative to Baseline Conditions: Recreation Activity-Related Economics, and Table 20.3.6-1, Estimated Use (in Visitor Days) of Affected Recreation Areas, by Watershed, for summary information. Please see Master Response 8.4, Non-Agricultural Economic Considerations, for further discussion of potential recreation-related economic effects in the plan area and a discussion of extended plan area, which includes Tuolumne County.
1005	7	The Board of Supervisors request the SWRCB incorporate Tuolumne County's critical municipal and agricultural supplies as well as the potential economic impacts into the analysis incorporated into the SED. We are concerned that absent such analysis and consideration in the Phase I process, critical upstream supplies may be diminished. Additionally, the failure of the SWRCB to consider potential impacts to upstream water supply now and in the future could jeopardize the economic base of Tuolumne County and threaten the quality of life for the residents of our County as well as the tens of thousands that visit our County as tourists each year. The overly simplistic solutions and inadequate analysis in the SED is not sufficient for the complex nature of natural resources issues and the Tuolumne County water needs as noted in this letter.	The State Water Board considered potential impacts on the upstream water supply in the SED. As described in the SED for the extended plan area, holders of upstream water rights may be affected by the LSJR alternatives. The extended plan area section of Chapter 5, Surface Hydrology and Water Quality, states: "Under baseline, junior water rights holders who divert water to storage, including February through June, must cease diversion to storage if there is not enough water to satisfy the water rights of more senior water rights downstream. The frequency with which these junior water rights holders must cease diversion to storage would increase during some months of some years under LSJR Alternatives 2, 3, and 4 if water needed to meet the February–June flow requirements reduces the amount of water that can be diverted." These potential hydrologic changes are evaluated throughout the SED chapters (i.e. Chapters 5 – 18). Please see Master Response 8.4, Non-Agricultural Economic Considerations, for a discussion of potential recreational-related economic effects in the plan area and extended plan area.
1005	8	Tuolumne County has reviewed Governor Brown's letter to Chair Marcus regarding the development of a comprehensive agreement for environmental flows so that we may start improving water quality in the Delta and its tributaries. We are supportive of the Governor's objective in the development of voluntary, comprehensive agreements and wish to go on record as requesting that the Tuolumne County Board of Supervisors be included in such discussions regarding the Tuolumne River, the Stanislaus River and their tributaries.	Please see Master Response 1.1, General Comments, and Master Response 2.1, Amendments to the Water Quality Control Plan, for responses to comments by the State Water Board supporting voluntary agreements.
1006	1	The SWRCB should be adopting sustainable policies which protect the rights of consumers. The present policies do not protect existing customers or future customers. The SWRCB ought to require all water retailers to demonstrate that there will be no adverse impact to their existing customers during an extreme drought, before they connect new customers. The state should establish an acceptable level of risk for water retailers. No new demands could be added until the retailers demonstrate they can meet this standard with the added demand. Without defining and maintaining a level of service new customers connecting to a compromised system receive less than expected level of service.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1007	1	This letter is from the Executive Committee of the Yokuts, group of the Sierra Club. We represent 850 members in Stanislaus County and are part of the Motherlode Chapter of the Sierra Club, based in Sacramento. Our group supports at least a 40% freshwater flow	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		from the Stanislaus, Tuolumne, Merced, and San Joaquin Rivers making it to the Bay-Delta.	
1007	2	The Bay-Delta provides habitat for more than 500 species of wildlife and serves as a migration pathway for salmon, steelhead and sturgeon traveling to and from their home streams to the Pacific Ocean. Reduced freshwater flow has enabled cyanobacteria to thrive in the Delta. These algae produce toxins that can make people sick and kill plankton and wildlife. Historically, spawning salmon may have exceeded 400,000 in the San Joaquin River Basin, but in recent years that number has plummeted to a few thousand. Salmon are considered a keystone species, as they provide food for other animals and transport nutrients from the ocean to upland habitats. As more than 100 species depend on salmon, this issue is not just about salmon, it's about restoring our salmon-based ecosystem.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1007	3	A lack of planning and vision for the future has led us on a path that is simply unsustainable for our water supplies. There are just too many demands on our rivers, too many diversions, too many almond trees. Our committee, from the Yokuts Group of the Sierra Club, does sympathize with farmers who are legitimately scared when facing a reduced amount of water. We also appreciate several of the speakers from the agricultural community who acknowledge that care for the environment is part of their responsibility.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1007	4	We are concerned about the threats of a few that with higher freshwater flows in our local rivers, an increase in groundwater pumping is inevitable. This is not the answer. Not only does this pit neighbor versus neighbor, the earth is telling us, in the form of subsidence, to "Stop!". Many farmers know that requiring more water to remain in rivers recharges our aquifers and helps make farming more sustainable. More research into the interplay between surface water and groundwater supplies is needed.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1007	5	We are living beyond the limits set by nature. Everyone who uses the San Joaquin and its' tributaries must play a part in restoring our local rivers so that they can continue to sustain us.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1009	1	What will the board and state of California do to protect homeowners and property owners in the delta?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1009	2	What will [the Water Board and State of California] do to mitigate issues to well water?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1009	3	What is the plan for improving levees?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1010	1	Is it true that pending regulations from the bureaucrats at the SWRCB will have the following affect: "...allowing anywhere from 35 percent to 75 percent of the flows from the Sacramento River watershed to wash out to sea." -Sacramento Bee? If so, then those rules should be reexamined prior to being enacted.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1010	2		Please see Master Response 1.1, General Comments for responses to comments that either make a general

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		It is my considered opinion that decisions for the rest of us are often made by California State bureaucrats who have no skin in the game. This is not playing fair in the sandbox. It shouldn't be that the main benefit of such legislation or regulations that affect a huge portion of a state benefit only the resumes of a handful of people who aren't harmed by their own words. It shouldn't be that bureaucrats continue to regulate 30 million people to the nth degree JUST SO THEY CAN MAKE A PAYCHECK. This is how it looks to us! Hundreds of [you] sitting in high rise offices in Sacramento spending an entire 40-hour work week dreaming up something to put on paper so your superiors will think you have value! WHEN WILL THE CONSTITUENCY HAVE VALUE TO YOU?	comment on the plan amendments or do not raise significant environmental issues.
1010	3	Unless you are a farmer or rancher who relies on the water coming down from higher elevations to irrigate crops or animals, then YOU DON'T KNOW - and apparently don't care - that the types of decisions such as the current Bay-Delta Plan Amendment will drastically affect them and their families for perhaps generations to come. It seems you care more about words on a piece of paper than the people your legislation affects.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1010	4	It should be the case that you have to explain yourselves in plain words to Californians about to be grossly harmed the who or what will be benefitted by such sweeping regulations. If journalists (SacBee) researching draft legislation arrive at the conclusion that the harm outweighs the benefits, then you should STOP going in that direction. Do you ever consider that, Chairwoman Marcus? Do you ever think outside of the myopic views of your coterie of city-dweller coworkers to remember that tens of thousands of Californians rely on water for something other than their built-in pools?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1011	1	San Mateo County is heavily reliant on the Hetch Hetchy water system; approximately 91% of local water is purchased through 17 wholesale water agencies represented by the Bay Area Water Supply and Conservation Agency from the San Francisco Public Utilities Commission. Additionally, SSMC recognizes the severe threats to the environment from consistent overuse of water and from the increased volatility in precipitation brought on by climate change. As such, our organization has a keen interest in the Bay Delta Plan Amendment and how it will affect our communities' water supply as well as the environment. Any plan should have shared goals of environmental protection for the long-term, safeguarding our water supply and avoiding significant economic impact, and flexibility to make changes as needed.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1011	2	The State Water Board's 2010 report, "Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem" determined that approximately 60% of unimpaired flow between February and June would be fully protective of fish and wildlife in the lower San Joaquin River and its three major tributaries. On average, less than 50% of the freshwater flow from the Central Valley reaches the Bay, and in some years less than 35%. SSMC supports efforts to increase flows to protect habitats and species, while balancing the water needs of all users, including the residents and businesses of our County and the agricultural users. We also encourage the use of additional non-flow measures to mitigate the impact on water supply availability while improving the environment.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1011	3	Water agencies and users should continue and increase water conservation efforts which have proven successful in reducing usage in recent years while having minimal impact on our economy. Furthermore, water agencies must continue to identify additional water supplies. In particular, efforts to increase direct and indirect potable reuse and use of greywater, rainwater and stormwater should be prioritized. Countries such as Australia and	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		Israel have demonstrated that limited freshwater supplies can go much further than a single use without having detrimental effects on human and environmental health. California can learn from these areas and benefit from our culture of innovation and ingenuity to protect our environment, population and economy simultaneously.	
1011	4	It is our understanding that several interested parties--the SFPUC, BAWSCA, agricultural water users, the Tuolumne River Trust and others, including biologists and economists from these agencies--have been engaged in direct negotiations regarding water diversions and habitat protection for some time. We believe that a science-based approach and collaboration towards a mutually-beneficial agreement is the best path forward. We ask that the Water Board allow the existing negotiation process to continue, while keeping pressure on all parties to negotiate in good faith and come to an agreement in a timely manner, and adopt a plan based on their resolution.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1012	1	Why does the state water resources control board insist on using a document named "Substitute Environmental Document" in place of a full "Environmental Impact Study" to be all-inclusive of the entire river system within the central valley? The state water resources board has admitted in public hearings the SED (Substitute Environmental Document) is flawed with multiple gapping errors. As such why does the SWRCB (State Water Resources Control Board) insist going forward with this document with little or no changes?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1012	2	If the "Twin Tunnel" is built as proposed why does the volume of water to be diverted for that project approximately equal the volume water to be claimed in the SED from the three rivers? (Merced, Tuolumne, and Stanislaus rivers.)	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1012	3	If the SED proposal is designed to increases numbers viable native LSJR watershed fish populations migrating through the Delta, a measly increase of a total of 1,103 salmon for all three rivers using the statistics provide in the SED, why are all other forms of increasing native populations totally banished from the report? The California Water Board's by its own admission can't even provide evidence or science to support the increase of approximant 360 salmon per river (Merced, Tuolumne, and Stanislaus) nor proof that such a plan will change average southern Delta salinity levels. So why again are we using the SED, a horribly faulty document?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1012	4	Below is a statement found on the California Water Board's website. "The SED and associated appendices were prepared in compliance with the California Environmental Quality Act, the California Water Code and other applicable State and federal requirements and include an analysis of the expected environmental, water supply, economic, and hydropower effects of the LSJR flow and southern Delta salinity alternatives." Why does the SED only include the following rivers Merced, Tuolumne, and Stanislaus? Why does statement above falsely state to encompass all the Lower San Joaquin River system? The SED excludes all other tributaries including the San Joaquin River itself, why?	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1013	1	We keenly appreciate your presence to listen to our concerns and hopefully you will respond favorably when the time comes, reflecting on the goodwill of the impacted people in our community and Merced County at large. Regrettably, WWSD [Winton Water and Sanitary District] opposes the State Board's proposed environmental document, due to its overburdening requirements, unjustifiable	Please see Master Response 1.1, General Comments, for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues. Please refer to the sections regarding groundwater and concerns of community members.

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		reasoning and lack of any mitigation or compensation measures. First, WWSD has been a key member of the Merced Area Groundwater Pool interests (MAGPI) and our staff and Board are decently informed on SGMA. The WWSD has been following MID's public actions related to MID's FERC relicensing, the 2012 SED, and the current draft. We are appalled by the significant water releases required by the SED. It reminds one of the drying up of the Owens Valley. Our District was pleased to see that MID constructed a recharge basin north of our district which meant added security for our groundwater, our only supply. However, since that basin was bone dry for the duration of the drought and with the SED it may be totally abandoned. We appeal to the Board members to reconsider and temper the water it intends to take from this region. Water is too precious to be sacrificed as proposed by the SED. Our community is too precious to be sacrificed in this fashion.	
1014	1	I'm writing to express grave concerns with the State Water Resources Board's proposed actions on behalf of the City of Ceres, a community of 45,417 residents in the Central Valley. As we near the public comment deadline, it is imperative to us that our distress over your proposal is included in the official record on the revised SED. Therefore we urge you once more to heed the requests of the numerous cities, school districts, and concerned residents who have voiced their opposition to the Bay-Delta Plan. In an area that is largely dependent on agriculture, a proposal that increases the unimpaired flows of the Merced, Stanislaus, and Tuolumne rivers by 35% would devastate a region that has only just begun to heal from five years of drought. The public hearings held in Merced and Modesto this past December provided ample evidence that local stakeholders have been left out of a process that will severely impact every aspect of their lives. Safe and reliable access to drinking water, our economic vitality, and our very way of life would all be jeopardized by your proposed plan.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1014	2	Given the serious implications of your proposal, there should have been a credible effort to involve us throughout the development phase, but this simply didn't happen. By allowing stakeholders to comment on the plan only after it was released, you have excluded our region from providing valuable local knowledge that could have been used by your scientists and technical experts to create a plan that appropriately balances the competing priorities under your consideration.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1014	3	To us, "significant, but unavoidable" is more than a term of art--is it a tangible threat and a clear statement of willful disregard for our safety, sustainability, and livelihoods. By failing to include our region in the development process, you have marginalized a community that already suffers from economic challenges and is home to many minority and disadvantaged communities. Simply put: we deserve better. I urge you to give consideration to the voices of our community and reviser the current plan to reflect the needs of all the parties involved.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1015	1	I urge the State Water Resources Control Board to adopt stronger water quality standards for the San Francisco Bay-Delta. The health of our rivers is extremely important to me, the 25 million Californians who depend on the delta for some of their drinking water and the	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		thousands of individuals who depend on the fishing industry for their livelihoods.	
1015	2	On average, only one third of all water from the rivers of the San Joaquin basin can currently reach the San Francisco Bay-Delta. As a result of insufficient water flow, populations of salmon and other native species have plummeted and water quality downstream has continuously worsened.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1015	3	In 2013, the California Department of Fish and Wildlife recommended higher flow standards than the State Water Resources Control Board has proposed. I urge you to adopt these stronger, scientifically sound standards that will increase flows to restore water quality and the once thriving salmon fishery. Please help save the San Francisco Bay-Delta!	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1016	1	"Periods when the average salinity was as high as in the past half-century previously occurred only three times in the last 1,600 years – during recent droughts, January –July salinity was the highest it has been in 400 years." This low flow is encouraging invasive species and driving the decline of native species. In other words it is not the drought that is killing the bay but the damns and diversions of water to other purposes. Please protect our bay and delta and the freshwater flows required to do so.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1016	2	On June 24, 2016, "…the Delta Plan that the Delta Stewardship Council had adopted in May 2013" was overturned and ruled invalid because "it failed to include "quantified or otherwise measurable targets associated with achieving reduced Delta reliance, reduced environmental harm from invasive species, restoring more natural flows, and increased water supply reliability" as required by the Delta Reform Act." From statement released by Stephan C. Volker, June 27 2016. Do not repeat the mistakes of the past. Please protect our bay and delta and the freshwater flows required to do so.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	1	I write to encourage you to significantly improve freshwater inflows into the Bay-Delta as part of your analysis of The Bay Delta Water Quality Control Plan and SED.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	2	Less than 50% of the freshwater flow from the Central Valley reaches the Bay, and in some years less than 35%! This reduced inflow affects the salinity-mixing zone with significant ecosystem level effects from plankton to anadromous fish, from migratory birds to marine mammals. Low river flows impede fish passage, concentrate pollutants, raise water temperatures, decrease dissolved oxygen, and eliminate migratory cues for fish returning to spawn. The altered estuary chemistry encourages cyanobacterial and algal blooms that have additional ecosystem level impacts that could be significantly mitigated by increased freshwater flow.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	3	Populations of spawning salmon have plummeted orders of magnitude because of human misappropriation of their freshwater resources. This mistake is now clearly understood and can be corrected by your public policy analysis and decisions. The entire riparian, salmon-based ecosystem will significantly benefit from proper management of this keystone species. In addition to ecological benefits, the commercial salmon fishing industry will benefit from increased freshwater flows. In 2008-2009 $255 million of annual revenue and 2,200 jobs were lost when the season was cancelled. What's good for the ecosystems is also good for the economy.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	4	Please carefully re-consider the flawed economic analysis in the SFPUC's brief on the Bay Delta Water Quality Control Plan. Although this type of analysis is outside my professional	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		expertise, I find the use of outdated data from 2009 to be highly problematic. In addition, even the revised 2014 figures are over-inflated when compared to actual economic performance at every water rationing level evaluated. You have a responsibility to base your decisions on real world economic performance and not on inaccurate economic models.	
1017	5	It is also abundantly clear the California can meaningfully and permanently reduce both domestic and agricultural water demand. The last two years clearly demonstrate that Californians have responded to the drought and reduced their domestic water demand. Coupled with broad-based support for improved recreational opportunities and ecosystem function for the Bay Delta, your constituents vote for increased fresh water flows.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	6	Agriculture accounts for 80% of water use in California. Through better management of snowmelt, water efficient irrigation technologies and practices, and replacing lower-value, water-intensive crops with higher-value, water-efficient crops, we have the ability, and the imperative to grow more food with less water.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	7	By increasing freshwater flow you will both improve the Bay Delta ecosystem, and spur California's entrepreneurs to continue to innovate in water efficient agricultural practices. This will benefit farmers, consumers, ecosystems and the economy. You have the authority and opportunity to determine which beneficial uses of our precious water resources have priority. Please use the best available science to increase instream freshwater flows knowing that it will have broad-based ecosystem impacts.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	8	Please consider that food grown for Californians is a beneficial use of our water, while agricultural exports typically benefit only a small number of corporate farmers.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1017	9	The health and vitality of the Bay Delta is in your hands. Ecosystems and our economy can thrive when public policy is driven by facts and careful management of scarce resources.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1018	1	I want to urge you implement the 60% of unimpaired flows your own science reports says will be necessary to restore the ecosystems in the major San Joaquin tributaries. I understand you have to balance human and environmental needs for water, and therefore propose only 40%, and only for the critical months of Feb through June. I also understand you have proposed "adaptive management" so that flow requirements can be adjusted if biological indicators show the 40% level is inadequate. If you implement 40% as the starting point, I ask that you put in place well-defined metrics to assess the biological response in a timely way, and promptly raise the flow requirements if 40% is found inadequate.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1018	2	I made my living in agricultural biotechnology. I have deep respect for the hard work farmers do, and the great food they make available for all of us. Still, they have been terrible stewards of our water resources. They need to use water more efficiently, stop increasing acreage of crops requiring irrigation, and rethink high-water/low-value crops like alfalfa that can only make economic sense with highly subsidized water. We city dwellers need to maximize our water use efficiency, but as ag uses 80% of our developed water, they need to step up also.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1019	1	The City [of Merced] maintains that the Project as described in the SED is contrary to and in violation of a variety of laws, including applicable statutes, regulations and principles. The SED is also inadequate as an informational environmental review document, and violates basic and significant CEQA requirements. The Project also seriously underestimates negative	Please see Master Response 1.1, General Comments, regarding State Water Board authorities, statutes, regulations and principals; the adequacy of the SED analysis; and the approach to analyses, including the difference between program- and project-level analysis and the use of best available science. The SED is a program-level, first tier evaluation, consistent with State CEQA Guidelines. The SED has been

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		impacts on the City, its residents and others, while the Project's benefits are both questionable and minimal.	prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences (Cal. Code Regs., tit. 14, § 15151). Please see Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 3.1, Fish Protection, regarding the scientific information used to inform the plan amendments. The State Water Board used the best available science to develop both the proposed plan amendments and SED. A variety of quantitative and qualitative data were used to establish LSJR flow objectives that are protective of native fish populations migrating through the Delta while moderating impacts on water supply for agriculture, drinking water, and other uses. Qualitative data sources include, but are not limited to, peer-reviewed published literature on topics specific to the plan area; peer-reviewed published literature topics relevant to the plan amendments but from areas outside the plan area on topics relevant to the plan amendments; and personal communication with topic experts.
1019	2	The City [of Merced] contends that the Project exceeds the jurisdiction of the State Water Board, conflicts with numerous statutes, regulations and policies of the State designed to protect water rights and the use of water pursuant to such established rights. The project also interferes with established water rights priorities, violates a number of other state and federal laws and policies, and is not supported by sufficient evidence, information, data and studies.	Please see Master Response 1.1, General Comments, regarding information related to applicable statutes, regulations, authorities, and principals. Please see Master Response 1.2, Water Quality Control Planning Process, regarding State Water Board authorities under the Porter-Cologne Water Quality Control Act and the water quality control planning process. Please see Master Response 2.1, Amendments to the Water Quality Control Plan; Master Response 3.1, Fish Protection; and Master Response 3.2, Surface Water Analyses and Modeling, for additional information regarding scientific data and studies used to support the findings of the SED.
1019	3	There is a lack of sufficient evidence that the remedies and measures sought to be imposed will alleviate the "crisis" and conditions described in the SED. The SED does not consider or address other factors and causes of alleged environmental damage, in addition to and instead of diversions by agricultural users. The Project will cause significant and unreasonable secondary impacts, and any relief and benefits associated with the Project will be insignificant in comparison to the amount of economic harm to the City, local region, and the State.	The State Water Board strived to use the best available science throughout the SED and the modeling is credible because it is based on reasonable assumptions and allows a comparative analysis between baseline and alternative conditions. Please see Master Response 1.1, General Comments, regarding proposed mitigation throughout the SED, for a general discussion of the plan amendments and substantial evidence and for responses to comments that generally oppose the plan amendments. Please see Master Response 1.2, Water Quality Control Planning Process, regarding consideration of beneficial uses in the Bay-Delta and tributary watersheds through independent proceedings. Please see Master Response 3.1, Fish Protection, regarding the potential benefits of the plan amendments to fish. Please see Master Responses 8.0, Economic Analyses Framework and Assessment Tools; 8.1, Local Agricultural Economic Effects and the SWAP Model; and 8.2, Regional Agricultural Economic Effects, regarding economic considerations evaluated in the SED.
1019	4	The Project violates a number of California statues, regulations and policies, including the water rights priority system, the SGMA, the Administrative Procedures Act, and the Porter-Cologne Act. The Project would also violate provisions of the State and Federal constitutions, including Article X, Section 2 of the California Constitution, and the federal constitutional right to due process, equal protection and separation of powers. In addition, the Project is internally inconsistent, ambiguous, overstates the benefits of the Project, and would be impossible and impracticable to implement.	Please see Master Response 1.1, General Comments, for responses to general comments regarding the plan amendments. Please see Master Response 1.2, Water Quality Control Planning Process, regarding requirements governing the water quality control planning process. See Master Response 2.1, Amendments to the Water Quality Control Plan, regarding a description of the plan amendments (i.e., project description) and expected benefits to fish and wildlife. In addition, please see Master Response 3.1, Fish Protection, for more detail and scientific information about the expected benefits to fish resulting from the plan amendments. Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, for information regarding SGMA and implementation of the LSJR flow objectives and SGMA compliance.

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1019	5	CEQA Violations The SED does not comply with the requirements of CEQA, is inadequate as an informational document and therefore cannot support the adoption or implementation of the Project. The SED does not provide a clear, understandable, or consistent description of the Project. The lack of a sufficiently clear description of the Project is a legal flaw that undermines the entire SED. It has made a clear understanding of exactly what the State Water Board intends to do impossible, and undercuts the public review and commenting process, which is the entire purpose of CEQA. The City [of Merced] questions whether the SED process is authorized and applicable to the present situation and the Project, and whether use of a Program-level environmental review document is proper. In addition, the SED is inadequate as an informational document, is in violation of the provisions of CEQA, and does not sufficiently support the SED, because the Project area is not properly defined. Further, the SED does not sufficiently disclose and review the impacts of the Project on the environment, including secondary Project impacts, and impacts on groundwater basins and on local communities and water right holders, insufficiently analyzes cumulative impacts, does not properly define baseline conditions, does not identify and propose adequate mitigation measures, is incomplete and confusing, and fails to consider a reasonable range of alternatives to the Project.	Please see Master Response 1.1, General Comments, for responses to comments regarding the adequacy of the SED approach to analyses, programmatic analyses and the difference between programmatic and project-level analyses, commenter suggested plans and proposals, and mitigation measures. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for information regarding the project description and the geographic scope of the Recirculated SED. As noted in that master response, Chapter 1, Introduction, provides the basic project description and refers to Appendix K, Revised Water Quality Control Plan, which contains the entirety of the proposed amendments to the Bay-Delta Plan, and Chapter 3, Alternatives Description, contains details of the plan amendments. Please refer to Master Response 1.2, Water Quality Control Planning Process, for information regarding implementation of the plan amendments in future proceedings. Please see Master Response 2.4, Alternatives to the Water Quality Control Plan Amendments, for additional information about alternatives. Please see Master Response 2.5, Baseline and No Project, for information regarding the baseline conditions. Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, for information regarding impacts on groundwater. Please see Master Response 6.1, Cumulative Analysis, for information regarding cumulative impacts.
1019	6	The Project benefits do not justify the cost. The City [of Merced] is aware that the Merced Irrigation District has been involved in research and analysis of the Merced River System for many years and their research demonstrates the Project would have a minor benefit to juvenile salmonid habitat during the spring, but this benefit may well be offset by habitat degradation during the summer and fall. Importantly, their research indicates that the Project will not benefit fall-run Chinook salmon or steelhead habitat in the Merced River. The Merced Irrigation District's research and conclusion that fall-run Chinook salmon production or escapement would not be notably improved under the SED's alternatives is supported by the fact that even the SED's modeling indicates that the Project would result in an average annual increase in production of only 1,103 adults in the San Joaquin River Basin, including only an estimated 457 more fish to the Merced River. In addition, even these estimates may be overstated because the State Water Board has not appropriately accounted for habitat conditions as well as predation and fish loss in the Bay-Delta. Even if the State Water Board's modeling estimates are reasonable, the estimated increase in escapement in the Merced River represents only about 0.2 percent of the Central Valley's average fall-run Chinook salmon escapement. The Merced Irrigation District's research also indicates that CV steelhead DPS critical habitat in the Merced River might be improved during the spring and early summer, but would be less suitable during the late summer and fall when conditions would be most limiting. However, given that steelhead do not occur in the Merced River, changes in habitat cannot be expected to affect the CV steelhead DPS. The SED provides no evidence to support any habitat improvement in the Bay-Delta by additional flow releases from the Merced River. Factors besides flow appear to be controlling juvenile salmonid survival in the Delta. Without a clear understanding of the primary factors that are controlling the survival of	Please see Master Response 3.1, Fish Protection, for information regarding the use of best available science, and the adequacy of modeling to support the analyses. In particular, refer to the discussion in Master Response 3.1, Fish Protection regarding SalSim. Also, refer to Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Section 19.4.1, Introduction of SalSim, and Section 19.4.4, Summary and Conclusions of the SalSim Evaluation, for discussions of the issues, limitations, and interpretation of SalSim results. The California Central Valley (CCV) steelhead distinct population segment (DPS) includes all naturally spawned populations of anadromous O. mykiss below natural and manmade impassable barriers in the Sacramento and San Joaquin rivers and their tributaries (63 FR 13347). NMFS considers all O. mykiss that have physical access to the ocean (including resident rainbow trout) to potentially be CCV steelhead and treats these fish as CCV steelhead. The lower Merced River from Crocker-Huffman Dam to its confluence with the San Joaquin River was included in the designation of critical habitat for the DPS (70 FR 52488). Rainbow trout have anadromous and resident forms that are sympatric and capable of producing offspring with a life history that is different from their own (Seamons et al. 2004; Christie et al. 2011; Zimmerman and Reeves 2000). The State Water Board acknowledges that resident rainbow trout dominate the phenotypic life history strategy in the Merced River. However, we disagree with the assertion by the commenter that there is no evidence of an anadromous life history in the Merced River. Zimmerman et al. (2009) provide otolith microchemistry evidence indicating the presence of trout with anadromous mothers that spawned in the Lower Merced River. Positive changes to habitat in the Merced River resulting from the proposed plan amendments are expected to benefit the CCV steelhead DPS because steelhead do occur in the Merced River. See Master Response 3.1 and Chapter 19 regarding the expected benefits of the proposed plan amendments. Also see Master Response 3.1 regarding the consideration of predation. Please see Section 3.6 of Appendix C, Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives, regarding the primary factors limiting salmonids in the San

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		juvenile salmonids in the San Joaquin River and Delta, there can be no confidence in the benefits claimed by the State Water Board. Overall, the Project provides only minor and questionable benefits that are offset by overwhelming costs to the residents of the City, County of Merced and local region.	Joaquin River and its three eastside tributaries. As described in Appendix C, studies that examine the relationship between fall-run Chinook salmon population abundance and flow in the SJR basin generally indicate that: 1) additional flow is needed to significantly improve production (abundance) of fall-run Chinook salmon; and 2) the primary influence on adult abundance is flow 2.5 years earlier during the juvenile rearing and outmigration life phase (AFRP 2005; DFG 2005a; Mesick 2008; DFG 2010a; USDOI 2010). These studies also report that the primary limiting factor for tributary abundances are reduced spring flow, and that populations on the tributaries are highly correlated with tributary, Vernalis, and Delta flows (Kjelson et al. 1981; Kjelson and Brandes 1989; USFWS 1995; Baker and Mohardt 2001; Brandes and McLain 2001; Mesick 2001b; Mesick and Marston 2007; Mesick 2009; Mesick 2010 a-d). More recent studies (e.g. Sturrock et al. 2015; State Water Board 2017; TID and MID 2013; USFWS 2014; Zeug et al. 2014) continue to provide evidence of the importance of suitable flow and related habitat conditions during the spring time period. Additionally, see Master Response 3.1 for a discussion of the 2010 Delta Flow Criteria Report. The 2010 Delta Flow Criteria Report determined, among other things, that 60 percent of unimpaired SJR inflow from February–June was necessary to preserve the attributes of a natural, variable system to which native fish species are adapted. As mentioned above see Master Response 3.1 regarding the use of the best available science. It is unclear why the commenter suggests that CVV steelhead DPS critical habitat in the Merced River might be less suitable during the late summer and fall after implementation of the proposed plan amendments. See Chapter 7, Aquatic Biological Resources, regarding evaluations of potential impacts on salmon and steelhead. See Master Response 3.1 and Chapter 19 regarding the expected benefits to salmonids. The purpose of the environmental review process is to disclose potential environmental impacts to the public and decision-makers. The plan amendments give consideration to potential economic effects in Chapter 20, Economic Analyses, per the requirements of Water Code section 13141 and section 13241. The plan amendments are not required to include a cost-benefit analysis as the commenter seems to suggest. Please see Master Response 1.2, Water Quality Control Planning Process, regarding consideration of beneficial uses by the State Water Board. Please see Master Response 1.1, General Comments, regarding general responses to economic-related comments, including those attempting to compare costs and benefits. Please see Master Response 8.0, Economic Analyses Framework and Assessment Tools, regarding the types of economic assessments and the tools used to consider economics in Chapter 20, Economic Analyses. Economic considerations associated with the recreation and commercial fishing industry are discussed in Chapter 20, Section 20.3.5, Effects on Fisheries and Associated Regional Economics. Master Response 8.4, Non-Agricultural Economic Considerations, discusses the economic contribution of the plan amendments to fish and wildlife habitat and other beneficial uses. Please see Chapter 20, Section 20.3.3, Agricultural Production and Related Effects on Economic and Local Fiscal Conditions and Master Responses 8.1, Local Agricultural Economic Effects and the SWAP Model; and 8.2, Regional Agricultural Economic Effects regarding local and regional agricultural economics.
1019	7	The City [of Merced]'s interest in the SED The SED proposes substantive and significant changes to water flow requirements in the Merced River below the Merced Irrigation District's New Exchequer, McSwain and Crocker-Huffman Diversion dams during the months of February through June each year. These requirements will not only have a substantial adverse effect on the Merced Irrigation District's management of water in the Merced River, but also on the City's water system that is dependent on wells and the City's ability to comply with the mandates of the Sustainable Groundwater Management Act (SGMA).	The State Water Board is, and has been, considering concerns about how implementation of the plan amendments could affect local communities and heard from many community members directly during the 6 month comment period on the SED and the 5 days of public hearing. In addition to hearing concerns, the State Water Board acknowledges that ongoing local involvement will be critical to implementing the plan amendments and encourages voluntary agreements as a way for stakeholders to develop management options that directly address their concerns and needs. This is why the numeric flow objective includes an adaptive range and the program of implementation includes a seat at the table for local water managers: the Stanislaus, Tuolumne, and Merced Working Group. Please see Master Response 1.1, General Comments, which acknowledges the concerns of elected representatives and community members and responds to

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		The City believes the impacts that will result from implementation of the SED will be widespread and devastating not only to the City and its over eighty thousand residents, but also to hundreds of thousands of other residents in the local region. The State Water Board has significantly and substantially underestimated these impacts. These impacts will be forced upon the City and the tens of thousands of people in our local community, other local communities, and the Merced Irrigation District and their customers. Further, the SED proposes changes to the operations of the Merced Irrigation District's reservoir facilities and hydroelectric project that will harm our local environment, the Merced River, and the local economy that is heavily dependent on agriculture.	comments regarding use of an SED to meet CEQA requirements, economic effects, and voluntary agreements. Please see Master Response 1.2, Water Quality Control Planning Process, for responses to comments regarding appropriate consideration of Water Code section 13241 factors such as economic considerations. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for a description of the plan amendments and implementation. Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, regarding SGMA and the plan amendments. Please see Master Response 3.6, Service Providers, and Chapter 13, Service Providers, regarding municipal water supplies and demands and potential impacts. Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding reservoir operations. Please see Master Responses 8.0, Economic Analyses Framework and Assessment Tools; 8.1, Local Agricultural Economic Effects and the SWAP Model; 8.2, Regional Agricultural Economic Effects; and Chapter 20, Economic Analyses, regarding agricultural economic considerations. Please see Master Response 8.4, Non-Agricultural Economic Considerations, and Chapter 20, regarding hydropower economic considerations.
1019	8	The City [of Merced] is dependent on water from the Merced River. The City and its residents rely entirely on wells that pump water from the underlying Merced Groundwater Basin. The City lies within the Merced Irrigation District's service territory. The Merced Irrigation District provides high quality, affordable irrigation water to over 2,200 customers within this service territory. In addition, the Merced Irrigation District provides water to agricultural lands within its 420,000-acre Sphere of Influence in the eastern part of Merced County, mainly over the Merced Groundwater Basin, with a small portion north of the Merced River. The Merced Groundwater Basin is sustained primarily by water flowing through the Merced River and distributed by the Merced Irrigation District from the Merced River to local farmers and other irrigation districts. Any significant reduction in the use or distribution of water from the Merced River will negatively affect both the amount and quality of water in the Merced Groundwater Basin that the City relies upon.	Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, for a discussion on potential increases in groundwater pumping, SED consideration of SGMA, and groundwater recharge. The SED does not violate SGMA because SGMA requires local public agencies to sustainably manage groundwater basins that are subject to SGMA without causing "undesirable results" (Water Code § 10721(x)). The SED and plan amendments do not require or encourage increased groundwater pumping. The SED analyses reflect that the historical local response to reduced surface water availability has been to choose to increase groundwater pumping; therefore, the SED was required to analyze this reasonably foreseeable and its impact on the groundwater basin from this local response. SGMA was passed by the legislature in 2014 to address overdraft issues and associated negative impacts on groundwater basins from overextraction. SGMA required local public agencies in the plan area to form groundwater sustainability agencies (GSAs) by June 30, 2017, and draft groundwater sustainability plans (GSPs) by 2020 for the critically overdrafted basins and by 2022 for all of the other basins with a 20-year period to implement those plans and achieve sustainability. GSAs have been formed in the plan area but GSPs are not yet drafted or implemented. The State Water Board acknowledges that reaching sustainability in these overdrafted basins will be challenging, but the plan amendments do not conflict with SGMA. Instead, knowledge of the plan amendments during the GSP drafting phase allows for integrated planning of scarce water resources that does not trade impacts between surface and groundwater. SGMA was not included in the baseline or in the alternative analysis, because, as noted above, SGMA plans are not yet written and groundwater sustainability could be implemented through projects and programs in a number of ways. For example, groundwater sustainability agencies could implement projects to increase recharge in wet years and programs to decrease groundwater extraction through conservation and other means. Therefore, any future condition baseline "with SGMA" is purely speculative. However, SGMA was properly included in the analyses as an existing legal requirement to prevent further degradation of the groundwater basins and as a potential cumulative limit on future irrigation supplies (Chapter 9, Groundwater Resources, Section 9.4.3, Impacts and Mitigation Measures; Chapter 22, Integrated Discussion of Potential Municipal and Domestic Water Supply Management Options, Section 22.4.1, Potential Impacts of LSJR Alternatives). Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, for discussion on why 2009 was chosen as the baseline, the approach to the impact analysis, groundwater

Table 4-1. Responses to Comments			
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			recharge, and SGMA in the context of the plan amendments. Please See Master Response 1.2, Water Quality Control Planning Process, for information on Bay-Delta Plan Proceedings, including future hearings.
1019	9	The Merced Irrigation District is in the process of relicensing Project 2179, which will require the State Water Board issue a Section 401 WQC. Since the City [Of Merced]'s water supply is impacted by the flows through the Merced River, and the flows through the Merced River are controlled largely by Merced Irrigation District facilities, the City has a direct interest on the Project's impact on the Merced Irrigation District. Consequently, the following background information relating to the Merced Irrigation District is of no small importance to the City, and is necessary background for an understanding of the flaws inherent in the SED. In 2012, the Merced Irrigation District, filed with the FERC an Application for New License Major Project--Existing Dam for Project 2179. In compliance with the National Environmental Policy Act (NEPA), the FERC issued a Final Environmental Impact Statement (FEIS) in support of the relicensing. Necessary activities for relicensing that are yet to be completed include FERC's consultation with the United States Department of Commerce, National Oceanic Atmospheric and Administration, National Marine Fisheries Service (NMFS) and USFWS under Section 7 of the Endangered Species Act (ESA); Merced Irrigation District, as lead agency, completion of a CEQA document; and the State Water Board, as a responsible agency, issuance of a Clean Water Act (CWA) Section 401 water quality certification (WQC). In 2014, FERC issued an order authorizing the Merced Irrigation District to continue to operate Project 2179 under the existing license terms and conditions until the FERC acts on the application for a new license. It is the City's understanding that FERC has not acted on the application. Also in 2014, the Merced Irrigation District submitted to the State Water Board a request for CWA Section 401 WQC. It is the City's understanding that this request was withdrawn and resubmitted in both May of2015 and 2016.	Please see Master Response 1.1, General Comments, for responses to comments that do not raise significant environmental issues or make a general comment regarding the plan amendments. Please see Master Response 1.2, Water Quality Control Planning Process, for information regarding the Federal Energy Regulatory Commission relicensing process as it relates to the plan amendments, and for responses to comments regarding implementation of plan amendments, including through Clean Water Act section 401 water quality certification.
1019	10	Inadequacies of the project description and SED's environmental baseline The project description is inadequate and confusing. It is virtually impossible to pin down the specific "project" that is being reviewed and analyzed in the SED, particularly in connection with the Merced River. The SED at page ES-1, indicates that the Project involves and includes efforts by the State Water Board to update two elements of the 2006 WQCP: (1) "San Joaquin River (SJR) flow objectives for the protection of fish and wildlife--the flow element of the proposed plan update would increase the required flows left in the rivers and would change the area currently protected by flow requirements by adding compliance locations on the Stanislaus, Tuolumne, and Merced Rivers, instead of only on the SJR at Vernalis," and (2) "Southern Delta salinity objectives for the protection of agriculture--the southern Delta salinity element of the proposed plan update would increase salinity objectives while generally maintaining existing conditions and changing compliance locations." It is also stated at page ES-1 of the Executive Summary that: "[t]he State Water Board is also proposing to update the program of implementation to achieve these objectives, which will include monitoring and special studies to fill information needs and to evaluate the	The amendments to the Bay-Delta Plan constitute the project. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for information regarding the project description and the geographic scope of the Recirculated SED. As noted in that master response, Chapter 1, Introduction, provides the basic project description and refers to Appendix K, Revised Water Quality Control Plan, which contains the entirety of the proposed amendments to the Bay-Delta Plan, and Chapter 3, Alternatives Description, contains details of the plan amendments. Please refer to Master Response 1.2, Water Quality Control Planning Process, for information regarding implementation of the plan amendments in future proceedings, and for responses to comments regarding implementation of plan amendments, including through Clean Water Act section 401 water quality certification. Please see Master Response 2.5, Baseline and No Project, for responses to comments regarding baseline conditions.

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		effectiveness of the new objectives and their implementation." The State Water Board later states that "flow objectives" will be implemented, or "assigned" through "water right actions and water quality actions including Federal Energy Regulatory Commission (FERC) hydropower licensing processes." (p. ES-2) Subsequently, the State Water Board indicates that the Project reviewed in the SED "consists of the following proposed updates to the 2006 Bay-Delta Plan": -The SJR flow objectives for the protection of fish and wildlife, and southern Delta salinity objectives for the protection of agriculture -The program of implementation to implement these objectives, including requirements for the monitoring and special studies needed to determine the effectiveness of, and compliance with, the objectives and to identify needed future changes to the objectives" (ES-3.) As a result of these varying descriptions of the Project, it is not clear whether the Project involves only flow objectives and southern Delta salinity objectives, or flow objectives, southern Delta salinity objectives, and the "program of implementation" of the flow and salinity objectives, including through water right, water quality and FERC proceedings, as well as "monitoring and special studies" to determine the effectiveness of the flow and salinity objectives. Comments from the State Water Board regarding the SED have only added to the confusion over the description and scope of the Project. At the December 19, 2016 State Water Board hearing in Merced, California, regarding the SED, Chairperson Marcus disputed a statement that the State Water Board intends to implement the Project through the Section 401 processes. Chairperson Marcus stated, in part, "Just to clarify, I mean I don't want to either argue with you, but I want you to understand that the recommendation that we try to coordinate with the 401 was to try to be helpful to folks. We would try to implement through Phase 3, which would be a full on water rights hearing." This statement directly contradicts the statements in the SED regarding implementation of the Project. It is not clear how the State Water Board intends to implement the Project, based on the comments from Chairperson Marcus. Is it going to be through the FERC relicensing and Section 40 I processes applicable to the Merced Irrigation District or through an independent process via Phase 3? It is impossible to discern how, when, and through what process, the flow restrictions in the Project, as described in the SED, may be imposed.	
1019	11	It is difficult to determine the specific "flow objectives" which comprise the Project. The Executive Summary states that the "flow proposal" is "expressed as a range from 30 to 50 percent of unimpaired flow (UIF), with a starting flow of 40 percent of UIF, for February-June for the Stanislaus, Tuolumne, and Merced Rivers through to the SJR near Vernalis." (ES-4.) However, the Executive Summary also indicates the Project includes "[a]daptive implementation of unimpaired flows, which allows flows to be shifted in time and shaped in order to provide the greatest benefits to fish and wildlife," (e.g. flow shifting) as well as potential "changes in flows between 30 and 50 percent of unimpaired flow in response to changed information or conditions," and also potential "temporary change[s] in the implementation of the flow requirements" as a result of an "emergency." (Id.) Consequently, it is unclear clear whether the State Water Board is proposing specific, fixed,	Please see Master Response 2.1, Amendments to the Water Quality Control Plan, regarding a description of the plan amendments, including adaptive implementation and minimum reservoir carryover storage targets, and regarding the adequacy of the project description. In addition, please see Appendix K, Revised Water Quality Control Plan, for the revised text of the water quality control plan. As described in Appendix K: "When implementing the LSJR flow objectives, the State Water Board will include minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the LSJR flow objectives will not have adverse temperature or other impacts on fish and wildlife or, if feasible, on other beneficial uses." The description in Chapter 3, Alternatives Description, Master Response 2.1, and Appendix K are consistent and meet the requirement of CEQA to adequately describe the project that is analyzed in the SED.

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		flow restrictions; or general polices and principles that will be used in the future to set flow limits on the Rivers. The SED does nothing to clarify this confusion. For example, the SED does not state the location of the UIF measurement on the Merced River. Table 3 of Appendix K in the SED lists a percent of UIF between 30 and 50 percent and the Executive Summary Section ES5.3 states: "LSJR Alternative 3, with an initial unimpaired flow of 40 percent and an adaptive range of 30 to 50 percent, is the flow proposal recommended for adoption," yet, the SED provides no information on how the total volume of UIF is to be calculated or how this adaptive management concept would be applied. As a result, it is effectively impossible to comment on the efficacy, environmental effects, or reasonableness of this adaptive management component. SED Appendix K, page 28, also states: "When implementing the LSJR flow objectives, the State Water Board will include minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife or, if feasible, other beneficial uses." However, the alternatives described in SED Chapter 3 do not include any description of minimum reservoir carryover storage requirements. Yet, all of the analysis conducted by State Water Board staff includes a higher carryover storage target of 300,000 ac-ft. in Lake McClure, an increase of 185,000 ac-ft. from the current minimum pool requirement contain in the Merced Irrigation District's existing FERC license, Article 44. The confusion on this issue was exacerbated by comments that were made at the January 3, 2017 State Water Board public hearing in Sacramento, when Mr. Les Grober stated that "Carryover storage is very much a part of the project." Consequently, while the SED is unclear and provides no meaningful information on what the carryover storage requirement may be, it appears from Mr. Grober's comments that a carryover storage requirement is part of the Project. Further confusion is created on page ES-4 of the SED, which states that the Project includes "non-flow measures that are complementary to the flow proposal for the protection of fish and wildlife, and that are expected to improve habitat conditions or improve related science and management within the LSJR Watershed." As a result, it is difficult to determine the scope and extent of the various non-flow measures that are reviewed in the SED and potentially considered as part of the Project. This confusing and conflicting definition of the "project" reviewed in the SED is a violation of CEQA, and renders the entire SED invalid as an informational document. The deficiencies in the Project Description also make it effectively impossible to determine what project the City [of Merced] is to analyze in its review of the SED.	
1019	12	Problems with the Environmental Baseline The SED uses a 2009 baseline, which does not take into account changed circumstances since 2009, and current conditions. This is contrary to CEQA principles and requirements, and results in a flawed environmental analysis. Any environmental impact statement (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." (14 Cal. Code Regs. § 15125(a).) "This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. The description of the environmental setting shall be no longer than is necessary to an	Please see Master Response 2.5, Baseline and No Project, for information regarding the Notice of Preparation and baseline, including why baseline conditions were appropriately characterized in the SED. Please see Master Response 1.1, General Comments, for general information regarding the Recirculated SED and the programmatic analysis. Please see Master Response 3.2, Surface Water Analyses and Modeling, for a discussion on the reasonableness of the SED modeling assumptions, including baseline and the use of best available information.

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		understanding of the significant effects of the proposed project and its alternatives." (Id.) Establishment of the baseline is critical to a meaningful assessment of the environmental impacts of a project, because the significance of environmental impacts cannot be determined without setting the baseline. (Save Our Peninsula Committee v. Monterey County Board of Supervisors (2001) 87 Cal.App.4th 99.) The SED provides at page ES-51: "The environmental baseline for this SED is February 2009, the date that the Notice of Preparation for the SED was issued. The baseline reflects the physical conditions in 2009 as they existed under the 2006 Bay-Delta Plan." However, the current SED is significantly different from the SED released in December 2012 and referenced in the 2009 NOP. The current SED discusses and reviews an entirely new "project," consisting of a new, separate, update to the 2006 Bay-Delta Plan. Since the State Water Board did not issue a new NOP for the current Project, baseline conditions should be determined and set as of September 2016, "at the time environmental analysis commenced." The State Water Board admits at page ES-6 of the SED that the current SED "contains substantial changes to the 2012 Draft SED." It is further stated that substantial changes were made to the SED as a result of "the recent drought," and "passage of the Sustainable Groundwater Management Act (SGMA) (Wat. Code §§ 10720 et seq.), which provide[s] for sustainable local groundwater management." (Id.) The failure to consider these changed conditions and account for them in the baseline used in the SED to determine the impacts of the Project effectively invalidates the environmental analysis and violates CEQA.	
1019	13	The State Water Board's authority and jurisdiction to modify water rights through the Project, and the SED It appears that the State Water Board intends to modify and restrict the Merced Irrigation District's established appropriative water rights through its adoption and implementation of the Project. The City [of Merced] understands that the Merced Irrigation District contends that the State Water Board does not have the authority or jurisdiction to do this by means of the Project and SED. Since this is an issue of direct and obvious concern to the Merced Irrigation District, the City respectfully requests that the State Water Board review and consider the legal analysis provided by the Merced Irrigation District in their comments on this issue.	Please see Master Response 1.1, General Comments, and Master Response 1.2, Water Quality Control Planning Process, for responses to comments regarding the water rights priority system and the State Water Board's authorities under the Porter-Cologne Water Quality Control Act and other laws, water rights, the priority system, and the distinction between the program of implementation and implementation of the Bay-Delta Plan through water rights proceedings. As discussed in the section on the Bay-Delta Plan and implementation through water right proceedings, the State Water Board's regulatory authority over water users is greater than the scope of its permitting authority over post-1914 appropriative water right holders. The State Water Board has broad authority to implement the plan amendments through water right actions, including actions involving riparian users and senior appropriators. The State Water Board, however, is not amending any water rights in this planning proceeding.
1019	14	The project does [not] comply with the requirements of a Water Quality Control Plan (WQCP). Legal authority for WQCP: The Porter-Cologne Water Quality Control Act (Water Code §§ 13000 et al.), established a statewide program for water quality control administered by nine regional boards and the State Water Board. The regional boards are primarily responsible for formulation and adoption of water quality control plans covering the State's 16 planning basins (§ 13240) subject to the Board's review and approval (§ 13245). However, the Board alone is responsible for setting statewide policy concerning water quality control (Water Code §§ 13140-13147; Racanelli at 109). The CWA requires states to develop water quality standards for all navigable waters including intrastate navigable waters. (33 U.S.C. 1313(a)(3)(A).) The State Water Board may adopt water quality control plans for waters for which water quality standards are required by the Federal Water Pollution Control Act, more commonly	Please see Master Response 1.1, General Comments, and Master Response 1.2, Water Quality Control Planning Process, regarding the water quality control planning process and State Water Board consideration of beneficial uses within the context of the water quality control planning process. Also, see Master Response 1.2 for responses to comments regarding the legal requirements for adopting or amending water quality control plans, establishing water quality objectives, the State Water Board's consideration of Water Code section 13241 factors under the Porter-Cologne Water Quality Control Act, and consideration of beneficial uses. Please also see Master Response 1.1 for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues.

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		referred to as the CWA, and acts amendatory or supplementary thereto. (Water Code § 13170.) In its capacity as the designated state water pollution control agency for purposes of the Federal Water Pollution Control Act (§ 13160), the Board is empowered to formulate its own water quality control plans ("WQCP"), which supersede conflicting regional basin plans. (§ 13170.)" (United States v. State Water Resources Control Bd., supra, 182 Cal. App. 3d at p. 109.) A "WQCP" consists of a designation or establishment of the waters within a specified area of all of the following: (1) Beneficial uses to be protected; (2) Water quality objectives ("WQO"); [and] (3) A program of implementation needed for achieving water quality objectives. (Water Code § 13050(j).) WQOs "means the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." (Water Code § 13050(h).) The State Water Board is required to act separately as to WQOs, in order to implement the actions described in the program of implementation. The program of implementation in every water quality control plan must "include, but not be limited to: (a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private. (b) A time schedule for the actions to be taken. (c) A description of surveillance to be undertaken to determine compliance with objectives." (Water Code § 13242; SWRCB Cases, 136 Cal.App.4th at 697.) Notably, the State Water Board may "not adopt any water quality control plan unless a public hearing is first held, after the giving of notice" (Water Code § 13244.) Under both the CWA and the Porter-Cologne Act, the focus of a water quality control plan "is the water bodies and the beneficial uses of those water bodies, not the potential sources of pollution for those water bodies." (City of Arcadia v. State Water Resources Control Bd (2011) 191 Cal.App.4th 156, 178.) The State Water Board is required to consider the following when establishing water quality control objectives: (1) past, present, and probable future beneficial uses of water; (2) environmental characteristics of the hydrographic unit under consideration, including the quality of water available thereto; (3) water quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area; (4) economic considerations; (5) the need for developing housing within the region; and (6) the need to develop and use recycled water. (Water Code § 13241; City of Arcadia v. State Water Resources Control Bd. (2010) 191 Cal.App.4th 156, 176-177) The State Water Board is required to consider all demands being made and to be made on regulated waters and the total values involved, beneficial and detrimental, economic and social, tangible and intangible. (Water Code § 13000; Racanelli, at 118.) The Board's paramount duty is to provide "reasonable protection" to beneficial uses, considering all the demands made upon the water. (§§ 13000, 13241.) (Racanelli, at 122.)	
1019	15	The State Water Board has not considered necessary factors for the water quality control plan. The City [of Merced] contends that the Project, and the SED, does not satisfy the requirements for a valid water quality plan. The State Water Board has not weighed and balanced the beneficial uses and related demands upon the water in connection with the	Please see Master Response 1.1, General Comments, and Master Response 1.2, Water Quality Control Planning Process, regarding the legal requirements for adopting or amending water quality control plans, State Water Board authorities related to the water quality control planning process, State Water Board consideration of beneficial uses and of Water Code section 13241 factors under the Porter-Cologne Water Quality Control Act, and the water quality control planning process and Bay-Delta proceedings, including the State Water Board's protection of beneficial uses in the Bay-Delta and tributary watersheds through

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		Project, and the SED, pursuant to Water Code Section 13241. The SED does [not] reflect any meaningful or actual consideration of the demands of other water users on the Merced River, not to mention the other tributaries to the SJR. There is no indication that the State Water Board considered factors and values related to the Merced Irrigation District's diversion and use of water, including the beneficial uses made by local communities such as the City, economic and social considerations that impact the City resulting from the Merced Irrigation District's diversion and use of water, or any of the other factors listed in Water Code Section 13241. When developing water quality objectives, "the Board is directed to consider not only the availability of unappropriated water (Water Code § 174) but also all competing demands for water in determining what is a reasonable level of water quality protection (Water Code § 13000)." (Racanelli, 182 Cal.App.3dat 118.) Similarly, the State Water Board must consider "[w]ater quality conditions that could reasonably be achieved through the coordinated control of all factors which affect water quality in the area." (Water Code, § 1324l(c).) The State Water Board has failed to adequately consider past, present, and probable future beneficial uses of water. (See Water Code § 1324l(a)); failed to adequately consider environmental characteristics of the SJR and its tributaries, including the quality of water available in the SJR and its tributaries. (See Water Code § 1324l(b)); failed to adequately consider economic considerations. (See Water Code § 1324l(d)); failed to adequately consider the need for developing housing in the actual project area. (See Water Code § 1324l(e)); failed to adequately consider the need to develop and use recycled water. (See Water Code § 13241(f)); and failed to adequately consider water pollution, water quality, and the availability of unappropriated water. (See Water Code § 174.) In the SED, the State Water Board ignores and fails to address these issues, or assumes, with little or no explanation, that the Project will not adversely affect the City, the Merced Irrigation District, and other local communities or have any negative impacts on the factors listed in Water Code Section 13241. If water quality objectives are not established in the manner required by law, they will be found to be invalid. (Racanelli, at 120.) Similarly, the court in United States v. State Water Resources Control Bd. (1986) 182 Cal.App.3d 82, rejected a prior version of the Bay-Delta water quality standards because, among other things, the State Water Board failed to balance competing uses of water prior to limiting the use of water rights to achieve the water quality objectives, and failed to make necessary "factual findings to support its order". In the present situation, the State Water Board has again failed to balance the interests and uses of the City, the Merced Irrigation District and other diverters of water against the purported benefits that would be obtained through the Project, and the flow restrictions in the Project. The State Water Board has only offered and relied on conclusory statements, instead of factual findings supported by substantial evidence. The State Water Board is repeating the same mistakes that led to prior Bay-Delta Plans being rejected by the courts in the above referenced decisions. The State Water Board has again offered an unsupported plan for achieving water quality objectives with the apparent hope that the parties will reach agreement on some sort of settlement to allow it to implement the Project. Due to the State Water Board's failure to consider and account for the factors in Water Code Section 13241, the State Water Board's development and attempted implementation of the Project is arbitrary and capricious, and not supported by substantial evidence. An agency decision is "arbitrary or capricious" if there is no "rational connection between the	independent proceedings. The commenter's citation to United States v. State Water Resources Control Bd. (1986) 182 Cal.App.3d 82 (known as the Racanelli Decision) is distinguishable from this proceeding. The Racanelli Decision involved the review of the State Water Board's adoption of the 1978 Water Quality Control Plan for the Sacramento-San Joaquin Delta and Water Right Decision 1485. (United States v. State Water Resources Control Bd., supra, 182 Cal.App.3d at pp. 97–98.) On appeal of the State Water Board's actions, the appellate court concluded that the board had compromised its water quality role by defining its scope too narrowly because the board had established the water quality standards only at a level that could be enforced against the U.S. Bureau of Reclamation's and Department of Water Resources' water rights without attention given to water use or quality degradation by other users such as upstream diverters or polluters. (Id., pp. 118–120.) Here, the State Water Board's development of the water quality objectives is not narrowly defined in terms of enforceable water rights, but rather establishes a reasonable level of protection consistent with Water Code section 13241. Refer to Master Response 1.1, General Comments for information regarding the approach to analyses, including the programmatic-level analyses and applicability of the substantial evidence standard, and voluntary agreements.

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		facts found and the choice made." (National Resources Defense Council, Inc. v. US. E.PA. 966 F.2d 1292, 1297 (9th Cir. 1992).)	
1019	16	The Narrative Objective proposed by the State Water Board reads as follows: "Maintain flow conditions from the San Joaquin River Watershed to the Delta at Vernalis, together with other reasonably controllable measures in the San Joaquin River Watershed, sufficient to support and maintain the natural production of viable native San Joaquin River watershed fish populations migrating through the Delta. Flow conditions that reasonably contribute toward maintaining viable native migratory San Joaquin River fish populations include, but may not be limited to, flows that mimic the natural hydrographic conditions to which native fish species are adapted, including the relative magnitude, duration, timing, and spatial extent of flows as they would naturally occur. Indicators of viability include abundance, spatial extent or distribution, genetic and life history diversity, migratory pathways, and productivity." This lacks sufficient clarity. Government Code Section 11349 requires regulations to be drafted with sufficient clarity that the meaning of the regulation is easily understood by those persons 'directly affected' by them. (Gov. Code, § 11349(c).) In violation of 1 CCR section 16(a)(l) and (3), directly affected persons could interpret the Narrative Objective in several different ways and the Narrative Objective uses terms which do not have meanings generally familiar to those 'directly affected.' The phrase "support and maintain the natural production of viable native SJR watershed populations migrating through the Delta" is ambiguous, undefined, and could easily be interpreted in any number of ways. The Narrative Objective is also impermissibly vague. Due process protections prohibit the enforcement of vague regulations like the Narrative Objective. (Cranston v. City of Richmond (1985) 40 Cal. 3d 755 ("Cranston").) Similar to the clarity standard discussed above, due process precludes enforcement of a regulation based upon impermissible vagueness when the regulated party "could not reasonably understand that [their] contemplated conduct is proscribed." (Cranston, at 764.) The ambiguous terms, such as "support," "controllable measures," and "viable native," make the Narrative Objective so vague, the regulated community would not be able to understand what conduct they are to undertake or avoid.	Please see the SED Executive Summary and Master Response 1.1, General Comments, for a description of the State Water Board's duty to provide water quality objectives for the reasonable protection of beneficial uses in the Bay-Delta, including fish and wildlife. Please also see Master Response 2.1, Amendments to the Water Quality Control Plan, responses to comments regarding the project description and clarity of the proposed plan amendments. Please refer to Master Response 1.2, Water Quality Control Planning Process, for responses to comments regarding implementation through a water rights proceeding and the distinction between the program of implementation and implementation of Bay-Delta Plan objectives through a water right proceeding. The due process claim made by the commenter is not correct. Adoption of the narrative objective does not impose enforceable requirements on any entities. Rather, the State Water Board will have to implement the LSJR flow objectives, pursuant to the program of implementation, in water right and water quality actions (see Chapter 3, Alternatives Description, and Appendix K, Revised Water Quality Control Plan), which will include enforceable requirements. The comment cites to Government Code 11349, subdivision (c), which defines the term "clarity." Pursuant to the Administrative Procedure Act, regulatory provisions must meet certain standards, including the standard of clarity. (Gov. Code, § 11353, subd (b)(4); 11349.1, subd. (a).) The regulatory provisions meet these standards. The plan amendments meet the "clarity" standard because they can be easily understood by persons directly affected by them. Although the regulatory provisions afford flexibility in managing the required flows and do not require adherence to rigid numeric thresholds at prescribed times, such flexibility in the possible outcomes does not render the provisions unclear or capable of multiple meanings. Rather, the regulatory provisions clearly establish the water quality objectives and provide how they will implemented. (See Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 2.2, Adaptive Implementation, for information regarding the plan amendments.) The regulatory provisions meet the standards of Government Code section 11349.1 subdivision (a) and are neither unclear nor vague.
1019	17	The State Water Board fails to comply with the California Water Code with respect to the proposed implementation of the Project. The State Water Board is required to provide "(a) A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private. (b) A time schedule for the actions to be taken. (c) A description of surveillance to be undertaken to determine compliance with objectives." (Water Code § 13242.) In Racanelli, the court explained: "Water quality objectives, we realize, may not always be readily enforceable. The statutory factors enumerated in section 13242, particularly the provisions for recommended action and time schedule, reflect the Legislature's recognition that an implementing program may be a lengthy and complex process requiring action by entities over which the Board has little or no control and also requiring significant time intervals. Thus, we do not believe that difficulty in enforcement justifies a bypass of the legislative imperative to establish water quality objectives which, in the judgment of the Board, will ensure reasonable protection of beneficial uses." (Racanelli, at 122.) Difficulties or delays in implementing and enforcing the Project do not justify the State	As stated in Appendix K, Revised Water Quality Control Plan, the State Board will consider, in a future water rights proceeding or proceedings, the nature and extent of water right holders' responsibilities to meet these objectives. Please see Master Response 1.1, General Comments, regarding water rights and the programmatic nature of the analysis in the SED. Please refer to Master Response 1.2, Water Quality Control Planning Process, regarding the Program of Implementation and implementation through Water Right Proceedings, State Water Board authorities under the Porter-Cologne Water Quality Control Act, water rights, the priority system, and due process; implementation through water quality certification; and the distinction between the program of implementation and implementation of the Bay-Delta Plan through water rights proceedings. Also see Master Response 2.1, Amendments to the Water Quality Control Plan, for information about the program of implementation.

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		Water Board's failure to follow required procedures, including a water rights hearing, prior to implementing the Project. Further, the lack of a clear, reasonable or timely plan for implementation of the Project is a violation of Section 13242, and renders the Project invalid and unenforceable. In SWRCB Cases, the court similarly invalidated a water quality plan where the State Water Board had attempted to avoid following required public procedures, including conducting water rights hearing, for the implementation of the plan. The court first explained: "Contrary to State Water Contractors' assertion, the trial court's decision does not rest on 'the assumption that water right decisions adopted by the...Board must provide for full and immediate implementation of the water quality objectives set forth in any applicable water quality control plan.' The trial court's decision rests on the conclusion (with which we agree) that when a water quality control plan calls for a particular flow objective to be achieved by allocating responsibility to meet that objective in a water rights proceeding, and the plan does not provide for any alternate, experimental flow objective to be met on an interim basis, the decision in that water rights proceeding must fully implement the flow objective provided for in the plan. The guiding principle is that the Board's power to act in a water rights proceeding commenced to implement a water quality control plan is constrained by the terms of the plan it is implementing." (136 Cal.App.4th at 729.) The court further explained: "But the Board could not properly adopt the San Joaquin River Agreement's alternate flow regime, even on a temporary basis, in the water rights proceeding under the guise of a "staged implementation" of the objectives in the 1995 Bay-Delta Plan, because that "staged implementation" fundamentally altered those objectives, and such an alteration could be accomplished only through a properly noticed and conducted regulatory proceeding." (Id.) The court in SWRCB Cases later explained: "It has been noted that 'the principal enforcement mechanism available to the Board [to enforce compliance with water quality control plans] is its regulation of water rights' (United States v. State Water Resources Control Bd., supra, 182 Cal. App. 3d at p. 125.) It would be strange if the Board, having determined in a water quality control plan that a water rights proceeding was necessary to achieve the water quality objectives in that plan, could simply decide not to take action in that proceeding and thereby refuse to enforce its own plan. Fortunately, the Legislature has not authorized the Board to do any such thing. Thus, the Board cannot--as it attempted to do here--make a de facto amendment to a water quality objective in a water quality control plan by simply refusing to take the action that it has identified as necessary to achieve that objective." (Id., at 732.) Yet, the State Water Board is again attempting to avoid its obligation to adopt and implement a water quality plan through a properly noticed water rights hearing. Rather than follow the appropriate process the State Water Board, is apparently attempting to use an unauthorized and inapplicable procedure, the Section 401 WQC process, to implement a water quality plan and amend water rights, without proper public notice and scrutiny.	
1019	18	The State Water Board has failed to demonstrate that the Project will have the requisite impact on water quality. The State Water Board has failed to sufficiently address the "water quality conditions that could reasonably be achieved" as a result of the Project. (Water Code § 13241; City of Arcadia v. State Water Resources Control Bd. (2010) 191 Cal.App.4th 156, 176-177.) The	Please refer to Master Response 1.1, General Comments, for a discussion of water quality benefits and consideration of beneficial uses under Water Code section 13241. The SED does estimate water quality conditions that result from the plan amendments. Please see SED Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, for information describing the estimated water quality temperature benefits and aquatic habitat

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		Project includes a Narrative Objective and two numeric objectives, the latter of which call for 40 percent UIF from February through June on the three eastside tributaries, and a minimum flow of 800 to 1,200 cfs at Vernalis from February through June. (SED, at Appx. K, p. 18.) In spite of the quantitative objectives, the SED fails to disclose the amount of water necessary to meet the objectives. The SED purports to quantify the difference between the flows currently in the river, and the flows that would be in the river if the proposed objectives were satisfied. Specifically, the SED indicates that the long-term mean annual reduction in surface water supplies under the 40 percent UIF objective would be 293,000 ac-ft. (SED, at ES-21.) However, the SED never discloses the total amount of water necessary to satisfy the objectives. The State Water Board has failed to quantify or justify the claimed water quality benefits that it hopes to achieve through the Project, and has failed to quantify and justify any benefit to water quality or to the environment and native fish populations. The State Water Board instead simply assumes that the Project will achieve some unknown and unquantified benefit to water quality, and fish populations. This vague description of alleged water quality benefits that may result from the Project does not satisfy the requirements of Water Code Section 13241. The State Water Board's conclusions and findings in support of the Project must be based on substantial evidence. The State Water Board's lack of support for the benefits of the Project is particularly problematic because of the significant and dramatic negative impacts on the City's, the Merced Irrigation District's and other communities' water supplies that would result from the Project.	benefits from the plan amendments. Please see Master Response 3.1, Fish Protection, the section describing fish and aquatic habitat benefits of the plan amendments. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 3.2, Surface Water Analyses and Modeling, for a description of how unimpaired flow and percent of unimpaired flow are calculated. The SED does quantify the total amount of flow that would be expected in the river in Table ES-13 (for changes in mean annual Feb-June total flows for each river) and in Table ES-14 (by water year type). The number cited by the commenter (293 TAF) in the text is the average annual reduction in water supply (i.e., reduction in diversions) available from the three tributaries under LSJR Alternative 3. Additional documentation of river flows under Baseline and LSJR alternatives can be found in Chapter 5, Surface Hydrology and Water Quality, in Tables 5-16 and 5-17a-d. In addition, river conditions are presented in detail in Appendix F.1, Hydrologic and Water Quality Modeling, beginning in Section F.1.3.2 describing baseline conditions, and followed by Sections F.1.3.3, F.1.3.4, and F.1.3.5 for LSJR Alternatives 2, 3, and 4, respectively, which show target flows (requirements of the combined Federal Energy Regulatory Commission, Biological Opinion, D-1641, and LSJR flow objectives) and resulting river flows (WSE model results including flood spills and other flows), and also graphically in Section F.1.4. Further disclosure of model results showing annual (by water year) amounts required by the LSJR flow objectives can be located in Attachment A to Appendix F.1.
1019	19	It is undeniably clear that the Project will decrease the beneficial use of water for agriculture, domestic, municipal, and industrial uses, and will increase the water dedicated to the fish and wildlife beneficial uses. The SED, however, does not analyze how the Project will protect fish and wildlife beneficial uses. Instead, the SED "assumes" that a change in various metrics (e.g., reservoir surface elevation, reservoir storage, spawning habitat availability [WUA], frequency of floodplain inundation, water temperature [using the 7DADM metric]) of 10 percent or more along with professional judgment would be sufficient to result in a measurable or significant long-term response in fish populations. (SED, at Section 7.4.3, Impact AQUA-1 [p. 7-68], Impact AQUA-2 [p. 7-70], ImpactAQUA-3 [p. 7-74], ImpactAQUA-4 [p.7-103]).) The State Water Board cannot adequately consider the required factors (See Water Code §§ 174, 13000, and 13241) for development of a WQCP if it cannot identify or quantity the benefits it is allegedly conferring on fish and wildlife beneficial uses to the detriment of other established beneficial uses. The SED does not demonstrate a rational connection between the factors the State Water Board is required to consider when establishing water quality control objectives (See Water Code§§ 174, 13000, and 13241) and the Project. The State Water Board has also failed to demonstrate there is a causal link or connection between increased flows and increased fish populations. Evidence and information from other stream systems, in fact, indicates that increased flows of water can have an adverse effect on fish populations. For example, the September 24, 2008 Biological Opinion (BO) for Russian River Water Supply, Flood Control Operations, and Channel Maintenance prepared by the United States Army Corps of Engineers concluded that increased flows of water in the Russian River channel could have an adverse impact on fish populations by making it	Please see Master Response 1.1, General Comments, for information about resources, general methods, and modeling. Also see Master Response 3.1, Fish Protection, for information about floodplain and the adequacy of modeling to support the analyses. Please also refer to Chapter, 19, Analysis of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30 as well as Appendix D, Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives.

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		difficult for young steelhead and coho salmon to grow and thrive. The BO stated, for example, that proposed increased flows "will create excessively high current velocities that will greatly limit the value of 14 miles of Dry Creek and 34 miles of the upper Russian River as rearing habitat for steelhead." (BO, p. xiv) The BO additionally explained that increased flows have "a clear effect on the availability of rearing habitat" for fish species, and that juvenile fish are "dependent on low velocity habitats." (BO, pp. 228, 229.)	
1019	20	The State Water Board would violate the Porter-Cologne Act by regulating flows outside of the geographic region for the Bay-Delta Plan. The State Water Board has violated the Porter-Cologne Act, by attempting to regulate waters outside of the geographical boundaries of the Bay-Delta Plan for the benefit of fish and wildlife resources, also outside of the geographical boundaries of the Bay-Delta Plan. (The SED expressly states: "This Water Quality Control Plan covers the Bay-Delta Estuary and tributary watersheds (Bay-Delta Plan or Plan)." (SED, Appendix K, p. 1.) The SED describes the "plan area" as the Stanislaus River watershed from New Melones Reservoir to the confluence of the SJR, the Tuolumne River watershed from New Don Pedro Reservoir to the confluence of the SJR, and the Merced River watershed from the Lake McClure to the confluence of the SJR, as well as the main stem of the SJR between its confluence with the Merced River downstream to Vernalis. (1-2.) The narrative and numeric objectives of the SED also cover a broad geographic area that extends far beyond the three rivers that are identified as contributing resources for achieving the water quality objectives. Specifically, the Narrative Objective states that inflow conditions from the "San Joaquin River watershed to the Delta" should be maintained at sufficient levels to support and maintain the natural production of viable native SJR watershed fish populations "migrating through the Delta." (SED, at Appx. K, p. 18.) Similarly, the program of implementation states, "[a]lthough the lowest downstream compliance location from the Lower San Joaquin River flow objective is at Vernalis, the objectives are intended to protect migratory Lower San Joaquin River fish in a larger area, including within the Delta...." (SED, at Appx. K, p. 28.) A WQCP is defined by the waters within a specified area and the beneficial uses of those waters. (Water Code § 13050; City of Arcadia v. State Water Resources Control Board (2011) 191 Cal.App.4th 156, 178.) The Bay-Delta Plan specifically regulates the waters within the San Francisco Bay and the Bay-Delta Estuary. (1978 Bay-Delta Plan, at I-3 [stating the purpose of the plan is to "protect beneficial uses of Delta water supplies."]; 2006 Bay-Delta Plan, at 1.) This includes the waters of the San Francisco Bay, the San Pablo Bay, the Suisun Bay, the water bodies of the interior Delta, the Sacramento River from the Delta up to the confluence of the American River, and the Lower San Joaquin River from the Delta up to Vernalis. (2006 Bay-Delta Plan, at Figure 1.) As the court in Racanelli explained, "[t]he Delta generally describes a large lowland area with a labyrinth of natural channels in and around the confluence of the Sacramento and San Joaquin rivers. The combined river water passes through the Delta into Suisun Bay and then into San Francisco Bay. In 1959, the legal boundaries of the Delta were fixed by the Legislature. (§ 12220.) The bounded area is roughly triangular, with Sacramento at the north, Vernalis at the south and Pittsburg at the west." (Racanelli, at 107.)	Refer to Master Response 1.1, General Comments, for a general description of the plan area and extended plan area as well as resources upstream that drain into the plan area. Master Response 2.1, Amendments to the Water Quality Control Plan, discusses the context of the plan area and extended plan area as described in the project description. Please see Master Response 1.2, Water Quality Control Planning Process, regarding the State Water Board's Authorities related to the water quality control planning process. A detailed delineation of the plan area and extended plan area is given in Chapter 1, Introduction. Chapter 2, Water Resources, discusses existing surface resources and the management of those resources within the plan area and extended plan area. The State Water Board identified the geographic scope of the plan amendments to protect the existing fisheries in the LSJR Watershed—the three eastside salmon-bearing tributaries—because that portion of the watershed supports an existing fishery that can be maintained and improved. Moreover, it is these three salmon-bearing tributaries (the Stanislaus, Tuolumne, and Merced Rivers) where reductions in the natural production and returns from the ocean of adult fall-run Chinook salmon have been the largest compared to any of the other tributaries or combinations of tributaries to the Sacramento River or the San Joaquin river during the 1967–1991 and 1992–2010 time periods. The very purpose of the plan amendments is to obtain the necessary flows from these salmon-bearing tributaries. The State Water Board will consider additional measures in future Bay-Delta Plan updates to protect beneficial uses in other areas, such as the Upper San Joaquin River, when those areas are restored and can support a fishery. Including the Upper San Joaquin River would not reduce the quantity of water needed from the Stanislaus, Tuolumne, and Merced Rivers to achieve the plan amendment's goals.

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		The State Water Board does not have authority to expand the boundaries on its own, without new legislation. It cannot expand the Bay-Delta Plan beyond the legal boundaries of the Delta, nor does the State Water Board refer or cite to any authority, which allows it to expand the reach of the Bay-Delta Plan, or the Project, beyond the boundaries of the Delta. Only the Legislature has the authority to expand the boundaries of the Delta to include the "tributary watersheds" of the Delta. Consequently, the State Water Board does not have authority or jurisdiction to implement the Project, or to regulate water quality through the Bay-Delta Plan, within the Merced River, outside the boundaries of the Delta.	
1019	21	Section 401 and the Merced Irrigation District: The State Water Board states that the Project "flow objectives" will be implemented, or "assigned" through "water right actions and water quality actions including Federal Energy Regulatory Commission (FERC) hydropower licensing processes." (ES-1, 2.) State Water Board Members have made contrary statements at public hearings on the SED. The Revised Water Quality Control Plan (Appendix K to the draft SED) further explains that the State Water Board intends to use Section 401 WQCs in FERC relicensings as a major vehicle to implement the Project, including the new LSJR flow objectives. (App. K at pp. 28-31.) The State Water Board states that to coordinate with ongoing relicensings on the SJR tributaries, implementation of the LSJR objectives will be phased in through 2022. (Id. at 28 n.8.) The State Water Board plans to implement through the Section 401 process not only flow requirements based on modeled UIFs at locations on each tributary, but also changes to existing minimum carryover storage requirements at FERC-licensed impoundments, and other "non-flow measures." The SED's Executive Summary indicates that the Project includes "non-flow measures that are complementary to the flow proposal for the protection of fish and wildlife, and that are expected to improve habitat conditions or improve related science and management within the LSJR Watershed." (ES-4.) SED Appendix K, page 28, further states: "When implementing the LSJR flow objectives, the State Water Board will include minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife or, if feasible, other beneficial uses." It is the City [of Merced]'s understanding that the Merced Irrigation District contends that implementation of the Project through the Section 401 process is not authorized by law, and that utilization of the Section 401 process to implement the State Water Board's comprehensive water quality project would far exceed the limited authority granted to the State Water Board to issue a Section 401 WQC. The City respectfully asks the State Water Board to seriously consider the Merced Irrigation District's position on this issue as addressed in their comments to the Board	Refer to Master Response 1.2, Water Quality Control Planning Process, regarding the State Water Board's authorities related to the water quality control planning process as well as the water quality certification and Federal Energy Regulatory Commission licensing process, for responses to comments regarding implementation of plan amendments, including through Clean Water Act section 401 water quality certification. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1019	22	The SED and Project violate statutes, authorities and policies of the state. Protection of Reasonable Uses--State Constitution, Article X, Section 2: The Project violates Article X, Section 2, of the California Constitution, as the Project does not put water resources to "beneficial use to the fullest extent of which they are capable." Article X, Section 2 of the California Constitution states, in part: "It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be	As described in Master Response 1.1, General Comments, the State Water Board understands a perceived conflict between the interests of people versus fish; however, the beneficial uses outlined in Appendix K, Revised Water Quality Control Plan, establish that the plan protects beneficial uses for both fish and human interests. The commenter suggests that the proposed plan amendments are tantamount to a waste or unreasonable use of water, however no evidence is offered to demonstrate that a lower flow objective would achieve the reasonable protection of fish and wildlife beneficial uses. The information provided in Appendix C, Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives, demonstrate that more flows are needed to reasonably protect fish and wildlife beneficial uses. Please see Master Response 1.2, Water Quality Control Planning Process, for additional information regarding the State Water Board's authorities, regulations governing the process and the

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		exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water." The California Constitution therefore prohibits the waste or unreasonable method of use or unreasonable method of diversion of water. (Cal. Const., art. X, § 2.) As the court in Racanelli explained: "All water rights, including appropriative, are subject to the overriding constitutional limitation that water use must be reasonable. (Cal. Const., art. X, § 2; § 100; see also Environmental Defense Fund, Inc. v. East Bay Mun. Utility Dist. (1980) 26 Cal.3d 183.) The Board is expressly commissioned to carry out that policy. (§ 1050.) To that end, the Board is empowered to institute necessary judicial, legislative or administrative proceedings to prevent waste or unreasonable use (§ 275; Cal. Admin. Code, tit. 23, § 764.11), including imposition of new permit terms (Cal. Admin. Code, tit. 23, § 761)." (Racanelli at 129.) A WQO is improper if it requires the unreasonable use of water. (State Water Resources Control Bd. Cases (2006) 136 Cal.App.4th 674, 762; Baldwin v. County of Tehama (1994) 31 Cal.App.4th 166, 183.) The measure of what is a "reasonable use" is a question of fact, to be determined according to the circumstances of each particular case. (Joslin v. Marin Municipal Water Dist. (1967) 67 Ca1.3d 132, 139; Environmental Defense Fnd, Inc. v. East Bay Mun. Utility Dist. (1980) 26 Cal. 3d 183, 194; Jordan v. City of Santa Barbara (1996) 46 Cal.App.4th 1245, 1268.) In determining what a "reasonable" use is, the following considerations must be included in the Board's analysis: (1) the quantity of water needed for the beneficial use served (City of Barstow v. Mojave Water Agency (2000) 23 Ca1.4th 1224, 1241); (2) a comparison of other potential uses (Imperial Irrigation Dist. v. State Wat. Resources Control Bd. (1990) 225 Cal.App.3d 548, 570-571); and (3) local environmental conditions. (Tulare Irr. Dist. v. Lindsay-Strathmore Irr. Dist. (1935) 3 Cal.2d 489, 567.)	consideration of beneficial uses, and additional information regarding Article X, section 2.
1019	23	The Project requires parties on the Tuolumne, Merced, and Stanislaus rivers to limit and restrict diversions so as to provide for a flow of between 30 and 50 percent of UIF on each of those rivers. (SED, ES-4, 3-15.) The SED acknowledges that the increase in flows in the tributaries to the SJR alone will not satisfy the objectives of the WQCP. (SED, p. 19-3, 19-88) Although flows in each river may be adjusted slightly, the SED indicates that flows must be "coordinated to achieve beneficial results in the LSJR related to the protection of fish and wildlife beneficial uses." (SED, Appendix K, p, 31.) If the increase in flows will not satisfy the beneficial uses, which are the objective of the Project, then the increase in flows, and transfer of water away from Merced Irrigation District and other users does not constitute a beneficial use of water because the water must "serve" (meet) the beneficial use. The SED also concludes, and the administrative record supports the conclusion, that as a result of this required bypass there will be significant and unmitigated impacts to agriculture, water supply, groundwater, recreation, service providers, and greenhouse gas emissions. (SED, at 18-44 through 18-50) Yet, the State Water Board has not estimated, projected, or otherwise analyzed the level of protection that the flow requirements in the Project will provide to fish and wildlife beneficial uses. Without doing this analysis, the State	The proposed LSJR plan amendments will provide reasonable protection of fish and wildlife beneficial uses. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for a description of the plan amendments and the purpose and goals of the plan amendments (also identified in Chapter 3, Alternatives Description), as well as the justification for the amendments. Contrary to the commenter's assertion, Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Section 19.1.1 Problem Statement and Section 19.5, Final Discussion of Benefits Analysis, which include pages 19-3 and 19-88, relied upon by the commenter, does not acknowledge that increased flows in the tributaries to the SJR alone will not satisfy the objectives of the water quality control plan set forth in Chapter 3. Chapter 18, Summary of Impacts and Comparison of Alternatives, provides a comparison of alternatives. Under Water Code section 13241, what the State Water Board is required to do is establish water quality objectives that reasonably protect beneficial uses and consider those factors listed in that section, including past, present and probable future beneficial uses of water. The State Water Board has done so by proposing objectives that it has shown will reasonably protect fish and wildlife beneficial uses and considering the section 13241 factors. Please see Master Response 3.1, Fish Protection, providing information regarding the protection of fish, potential environmental impacts on aquatic biological resources, and measurable benefits

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		Water Board could not have accurately determined how much water is necessary to protect the beneficial use served by the LSJR Flow Objective--fish and wildlife. Without demonstrating the benefits the required flows will provide to fish and wildlife, the State Water Board has not properly balanced and compared the uncertain benefit to fish and wildlife beneficial uses with the known impacts to agriculture, water supply, groundwater, and recreation beneficial uses to ensure the water bypassed pursuant to the Project is used reasonably. Thus, the establishment and implementation of the Project, necessarily results in the unreasonable use of water. The State Water Board has not balanced harm to the City [of Merced], other local communities, the Central Valley economy, California agriculture, and domestic users, with the alleged benefits to fish and wildlife. (p. ES-4.) The State Water Board instead unreasonably favors one use of water over multiple previously established reasonable and beneficial uses. In Racanelli, the court explained: The role of the Board in acting upon permit applications has been aptly described by this court as a "necessary balancing process" requiring "maximum flexibility" in considering competing demands of flows for instream purposes and diversions for agricultural, industrial, domestic and other consumptive uses to arrive at the public interest. (Fullerton v. State Water Resources Control Bd. (1979) 90 Cal.App.3d 590, 603.)." (Racanelli at 126.) The State Water Board has not made a proper, reasoned or sufficient inquiry into the benefits of the Project, the reasonable and beneficial uses of water by the Merced Irrigation District, the City and other local communities, and the overriding principles of the State constitution. The State Water Board has instead selected a single option for addressing a perceived environmental problem, without sufficient legal and factual support, and attempted to impose the project on the parties without following required procedures.	to aquatic resources from the plan amendments. In addition, see Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Sections 19.2.3, Results of Temperature Evaluation, and Section 19.3.3, Results of Floodplain Inundation Evaluation, regarding expected temperature and floodplain benefits. Please see Master Response 1.2, Water Quality Control Planning Process, regarding the consideration of beneficial uses, Water Code section 13241, including how a cost-benefit analysis is not required, the process the State Water Board is currently engaged in and subsequent implementation of the Bay-Delta Plan amendments through other proceedings, and the State Water Board's authority to prevent the unreasonable methods of diversion and uses that have deleterious effects on water quality under the California Constitution. Please see Master Response 1.1, General Comments, regarding the approach to the analyses contained in the SED, including reasonable assumptions regarding the implementation of the plan amendments and the programmatic analysis.
1019	24	The Project essentially mandates violation of SGMA. The City [of Merced], the Merced Irrigation District and other local communities are actively working to comply with the Sustainable Groundwater Management Act (SGMA) as mandated by the State of California. The Project is contrary to the principles and goals set forth in SGMA, and effectively requires local communities and the Merced Irrigation District to violate the requirements, obligations and limitations set forth in SGMA. The Project will result in a significant reduction in the supply of surface water available for diversion and use by the Merced Irrigation District and a number of other entities. The SED provides: "Surface water diversion reductions on the Stanislaus, Tuolumne, and Merced Rivers are expected to be approximately 12%, 14% and 16%, respectively. Further, as a result of the substantial reduction of surface water supply on the rivers, it is expected that there would be a substantial depletion of groundwater supplies in the Modesto, Turlock, and Extended Merced Subbasins. These reductions would potentially require service providers to construct new or expanded water supply or wastewater treatment facilities, the construction of which could result in significant environmental effects." (18-51.) The SED states that the significant loss of surface water supplies will be offset and mitigated through the pumping and use of groundwater. (9-62 through 9-64.) The SED further states that the Project "could potentially substantially deplete groundwater supplies and interfere with groundwater recharge and affect groundwater quality in these subbasins. Therefore, impacts on groundwater resources would be potentially significant and unavoidable." (9-	Please see response to comment 1019-8.

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		64.) Yet the SED does nothing avoid the negative impacts to groundwater supplies. The SED does not indicate that the Project calls for or will result in any increased supply of groundwater, through recharge, spreading banking, or any other policy or program. The SED does not quantify or account for the available groundwater supplies that would offset the significant decrease in surface water supplies. Instead, the SED simply assumes that sufficient groundwater will be pumped out of already depleted Subbasins to offset and mitigate the loss of surface water supplies. The State Water Board's call for the increased use of groundwater to offset and mitigate impacts from the Project is directly contrary to SGMA's call for sustainable groundwater management (See E-25 and 26 in SED). The Project, and the SED, do not mention or account for the fact that the Merced groundwater basin is already being over drafted, a fact that led to the SGMA mandate in the first place. By utilizing a 2009 environmental baseline, the SED also does not account for or mention the increased use of groundwater during recent drought years, and the related depletion in local, and statewide, groundwater supplies. The SED's use of and reliance on groundwater and pumping information from 2009 is misleading and inaccurate. The SED should have considered the impact of the Project on current groundwater supplies, and the current availability of groundwater to mitigate the impacts of the Project. The assumptions in the SED regarding reduction of negative impacts and sustainability (ES-29 in SED) are, therefore, not supported by substantial evidence. The assumptions are not supported by any current, credible or convincing evidence. The Project's effectively requires increased pumping and use of groundwater that will result in unsustainable basins, increased overdraft conditions and increases in the use of groundwater, without any replacement water supply, all in violation of SGMA's requirements. Increased pumping of groundwater as a result of the Project will result in substantial, wide ranging and unavoidable negative impacts, including decreases in the quality of water in the basin, increased energy costs, subsidence and decreases in the quality of groundwater and consequent negative impacts on the City, its residents and all other local communities that rely on groundwater for their water supply. SGMA provides: "It is the policy of the state that groundwater resources be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses. Sustainable groundwater management is best achieved locally through the development, implementation, and updating of plans and programs based on the best available science. (Water Code § 113.) SGMA further provides: "To enhance local management of groundwater consistent with rights to use or store groundwater and Section 2 of Article X of the California Constitution. It is the intent of the Legislature to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater." (Water Code § 10720.1.) SGMA also explains that the Legislature intended that SGMA would allow parties "[t]o manage groundwater basins through the actions of local governmental agencies to the greatest extent feasible, while minimizing state intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner." (Water Code § 10720.1(h).) SGMA requires the preparation of a Groundwater Sustainability Plan (GSP) in a basin in a critical state of overdraft, as with the Merced basin, by 2020. (Water Code§ 10727.) The Project effectively mandates violation of all of these policies and requirements.	

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		The Project would effectively make compliance impossible for the City, other local communities and the Merced Irrigation that will lose water supplies, and water rights, through the Project, The Project would instead call for and require the City, other local communities and the Merced Irrigation District to significantly increase production and use of groundwater, without any corresponding offset or increase in groundwater supply. The SED should not deliberately avoid reviewing SGMA (See ES-28. in SED.) By failing to conduct the required water rights hearing, the State Water Board improperly attempts to avoid addressing and dealing with the effects and implications of SGMA on the Project. Via a water rights hearing the State Water Board could consider the role and effect of SGMA on the Project, and on the impact of the Project on SGMA requirements. Since the legislature previously adopted SGMA, SGMA should take priority over the Project and the call for increased pumping to offset diminished surface water supplies. The Project will not be effective or enforceable unless and until it complies with SGMA's requirements.	
1019	25	The Project is unintelligibly vague and uncertain. The details and objectives of the Project, including the flow restrictions, and the State Water Board's apparent plan to implement the Project, are not clear and are subject to different interpretations, making compliance and enforcement difficult. The City [of Merced] and other parties, including, but not limited to, the Merced Irrigation District, do not have a clear or consistent understanding of what they will have to do to comply with and implement the Project, nor can they determine how and to what extent they will have to limit and alter their future operations and management of water resources. As a result the Project violates Government Code Section 11349, which requires regulations be drafted with sufficient clarity that the meaning of regulations are easily understood by those persons directly affected by them. (Govt. Code, § 11349(c).) California regulations will violate the "clarity" requirement if: "(1) the regulation can, on its face, be reasonably and logically interpreted to have more than one meaning; or (2) the language of the regulation conflicts with the agency's description of the effect of the regulation; or (3) the regulation uses terms which do not have meanings generally familiar to those 'directly affected' by the regulation, and those terms are defined neither in the regulation nor in the governing statute; or (4) the regulation uses language incorrectly. This includes, but is not limited to, incorrect spelling, grammar or punctuation; or 5) the regulation presents information in a format that is not readily understandable by persons 'directly affected;' or (6) the regulation does not use citation styles which clearly identify published material cited in the regulation." (1 CCR, § 16(a)(1)-(6).) The Government Code defines a "regulation" as "every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure." (Gov. Code, §	The State Water Board disagrees that the plan amendments fail to meet the clarity requirement, which applies to the State Water Board through the specific rulemaking requirements for water quality control plans in Government Code section 11353. The commenter does not explain why they believe those portions of the plan amendments that are regulatory lack clarity. The proposed numeric LSJR flow objectives, for example, unambiguously state, in part, that a percent of unimpaired flow between 30 percent and 50 percent shall be maintained from February to June. On its face, the language does not have more than one meaning, conflict with the State Water Board's description of the objective, lack definition, or use language incorrectly. It is not presented in a format that is not readily understandable. Nor does it use a citation style that does not clearly identify published material. Every effort has been made to ensure that Appendix K, Revised Water Quality Control Plan, and the regulatory portions thereof meet the clarity requirement. The comment cites to Government Code section 11349, subdivision (c), which defines the term "clarity." Pursuant to the Administrative Procedure Act, regulatory provisions must meet certain standards, including the standard of clarity. (Gov. Code, § 11353, subd (b)(4); 11349.1, subd. (a).) The regulatory provisions meet these standards. Although the regulatory provisions afford flexibility in managing the required flows and do not require adherence to rigid numeric thresholds at prescribed times, such flexibility in the possible outcomes does not render the provisions unclear or capable of multiple meanings. Rather, the regulatory provisions clearly establish the water quality objectives and provide how they will implemented. With respect to what the commenter has to do "to comply with and implement the Project" and "how and to what extent they will have to limit and alter their future operations and management of water resources," Appendix K states: "This [Bay-Delta] plan, however, is not to be construed as establishing the responsibilities of water right holders. Nor is this plan to be construed as establishing the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in this plan. The State Water Board will consider, in a future water rights proceeding or proceedings, the nature and extent of water right holders' responsibilities to meet these objectives." Appendix K makes clear in numerous places that the State Water Board will implement the Bay-Delta Plan water quality objectives, including the LSJR flow objectives, through water right or water quality actions. As it explains, "[u]nder its water rights and water quality authority, the State Water Board will continue, as necessary and appropriate, to determine the contributions from water right permit and license holders needed to implement the objectives in this Plan. Water right responsibilities may be assigned by conducting a water right proceeding at which the Board will take into consideration the requirements of the Public Trust Doctrine and the California Constitution, Article X, section 2. The State Water Board will also continue, as necessary and appropriate, to use its Clean Water Act section 401 water quality certification authority to implement objectives in this Plan, and may take other actions under its water quality authority to implement

Table 4-1. Responses to Comments			
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		11342.600.) Because the Project contains standards and limits adopted by the State Water Board to implement the Porter-Cologne Act, the Project, and in particular the follow objectives, qualifies as a regulation and must comply with the Government Code requirements on clarity.	objectives in this Plan." This means that the State Water Board has not yet determined the contributions from water right permit and license holders, such as the commenter, needed to implement the LSJR flow objectives. Please see Master Response 1.2, Water Quality Control Planning Process, regarding requirements governing the water quality control planning process.
1019	26	Lack of proper notice: The State Water Board is required to provide adequate public notice describing each proposed action to be taken. (23 CCR, §§§ 647.2(b); 649.2; 649(b).) The State Water Board failed to properly give notice of the objectives and components of the Project. The original September 15, 2016 notice of availability for the revised SED provides: "The proposed Plan Amendment would update the 2006 Bay-Delta Plan's San Joaquin River flow and southern Delta salinity water quality objectives and the program of implementation for those objectives. The proposed flow objectives would require increased flows from three eastside, salmon-bearing tributaries to the San Joaquin River: the Stanislaus, Tuolumne and Merced Rivers. The proposed Plan Amendment also includes non-regulatory updates." (p. 1.) The State Water Board failed to give notice, however, that the Project included "adaptive implementation of unimpaired flows," and "non-flow measures." (ES-4.) The State Water Board also failed to give notice that the Project would attempt to expand the 2006 Bay-Delta Plan beyond the boundaries of the Bay-Delta, that the Project would be implemented through the FERC Section 401 certification process, or that the objectives, purpose and goals of the WQCP had changed. The State Water Board additionally failed to give notice that it would seek to regulate water quality in the Bay-Delta outside of the February through June time period, as provided for in the prior versions of the Bay-Delta water quality plan. The September 15, 2016 notice of availability for the revised SED does not mention or indicate that the Project would expand the timing and scope of the 2006 Bay-Delta Plan.	The commenter is incorrect that the State Water Board failed to properly notice the plan amendments. Section 647.2(b) of title 23 of the California Code of Regulations, cited by the commenter, requires Board meeting notices to specify the date, time, and location of the meeting and the agenda of items to be considered. The Board's "Notice Of Filing And Recirculation, Notice Of Opportunity For Public Comment And Notice Of Public Hearing On Amendment To The Water Quality Control Plan For The San Francisco Bay/Sacramento-San Joaquin Delta Estuary And Supporting Draft Revised Substitute Environmental Document" and each revision thereof (collectively, the "Notice") satisfied these requirements. The Notice described the project as "updat[ing] the 2006 Bay-Delta Plan's San Joaquin River flow and southern Delta salinity water quality objectives and the program of implementation for those objectives," and noted that "the proposed LSJR flow objectives would require increased flows from three eastside, salmon-bearing tributaries to the San Joaquin River: the Stanislaus, Tuolumne and Merced Rivers." The commenter stated that notice did not specify that the proposed implementation of the water quality objectives included "adaptive implementation of unimpaired flows," "non-flow measures" and the "FERC 401 certification process." These measures are encompassed by aspects of the project as described in the Notice. CEQA does not require that level of specificity to be included in the notice itself, merely "a brief, compact summary without elaboration or detail." (Maintain Our Desert Environment v. Town of Apple Valley (2004) 124 Cal.App.4th 430, 441-42.) Nor does section 3779 of the Board's CEQA regulations for certified regulatory programs (Cal. Code Regs., tit. 23, § 3779), or any other applicable noticing requirement for the plan amendments. It sufficed for the Notice to describe the project as updating water quality objectives and their program of implementation. Likewise, the notice's reference to "updat[ing] water quality objectives" contemplates the possibility that the parameters of the objectives—such as their timing or precise location—may change. It is unclear what the commenter means in saying that the purpose and goals of the Bay-Delta Plan have changed. The purpose and goal of any water quality control plan is, consistent with its definition, to identify beneficial uses of waters, water quality objectives to protect those beneficial uses, and a program of implementation needed for achieving the water quality objectives. (See Wat. Code, § 13050, subd. (j).) That purpose and goal has not changed with the proposed plan amendments. In fact, it is being furthered because existing water quality objectives are not adequately protecting fish and wildlife beneficial uses. The 5-day hearing on the proposed plan amendments was part of a rulemaking proceeding to hold a hearing and receive public comments on the proposed amendments, as required by Water Code section 13244, not an informational proceeding. California Code of Regulations, title 23, sections 649(b) and 649.2, pertaining to informational proceedings, thus does not apply. Even if it did, the Notice satisfied its requirements for a statement on the nature and purpose of the proceeding and a statement of the time, date, and place of the proceeding.
1019	27	The SED improperly delegates authority to the Executive Director. The delegation of authority to the Executive Director to approve the Implementation Plan, and the program of implementation for the Project, directly violates State Water Resources Control Board Resolution No. 2012-0061 and 23 CCR § 5.	Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for responses to comments about the Executive Director's authority. This comment does not raise significant environmental issues or provide a basis for modifying the plan amendments. Water Code section 7 authorizes the State Water Board to delegate its authority to its Executive Director and its staff. (Wat. Code, § 7.) In State Water Board Resolution No. 2012-0061 the State Water Board delegates to the Executive Director the authority to

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		At Appendix K, the SED states: "The LSJR flow objectives for February through June shall be implemented by requiring 40 percent of unimpaired flow, based on a minimum 7 -day running average, from each of the Stanislaus, Tuolumne, and Merced Rivers. This required percentage of unimpaired flow, however, may be adjusted within the range allowed by the LSJR flow objectives through adaptive methods detailed below. The required percentage of unimpaired flow is in addition to flows in the LSJR from sources other than the LSJR Tributaries. The required percentage of unimpaired flow does not apply to an individual tributary during periods when flows from that tributary could cause or contribute to flooding or other related public safety concerns, as determined by the State Water Board or Executive Director through consultation with federal, state, and local agencies and other persons or entities with expertise in flood management." (Appendix K, p.29) The SED also provides: "The Executive Director may approve changes to the compliance locations and gage station numbers set forth in Table 3 if information shows that another location and gage station more accurately represent the flows of the LSJR tributary at its confluence with the LSJR." (Id.) The SED further indicates that [t]he State Water Board will establish a STM Working Group to assist with the implementation, monitoring and effectiveness assessment of the February through June LSJR flow requirements" (Appendix K, p. 32.) Later in Appendix K, the SED states: "The STM Working Group, or State Water Board staff as necessary, will, in consultation with the Delta Science Program, develop proposed procedures for allowing the adaptive adjustments to the February through June flow requirements discussed above. The State Water Board or Executive Director will consider approving procedures for allowing those adaptive adjustments within one year following the date of OAL's approval of this amendment to the Bay-Delta Plan." (Appendix K, p. 34.) The adoption and/or modification of the adaptive management plan is a controversial matter, based on substantial public concern and involves significant policy considerations. The Executive Officer of the State Water Board is prohibited from approving permits or other approvals, which are controversial matters, based on substantial public concern. (23 CCR § 5(a)(8).) The Executive Officer of the State Water Board is prohibited from approving permits or other approvals which involve significant policy considerations. (23 CCR § 5(a)(9).) The Executive Officer of the State Water Board is prohibited from approving permits or other approvals requiring the preparation of an environmental impact report by the board. (23 CCR § 5(a)(10).) The Executive Officer of the State Water Board is prohibited from adopting regulations. (State Water Resources Control Board, Resolution No. 2012-0061, at 1.) The Executive Officer of the State Water Board is prohibited from adopting state policy for water quality control. The Executive Officer of the State Water Board is prohibited from adopting or approving WQCP or plan amendments. (Id.) There is "a tight line between lawful and unlawful delegation of regulatory authority." (International Assn. of Plumbing etc. Officials v. California Building Stds. Com. (1997) 55 Cal.App.4th 245, 253 [holding that model building codes developed by private parties cannot become binding regulations without agency review and approval].) In Central Delta Water Agency v. State Water Resources Control Ed. (2004) 124 Cal.App.4th 245 232, the court found that the State Water Board had wrongfully delegated its authority to its staff. In that case, the State Water Board approved applications to appropriate water that did not "set forth the actual use or uses [to be made] of the impounded water." (Id. at p. 261.) This court concluded that the Board "may not delegate the authority to determine the	conduct and supervise the board's activities. These activities include "implementing the State Water Board's policies and regulations." (State Water Board Resolution No. 2012-0061, ¶ 2.) The delegation expressly precludes the Executive Director from taking certain actions, including "[a]dopting or approving water quality control plans or plan amendments." (Id., ¶ 3.3.) Although the Executive Director is directed to bring certain matters to the attention of the State Water Board, such as highly controversial matters and matters involving significant policy questions, this direction does not restrict the Executive Director's authority. (Id., ¶ 12.) The authority the State Water Board delegates to the Executive Director in response to the implementation of the plan amendments is within the scope of the Board's power to delegate. The plan amendments delegate to the Executive Director the authority to take actions related to implementation of the water quality objectives and performance of monitoring and special studies. For example, with respect to the LSJR flow objectives, as discussed in Appendix K, Revised Water Quality Control Plan, this authority includes approval of the following: (1) changes to compliance locations and gage station numbers for flow requirements; (2) adaptive adjustments to the flow requirements; (3) procedures for allowing adaptive adjustments to flow requirements; and (4) annual adaptive operations plans. The Executive Director is also delegated authority to approve plans in connection with implementation and monitoring associated with the southern Delta salinity objectives. The Executive Director is not delegated authority to adopt or amend the Bay-Delta Plan. Rather, the program of implementation delegates management of implementation activities, not fundamental policy determinations regarding the establishment of the water quality objectives, to the Executive Director. The cases cited by the commenter do not support the commenter's position that the delegation to the Executive Director in the plan amendments was improper. Central Delta Water Agency v. State Water Resources Control Board (2004) 124 Cal.App.4th 245 involved the narrow issue of the State Water Board's authority to defer findings to staff after a hearing in a proceeding on a water right application and does not support the commenter's contention in this proceeding, which involves the implementation of water quality objectives. In Central Delta, the court found that the Board "may not delegate the authority to determine the merits of an application for a permit to appropriate water, except as provided by statute." (Id., at p. 261.) The plan amendments do not delegate water right permitting authority to the Executive Director. Light v. State Water Resources Control Board (2014) 226 Cal. App.4th 1463 involved the State Water Board's adoption of a regulation for frost protection, which delegated the development of certain requirements to water demand management programs. The court noted that, "[a]n unconstitutional delegation of authority occurs only when a legislative body (1) leaves the resolution of fundamental policy issues to others or (2) fails to provide adequate direction for the implementation of that policy. [Citations omitted.]" (Id. at p. 1491.) In that case, the court concluded that the State Water Board had not unlawfully delegated its authority, but had instead delegated the administration of a Board-approved policy with standards for its implementation. (Id., at pp. 1491-1492.) Here, the State Water Board will make the fundamental policy decisions underlying its regulatory action by adopting the plan amendments, including the water quality objectives and standards for the implementation of the objectives. The Executive Director's authority over the implementation of Board's regulatory action is consistent with the lawful delegation of authority. Further, the commenter incorrectly relies on California Code of Regulations, title 23, section 5, in support of its contention that the plan amendments improperly delegate authority to the Executive Director. This regulation does not apply to the State Water Board or its Executive Director, but instead solely applies to the Central Valley Flood Protection Board, which is a different agency altogether. The Central Valley Flood Protection Board is contained within the Resources Agency. (Cal. Code Regs., tit. 23, § 4, subd. (c); Wat. Code, § 8521.) The mention of the board's delegations in section 5 refers to delegations by the Central Valley Flood Protection Board. The State Water Resources Control Board is a different state agency that resides within the California Environmental Protection Agency. (Wat. Code, § 175, subd. (a); see also id., §§

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		merits of an application...to appropriate water, except as provided by statute." Similarly, in Light v. State Water Resources Control Bd., 226 Cal. App. 4th 1463, 1491, the court stated 'the doctrine of unlawful delegation requires the Legislature or a regulatory agency to exercise the final say over whether any particular regulation becomes law." Consequently, the State Water Board is not authorized to delegate its authority on these issues to the Executive Director.	25 ["Board" "means the State Water Resources Control Board], 13050, subd. (a) [defining "State Board" to mean State Water Resources Control Board].) The regulations adopted by the Central Valley Flood Protection Board delegating authorities to its Executive Officer do not refer or apply to the State Water Board's Executive Director.
1019	28	Noncompliance with Federal Antidegradation Policy: Federal law requires states to develop and adopt statewide antidegradation policies, which protect and maintain "existing instream uses and the level of water quality necessary to protect existing uses." (40 CPR § 131.12(a)(1).) Under Federal law, "[w]here the quality of the waters [of the state] exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds:" (i) "allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located;" (ii) the State "assure[s] water quality adequate to protect existing uses fully;" and the State assures that "the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control" will be achieved. (40 CPR§ 131.12(a)(2).) The State Water Board adopted California's antidegradation policy in Resolution No. 68-16. Under Resolution No. 68-16, "[w]henever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective," such existing water quality must be maintained until the regulating agency demonstrates: (i) "any change will be consistent with maximum benefit to the people of the State;" (ii) the policy "will not unreasonably affect present and anticipated beneficial use of such water;" and (iii) the policy "will not result in water quality less than that proscribed in the policies."(State Water Resources Control Board Resolution No. 68- 16(1).) Through the Project, and in the SED, the State Water Board has failed to perform the necessary analysis to determine whether the proposed amendments to the WQCP will comport with federal antidegradation requirements and Resolution No. 68-16.	Please see Master Response 3.3, Southern Delta Water Quality, for responses to comments regarding why the southern Delta salinity objectives are being updated and discussion of why the update will not cause degradation of water quality. Justification and analysis for the southern Delta salinity objective is presented in Appendix E, Salt Tolerance of Crops in the Southern Sacramento-San Joaquin Delta. Additional analysis of potential water quality impacts of the plan amendments is presented in Chapter 5, Surface Hydrology and Water Quality. In addition, see Chapter 23, Antidegradation Analysis, for a discussion of state and federal antidegradation policies. The State Water Board has complied with the Environmental Protection Agency's antidegradation requirements under 40 Code of Federal Regulations §§ 131.6(d) and 131.12 by adopting the "Statement of Policy With Respect to Maintaining High Quality of Waters in California," Resolution 68-16, as part of state policy for water quality control, which guides the regulatory programs for the State and Regional Water Boards and is binding on all state agencies. (See Wat. Code, § 13140 et seq.)
1019	29	CEQA requirements: The State Water Board has not complied with the requirements of CEQA in connection with the SED, despite statements in the SED to the contrary. The SED states: "In addition to other legal requirements, the State Water Board must comply with the requirements of CEQA when adopting water quality control plans (WQCP). The purpose of this SED, in part, is to provide an environmental analysis of the proposed amendments to the Bay-Delta Plan and the reasonably foreseeable methods of compliance with the amendments, as well as consideration of other factors. CEQA authorizes the Secretary of the Resources Agency to certify a regulatory program of a State agency as exempt from the requirements for preparing EIRs, negative declarations, and initial studies if certain conditions are met. (Pub. Resources Code, § 21080.5.) The State Water Board's water quality control planning program is a certified regulatory program and thus, a SED may be prepared in lieu of an EIR. (Ibid.; Cal. Code Regs., tit. 14, § 15251, subd. (g).)" (SED 1-3.) The SED also provides: "When proposing to undertake or approve a discretionary project,	Please see Master Response 1.1, General Comments, for information regarding the public outreach process, and the programmatic analysis in the SED and the difference between programmatic and project-level analyses, and for information regarding the impacts evaluated in the SED as well as the approach to the analysis and the watersheds considered. As identified by the Certified Regulatory Program, the State Water Board has appropriately conducted project-level analysis. Additional CEQA compliance may be necessary of those agencies who are responsible for complying with the plan or policy when they determine the manner in which they will comply (Title 23 Division 3, Chapter 27, Article 1, Section 3777). The degree of specificity in an environmental document corresponds to the degree of specificity involved in the underlying activity which is described in the environmental document (State CEQA Guidelines, Section 15146). As acknowledged by the State CEQA Guidelines, an environmental document disclosing the impacts of a construction project will necessarily be more detailed than those evaluating a plan because the effects of the construction can be predicted with much greater accuracy (State CEQA Guidelines, Section 15146(a)). An environmental document analyzing a plan need not be as detailed as an environmental document on a specific construction project ((State CEQA Guidelines, Section 15146(b)). The fact that the analyses is programmatic in the SED does not negate the ability of commenters to provide comments on the analysis.

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		state agencies must comply with the procedural and substantive requirements of the California Environmental Quality Act (CEQA). (Pub. Resources Code, § 21000 et seq.) CEQA applies to discretionary projects that may cause a direct or indirect physical change in the environment. The State Water Board is the lead agency under CEQA. This SED was prepared in compliance with CEQA and other laws to analyze the potential environmental impacts of adopting and implementing the proposed amendments to the Bay-Delta Plan associated with Phase I. Environmental impacts associated with Phase II will be evaluated in a separate environmental document." (SED 1- 3.) The SED concludes with: "This SED fulfills the requirements of CEQA and the State Water Board's CEQA regulations (Cal. Code Regs., tit. 23, § 3775 et seq.) to analyze the environmental effects of the proposed regulatory activity, as well as requirements of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) and other applicable requirements as described in Section 1.4, State Water Board Authorities. This SED will inform the State Water Board's consideration of the potential amendments to the 2006 Bay-Delta Plan described above." (1-4.) Notwithstanding these statements, the SED does not fulfill the requirements of CEQA, as it does not adequately and clearly define or describe the proposed Project, nor does it sufficiently or properly analyze the impact of the Project on the environment. The SED is not an effective or valid substitute for an EIR. The SED fails as an effective and valid informational document. The fundamental purpose of an EIR 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." (Public Resources Code § 21061.) Full and candid disclosure, and an honest assessment of the environmental consequences of governmental action, is the foundation of the CEQA process. The foremost principle under CEQA is that the Legislature intended the act "to be interpreted in such manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (Friends of Mammoth v. Board of Supervisors (1972) 8 Cal. 3d 247, 259.) The purpose of an EIR is to give the public and government agencies the information needed to make informed decisions, thus protecting '"not only the environment but also informed self-government."' (In re Bay-Delta etc., (2008) 43 Cal. 4th 1143, 1162-63.) An EIR must effectively disclose to the public the analytic route the agency traveled from evidence to action. (Topanga Assn. for a Scenic Community v. County of Los Angeles (1974) 11 Cal.3d 506, 515.) An EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project. (Laurel Heights Improvement Assn. v. Regents of University of California (1988) 47 Cal. 3d 376, 405.) An EIR must contain facts and analysis, not just the agency's bare conclusions or opinions. (Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn. (1986) 42 Cal.3d 929, 935.) In contrast to the underlying purpose and principles of CEQA, the State Water Board has, throughout the SED, failed to provide all of the details of the Project, failed to adequately disclose or address the actual goals and purpose of the Project, and failed to conduct any real analysis of the Project's impact on the environment. The State Water Board is proposing to undertake a project that could have a significant negative impact on the Bay-Delta region, the environment and natural resources of the San Joaquin Valley, and the entire State. The State Water Board is essentially attempting to adopt and implement this significant project	As identified in the State CEQA Guidelines: an EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences (State CEQA Guidelines Section 15151). An evaluation need not be exhaustive for commenters to provide comments or for decision makers to make a decision. In addition, as identified by the State CEQA Guidelines, persons and public agencies should focus on the sufficiency of the document 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. The adequacy of an environmental document is determined in terms of what is reasonably feasible, in light of factors such as the magnitude of the project at issue, the severity of its likely environmental impacts, and the geographic scope of the project (State CEQA Guidelines Section 15024(a)). Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for responses to comments regarding the project description and geographic scope of the SED. Please see Master Response 2.4, Alternatives to the Water Quality Control Plan Amendments, regarding the adequacy of the range of alternatives evaluated in the SED. The State Water Board has made every effort to present data, information and conclusions of the SED in an easy-to-understand manner for the public and decision-makers. Specifically, the Executive Summary presents the overview of the plan amendments, alternatives, and summary of impact determinations in Table ES-29. Chapter 17, Cumulative Impacts, Growth Inducing Effects, and Irreversible Commitment of Resources, addresses cumulative impacts.

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		quickly, without full disclosure of the impacts and effects of the Project, and without meaningful public review or participation. The failure to disclose complete and accurate information is particularly troubling because of the significant and wide-ranging impact the Project will have on water supplies, the environment and the economy of the City [of Merced], the Central Valley, and the State. The Project would reallocate and transfer significant quantities of water supplies, dramatically change the economy of the San Joaquin Valley, and potentially affect the way of life for millions of Californians. The Project will deprive the region of valuable and necessary water supplies, jobs, agriculture, infrastructure and other assets, at the same time that the economy and environment of the region has been severely impacted by the drought, the prior economic downturn, climate change and political, environmental and economic uncertainty. Despite these significant impacts, it appears that the State Water Board is focused not on accurately and completely disclosing the effects and details of the Project to the public, but on quickly and effectively implementing the Project with the least amount of resistance, review and analysis. The State Water Board is attempting to use the SED, and the CEQA process, not to inform the public, but to quickly implement the Project without significant public review and consideration. The State Water Board has not provided a clear and accurate analysis of the Project, and the impacts of the Project. The State Water Board does not accurately define and describe the Project, the geographic scope of the Project, or present, long term and cumulative impacts of the Project on the region's water supplies, environment, and economy. The State Water Board also claims that because the SED is a "programmatic" environmental document, it can avoid reviewing the impacts of the Project until some undefined and undetermined time period, without any assurance that it will ever complete the required environmental review and analysis. It also appears that the State Water Board violated CEQA by committing itself to the Project and deciding on a definite course of action with regard to the Project, prior to preparation of the SED. The State Water Board has effectively precluded any meaningful consideration of alternatives to the Project in advance of and independent of the requirements of CEQA. That constitutes a clear and direct violation of CEQA, as explained in Save Tara v. City of West Hollywood (2008) 45 Cal. 4th 116.	
1019	30	Technical defects and economic impact: It is the City [of Merced]'s understanding that the Merced Irrigation District has found serious defects in the SED due to numerous technical errors and omissions, and analysis that either is flawed or does not use the best available science. Meanwhile the Merced Irrigation District has previously provided, and will provide in its comment letter, an abundance of economic and scientific analysis that should be thoughtfully reviewed by the State Water Board.	The plan amendments are based on nearly 8 years of study and analysis. The SED was prepared to inform the decision-makers about the environmental consequences of its decision. The State Water Board strived to use the best available science throughout the SED. A variety of data were obtained for the water quality planning process: quantitative data from peer-reviewed published literature on topics specific to the plan area; data from peer-reviewed published literature on topics outside the plan area but relevant to the plan amendments; unpublished quantitative data from within the plan area and from outside of the plan area; qualitative data or personal communication with topical experts; and expert opinion if no other sources were available. Please see Master Response 1.1, General Comments, regarding the adequacy of the approach to the analyses and the scientific basis for the plan amendments, and regarding economic considerations. Please see Master Response 8.2, Regional Agricultural Economic Effects, for discussion of the economic analysis performed by Merced Irrigation District. Also, please see Master Response 8.1, Local Agricultural Economic Effects and the SWAP Model, regarding the scope of the agricultural economic analysis and a

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			potential contraction in the agricultural industry. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1019	31	One of the City [of Merced]'s primary concerns is the economic impact and loss of jobs, and consequent social impacts, which will be caused by the proposed project. The Merced Irrigation District's analysis indicates that the SED grossly underestimates these impacts. The reduction in available water supplies reduces agricultural and hydropower output, employment, and labor income below baseline every year. In below normal, dry and critical water years, which occur 54% of the time, the total estimated annual economic output losses range between $1 million (in above normal water-year types) to $238 million (in dry years). While full- and part-time jobs would not be impacted in wet and above normal water-year types; in all other water-year types the annual number of jobs lost is estimated to range between 597 and 984, with the subsequent reduction in labor income ranging between $35 million and $58 million. (See Merced Irrigation District's comment letter, Section 6.5) As the largest City in the service area of the Merced Irrigation District, much of this economic impact will be borne by the City and its residents. These considerations alone should give the Board more than sufficient cause to reconsider the proposed project and SED.	Please see Master Response 8.2, Regional Agricultural Economic Effects, for a discussion of the economic analysis performed by Merced Irrigation District, and for information on economic effects on dairy and beef cattle and employment. Also, please see Master Response 8.1, Local Agricultural Economic Effects and the SWAP Model, regarding the scope of the agricultural economic analysis and a potential contraction in the agricultural industry. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1019	32	The City [of Merced] requests that the State Water Board seriously consider the human impact of the proposed project and SED on the citizens of the City of Merced and the entire San Joaquin Valley. The proposed project and SED as currently drafted will have very real and negative impact on thousands of individuals in the local region that should not be overlooked.	Please see Master Response 1.1, General Comments, acknowledging the concerns of community members. Please also see Master Response 1.2, Water Quality Control Planning Process, regarding the consideration of beneficial uses including water supply needs for consumptive uses. Please refer to Master Response 2.1, Amendments to the Water Quality Control Plan, for responses to comments regarding support for the plan amendments and providing reasonable protection of fish and wildlife while moderating impacts on water supply for drinking water and agriculture.
1020	1	I have reviewed the draft plan for the Bay Delta and believe that it is imperative that it be adopted. It will ensure that more water will remain in rivers that are critical to the health of Salmon and other fish. More Salmon means more jobs in the fishing industry. It will enable greater recreational use of the rivers as well. There are many ways that we can all use water more efficiently. There is drip technology that can be employed by homeowners and farmers to use less water. There is grey water that could be used for irrigation purposes instead of potable water. And there are systems to reuse water and thereby reduce the use of fresh water. For these reasons, I believe that the plan is feasible and will result in a healthier Bay and healthier rivers that are part of the overall ecosystem. I strongly urge you to adopt the plan.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1021	1	[ATT:1 Figure 19·2. Graph showing relationship between adult salmon returns to the San Joaquin basin and the river flows they experienced as juveniles. Adapted from Sturrock et al. 2015].	This attachment was included with the comment letter. The attachment does not make a general comment regarding the plan amendments or raise a significant environmental issue.
1021	2	California's fish assets are a public trust resource that depends on flowing water in our rivers. It is important for the State Water Resources Control Board to manage the public's instream flows in a manner that provides for the recovery of California native fish populations. Flows and water quality management to support native fish species is important throughout the year. Protecting one life stage of a species is inadequate if they cannot be supported throughout their life cycle. This means that flow and temperature on	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		regulate streams must also take into account management of reservoir conditions (e,g., inflow, temperatures, water deliveries, reservoir carry over).	
1021	3	The California-Nevada Chapter of the American Fisheries Society recommends that the State Water Resources Control Board implement an iterative process of robust decision making for water resource management using an adaptive management approach. Adaptive management should incorporate all relevant state and federal policy initiatives related to water resources and fish populations of concern (e.g., The California Water Action Plan, California Water Plan, and Central Valley Recovery Plan for Central Valley Steelhead and Salmon) into a working definition of adaptive management that is sustainable for administration of the many entities competing for water resources. We suggest that decision making processes be clearly defined, including the process for adjusting water management measures that are intended to protect aquatic resources.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1021	4	The California - Nevada Chapter of the American Fisheries Society urge the Water Board to develop and implement a Plan that uses best available science to restore California's aquatic ecosystems to healthy conditions, and to restore native fish populations to levels that support vibrant ecosystems, and recreational and commercial fisheries.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1022	1	Historically, natural flow of water from the mountains kept our estuaries, tidelands and the bay healthy. In recent years the upstream diversions of natural flow from the Stanislaus, Tuolumne, Merced and lower San Joaquin Rivers have greatly negatively impacted the greater bay.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1022	2	Much of the water diversion goes to the central valley. If they were growing food for us and providing livelihood for multitudes of small farmers this would be more compelling. But most of this diverted water goes to huge industrial level farming and the produce is exported out of the country. So California water is being taken from the millions in the bay area and degrading our bay and deltas to provide profits for large agricultural corporations.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1022	3	The state needs to use its mandate to determine which beneficial uses have priority, and prioritize this water - which is a public trust resource - more appropriately. Please protect at least 50% of the natural runoff from the Sacramento-San Joaquin Delta Ecosystem for the Bay Delta.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1023	1	I've been swimming in the San Francisco Bay year-round for over 30 years as a member of the South End Rowing Club, and I can tell you that we need strong flows to keep the Bay clean. Lately we've had a lot of riverside plant debris flowing into the Bay due to the heavy rains, and that's fine. It's the industrial contaminants, non-pointsource runoff, oil spills, medical waste, and other poisonous products that I'm concerned about as a swimmer.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1023	2	Bottom line: Please provide maximum flows to the San Francisco Bay/Delta, not only to protect and restore fisheries, but to provide for humans as well. We can and will continue to conserve water, if that's what's needed.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1023	3	You need to change your name from "waterboard," which conjures up a type of torture - waterboarding - to something more benign. Don't	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		keep torturing us by starving the Bay of fresh water!	
1024	1	Please carefully consider the health of the San Francisco Bay-Delta and the wildlife who call it home when making decisions about water usage in our state.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues.
1025	1	South Bay Salt Pond Restoration Project has been working on collecting the data of sediment flux, including the measurement of plankton. I thought this data might be useful for developing the plan of water control, especially for the critical elements such as flow speed or temperature of the water.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1026	1	The people who decided that the plan to require water releases simply do not have common sense. There will not be any fish saved, there will not be any advantage to sending useful water to the delta. California needs more water storage, not less. Build more dams don't waste what water we have.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1026	2	Studies show that the problem with salmon in our rivers is predators not water. The Water Board thinks that more water being released will bring more salmon back when the only salmon found in the Tuolumne is a farmed fish. It won't help.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1026	3	Scrap the water boards plan and adopt the plans suggested by the irrigation districts that have invested millions to development of realistic well thought out plans to help the fish, people and state. Use your head for something besides a hat rack! Your thought process is Faulty! Stop this foolishness or California is going to tum into a desert.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1027	1	I'm writing to express concerns with the State Water Resources Control Board's proposed actions on behalf of the City of Los Banos, a community of 39,359 residents in the Central Valley.	Please refer to Master Response 1.1, General Comments, for comments that do not raise significant environmental issues or make a general comment regarding the plan amendments.
1027	2	As we near the public comment deadline, it is imperative to us that our concern over the proposal is included in the official record on the Draft Revised Substitute Environmental Document (SED). Therefore we to urge you once more to heed the requests of the numerous cities, school districts, and concerned residents who have voiced their opposition to the Bay-Delta Plan. In an area that is largely dependent on agriculture, a proposal that increases the unimpaired flows of the Merced, Stanislaus, and Tuolumne rivers by 40% could potentially devastate a region that has only just now begun to heal from five years of drought.	Please see Master Response 1.1, General Comments, for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues. Please see Master Response 8.0, Economic Analyses Framework and Assessment Tools, Master Response 8.1, Local Agricultural Economic Effects and the SWAP Model; and Master Response 8.2, Regional Economic Effects, regarding agricultural economic effects.
1027	3	The public hearings held in Merced and Modesto this past December provided ample evidence that local stakeholders have been left out of a process that will severely impact our region. Safe and reliable access to drinking water, our economic vitality, and our very way of life, could all be jeopardized by the proposed plan. Given the serious implications of the proposal, there should have been a broader stakeholder's process throughout the development phase. By allowing stakeholders to comment on the plan only after it was released, our region has been excluded from providing valuable local knowledge as part of the environmental review process. I urge you to give consideration to the voices of our community and revise the current plan	Please see Master Response 1.1, General Comments, regarding the public outreach process.

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		to reflect the needs of all the parties involved.	
1028	1	I understand that the plan is divided into two parts and that this plan is extremely important for deciding the future of flows and water management in the San Francisco Bay Delta watershed. My comment pertains specifically to part one of the plan, which has to do with the southern Delta and the San Joaquin River. I firmly believe that the Bay-Delta Water Quality Control Plan should require at least half of the flow of the San Joaquin and its main tributaries reach the Delta and be allowed to flow out through Carquinez Strait. The current proposal of at least 30% will likely not be enough to restore the public trust benefits of rivers, salmon, and the biodiversity of the Bay-Delta. Until a couple of years ago, a significant portion of the San Joaquin River had not had steady flows of water for several decades and the riparian and aquatic ecosystems were severely damaged as a result. I would like to see those flows restored and mandated in order to benefit the ecosystems, generate fish habitat, create recreation opportunities, and help the fishing industry in California.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1028	2	The enhanced flows through the Delta from the San Joaquin River and its tributaries would have immediate benefits for the fishing industry. Over the past decade and a half, the fish populations in the Delta have taken a nosedive and, as a result, the fishery industry in the Delta and beyond has suffered economically. In fact, the salmon population was so low in 2008 and 2009 that the commercial salmon fishing season had to be cancelled, resulting in the loss of more than 2,200 jobs and $255 million in annual revenue.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1028	3	Increased flows means more jobs and more fish. Plus, it also means less saltwater intrusion in the Delta, translating to improved water quality for water pumped south for the State Water Project and Central Valley Project. The fish in the Delta currently suffer from a "permanent drought," according to the Bay Institute. This means that more than 75% of the time since 1975 fish have experienced a dry to supercritical water flows due to the dams that hold back flows to the Delta and due to pumping from the Delta.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1028	4	I highly recommend that the Bay-Delta Water Quality Control Plan should require at least half of the flow of the San Joaquin and its main tributaries reach the Delta and be allowed to flow out through Carquinez Strait.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	1	We need more water for farmers, cities and fish. The Solution is to build more dams in the mountains to get: 1) More water; 2) Storage of water; 3) New sources of clean, renewable hydroelectric power.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	2	The governor needs water to build his possible twin tunnels to go to Los Angeles. To try and grab some water from the rivers in the central valley he appoints five people to a "water board" who are not elected and not accountable and only have false authority to take water.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	3	The Water Board says they need more water for fish. One experiment that was done was to increase flow down one river and see how many salmon are alive at the end of each year. The increase was 11,200 to 12,300 salmon about 1,100 total fish more in one year which is within statistical variations. Although "fish people" claim increased flow will increase the number of fish because it helps wash out the salt in saline and lowers the temperature so fish like it better. However the actual experiment did not prove this theory.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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1029	4	We are told that California hatches and releases as much as 20,0 00 to 30,000 small salmon per year but they are mostly eaten by predators such as striped bass, small mouth bass and largemouth bass. There are also non flow changes that could be done to help salmon, for example:1) Improve bedding areas where salmon hatch 2) Adjust temperature, 3) Salinity evaluation, 4) Time when salmon are actually in the river, 5) Remove predators, striped bass, small mouth bass, large mouth	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	5	I came to California thirty years ago and started farming almonds. Interestingly, a canal ran right through our property and I asked if I could use some of the water from the canal I was told no, MID controls the water. I asked if I could sign up on a waiting list to get water, I was told that would be fine but MID doesn't have enough water but just for their "members" and they are not known for opening up to farmers who are not already getting water. The facts are that MID barely has enough water for their own members.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	6	To get water, people have to dig their own wells. Over the last 30 years, because of the drought and increased pumping, groundwater is now getting partially depleted with soil sinking and new regulations restricting how many wells can be dug.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	7	Clearly there is not enough water for farmer's cities and fish. Our ancestors were actually farsighted people of the valley, who put up their own plans and money and built canals and dams. Comes now the State of California and wants to take our water. When there was significant resistance the governor said to the appointed committee go "negotiate" and make a "settlement.' This "water group" is acting like coming home and finding two burglars in the house one of which has all your jewelry in his hands and the other has all your silver and other valuables in his hands. You tell the burglars to drop your valuables now and leave, they tell you they want to negotiate and reach a settlement of how much of your belongings they get to keep. With the "water grab" group, there is none or no negotiation. Our founding fathers debated what role federal government and state governments should have, and decided that limited delegated and enumerated powers only would be allowed. Comes now the State of California demanding to take our water and "negotiate" They have probably read President Elect Donald Trump books and the art of negotiation and ask for 38% of the water in dry years and try to "settle" for 10% of the water so people will feel that this is less of a "water grab" By "grabbing" water the farmers will have a decreased economic value of their land so the value of land will decrease and the state government has now stolen the value of the property of the people. The federal government constitution provides for states having disputes with each other and with state governments overreaching their authority for civil and criminal theft of water and property and that these disputes can go to the Supreme Court.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	8	The MID is a municipality, owned by the citizens "not investor owner" and owns dams and canals. MID is in the process of getting a license to continue to run their already owned, Dam, canals, water and hydroelectric power which is estimated to cost MID 50 million just for the license renewal because of overregulation. The state could block providing the license (directly or indirectly) until MID/TID grant the state control of the water to go into Governor Brown's twin tunnel plan to send water to Los Angeles. With the cost of the	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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		license 50 +million and cost of securing our defense of the "water grab: also 50+ million the cost of electricity and water could easily double causing further burden and depressed economic activity. The State of California would also suffer with the State of California trying to have a "water grab: and taking of property rights leading to constitutional law suits at a time that the survey of Chief executive voted for the last 5 years that California is the worst state to do business in. The Governor Brown appointed "water board" has said publically and been reported in the newspaper "with no retraction" that taking water from the three rivers is "inevitable "and could take as high as 38% of the water in a dry years and we have had a drought the last five years. We are told that the cities, counties MID/TID and business are choosing attorneys to fight what they feel is an illegal "water grab" on the constitutional basis of property rights, riparian, river rights, private companies MID and TID owned by the people of the central valley. We estimate the legal battle could go for 5 or more years and cost 50 million dollars or more. They also hope to raise money to put in new governmental officials including new governor.	
1029	9	The solution 100 years ago by our ancestors was to build more dams. New Dams are the long term answer for not enough water and would provide: 1. More water 2. Storage of water	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	10	The solution 100 years ago by our ancestors was to build more dams. New Dams are the long term answer for not enough water and would provide renewable , clean hydroelectric power.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1029	11	If Governor Brown wants to leave a legacy he should abandon the twin tunnels and high speed train.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1030	1	I am writing to share my belief that increased water flows on the San Joaquin River are needed to protect the South Delta as a Place. We need at least 60% to prevent harmful toxic algal blooms and keep our waterways flushed. Your proposed 40% just isn't enough!	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1030	2	The current level of water exports exceeded the limit in the late 1990's and is unsustainable. A PERMANENT REDUCTION of exports MUST happen to protect the Delta.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1030	3	My son in law is a Delta Farmer as are many of our friends. They provide for their families by growing our famous Brentwood Corn. It is locally grown and consumed. Weakening the salinity standard in the South Delta will have an adverse effect on water used for irrigation which in turn will harm the crops, thereby harming the local economy drastically!	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1030	4	Homeowners in Discovery Bay will be effected by the toxic algae that will keep people and animals out of the water - this toxicity made its way north to Mildred Island as well as other portions of the Delta. So now the restricted flow is having an impact on human health as well as property values, which once again effects our economy!	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.

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1030	5	It seems that you should be concerned for ALL people in California, which includes those of us living, working, and playing in the Delta and along the San Joaquin River. It is difficult for me to believe we must continue to make comments on projects that should have been shelved a very long time ago! It is also beyond my comprehension that the general public must continue to send comments to the "experts" on what is best for our California waterways! Wondering if you've visited our Rivers and Delta or just relying on studies.	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1030	6	Please do your part to keep our waterways healthy for irrigation, drinking water, and recreation by increasing the water flow to 60% and permanently reducing exports	Please see Master Response 1.1, General Comments for responses to comments that either make a general comment on the plan amendments or do not raise significant environmental issues.
1031	1	Baseline Description The SED uses an incorrect “Baseline,” which leads to improper and misleading comparisons throughout the report with respect to the impacts of the proposed LSJR Alternatives. As relevant to the Stanislaus River, the Baseline used in the SED includes the implementation of the Vernalis Adaptive Management Program (VAMP), and the National Marine Fisheries Service (NMFS) Biological Opinion (BO) flow requirements. For the reasons set forth below, this Baseline is improper. To address this error, the Oakdale Irrigation District and South San Joaquin Irrigation District, hereinafter, "the Districts," created a more accurate baseline and conducted additional modeling. VAMP Flows The Districts recognize that the CEQA Guidelines require an EIR to include a description of the physical environmental conditions in the vicinity of the project that exist “at the time the notice of preparation is published.” (Cal. Code Regs., tit. 14, [section] 15125.) The VAMP flows should not have been included in the Baseline. VAMP Flows have not been released by Districts since 2011. In the 2006 Bay-Delta Plan: "The Program of Implementation for the Pulse Flow Objectives is amended in the 2006 Plan to allow for staged implementation of the objectives by conducting the Vernalis Adaptive Management Plan (VAMP) until 2011." If the SWB staff believed that it was required to include the VAMP flows in the Baseline due to the timing of the NOP despite being fully aware that VAMP had concluded, then staff should have issued an additional NOP, thereby re-noticing the proposed project under the changed conditions. The Districts incorporate the SJTA’s comments on the impropriety of the SWB’s failure to file an additional Notice of Preparation (NOP) after the revised NOP that was issued on April 1, 2011. (SJTA Comments.) The Districts’ Baseline does not include the VAMP flows.	Please see Master Response 2.5, Baseline and No Project, for information regarding why VAMP was included in the baseline, how impacts without VAMP were included in the No Project analysis, and why the Notice of Preparation is sufficient. Please see Master Response 3.2, Surface Water Analyses and Modeling, for a discussion of the modeling approach used in the Recirculated SED. Please see Master Response 1.1, General Comments, for a discussion on the general methods and modeling used for the SED. Please refer to the index of commenters to locate the letter number and responses of other parties that submitted comments during the comment period for the 2016 Recirculated SED. Please refer to Master Response 2.3, Presentation of Data and Results regarding data, the presentation of data, and the various methods used in the SED to assess effects of the proposed plan amendments and determine impacts.
1031	2	OCAP-BO Flows The Biological Opinion on the Long-Term Operation of the Central Valley Project and State Water Project issued by NMFS in 2009 requires the United States Bureau of Reclamation ("USBR" or "Reclamation") to comply with certain flow requirements contained in Appendix 2e of the document for the Stanislaus River. These flows are properly included in the Baseline. However, the USBR is solely responsible for meeting the flow requirements, as they are intended to mitigate the impacts of the New Melones project. (NFMS BO, p. 622-625.) Judge Wanger’s decision in Consol. Salmonid Cases v. Locke made it abundantly clear that District water could not be used to meet the Appendix 2e flows: "Neither NMFS nor the	Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding the modeling used for the analysis in the SED. Please see Master Response 1.1, General Comments regarding the programmatic nature of the SED’s analysis. Please see Master Response 2.2, Adaptive Implementation regarding annual operations plans. As described in Appendix K, Revised Water Quality Control Plan, allocation of responsibility for meeting the revised water quality objectives will occur in a subsequent proceeding, under the State Water Board’s water right or water quality authority. Please also see Master Response 1.2, Water Quality Control Planning Process, for a discussion of implementation through water right proceedings (either adjudicative or by regulation) and water right priority. As explained in Master Response 1.2, adoption of the plan amendments does not impose enforceable requirements on any entities, even though state agencies are generally obligated to comply with water quality control plans.

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		Bureau [of Reclamation] has discretion to violate [OID and SSJID's] water rights" when attempting to comply with the requirements of Appendix 2e. (Consol. Salmonid Cases v. Locke (2011) 791 F. Supp.2d 802, 939.) The SWB modeling takes water from the Districts to meet the OCAP-BO Appendix 2e flows. In so doing, the SWB model depicts an "illegal" operation at New Melones.	
1031	3	OID/SSJID Modeled Baseline OID and SSJID modeled the Baseline with the assistance of Daniel B. Steiner (Attachment 1) [ATT: 41] using the following criteria: - California Statewide Integrated Model (CalSIM) hydrology; this is the same as many of the underlying hydrology parameters within the WSE model. - NMFS BO Appendix 2e flows; this is the same as the WSE model. These flows subsume USBR's permitted instream flows required by D-1485. - Dissolved Oxygen requirements that are included in Reclamation's permits. These requirements were excluded from the WSE model. - Vernalis Salinity objective; this is the same as the WSE model. - CVP contractor deliveries; this is the same as the WSE model although the allocation quantities are slightly different. - OID and SSJID, land use [Footnote 1: Does not include water put to storage or water transfer. Based solely on 1988 Agreement]. The estimates are different than the WSE model as SWRCB Staff have modified the Districts' requirements based on their own analysis. Results The total volume of water released under the SWB's Baseline is roughly the same as the total volume released under the Districts' Baseline because of several offsetting factors, a couple of those factors being the addition of the Dissolved Oxygen (DO) releases compensating for the deletion of the VAMP flows with in the Districts' analysis. However, the timing of the flows were significantly different. VAMP flows occurred in April-May and the DO releases occur during the summer. The result of this inclusion of VAMP flows in the baseline is to decrease the project's impact during April-May by artificially creating a higher baseline during that period. Lastly, the SWB Baseline is not a viable operation for New Melones Reservoir. The Districts have stated that it is erroneous to use the Districts' water to meet the obligations of the USBR to the river and its customers. However, for modeling convenience the SWB has assumed reductions to the Districts' diversion entitlements during sequential drought periods to maintain an active New Melones Reservoir while meeting OCAP-BO Appendix 2e flows. The Reservoir would go to zero in 1991, 1992 and 1934. The demands on New Melones Reservoir now are beyond its operating ability.	Please see response to comment 1031-1.
1031	4	No Project Alternative The No Project Alternative improperly assumes compliance with D-1641. D-1641 was never fully complied with under the San Joaquin River Agreement (SJRA) up to 2009. After 2009,	Please refer to Master Response 2.5, Baseline and No Project, for a detailed discussion of No Project Alternative conditions and the modeling approach to VAMP and Decision 1641. To review responses to comments submitted by other entities within the comment period on the 2016

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		Reclamation was fully responsible for meeting D-1641 flow requirements and has failed to do so. The Districts incorporate the SJTA's comments on the No Project Alternative (See SJTA Comments.) D-1641 Flows In creating a No Project Alternative, the SED relies on CEQA Guideline Section 15126.6: "When the project is the revision of an existing regulatory plan, such as the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (2006 Bay-Delta Plan), the No Project Alterative will be the continuation of the existing plan as currently implemented into the future. (Cal. Code Regs., tit. 14, [section] 15126.6(e)(3)(A).) In general, the existing plan and the projects initiated under the existing plan would continue until the new plan amendments are approved. The No Project Alternative analysis must discuss the existing conditions '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.'" (Cal. Code Regs., tit. 14, [section] 15126.6(e)(2).)" (SED, at 15-1 [emphasis supplied].) In attempting to comply with these provisions of the CEQA Guidelines, the SED assumes "full compliance with the 2006 Bay-Delta Plan, as implemented through D-1641." (SED, at 15-2.) In doing so, the SED ignores the reality that full compliance with D-1641 has never occurred, and never will occur. As the SWB pointed out in its Delta Flow Criteria Report, 2010: "the [2006 Bay-Delta] Plan also includes spring pulse flows (mid-April through mid-May) that vary between 3,110 and 8,620 cfs, however, those flows have never been implemented and have instead been replaced with the [VAMP] flow targets for the past 10 years." (2010 Delta Flow Criteria Report, p. 55 [emphasis supplied].) One of the reasons that the Vernalis flow requirements in D-1641 have never been met during the pulse flow period (except incidentally during flood conditions) is because the VAMP flows were lower than the D-1641 flows. (SED, at 3-13.) Moreover, since the expiration of VAMP, Reclamation has continually failed to meet the D-1641 flow requirements at Vernalis. In a letter from USBR to the SWB dated November 22, 2016, Operations Manager Ronald Milligan explained, "Reclamation has had difficulty meeting D-1641 San Joaquin River flow requirements since the [SJRA] expired in 2011 [and] Reclamation has not operated to the D-1641 April-May pulse flows for the San Joaquin River at Vernalis contained in Table 3." [ATT: 46] (Attachment 6 [USBR Letter to SWRCB, dated Nov. 22, 2016, p. 1].) He further explained that, in the future, USBR will only be able to comply with the flows required by Appendix 2e in the NMFS BO. (Attachment 6 [USBR Letter to SWRCB, dated Nov. 22, 2016, p. 3].) This letter was expanded upon by Mr. Richard Woodley's letter to the SWB stating, "Since the expiration of the SJRA, the Board has taken the untenable position that the sole responsibility for the April/May San Joaquin river flows in the Water Quality Control Plan is on Reclamation's New Melones Reservoir, not on an "interim" basis, but until such time as it	Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.

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		sees fit to establish an alternative implementation plan, now 17 years since the Board adopted D-1641." (Attachment 6 [USBR Letter to SWRCB, dated Feb. 15, 2017, p.2].) Reclamation explained that it will not be able to make releases from New Melones to satisfy the flow objectives at Vernalis from Table 3 of the 2006 Bay-Delta Plan, and that it will instead by making releases consistent with the less onerous requirements of Appendix 2e. (Attachment 6.) Thus, despite the continued applicability of the flow requirements in Table 3 of the 2006 Bay-Delta Plan, there will be no compliance by Reclamation. The SED's assumption of full compliance with these requirements ignores this reality. It also violates the CEQA Guidelines for the No Project alternative, which specify that the No Project alternative shall describe "existing conditions . . . as well as what would be reasonably expected to occur in the foreseeable future if the project were not approved…" (Cal. Code. Regs, tit. 14, [section] 15126.69(e)(2).) The "No Project Alternative" in the SED does not describe existing conditions, nor does it describe what would reasonably be expected to occur in the foreseeable future. The SWB may not want to admit that D-1641 is not being met, but it cannot sit by and do nothing to enforce its regulation and orders knowing its regulation and orders are being violated and then pretend they are being met in the SED. That is fiction.	
1031	5	SWB Modeling of the No Project Alternative The analysis distorts the impact of the proposed project by releasing flows from New Melones to meet D-1641 flow objectives. With all the releases coming from New Melones to meet D-1641, plus existing baseline flows, New Melones storage is devastated, deliveries to Central Valley Project (CVP) are significantly reduced, and OID and SSJID water supplies are cut. In fact, the No Project Alternative is no alternative at all because it relies on magic water, meaning water that does not exist in the system or water that is taken from the Districts' supplies to make the model work. Diversions under the No Project Alternative are less than Baseline in approximately 50 percent of the years, and are "substantially reduced" in approximately 15 percent of the years (SED, at 15-4.). The SWB analysis of the No Project Alternative is contained in Chapter 15. Figure 15-2(b) (New Melones storage) and Figure 15-2(c) (Stanislaus River diversions) are set forth below. [See ATT: 1] New Melones storage goes to zero under the No Project Alternative. Zero storage is not a viable operation. The No Project model run by the SWB curtails the senior water rights of the Districts and New Melones storage still hits zero. The senior water rights are cut up to 300,000 acre-feet in a year to maintain these operations. (See Figure 2-1, above) Unfortunately, the SWB forgot two key principles. There is no SWB order requiring OID-SSJID to release or bypass water to meet the 1995 WQCP flow objectives and/or salinity objectives. There is no Endangered Species Act (ESA) requirement to have OID/SSJID release/bypass flow to meet Appendix 2e flows. In fact, there is a Federal Court order specifically finding that Reclamation cannot release/bypass OID/SSJID water. Once again, the SWB ignores reality.	Please see Master Response 2.5, Baseline and No Project, regarding the evaluation and description of the No Project Alternative. Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding a description of the Water Supply Effects model and its use in the SED. Please also see response to comment 1031-1.

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1031	6	[ATT 1: Figure 2-1 SED Figure 15-2(b) and 15-2(c) New Melones Storage (SED, at 5-17)]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	7	The errors in the "No Project Alternative" impact the analysis performed by the SWB in the SED. The SWB "No Project Alternative" grossly understates the impacts from the proposed alternative because the "No Project Alternative" completely annihilates the Stanislaus River Operations on the Stanislaus River. The SWB manipulated the model to mask the effects of alternatives. The Districts' modeling shows the "No Project Alternative" and the baseline to be approximately the same. The impacts are grossly understated because the "No Project Alternative" is releasing/bypassing substantially more water in the driest years above the baseline. In 10% of the years, these would be the driest years, the graph above [see ATT: 2] depicts 258,000 acre-feet being released every year. The SWB then expresses the difference between the baseline and the "No Project Alternative" in terms of percentage. So, the percentages have to be applied to the baseline and then multiplied by days and converted into acre feet. The "No Project Alternative" has 375,000 acre-feet going down the river in 10% of the driest years. This explains why storage in New Melones goes to zero and water is taken from the senior water right holders. Having such huge flows as the basis of the analysis tells the public the proposed project has little impact on the Stanislaus River because the substantial increase in flow under the preferred alternative of 40% unimpaired flow is masked by the false flows under the "No Project Alternative." In response to the 2012 Draft of the WQCP/SED, the SJTA explained in great detail how the No Project Alternative was incorrect. (SJTA Comments on 2012 WQCP/SED, p. 48-50.) Yet, the SWB ignored this specific SJTA comment, as they ignored all of the SJTA's comments. The purpose of an environmental document required by CEQA is to provide "meaningful public disclosure" of the "potential effects on the environment of a proposed project." (Pub. Res. Code, [section] 21002.1), not to purposely misinform the public. The only possible reason for such a mischaracterization on a project that has been ten years in development at a cost of $70,000,000, is to mislead the public of the true impacts.	The comment mischaracterizes both the State Water Board's efforts and intentions. Please refer to Master Response 1.1, General Comments, regarding the public review and outreach process as well as the length and complexity of the SED and the State Water Board's efforts to provide information in a clear format that is useful. The State Water Board conducted significant outreach and analyses in order to fully inform both the public and decisionmakers as to the potential impacts of the plan amendments including, but not limited to, providing a six-month comment period and holding a five day long public hearing. The SED has been prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences (Cal. Code Regs., tit. 14, § 15151). Please refer to Master Response 2.5, Baseline and No Project, regarding the purpose and description of the No Project Alternative. The State Water Board analyzes effects at different percents of unimpaired flow throughout the SED to show the wide range of potential effects. Evaluating and showing effects at low and high percentages of unimpaired flow allows full disclosure of the possible types of impacts that could occur. This includes the No Project Alternative. Please see the Executive Summary, Chapter 2 of Volume 3, Master Responses and Index of Form Masters, and also Master Response 1.1, General Comments, regarding the recirculation process. The State Water Board substantially revised the SED, recirculated the entire document, and required commenters to submit new comments. (Cal. Code Regs., tit. 14, § 15088.5(f)(1).) Comments submitted on the 2012 Draft SED are considered part of the administrative record. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1031	8	[ATT 2: Table 2-1 - SED Table 15-1 (SED at 15-5) Table 15-1. Monthly Cumulative Distributions of Baseline Flow and Differences from Baseline for the No Project Alternative for the 82-Year WSE Modeling Period]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	9	OID and SSJID Analysis of the "No Project" OID and SSJID have qualitatively examined the SWB No Project Alternative, with one small change to the SWB assumptions. The change was to meet OID and SSJID's senior rights and take the water out of reservoir storage, or instream flows. The No Project run will result in New Melones Reservoir becoming depleted during several years with the river reduced to a zero release.	The commenter describes and presents findings from their own modeling, which incorporates a different assumption with regard to the operation of New Melones Reservoir. SED Chapter 3, Section 3.3.4 provides the rationale for assumptions related to the No Project Alternative with respect to New Melones Reservoir. Master Response 2.5, Baseline and No Project, provides additional information regarding No Project conditions.
1031	10	40% UIF Flow Requirement OID and SSJID modeled the 40% UIF requirement. Primary assumptions for the run are as	Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding why hydrologic modeling analyses presented by commenters rely on operational assumptions that are inconsistent with the

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		follows: - CalSim New Melones Inflow - The greater of RPA 5 Schedules (at Goodwin), or 40% UF applied at Ripon, burdened by reach depletions, no credit for accretions - DO, flow surrogate - D1641 Salinity, at Vernalis - No Vernalis Flow Requirement (replaced by individual tributary contributions), minimum Vernalis 800-1,200 cfs minimum not yet evaluated - DWR 2015 Reliability Report (2020 LOD) SJR Maze flow and quality, w/o SJRRP - OID/SSJID Land Use based demand, limited by formula - CVP Contractors <1,400<1,800> 0/49/155 - Minimum New Melones storage 80,000 acre-feet, OID/SSJID curtailment to maintain The run by OID and SSJID is mostly the same as the Water Supply Evaluation Model except for the following changes: 1. The model has no reservoir refill criteria, nor minimum carryover storage requirement. 2. The model includes the dissolved oxygen (DO) requirement. The refill and minimum storage modeling assumptions are dealt with in great detail in the SJTA comments and are incorporated herein. The reason for including the DO requirements is explained above. The results of the model run are below. [See ATT: 3]	requirements of the plan amendments. This comment references comments made by SJTA. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1031	11	[ATT 3: Figure 3-1. New Melones End-of-Month Storage September Baseline]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	12	Storage Baseline The SWB uses End of Month Storage September (EOMSS) as an illustration metric. The Districts' Baseline run of the Stanislaus River shows a wide variance in EOMSS with significant reservoir drawdown during sequential dry periods. During the significant droughts of the 1930s, 1990s and recent years the reservoir shows near, if not complete emptying. During the drought events of the 1930s and 1990s the reservoir shows a storage of about 80,000 acre-feet; however, this low point is merely for modeling convenience as reservoir storage was maintained at this level through reductions to the Districts' diversions in order to maintain storage and releases to the river. In practical terms, the reservoir would be empty and the river would have a zero release. (Attachment 1, p. 4.) [See ATT: 41] 40% UIF The 40% UIF run by the Districts illustrates a significant effect to reservoir storage due to the	Please see response to comment 1031-1.

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		increase in stream requirement. (Attachment 1, p. 10.) [See ATT: 41] The storage is depicted below. [See ATT: 4] These results again depict approximately 80,000 acre-feet of storage in many dry years. This is an artificial condition incorporated into the model in order to ensure it continues running. In practice, the reservoir would be drawn down to zero by the Districts in fulfillment of their water rights.	
1031	13	[ATT 4: Figure 3-2. New Melones End-of-Month Storage September 40% UIF]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	14	Diversion (OID/SSJID) i. Baseline The existing Baseline diversion entitlement to the Districts under their operational agreement with Reclamation ("Formula water") is 581,000 acre-feet annually for which approximately 522,000 acre-feet annually is needed for land use requirements and operations. (Attachment 1, p. 3. [ATT: 41]) This does not include diversions to storage, or water transferred/released to help Reclamation meet D-1641 or transferred water, all of which are beneficial uses of water. The following graphic [ATT: 5] illustrates the annual availability, requirement, and diversion of the Districts' under Baseline conditions, including the modeling convenience of curtailing the Districts' diversions to maintain reservoir storage and river releases. The average annual diversion of the Districts is modeled to be 505,000 acre-feet. ii. 40% UIF Diversions to the Districts are reduced to 480,000 acre-feet annually with the 40% UIF flow requirement assumption. (Attachment 1, p. 9 [ATT: 41]) The significant increase in drought period diversion reductions are apparent between this graphic [ATT: 6] and the graphic above [ATT 5].	Please see response to comment 1031-1.
1031	15	[ATT 5: Figure 3-3. OID/SSJID Baseline Diversions]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	16	[ATT 6: Figure 3-4. OID/SSJID 40% UIF Diversions]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	17	River Releases i. Baseline Baseline instream releases (including flood control releases) amount to 439,000 acre-feet annually. (Attachment 1, p. 4. [see ATT: 41]) The graph is set forth below [ATT: 7]. ii. 40% UIF Under the proposed project as assumed by the Districts, the instream releases increase to 511,000 acre-feet annually. (Attachment 1, p. 8, 10. [see ATT: 41]) An average increase of 70,000 acre-feet annually.	Please refer to Master Response 2.3, Presentation of Data and Results for responses to comments related to data, presentation of data, and the various methods used in the SED to assess the effects of the proposed plan amendments and determine impacts. See Master Response 3.2, Surface Water Analyses and Modeling, for more information regarding the differing model assumptions and results.

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1031	18	[ATT 7: Figure 3-5. Baseline Goodwin Dam Instream Releases]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	19	[ATT 8: Figure 3-6. 40% UIF Goodwin Dam Instream Releases]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	20	Ranking River Releases i. Baseline The river release values shown above [see ATT: 9] for the Baseline condition have been recast below in a rank-ordering according to wettest New Melones Index (NMI) to driest New Melones Index, generally representing large water availability years down to smallest water availability years. This representation provides an indication of the frequency of flow in the river. (Attachment 1, p. 6. [see ATT: 41]) ii. 40% UIF The river release values for the 40% UIF requirement as assumed by the Districts has also been recast by a rank-ordering according to the (NMI) and is shown below [see ATT: 10]. Results are less demonstrative of a typical wet to dry decrease of annual volume due to the disconnect between the NMI and the February-June-based flow requirement. With the increase in flow requirements and a commensurate lowering of reservoir storage, spill events at New Melones under the 40% UIF decrease. (Attachment 1, p. 12. [See ATT: 41])	Please see response to comment 1031-1.
1031	21	[ATT 9: Figure 3-7. Ranking Instream Flows under Baseline]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	22	[ATT 10: Figure 3-8. Ranking Instream Flows Under 40% UIF]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	23	Central Valley Project (CVP) Contractors i. Baseline Under the Districts' Baseline, CVP contractors receive an average of 107,000 acre-feet annually. There are numerous periods when the CVP contractors will receive no water. (Attachment 1, p. 2-3, 5. [see ATT: 41]) ii. 40% UIF Under the Districts' modeling of the 40% UIF regime, CVP contractors would receive an average of 74,000 acre-feet annually, with the periods of no water extended in duration. (Attachment 1, p. 11. [see ATT: 41]) The modeling shows prolonged periods of no water, followed by periods of full entitlements. Whether such an operation is feasible or not will be addressed by Central San Joaquin Water Conservation District (CSJWCD) and Stockton East Water District (SEWD).	Please see response to comment 1031-1.

Table 4-1. Responses to Comments			
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1031	24	[ATT 11: Figure 3-9. CVP Contractors' Annual Allotments Under Baseline]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	25	[ATT 12: Figure 3-10. CVP Contractors' Annual Allotments Under 40% UIF]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	26	Sequential Dry Years The greatest impact to OID and SSJID's diversions occur in sequential dry years. A clear example of the impact of sequential dry years can be seen by examining the hydrology from 1924 to 1935. Using the 40% unimpaired flow assumptions contained in the SED, diversions to the Districts would drop to an average of approximately 325,000 acre-feet annually from 1924-1935.[Footnote 2: Average annual diversions from 1924 to 1935 computed using data in Appendix F1, Attachment 1, p. 7 (Table 3.)] The figure below shows the Districts' water right, modeled land use amount for the entire period (1921-2016) and the amount available during 1924-1935. The following figure [see ATT: 13] depicts the shortfall in diversions based on the 1988 Agreement with USBR (600,000 acre-feet annually), and based on land use, approximately 535,000 acre-feet annually. This amounts to cutting the Districts' supplies by 275,000 acre-feet annually (based on the 1988 Agreement), or 210,000 acre-feet annually (based on land use), for 16 years. Either way, approximately 70-75,000 acres in OID and SSJID would have to be fallowed (assuming no groundwater pumping). Of course, this figure does not tell the entire story because in many years there would be no water. The following table [see ATT: 14] depicts end of month September storage in New Melones Reservoir under the Districts' modeling. The reservoir is empty in 4 of 16 years under the Districts' modeling of the 40% UIF requirement. The Districts have long told the SWB that the WQCP must have sequential dry year relief to reasonably balance the competing demands in times of shortage. The San Joaquin River Agreement (SJRA) contained sequential dry-year relief: "During years when the sum of the current year's 60-20-20 indicator and the previous two years' 60-20-20 indicators is four (4) or less, the SJRGA's members will not be required to provide water above Existing Flow." (SJRA, Section 5.3.) This off-ramp continued to provide water for instream beneficial uses, even as storage was dropping in the first dry year. It also provided water to instream beneficial uses in the second year, while dropping storage. If, however, the dry period was severe enough (1976-1977) or long in duration 1987- 1997, then municipal & industrial (M&I), storage, and agricultural uses were not completely sacrificed for instream uses. The sequential dry year relief worked. The proposed SWB plan, like D-1641, has no sequential dry year relief. This will require temporary urgency change petitions (TUCP) when the drought hits. The proposed project needs to be revised to include dry year relief.	Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding why hydrologic modeling analyses presented by commenters rely on operational assumptions that are inconsistent with the requirements of the plan amendments, as well as for a discussion of the assumptions used in the WSE Model and the modeling characterization of LSJR alternatives. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for a discussion of the emergency provision, and suggested modifications that were not made, including dry year relief. In addition, please see Master Response 2.2, Adaptive Implementation for a discussion of the adaptive implementation framework and the flexibility inherent in the plan amendments. In particular, Master Response 2.2, Example 2, discusses how adaptive implementation measure (a) in the program of implementation could provide sequential dry-year relief if such a change met the narrative objective and any approved biological goals.
1031	27	[ATT 13: Figure 4-1. Diversion Shortfalls Based on 1988 Agreement Diversion in Sequential Dry Years (1924 - 1935)	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.

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1031	28	[ATT 14: Figure 4-2. OID & SSJID Modeling of End-of-Month September Storage 1922-1937 End of Month September Storage]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	29	Districts' 40% UIF Compared to SWB's 40% UIF Project Never Modeled by SWB The SWB never modeled the proposed project, which consists of (1) 30% to 50% unimpaired flow on each of the Stanislaus, Tuolumne and Merced Rivers based on a minimum 7-day running average, (2) 800 to 1,200 cfs base flow at Vernalis based on a minimum 7-day running average, and (3) a minimum monthly average flow rate of 1,000 cfs at Vernalis during the month of October. (SED, at Appx. K, p. 18.) Instead of modeling these parameters, SWB staff added assumptions to the model, including minimum storage targets and reservoir refill criteria. (SED, at Appx. F1, p. F.1-31 – F.1-32) The SWB staff also created a type of false floor for the model. Instead of using a true 40% unimpaired flow in very dry years, the model assumed that other regulatory requirements that were higher than 40% unimpaired flow would be attained, such as the Appendix 2e flows from the NMFS BO. These assumptions mask the impacts of the project and mislead the public. Storage End of September storage in the SWB 40% analysis is 1,188,000 acre-feet annually on average. (SED, Appx. F1, F.1-58, p. F.1-125.) This storage level is nearly the same as the Baseline of 1,125,000 acre-feet annually. (SED, at Appx. F1, p. F.1-58). This is a perplexing result because the project proposes to release 40% of the unimpaired flow during the peak run-off period. However, by contriving to keep storage at nearly the same level as Baseline, the SWB avoided the need to address the impacts to hydro-generation, greenhouse gas emissions, recreation in the reservoir and increased water temperatures downstream. How did the SWB staff do it? The period of 1924 to 1935 is illustrative. This graph contains a wealth of information [see ATT: 15]. Carryover storage & refill have been explained in the SJTA's comments. The titles of each column are self-explanatory. (Attachment 1, p. 18. [see ATT: 41]) In 1926, the unimpaired runoff on the Stanislaus River was 607,000 acre feet. In a year with that type of hydrology, the Districts would be entitled to 600,000 acre-feet pursuant to their 1988 Agreement with USBR (See Column 8). Based on land use, the Districts' demand for that year would be 559,000 acre-feet (See Column 7). In the SWB modeling, the Districts are allocated 305,000 acre-feet (See Column 9). This allocation results in a reduction of 295,000 acre-feet based on the Districts' total allotment under the 1988 Agreement, and a reduction of 254,000 acre-feet based on land use numbers. Under the SWB model, the water that was cut from the Districts goes to carryover storage. In 1926, end of September storage is 771,000 acre-feet (See Column 5), which is 71,000 acre-feet more than the 700,000 acre-feet minimum required by the SWB modelling assumptions, but occurs due to the SWB model's assumption for the use of water which occurs above the minimum storage target. (SED, at Appx. F.1-36.)	Please refer to Master Response 3.2, Surface Water Analyses and Modeling, regarding how the hydrologic modeling analyses presented by commenters rely on operational assumptions that are inconsistent with the requirements of the plan amendments, as well as for a discussion of the assumptions used in the WSE Model and the modeling characterization of LSJR alternatives. The SED analyzes the proposed project. The proposed project includes the LSJR narrative and numeric flow objectives and the program of implementation. The narrative and numeric objectives work together to achieve the goal of reasonably protecting fish and wildlife beneficial uses in the LSJR. The SED analyzes the proposed project with the narrative and numeric objectives working together within the adaptive management framework outlined in the program of implementation. The program of implementation requires carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife. This is part of the plan amendments even if it is not stated as a prescriptive numeric requirement. As a result, it was necessary to model a reasonable representation of such requirements for purposes of the environmental analysis. WSE model analyses include reservoir and allocation parameters to represent operation of the water supply system in baseline and to meet the narrative and numeric LSJR flow alternatives. The storage and allocation parameters include carryover storage, maximum allowable draw from storage, and minimum diversion allocation. Development of these parameters is explained in Master Response 3.2, Surface Water Analyses and Modeling, see the section describing reservoir operation, reoperation, and carryover storage. The carryover storage guideline, the maximum allowable draw from storage, the reservoir refill parameter, and the minimum allocation fraction parameter all work together to provide a reasonable and rational representation of maximizing water supply reliability and minimizing drought effects after meeting the LSJR narrative and numeric objectives. Parameters were adjusted iteratively in consideration of the LSJR narrative objective and temperature effects. Stated another way, a modeling parameter that resulted in unacceptable temperature effects would not meet the narrative objective and therefore would not reasonably represent the plan amendments. Therefore, it was necessary to develop a parameter, for the purposes of modeling a reasonable representation of the plan amendments, that met the requirements of the plan amendments. Appendix K states that the State Water Board may include reservoir carryover storage targets in implementation actions such as water rights and water quality proceedings. Please refer to Master Response 1.2, Water Quality Control Planning Process, regarding State Water Board authority under Porter-Cologne Water Quality Control Act to implement Bay-Delta Plan objectives and the LSJR plan amendments, implementation through future proceedings and consideration of water right priority. The SED adequately identifies the significant effects of the proposed plan amendments at hand, while deferring the development of detailed site-specific information, such as reservoir storage requirements, to future project-specific review. The SED has been prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes into account environmental consequences (Cal. Code Regs., tit. 14, § 15151). Accordingly, the State Water Board made reasonable assumptions regarding the implementation of the plan amendments and evaluated environmental impacts in a broad, programmatic way.

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		Thus, in 1926 under the WSE, the senior water right holders would forego diversions to maintain storage in a junior water right holder's federal storage facility. This effect of propping up storage has profound impacts in 1927. The storage at the end of 1926 would be approximately 300,000 acre-feet lower if the model had assumed compliance with the 1988 Agreement and provided 600,000 acre-feet to the Districts instead of 305,000 acre feet. This would result in 471,000 acre-feet of storage at the end of September. Refill conditions, like carryover storage, require the Districts' diversions to be reduced to increase EOMSS. The minimum diversions highlighted in yellow in the table above indicate those years during which the SWB's requirement for carryover storage would otherwise reduce the Districts' diversion below a level thought minimally required by the Districts, their occurrence a diversion reduction caused by meeting carryover storage. As shown in the table above [see ATT: 15], the Districts' diversions are reduced in 10 out of 12 years from 1924-1935, whether through carryover storage requirements or refill criteria, in order to provide storage in New Melones reservoir, a federal facility with junior water rights. During this time, the junior water right holder (Reclamation) continues to provide project water to CVP contractors, to satisfy dissolved oxygen requirements and Appendix 2e flows (See Column 18). All of these requirements are subordinate to the Districts' senior water rights, but the SWB puts the junior rights ahead of the Districts' right by requiring the Districts to fill a CVP facility, so that Reclamation, the most junior water right holder on the system, can meet its CVP contractor demands, dissolved oxygen requirements, Appendix 2e flows and salinity requirements at Vernalis. In stark contrast to these results, the 40% UIF analysis conducted by the Districts shows New Melones empty at times from 1928-1935, the river with no water and CVP contractors with no water (See Figure 4-2, above). OID and SSJID will not assume the regulatory and statutory obligations of Reclamation in a WQCP proceeding. The SWB has no such authority in a Porter-Cologne proceeding to do so.	
1031	30	[ATT 15: Table 5-1. State Water Board Model Run of 40% UIF recreated by Daniel B. Steiner]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	31	Districts' 40% UIF Compared to SWB's 40% UIF Project Never Modeled by SWB The SWB never modeled the proposed project, which consists of (1) 30% to 50% unimpaired flow on each of the Stanislaus, Tuolumne and Merced Rivers based on a minimum 7-day running average, (2) 800 to 1,200 cfs base flow at Vernalis based on a minimum 7-day running average, and (3) a minimum monthly average flow rate of 1,000 cfs at Vernalis during the month of October. (SED, at Appx. K, p. 18.) Instead of modeling these parameters, SWB staff added assumptions to the model, including minimum storage targets and reservoir refill criteria. (SED, at Appx. F1, p. F.1-31 – F.1-32) The SWB staff also created a type of false floor for the model. Instead of using a true 40% unimpaired flow in very dry years, the model assumed that other regulatory requirements that were higher than 40% unimpaired flow would be attained, such as the Appendix 2e flows from the NMFS BO. These assumptions mask the impacts of the project and mislead the public.	Please see response to comment 1031-29. In addition, the common practice in water balance modeling is to allocate water based on demand, not on the basis of claimed water rights.

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		Diversions To begin, the SED understates the amount of water currently used by the Districts. Table 2-3 reflects diversions by the Districts based upon an agricultural water management plan (AWMP) from 2012. (SED, at 2-6.) Table 2-3 shows that SSJID diverted a maximum of 259,165 acre-feet (maximum diversions from the Joint Supply Canal in 2004, plus a maximum direct diversion from the Main Canal in 2008), and that OID diverted a maximum 261,896 acre-feet (system inflows for 2007), for a total diversion between the two Districts of 521,061 acre feet. The SED presents this diversion data as the high water mark from the 2012 AWMP. (SED, at 2-6.) However, the numbers do not reflect the Districts' usage. According to District records, from 1998 to 2004, and from 2006 to 2012, the Districts were refilling their Conservation Account in New Melones reservoir pursuant to the 1988 Agreement, which allows for a maximum holding of 200,000 acre feet. In these years, the Districts' yearly allocation of 600,000 acre-feet (or less under certain hydrologic conditions) was fully utilized through the satisfaction of in-district demand, diversions to the Conservation Account, and water transfers. The model runs done by the Districts and the SWB both generally use 2020 land use as a basis for determining the amount of water needed for diversion to the Districts' canals for irrigation and M&I use. However, the land use estimates are significantly lower than the Districts' senior water rights, which are approximately 750,000 acre-feet annually direct diversion and approximately 350,000 acre-feet annually to storage, and the Districts' agreed-upon diversions under the '88 Agreement of 600,000 acre feet. The diversions to the canals do not reflect diversions to storage (350,000 acre feet), nor water transferred to Stockton East Water District (SEWD), nor water released to help Reclamation meet D-1641. This issue is discussed in greater detail below where the differences between the SWB 40% model runs and the Districts' model runs are explained.	
1031	32	Districts' 40% UIF Compared to SWB's 40% UIF Project Never Modeled by SWB The SWB never modeled the proposed project, which consists of (1) 30% to 50% unimpaired flow on each of the Stanislaus, Tuolumne and Merced Rivers based on a minimum 7-day running average, (2) 800 to 1,200 cfs base flow at Vernalis based on a minimum 7-day running average, and (3) a minimum monthly average flow rate of 1,000 cfs at Vernalis during the month of October. (SED, at Appx. K, p. 18.) Instead of modeling these parameters, SWB staff added assumptions to the model, including minimum storage targets and reservoir refill criteria. (SED, at Appx. F1, p. F.1-31 – F.1-32) The SWB staff also created a type of false floor for the model. Instead of using a true 40% unimpaired flow in very dry years, the model assumed that other regulatory requirements that were higher than 40% unimpaired flow would be attained, such as the Appendix 2e flows from the NMFS BO. These assumptions mask the impacts of the project and mislead the public. Water Temperature i. Water Temperature Modeling Principles	Please see response to comment 1031-29. Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding surface water hydrology and hydrologic modeling using the water supply effects model. To model effects on temperature in the LSJR and three eastside tributaries for the SED, the State Water Board used the San Joaquin River Basin-Wide Water Temperature and EC Model (shorthand used here is SJR HEC-5Q model or temperature model). The model was developed between 2003 and 2008 through a series of CALFED consultant contracts that included peer review and refinement (CALFED 2009). The temperature model was most recently updated by the CDFW and released in June 2013 (CDFW 2013b). This temperature model represents the best available science for the plan area. See Appendix F.1, Hydrologic and Water Quality Modeling, Section F.1.6, Temperature Modeling, for additional information regarding the temperature modeling. The primary temperature thresholds used in the SED analysis are based on the U.S. Environmental Protection Agency's (USEPA's) recommended temperature criteria for protection of salmonids (USEPA 2003). The recommended metric for these criteria is the 7-day average of the daily maximum (7DADM). This metric is recommended because it describes maximum temperatures in a stream but is not overly influenced by the maximum temperature of a single day. Thus, it reflects an average of maximum temperatures that fish are exposed to over weekly periods. Since this metric is based on daily maximum temperatures, it can be used to protect against acute effects, such as lethality and migration blockage conditions, and can also be used to protect against sublethal or chronic effects such as temperature effects on growth, disease, smoltification, and competition (USEPA 2003). See Master Response 3.1 regarding the use of USEPA criteria.

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		Water Temperature Modeling Principles The purpose of this presentation is to explain several principles in modeling the water temperature in the San Joaquin River and its tributaries, using the San Joaquin River Basin-wide Water Temperature Model (aka HEC-5Q) (Attachment 3. [see ATT: 43]) Understanding those principles would hopefully assist in the evaluation and interpretation of modeling results produced in connection with the San Joaquin River/Southern Delta Water Quality Control Plan, 2017. 7-Day Average of Daily Maximum (7DADM) The HEC-5Q model utilizes a sub-daily time step (6-hour intervals) in order to represent daily maximum and minimum temperatures. The assumption is that minimum temperature occurs at 0600 hour (6 AM) and maximum temperature occurs at 1800 hour (6 PM). The 7DADM is the arithmetic average of seven consecutive measures of daily maximum temperatures. Usually, the 7DADM for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date. Occasionally, to simplify the computation process, the 7DADM is also computed as the moving running average, i.e., by averaging that day's daily maximum temperature with the daily maximum temperatures of the prior six consecutive days, as shown in the following chart. Regardless how the 7DADM is calculated, it is important to note that the 7DADM does not reflect the entire range of temperature conditions in the river throughout the 7-day period, but rather the most acute conditions. These acute conditions are short in duration, as will be shown in the charts to follow. [see ATT: 16 through ATT: 19] Diurnal Temperature Variation Diurnal temperature variation is the variation between a high temperature and a low temperature that occurs during the same day. The following charts show the diurnal temperature variations at three locations and times in the Stanislaus River. The charts show that acute conditions (e.g., the temperatures within 1 Deg. F of the maximum temperature) are short in duration relative to the rest of the time in the day and that most of the time the temperatures are lower by more than 1° F of the maximum temperature (sometime as much as 5° F, as observed at the confluence in October 2010). Temperature Duration Curve A common way to present the duration and magnitude of hydrological conditions in rivers, is by using duration curves. Normally, the duration curve is a plot that shows the percentage of time flow in a stream is likely to equal or exceed (or be lower than) some specified value of interest. The duration curve is computed by sorting all the values in the data set from largest to the smallest and then assigning for each value its probability (exceedance) based on its ranking within the data set. In the context of water temperature, one should exercise caution in using 7DADM duration curve as it might be misleading. 7DADM does not provide the full insight to the thermal conditions in a river as it does not include diurnal temperature variation, only daily	Exceedance tables are shown in Chapter 7, Aquatic Biological Resources, Section 7.4, Impact Analysis, under Impact AQUA-4, and in Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30. Additional temperature outputs are also shown in Appendix F.1. The State Water Board strived to use the best available science throughout the SED and the modeling is credible because it is based on reasonable assumptions and allows a comparative analysis between baseline and alternative conditions. See Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 3.2 regarding carryover storage in the model.

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		maximums. The following chart illustrates that by way of example [see ATT: 20]: Two duration curves were developed, one based on 7DADM and one based on temperatures computed at a 6-hour time step. The chart [ATT: 20] shows that at 60% exceedance level, the water temperature is 58.5 F based on 6-hour time step while it is 59.7 F based on 7DADM. In other words, the 6-hour time step shows cooler temperature than the 7DADM which is more indicative of the actual temperature conditions, statistically speaking. Model Calibration Calibration of the stream reaches in the model was done by comparing computed and observed time series temperatures both graphically and statistically. The model generally does an excellent job of reproducing the thermal regime in streams. However, this does not mean that there is a perfect match between computed and observed, as shown in the following example [see ATT: 21]: Model Calibration - Margin of Error The measures by which we determine how well the model is calibrated, are: - Coefficient of Determination (R2) R2 is a standardized measure of degree of predictedness or fit. R2 = 1 means a perfect match between computed and observed. The closer R2 to 1, the more fitted the data is. Usually, R2 greater than 0.9 means a very good match. - Root-Mean-Square Error (RMSE) RMSE tells us how concentrated the data is around the line of best fit. The larger the RMSE the more scatter the data is with respect to the line of best fit. RMSE is a term that is embedded in R2. - Model Bias Model bias is defined as the difference between the average computed and observed temperatures. The higher the bias in absolute terms the more skewed the model. Positive Bias designates that computed tends to show higher temperatures than the observed and negative Bias is the opposite. The following charts show the calibration results for two locations: Below Goodwin Dam and the Confluence. [See ATT: 22 & 23] Model Implementation The model generally does an excellent job of reproducing the thermal regime in streams. Results show Coefficient of Determination (R2) to be around 0.93 for the Stanislaus, 0.91 for the Tuolumne, 0.93 for the Merced, and 0.98 for the Main-stem SJR at most locations. The model bias defined as the difference between the average computed and observed	

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		temperatures was 0.26, 0.67, 0.32 and 0.31 degrees Fahrenheit for the four rivers, respectively. This means that the model is a little bit biased towards higher temperatures. In conclusion, it should be noted that inaccuracies in model prediction are carried into all the alternatives studied with the model. Therefore, the power of this modeling tool should not be viewed in terms of its capability to perfectly predict the temperatures but rather for comparing alternatives. ii. SWB Temperature Results The results shown by the SWB in Chapter 19 of the SED for water temperature fail to materialize in the Districts' analysis because SWB staff did not model the Project, which is 40% UIF based on a 7-day running average. As shown in the Districts' results, the Project causes significant increases in bypass/releases, which results in less storage and higher water temperature. The SWB recognized this problem and developed the refill criteria and carryover storage analysis to once again hide, mask and misinform the public as to the environmental impacts of the Project.	
1031	33	[ATT 16: Figure 5-1. 7DADM Acute Conditions 7-Day Average of the Daily Maximum (7DADM)]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	34	[ATT 17: Figure 5-2. Diurnal Temperature Variation on the Stanislaus River above the San Joaquin Confluence Stanislaus River above Confluence - Observed Data April 2010]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	35	[ATT 18: Figure 5-3. Diurnal Temperature Variation on the Stanislaus River above the San Joaquin Confluence October 2010 Stanislaus River above Confluence - Observed Data October 2010]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	36	[ATT 19: Figure 5-4. Diurnal Temperature Variation on the Stanislaus River at Riverbank Stanislaus River at Riverbank (RM 31.0) - Observed Data May 2009]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	37	[ATT 20: Figure 5-5. 7DADM and 6-Hour Time Step Duration Curve Water Temperature in the Stanislaus River in April at RM 0.000]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	38	[ATT 21: Figure 5-6. Stream Reach Temperature Model]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	39	[ATT 22: Figure 5-7. Goodwin Dam and San Joaquin Confluence Calibration Results Model Calibration - Computed vs. Observed]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	40	[ATT 23: Table 5-2. Model Calibration Results at Various Locations Model Calibration - Computed vs. Observed / Other locations in the Stanislaus River]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	41	As explained in the SJTA comments, and as acknowledged in the SED, the carryover storage and refill criteria are merely feasible implementations of the Project. The SED states, "[t]hese operational constraints, as components of modeling simulations, do not by themselves comprise a plan of implementation or otherwise carry the weight of regulatory requirements[,] [r]ather, they are included as elements of the modeling simulation to evaluate the feasibility of the LSJR alternatives." (SED, at Appx. F.1-31.) The Districts' view	Please see Master Response 3.2 for regarding why the hydrologic modeling analyses presented by commenters rely on operational assumptions that are inconsistent with the requirements of the plan amendments, as well as for a discussion of the assumptions used in the WSE Model and the modeling characterization of LSJR alternatives. The numeric assumptions used in the modeling do not carry the weight of regulatory requirements because they are modeling assumptions. However, those reasonable modeling assumptions are necessary because there is a requirement in the program of implementation, Appendix K,

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		the analysis as mitigation for the project. There is one simple reason to explain why SWB staff never modeled the Project, meaning 40% unimpaired flow based on a 7-day running average, with 1,000 cfs minimum February-June at Vernalis. The reason is evident from the Districts' analysis above. Rather than creating water temperature benefits (SWB terminology, not ours) the Project would instead cause water temperatures to increase, the opposite effect intended by the SWB. The SWB results for water temperature are set forth in Table 19-3 and Table 19-4. (SED, at 19-6 and 19-7.) The modeling used by the SWB was WSE. It includes carryover storage of 700,000 af EOMSS, refill, minimum tributary flow releases, 40% UIF seven-day modeled monthly, flow shifting of up to 25% of the February-June flows to July-November. It is important to note that the carryover storage, refill criteria, and flow shifting were not used in the baseline case. Therefore, the expected thermal benefits from those actions cannot be distinguished from potential benefits associated with the proposed flows. Below is a modified version of Table 19-3 [see ATT: 24]. The original table in the SED is very confusing. Since the preferred alternative is 40%UIF, we removed the results of other alternatives to give a cleaner picture of the expected water temperature benefits. SED highlights were originally in green, however have been modified to yellow for clarification. There are 85 possible locations and water temperature objectives to be attained. At 40% UIF, only nine are attained or met by the SWB threshold of 10% improvement. In addition, the time period for the study is 33 years. In looking at the percentage base for September at ½ river, the objective was attained 17% of the time out of 990, days or 168 days. The proposed project improves it by 14%, or 138 days. This is the temperature benefit in number of days. The same exercise can be done for each green square. What is interesting to note with the graph is the water temperature benefits occur mainly in September and October. So, how is it that a flow release in February-June results in water temperature benefits in September and October? Two answers. Carryover Storage under the WSE keeps more water in storage and flow shifting moves water that would have been released in Spring to Fall. In other words, the modeling assumptions which are not required by the objectives are driving the temperature benefits. Table 19-4 depicts the water temperature benefit in terms of Fahrenheit. Table 19-4 is below. Once again, we stripped out the other analysis and focused on the preferred alternative 40%. SED highlights were originally in green, however have been modified to yellow for clarification. As shown in Table 19-4, the month of October is the only month in which the temperature benefits achieved would meet the SWB significance of 1° Fahrenheit. Further, the criteria of 64.4°F for adult migration is already met, on average, during October under the base case so there is no benefit to further reducing water temperatures for adult migration. The modeled change in temperature at Goodwin during October just barely meets the criteria of 55.4°F for reproduction. During the February-June release time period there are no significant improvements to water temperature.	Revised Water Quality Control Plan, for "minimum reservoir carryover storage targets or other requirements to help ensure that implementation of the flow objectives will not have adverse temperature or other impacts on fish and wildlife." As noted above, this requirement is not mitigation but is included in the program of implementation. Temperature results are presented in Chapter 7, Aquatic Biological Resources, Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Appendix F.1, and modeling files that were made publicly available. Table 19-3 in Chapter 19 shows September criteria near ½ river (RM28.2) were met 17% of the time under baseline and were met an additional 14% of the time under 40% unimpaired flow for a total of 31% of the time under 40% unimpaired flow. It is important to understand the results are additive. As described in Chapter 19, the Stanislaus River has the fewest temperature benefits because the Stanislaus River is already close to 40% unimpaired flow during the February through June time period; however, when comparing the plan amendments to existing conditions on the Stanislaus River, considerations such as the value in the proposed adaptive implementation approach for maximizing the benefits, and the benefits of synergistic effects of flow being provided by all three tributaries should be recognized. Additionally, see Appendix C Tables 2.13, 2.14, 2.15, and 2.16 for more information on how erratic and random flows have been managed on the Stanislaus River historically. February through June impairment variation within and between years has been dramatic as shown in these tables. Having more flow consistently within February through June of each year will provide a benefit to native fish. For examples of years when there are substantial benefits on the Stanislaus River see Master Response 3.1 and Appendix F.1. Regarding Table 19-4, we refer to the table caption, which states that changes of 1°F do not necessarily represent significant benefits or impacts on salmon or steelhead. Regarding the 64.4°F criteria in October being met on average, please refer to Table 19-5 which shows that 90th percentile temperatures are reduced within a temperature range that is beneficial to salmon during this month. Considering the full range of temperature changes is important, instead of focusing only on averages. Regarding October temperatures below Goodwin Dam (RM 58.5), it is important to review Table 19-5, as it shows temperature reductions that are meaningful and important for spawning salmon and incubating eggs. Also see Figure 19-8 for the impact that the dams on the Stanislaus River have on the availability of cold water in the fall. In addition, this comment references comments made by SJTA. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.

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		This final table is a compilation of the data from Table 19-3 and 19-4 onto one summary sheet. [See ATT: 26]	
1031	42	[ATT 24: Table 5-3. Modified version of SED Table 19-3]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	43	[ATT 25: Table 5-4. Modified Version of SED Table 19-4]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	44	[ATT 26: Table 5-5. Summary of Tables 5-3 and 5-4. Data Summary]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	45	The USEPA criteria is the criteria used by DFW, EPA and the SWB to determine the impairment of the SJR and its tributaries under CWA §303(d). It is being used by the SWB in its SED. The criteria for adult migration in October is 64.4°. The modeling done by the SWB depicts that 64.4°F will be met 71% of the time at the confluence under the base case. This amounts to 726 days out of 1,023 possible days that water temperatures would be better than the criteria. The modeling indicates a projected increase of 12% or an additional 122 days that water temperature would meet the criteria under the proposed alternative. So, 122 days that were above 64.4°F are now at or below 64.4°F. The change in water temperature to obtain those additional 122 days is 1.2°F. In essence, the entire water temperature benefit on the Stanislaus River can be summarized as: [see ATT: 27] If there are 122 days of improvement over the study period, then there will be 3.6 days in October where there is a temperature improvement. The improvement will be 1.2° Fahrenheit lower water temperature for 3.6 days. This is the increment of improvement. The improvement will be from the 7 DADM criteria. Figure 5-1 shows how a 1.2° F decrease in 7 DADM may be a model improvement, but will likely not result in a real world benefits. There is no evidence, fact, or statement, in the record that a water temperature "improvement" as stated above provides any benefit or "reasonable" protection of the beneficial use, or any benefit to the fishery at all. This is because the model and model results, as explained above, can show no benefit. The modeling error +/- the breadth of the stream, its depth, etc., only can give relative results. The results the SWB is pointing to or relying on as the benefit are well within the margin of error of the model. Districts' Analysis The Districts used the hydrology from Mr. Steiner's hydrology runs to perform a modeling run in HEC-5Q (water temperature) for the Stanislaus River. As with the SWB's model, this model uses monthly averages for inputs, even though the Project calls for releases based on a 7-day running average. The initial analysis here was performed in order to compare the Districts' results directly with the SWB's results. The results for the Water Temperature are set forth below [see ATT: 28]: This graph shows the USEPA criteria, with 40% as modeled by the Districts. The Districts' analysis show rising water temperatures outside the February-June time period due to the loss of cold water pool in New Melones due to increased releases to meet	Regarding the comment about 122 days of improvement over the study period, and 3.6 days in October of temperature improvement, it is assumed that the commenter meant that the 40% unimpaired flow alternative will meet the criteria an additional 3.6 days on average during October. Please see Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Table 19-5, which provides additional information on how the hottest temperatures are reduced. There are limitations to only focusing on averages or on one location. For example, under Baseline conditions, the 90th percentile daily 7DADM temperature is 65.9°F below Goodwin Dam (RM 58.5) for all days in October from 1970 to 2003, but under the 40% unimpaired flow scenario the 90th percentile temperature is 8.1°F cooler or 57.8°F. This represents a substantial cooling of the hottest temperatures at this location in a range that is meaningful to fall-run Chinook salmon. See Master Response 3.1, Fish Protection, for a figure that shows a time series from October 1990 to September 1991 which provides an example of how temperatures are cooler during October under the 40% unimpaired flow scenario. Additional temperature outputs are included in Appendix F (Section F.1.6.2), Chapter 19, and Chapter 7, Aquatic Biological Resources. Comparing modeling scenarios is relative by nature and is why these types of models are used. A reduction of 90th percentile daily 7DADM values from 65.9°F to 57.8°F below Goodwin Dam during October is significant to adult fall-run Chinook salmon that are spawning or preparing to spawn, and to their incubating eggs. The comment does not provide support for the assertion that significant temperature benefits or impacts identified in the plan amendments are well within the margin of error of the temperature model. See Master Response 3.1 regarding the use of the USEPA temperature criteria and see Chapters 7 and 19 regarding temperature analyses. Please see response to comment 1031-41. The assumptions used in the district's modeled simulations are inconsistent with what is described in the plan amendments, and hence the results provided by the commenter based on those modeled simulations are inconsistent. See Master Response 2.1, Amendments to the Water Quality Control Plan, and Master Response 3.2, Surface Water Analyses and Modeling, for information regarding carryover storage in the model. Also see Appendix K regarding the State Water Board including minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife or, if feasible, on other beneficial uses.

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		the proposed objective. Unless carryover storage and refill are SWB objectives, then the water temperature benefits will not occur.	
1031	46	[ATT 27: Table 5-6. Stanislaus River Temperature Benefit Summary. October]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	47	[ATT 28: Table 5-7. Districts' Water Temperature Results]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	48	There are several fundamentals that do not change under the SWB or District analysis. From October to March, USEPA water temperature criteria are attained. Similarly, USEPA water temperatures are not obtained under the SWB or District analysis in June, July and August in the lower river. As with any water temperature analysis, the controlling factor is ambient air temperature. When it is cold in the winter, water temperature criteria will be met; when it is 100° in July, criteria will not be met. In reality, there are only four months, October, March, April and May where flow of a sufficient quantity and temperature may change water temperatures downstream of Goodwin. The March rearing 55.4° F is not met under the base case SWB or District analysis downstream. The reason is that ambient air temperatures are increasing. March 60.8° F, however is met in all times and under all runs. Likewise, April 60.8° F is met in almost all times and all conditions. April has smoltification at 57.2° F. This objective is never obtained downstream. Same with May and June. It is achieved upstream, but not downstream because of ambient air conditions. The confluence objective would be 55.4° F in March and 57.2° F in June when immediately downstream on the SJR the monthly temperatures average 59.1° F to 73.1° F. One has to question the benefit to the fish of trying to obtain a goal that cannot be obtained, only to swim 10 meters downstream and be in 10-20° warmer water. The SWB analysis at 40%, also shifts water from the Spring to the Fall in all year types on the Stanislaus River. (SED, at Appx. F.1, Table F.1.2-26, p. F.1-45.) This amounts to 21,000 afa on the Stanislaus River. The water temperature "benefits" shown by the modeling would not occur without flow shifting. As stated above, flow shifting is not the project. This "benefit" is illusory.	Please see Appendix K, Revised Water Quality Control Plan, Program of Implementation, Adaptive Methods for February through June Flows, for a description of the adaptive implementation methods that are part of the plan amendments. These four adaptive methods include method (c), also referenced in the comment as "flow shifting." Please also see Master Response 2.2, Adaptive Implementation, for additional discussion and explanation regarding the adaptive implementation framework, including illustrative examples. This comment is about fisheries benefits. The commenter's statement that ambient air temperature is always the controlling factor in the Stanislaus, Tuolumne, Merced, and Lower San Joaquin Rivers is incorrect. Please see Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, Figure 19-5, for figures that illustrate how flow affects river temperature. Reservoir flow releases have potential to influence river temperature at times when the release temperature is different than the ambient water and air temperature depending on the amount of flow released and the size of temperature differential. The SED analyzed the benefits of temperature effects reaching important downstream habitat areas within operating constraints. For these reasons, a generic statement that ambient air temperature control river temperature is unsupported. The commenter is also incorrect that salmon or steelhead criteria could not be met in July. As shown in Chapter 19, Figures 19-4, 19-7, and 19-10, reservoir release temperatures are typically very cool in July (approximately 57°F for Merced River, 55°F for Stanislaus River, and 52°F for Tuolumne River on average), which means that releasing water from these reservoirs will change the river temperatures downstream to a distance relative to the discharge rate. Please see the section about the importance of June flows in Master Response 3.1, Fish Protection, for additional figures that illustrate how flow affects river temperature. The commenter's statement that there are only four months - October, March, April and May - where flow of a sufficient quantity and temperature may change water temperatures downstream of Goodwin is not correct. On the Stanislaus River, flows safely released (below flood levels) can create dramatic temperature reductions from roughly March through November. In the middle of summer, Stanislaus River temperatures can managed down to approximately 55°F, which can be a 30°F or more reduction from ambient air temperatures. The commenter's statement regarding March rearing of 55.4° F not being met under the base case SWB or District analysis downstream because ambient air temperatures are increasing is not correct. Temperatures in March can be managed down to the level of the reservoir release temperature. In March, the Goodwin Release temperatures are on average about 50°F (see Chapter 19, Figure 19-8). The temperature benefits described in the SED are credible. WSE model flow results were used as inputs to the temperature model (SJR HEC-5Q) to evaluate impacts to aquatic biological resources (SED Chapter 7) and benefits to native fish populations (SED Chapter 19). WSE modeling includes flow shifting because, as described above, flow shifting is an adaptive implementation method in the program of implementation and is, therefore, part of the plan amendments. Please refer to Master Response 3.2, Surface Water Analyses and Modeling, for additional information regarding model implementation of the percent of unimpaired

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			flow objectives.
1031	49	The SWB draft documents touts the benefits of the proposed flow regime with SalSim maximum 40% flow shifting and the benefits from 40% UIF for water temperature and Floodplain Habitat (FPH). Unfortunately, for the SWB analysis, no such conclusion can be drawn because the SalSim model run and the water temperature/floodplain habitat model runs use different inputs that are actually in conflict with each other. The SalSim run at 40% maximum flow shifting moves 25% of all water February-June, in all year types to September-December. In essence, the 40% maximum flow shifting is 30% UIF for water temperature and FPH. This SalSim run creates twice as many fish as 40%. If true, then 30% of UIF is only needed in Spring. Or, stated differently, the only "benefits" to FPH or water temperature that one should be looking at February-June is 30% UIF. There are no water temperature benefits in February-June at 30% UIF on the Stanislaus River. This begs the question then of the benefits to fish with FPH and water temperature, when DFW's own model shows February-June FPH and water temperature do not matter at 30%.	As described in Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, three different 40 percent unimpaired flow scenarios are run through the SalSim model to show that under flow shifting scenarios, increases in total adult production can be further improved with refined flow, reservoir storage, and temperature management. However, it is important to understand the limitations of SalSim, and the limitations of making optimized temperature and flow modeling runs and then inputting those results into SalSim. Chapter 19 provides a use advisory for SalSim, and specifically describes the limitations of SalSim and the limitations of optimized modeling runs. Please also see Master Response 3.1, Fish Protection, regarding the State Water Board's limited use of SalSim, and the acknowledgement of limitations of the model. For example, SalSim's equations related to temperature for both egg and juvenile survival are flawed, and thus limit the usefulness of evaluating changes to those life stages and relative tradeoffs associated with those life stages.
1031	50	Floodplain Habitat (FPH) i. SWB Analysis This analysis will be similar to the Water Temperature analysis above. The FPH benefits are shown by the SWB Table 19-22. (SED, at 19-63.) Once again, we stripped out the alternatives and looked solely at 40%. SED highlights were originally in green, however have been modified to yellow for clarification. [see ATT: 29] Finally, we only took those times the SWB determined there would be significant improvement to FPH; greater than 10%. Again, SED highlights were originally in green, however have been modified to yellow for clarification. [see ATT: 30] ii. Districts' Analysis FISHBIO conducted two field studies on the Stanislaus River at various flow stages to document water quality conditions in the inundated areas and to determine if fish were using the off-channel areas. The two reports are attached to this submittal. (Attachments 4-1 and 4-2.) iii. Analysis and Conclusion There is no floodplain habitat benefit. As explained by DFW in its comments on the SWB Delta Flow Criteria Report, floodplain habitat has many components. The SWB assumption that if it is wet, it is floodplain habitat is rejected by the scientific community. Indeed, at the November 29, 2016 Hearing, Dr. Jonathan Rosenfield said, "muddy ground is not where fish live", Dr. Rene Henery said, "habitat doesn't equal wetted acre days," Doug Obegi: stated, "the SED fails to demonstrate that the flow and non-flow measures are actually likely to achieve the salmon doubling objective." The SWB definition of FPH does not exist. The supposed "benefits" of FPH do not exist. In May, there would be little or no benefit to juvenile salmon at the confluence because water temperatures greatly exceed USEPA criteria. These water temperatures are in the	Please refer to Master Response 3.1, Fish Protection, regarding floodplain inundation, water temperature, and adaptive implementation. Table 19-22 in Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, is an exceedance table that shows the percentage of years that floodplain inundation will occur (compared to baseline) as unimpaired flows increase. This is measured February through June in 10% increments of unimpaired flow (20% to 60%, inclusive). The SED provides information as to when and where there is potential to provide habitat benefits if flows are managed with no adaptive implementation. The commenter's statement that flows will be managed to inundate "muddy ground" is not supported. Floodplain inundation is not an isolated element but part of a larger approach to maximize benefits to fish. Flow will be managed through adaptive implementation in a process informed by the STM Working Group (see Appendix K, Revised Water Quality Control Plan, and Master Response 2.2, Adaptive Implementation). The State Water Board will create the STM Working Group using State Water Board staff and seek participation from the following entities who have expertise in LSJR, Stanislaus, Tuolumne, and Merced Rivers fisheries management, hydrology, operations, and monitoring and assessment needs: the DFW; NMFS; USFWS; and water users on the Stanislaus, Tuolumne, and Merced Rivers. This implementation approach will allow the management of water for floodplain habitat, or temperature habitat, or weighted usable area, or migration flows, or other functional habitat attributes. Please see Master Response 2.2 regarding adaptive implementation and Master Response 3.1 regarding fish benefits. In addition, water temperatures can be dramatically improved in May or later in June. See Master Response 3.1 regarding temperature improvements in June. Specifically, see the temperature versus flow figures, and the time series figures. Also refer Master Response 3.1 for discussion of temperature improvements to reduce harmful or lethal temperatures. The statement that steelhead do not use floodplain habitat is false. The Final Recovery Plan for the Distinct Population Segment of California Central Valley Steelhead (NMFS 2014) identifies floodplain habitats as "Primary Constituent Elements" (PCEs), which are the principal biological or physical constituent elements within the defined area that are essential to the conservation of the listed species (50 CFR 424.12(b)). PCEs

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		river and FPH conditions may be warmer, making for unsuitable temperatures according to the SWB. There is some matching up of water temperatures and FPH at ¼ mile and ½ mile. How much of the 161 acres is in these two reaches? This was not disclosed in the SED. So, it is unknown if habitat matches water temperature. In June, the analysis is worse. First, it should be noted that steelhead do not use floodplain habitat, and even if they did, they are not migrating in June. In 20 years of monitoring at Oakdale from 1995-2015 (no monitoring in 1997) there have only been 3 smolts captured in June. Similarly, at least 97% of juvenile salmon have migrated out of the river by June 1.(Attachment 7. [see ATT: 47]) Secondly, according to the SWB analysis, FPH inundation would be expected to increase from 7% to 16% of the time at 1,250 cfs activating 19 acres of wetted area. This is a tiny area, even if it were in one piece, but it should also be noted that the total area is comprised of even smaller fragments. Further, according to the criteria set forth by the SWB, the water temperatures would not be suitable, as they would greatly exceed 57.2F. So in summary, the fish are not there in June, and even if they were, the temperature conditions in the tiny fragments of inundated area created by the proposed flows would be inhospitable.	considered essential for the conservation of the California Central Valley steelhead DPS are those sites and habitat components that support one or more life stages (50 CFR 226.211(c)). Floodplain connectivity is identified as a PCE. Please refer to Master Response 3.1 regarding the inclusion and importance of June in the plan amendment. Furthermore, with adaptive implementation, even higher periods of flow can be achieved than what is shown in the Chapter 19 floodplain tables. Please see Appendix K, Revised Water Quality Control Plan, Program of Implementation, Adaptive Methods for February through June Flows, for a description of the adaptive implementation methods that are part of the plan amendments. Please also see Master Response 2.2, Adaptive Implementation, for additional discussion and explanation regarding the adaptive implementation framework. Adaptive method (b), also referred to as the "flow shaping" provision, allows entities responsible for complying with the flow requirement to manage the total volume of February—June unimpaired flows as a water budget that can be shaped to better maximize achievement of the LSJR flow objectives. For example, part of a 30-day period could be 3,000 cfs and the other part could be 1,000 cfs for a 30-day average of 2,000 cfs. This flexibility in the plan amendments represents great potential for habitat improvements and the ability to manage desired floodplain durations and magnitudes.
1031	51	[ATT 29: Table 5-8. Percentage of Years Under Baseline Conditions with Average Monthly Stanislaus River Flows at Goodwin Dam Under 40% UIF]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	52	[ATT 30: Table 5-9. Percentage of Years with Significant Improvement to Floodplain Habitat]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	53	[ATT 31: Table 5-10. Monthly Breakdown of Floodplain Habitat Improvement Under 40% UIF. BREAKDOWN BY MONTH]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	54	[ATT 32: Table 5-11. Habitat Water Temperatures on the Stanislaus River compared to USEPA Water Temperature Criteria]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	55	[ATT 33: Table 5-12. Average Water Temperature Compared with State Objective for Water Temperature]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	56	The Baseline is wrong. The No Project Alternative is wrong. The SWB never runs the Preferred Project Alternative, 40% UIF based on a minimum seven-day running average. Instead, the SWB runs a mitigation of its Preferred Alternative. A more accurate and complete report should have been presented after $70,000,000 and ten years of work. The SWB was told in 2012 by the SJTA that these analyses were wrong. The SED misinforms the public on how devastating the project will be to the environment. There will be no benefits derived from the project.	Please see Master Response 1.1, General Comments, for responses to comments regarding the plan amendments and the General Methods and Modeling section. Please refer to Master Response 2.5, Baseline and No Project, for information regarding the baseline and no project alternative. For additional modeling information, refer to Master Response 3.1 Fish Protection, Master Response 3.2, Surface Water Analyses and Modeling, and for detailed modeling information, please refer to SED, Appendix F, Hydrologic and Water Quality Modeling. For information regarding environmental impacts, please refer to SED Chapter 4, Introduction to Analysis, which describes the methods and approach to analyzing resource impacts and identifying mitigation measures. Refer to SED chapters 5 through 18 for resource-specific impacts, and chapter 15 for cumulative and growth inducing impacts. In addition, this comment references comments made by SJTA. To review responses to comments submitted by other entities within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.
1031	57	October Pulse Flows The WQCP includes a requirement for a minimum flow of 1000 cfs at Vernalis during October and an additional 48 TAF pulse flow on top of the base flow. The October pulse	Please see Master Response 2.1, Amendments to the Water Quality Control Plan, for a description of the plan amendments, information about the project description, science and policy support for the plan amendments, and suggested modifications to the plan amendments. Modification of the October pulse flow requirement on the lower San Joaquin River is not included in the plan amendments. However, please see

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		flow requirement equates to 109,380 AF of run-off; in contrast the 83-year average October run-off at Vernalis is only 33,000 AF. Managed pulse flows have been used since the early 1990's to stimulate upstream migrations. SWB Staff claim the October pulse flow requirement on the Stanislaus, Tuolumne, and Merced Rivers would improve water temperatures for adult migrating Chinook salmon and CV steelhead populations, thus, aiding and triggering upstream migration. (SED, at 7-127.) However, empirical studies show factors other than temperature may be of greater importance in stimulating migration. Recent studies have found managed pulse flows result in immediate increases in daily passage, but the responses are brief and represent a small portion of the total run. One of these studies was conducted on the Stanislaus River between 2003 - 2014, Environmental Factors Associated with the Upstream Migration of Fall-Run Chinook Salmon in a Regulated River. (Peterson, et. al (2017) North American Journal of Fisheries Management, 37:1, 78-93.) The study examined daily counts and proportions of Chinook salmon in relation to discharge patterns before, during, and after pulse flows conducted on the Stanislaus River. It found managed pulse flows only aided upstream migration numbers during two of the eleven years analyzed (2006 and 2012); however, the 2006 pulse flow was not provided as an attraction flow, but rather a flood control release. (Id. at 89.) Thus, the October pulse flow was an attraction in only one out of the eleven-year study. Moreover, this study along with studies on the Klamath, Trinity, and Columbia Rivers noted substantial differences in migration rates in fall-run Chinook salmon between years with managed pulse flows and years without. On the Columbia River the run timing of multiple stocks was later when discharge during the migratory period was higher. (See Keefer et. al (2004) Stock-Specific Migration Timing of Adult Spring-Summer Chinook Salmon in the Columbia River Basin, North American Journal of Fisheries Management, 24, 1145-1162; and Strange (2012) Migration Strategies of Adult Chinook Salmon Runs in Response to Diverse Environmental Conditions in the Klamath River Basin, Transactions of the American Fisheries Society, 141, 1622-1636.) In fact, due to the lack of pronounced migratory response by Chinook salmon, Reclamation does not currently recommend pulse flows unless under emergency conditions on the Klamath and Trinity Rivers. As there is ample evidence to indicate no beneficial use of October pulse flows to support adult Chinook salmon or CV steelhead upstream migrations, OID and SSJID ask that this requirement be eliminated from the WQCP.	Appendix K, Revised Water Quality Control Program, Program of Implementation, Implementation of October Pulse Flow Objective. The program of implementation requires that the State Water Board, through water right, FERC licensing, or other processes, require monitoring and special studies to determine what, if any, changes should be made to the October pulse flow objective and its implementation. The State Water Board may require such monitoring and special studies to be part of the SJRMEP. The State Water Board will reevaluate the implementation of the October pulse flow and flows during other times of the year after the monitoring and special studies have been conducted to determine if changes should be made to these flow requirements and their implementation to achieve the narrative San Joaquin River flow objective. Please see Appendix C, Technical Report on the Scientific Basis for Alternative San Joaquin River Flow and Southern Delta Salinity Objectives, for a discussion of the scientific basis for amending the San Joaquin River Flow Objectives in the February through June time frame. River flows (magnitude, duration, frequency) during this period are a dominant factor affecting salmon abundance in the basin.
1031	58	Water Rights a. Pre-New Melones Project Prior to the construction of New Melones, Oakdale Irrigation District (OID)/South San Joaquin Irrigation District (SSJID) had the major storage facilities and diversions on the Stanislaus River. The Districts have a Pre-1914 adjudicated right to the first 1816.6 cfs of water in the Stanislaus River Basin (Stanislaus River Adjudication Decree (Nov. 14, 1929) Superior Court of San Joaquin County, Action No. 16873; See also United Sates v. California (E.D. Cal. 1981) 509 F. Supp. 867, 901 ["rights determined by Stanislaus River Adjudication Decree… Action No. 16873].) In addition to its Pre-1914 water right, the Districts have the right to store and re-direct 106,949 acre-feet from Old Melones (Division of Water Rights, Permit No. 2106, License No. 2013 (Apr. 22, 1940) [10,754 af.]; Division of Water Rights, Permit No. 2104, License No. 2012 (Apr. 22, 1940) [96,195 af.]) It also has rights for the Tri-Dam Project, Donnells (Division of Water Rights, Permit No. 009362, License No. 10166	Please see Master Response 1.1, General Comments, and Master Response 1.2, Water Quality Control Planning Process, for responses to comments regarding water rights priorities and the Bay-Delta water quality proceedings.

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		(Aug. 31, 2001) [11,000 af.]), Beardsley (Division of Water Rights, Permit No. 9361, License No. 7857 (Oct. 22, 1959) [76,900 af.]) both above Old Melones and Tulloch (Division of Water Rights, Permit No. 9360, License No. 7856 (Oct. 23, 1959) [63,000 af.]) and below Old Melones. Downstream from Tulloch is Goodwin Reservoir where water is diverted into the South and North Mains for use in the District. b. New Melones In 1966, the U.S. Bureau of Reclamation commenced construction of New Melones Dam, immediately downstream of Old Melones Dam. The history of New Melones is set forth United States vs. California wherein the United States objected to the State Water Resources Control Board's proposed use of water from New Melones. There are two important documents that define the New Melones project; its authorizing legislation (Flood Control Act of 1962 (P.L. 87-874)) and the Secretary of Interior's Decision (New Melones Lake Area Master Plan of 1976). We have discussed these documents in detail under Project Purpose. c. State Water Resources Control Board (SWB) Permits In order to operate the New Melones Dam and Reservoir, Reclamation needed to obtain a permit from the SWB (United States v. California, State Water Resource Control Bd. (9th Cir., 1982) 694 F.2d 1171, 1177). The permitting process allows legal users of water that may be injured by a new water right permit to protest. The Districts protested, since a 2,450,000 acre-foot reservoir, dam, and powerhouse were being put right in the middle of its operations. After lengthy hearings and negotiations, the Districts and Reclamation entered into an Operation Agreement. The original Operation Agreement was in 1978. The subsequent and current agreement is simply titled the 1988 Agreement and Stipulation (See Attachment 9). The original agreement was recognized by the SWB as a settlement of the Districts' protest of the New Melones water right permits. (In the Matter of Application 14858, 14859, 19303 and 19304 (Apr. 4, 1973) State Water Resource Control Board, D-1422 at p. 4; See also In the Matter of Application 24371 and 24372 (Apr. 20, 1978) State Water Resource Control Board, D-1481.) Since the original agreement to the present, the Districts and Reclamation have operated under the Agreement. d. Current Requirements Reclamation, as the Junior Water Rights holder on the Stanislaus, is currently required as a condition of its permits, the Endangered Species Act (ESA) and other rules and regulations to meet the following instream flow obligations: - 1988 Agreement with California Department of Fish & Wildlife (DFW) for Instream Flow. - Central Valley Project Improvement Act, [section] 3406(b)(2), commonly referred to as (b)(2) water - NMFS Biological Opinion on the Long-Term Operation of the CVP and SWP, Appendix 2e flows - D-1641 February-June flow objective at Vernalis - D-1641 April-May pulse flow objective at Vernalis	

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		- D-1641 Salinity Objective at Vernalis - D-1422 Dissolved Oxygen Objective at Ripon - OCAP-BO Water Temperature Objectives OID and SSJID have no obligations for instream flows. These flows and obligations are due to CVP operations or New Melones specific impacts. Whether it be D-1422, D-1481, D-1641, ESA, or the CVPIA, it has been found that the New Melones project impacts are the impacts to be mitigated.	
1031	59	The Districts are not Central Valley Project Contractors (CVPC) The SED improperly treats the Districts as if they were CVP contractors. In fact, the SED states, "SSJID, together with OID, holds contract rights with [USBR] to divert 600,000 acre-feet (TAF) of water from the Stanislaus River." (SED, at 20-28.) The Districts are not CVP contractors. CVP contractors receive CVP "project water." The Districts do not receive CVP "project water." Rather, USBR has entered into an agreement with the Districts in order to resolve the Districts' protest to USBR's application for water right permits and licenses to build New Melones Reservoir on the Stanislaus River. Pursuant to the most recent iteration of that Agreement ("1988 Agreement"), the Districts receive the first 600,000 acre-feet of water on the Stanislaus River in recognition of the senior water rights. In Consol. Salmonid Cases v. Locke, Judge Oliver Wanger found the reasonable and prudent alternatives (RPAs) in the NMFS BO, including the required flows in Appendix 2e, were not applicable to OID or SSJID because they do not receive CVP project water. (Consol. Salmonid Cases v. Locke, supra, 791 F.Supp.2d at 938-941.) The Districts do not pay Reclamation for water, nor do the Districts follow the RPA. The Districts coordinate their operations with Reclamation to ensure that when the water year is complete the entities have received and used the water they are entitled to use under their respective water rights. [Footnote 6: It is almost impossible on a daily basis to match water rights and water operations through seven reservoirs, nine powerhouses and multiple diversion points.] This understanding of the 1988 Agreement between the District and USBR as an operations agreement, rather than a water supply contract, was reinforced in the OCAP-BO litigation cases. In its OCAP-BO lawsuit, the Districts sought to enjoin the use of their water to meet Appendix 2e Flows. The Federal District Court affirmed the Districts' position, holding that their water could not be used to meet the Appendix 2e Flows. It stated: "If . . . Reclamation's predictions prove incorrect and make the RPA's implementation infeasible, the burden cannot be imposed on senior water rights holders [such as OID and SSJID]. Rather, Reclamation must then re-initiate consultation [under Section 7 of the ESA]." (Consol. Salmonid Cases v. Locke, supra, 791 F.Supp.2d at 940.) f. 40% Unimpaired Flow (UIF) The SWB's proposal to require 40% UIF turns water rights, regulatory and statutory findings, and the SWB permit process upside down. The SWB found in D-1422 and D-1485 that Reclamation was solely responsible for meeting	Please see Master Response 1.1, General Comments, for responses to comments regarding water rights, program-level document, and program-level analysis. Please see Master Response 1.2, Water Quality Control Planning Process, regarding State Water Board authorities under Porter-Cologne Water Quality Control Act, water rights, the priority system, and the distinction between the program of implementation and implementation of the Bay-Delta Plan through water rights proceedings. SSJID and OID hold a number of water rights, some of which are senior, and others of which, such as under the 1988 Agreement, are contingent upon USBR's appropriative permits governing the operation of New Melones Reservoir. The 1988 Agreement is separate and distinct from the common category known as 'CVP contracts,' but the rights and quantities conveyed in the 1988 Agreement are properly described as contract rights, regardless of any senior and underlying claims. Please see Master Response 2.5, Baseline and No Project, for responses to comments regarding flows required by 2009 National Marine Fisheries Service Biological Opinion and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project.

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		instream flows below Goodwin. (In the Matter of Permit 12720 (Aug. 16, 1978) State Water Resource Control Board, D-1485, at p. 6, 22). The SWB recognized the 1988 Agreement between DFW and Reclamation wherein 98,200 to 308,000 acre-feet would be released to meet instream flows. D-1422 and D-1481 also found Reclamation to be solely responsible to meet the Dissolved Oxygen level at Ripon by releasing sufficient flow in the summer (D-1422, supra at p. 31.). The SWB also found in D-1422 and D-1481 that Reclamation is responsible for providing sufficient flow below Goodwin to meet riparian demand in the lower Stanislaus River. As stated above, the flows required by Appendix 2e and the water temperature objectives from the NMFS BO are the sole responsibility of Reclamation. In D-1641, the SWB found Reclamation solely responsible for the Vernalis Salinity Objective, February – June flow objective, and April – May pulse flow. [Footnote 7: Reclamation may argue it is not solely responsible for the April-May pulse flow. What is clear is neither are OID/SSJID.] The first question with the 40% UIF is, "Whose water goes down the river first?" It is OID and SSJID's position that before any senior water right can be required to bypass any water to meet the 40% UIF requirement, all junior water right holders, such as USBR, must release or bypass water to meet their current legal obligations. Those obligations are based on the impacts to instream flows caused solely by the New Melones project. Compelling senior water right holders to bypass water first, thereby providing flows that would have otherwise been required from junior water right holders in order to mitigate for impacts caused by their project, will constitute a taking of senior water rights. A simple example will make this clear. If the UIF at New Melones was 1,000 cfs on April 1, then under the proposed Project, 40% UIF, or approximately 400 cfs, would be released at Goodwin. If the Appendix 2e flows required from USBR by ESA meet or exceed [Footnote 8: The 1988 DFW Agreement flows are subsumed in Appendix 2e, because 2e flows are always higher.] the 400 cfs, then the entire 40% UIF requirement will be satisfied using CVP releases. If Appendix 2e flows were only 200 cfs, then all water users on the river may need to bypass an additional 200 cfs to meet the 400 cfs. Since the proposed SWB project is "additive" to the existing baseline, Reclamation will need to release or bypass stored water first to meet the Appendix 2e flows. The same analysis would need to be done for every requirement Reclamation has for the New Melones project. Otherwise, the senior water right holders will be assuming the junior water right holders' obligations and mitigating for Reclamation's project impacts.	
1031	60	Carryover Storage and Refill Requirements The Water Supply Effect Model used by the SWB has two major assumptions; carryover storage and reservoir refill criteria. The WQCP/SED sets out as a carryover storage requirement of 700,000 af EMOSS for New Melones. (SED, at Appen. F.1-36.) Depending on the year, water may be taken from OID and SSJID's storage from October-February and/or from the Districts' direct diversion rights from March 1st – November 1st to meet either the release requirement, the carryover storage requirement or both. Water may be taken from both because the equation described above is driven solely by meeting the End of Month Storage September. Where and when the water comes from is irrelevant	Please see Master Response 1.1, General Comments, regarding the programmatic scope of the SED and CEQA requirements. Please see Master Response 1.2, Water Quality Control Planning Process, regarding future implementation of the plan amendments through water right proceedings (e.g. decisions amending specific water right permits and licenses, or by regulation), including a discussion of water right priorities. Please see Master Response 2.1, Amendments to the Water Quality Control Plan, regarding the LSJR flow program of implementation, including discussion of carryover storage and adaptive implementation. Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding reservoir operations assumptions, including carryover storage. The State Water Board appropriately modeled potential reservoir operations using a set of simplifying assumptions (including carryover storage) to show the range of potential environmental impacts in such a

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		to the equation to create carryover storage. This leads to an illegal taking and usurpation of the water right priority system. An example will make this point. In 1930, the Districts would have used at least 559,000 acre-feet water to meet the model's land use requirement. [Footnote 9: The model only focuses on land use, it has no analysis of "storage" as a "use", or "water transfers" as a "use."] (See Table 5-1: State Water Board Model Run of 40% UIF recreated by Daniel B. Steiner, Attachment 1, p. 19.) In 1930, there was water available to the Districts under the 1988 Agreement because there was 671,000 acre-feet of inflow into New Melones, and/or under their water rights because there was 732,000 acre-feet of UIF in the Basin. The Districts' water supply is reduced from 600,000 acre-feet to 314,000 acre-feet solely to meet the carryover storage requirement in New Melones. This phenomenon occurs 21 times under the historical analysis. (Attachment 1.) The carryover storage requirement results in District water being stored in New Melones, and then effectively used by Reclamation to meet its regulatory, statutory and contractual obligations. Each year Reclamation releases water for CVPIA (b)(2), Appendix 2e flows, salinity requirements at Vernalis, dissolved oxygen requirements at Ripon, and CVP project contractors (SEWD and CSJWCD), if available. When storage drops because of these CVP uses, and when inflow in the following water year is minimal, the Districts' diversions will be cut in that following year in order to ensure that the carryover storage requirement is met. The result is that the Districts are filling New Melones so that junior CVP project purposes can be met in the year prior. The same issue occurs with the SWB refill criteria six times. For 27 out of 80 years of record, the Districts' rights to directly divert and divert to storage are subjugated to the junior rights of Reclamation.	way that the public and the State Water Board can compare the relative effects. The model results present a range of potential and likely generalized operations, sufficient to evaluate water supply and other effects of the plan amendments from a programmatic perspective. The program of implementation does not establish specific carryover requirements to avoid constraining future implementation. Specific carryover or other requirements will be established when implementing the plan amendments through future water right and water quality proceedings.
1031	61	40% UIF In the analysis, there are an additional seven years where the Districts' right to divert is diminished in order to make water available for instream uses or fill storage in New Melones. In these seven years, the SWB provides a minimum diversion to the Districts. (See Attachment 1.) In 1990, there was 491,000 acre-feet of inflow into New Melones. Under the 1988 Agreement, the Districts would have received 530,000 acre feet. The land use demand was 570,000 acre feet. The diversion to the Districts was 217,000 acre feet. The river received 262,000 acre feet, and carryover storage was 757,000 acre feet. In this example, it's impossible to say if the water was going to meet the 40% UIF or the carryover storage. In 34 out of 80 years, the Districts' water rights would be severely impaired to meet 40% UIF, carryover storage or refill criteria, or some combination of them. In these 34 years, the senior water rights of the Districts, which rights are not disputed, would be subjugated to the rights of the most junior water right holder in the Basin, namely, Reclamation.	Please see Master Response 1.1, General Comments, for responses to comments regarding water rights, program-level document, and program-level analysis. Please see Master Response 1.2, Water Quality Control Planning Process, regarding State Water Board authorities under Porter-Cologne Water Quality Control Act, water rights, the priority system, and the distinction between the program of implementation and implementation of the Bay-Delta Plan through water rights proceedings.
1031	62	District Revenue Beginning in 2007 after the implementation of VAMP, OID actively engaged in the sale and transfer of surplus water when such sources were available. Over the last ten-years these activities generated over $58 million ($5.8 million per year) in revenue for OID. Pursuant to OID policy, eighty percent of that revenue is committed to capital improvement projects	OID describes the water it is selling as "surplus" and "not committed to any local in-district or local farmer out-of-district water need." (OID 2017a.) The Random House Dictionary defines surplus as "something that remains above what is used or needed." The waters of California belong to the public and cannot be owned by any individual or entity. A water right is granted for reasonable and beneficial use of the state's waters, but does not constitute ownership of the

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		("CIP programs"). This revenue, in turn, was invested in CIP programs to advance water conservation within the District. A realized benefit of these actions can be seen in OID's annual water use, which has dropped ten percent over the last ten years. OID's water transfers and CIP programs benefit fisheries in the Stanislaus River and move water to other public agencies in the State who are in need of additional supplies and who can put the water to reasonable and beneficial uses. Moreover, the economic stimulus and rollup benefits of injecting between $5-6 million a year on CIP program implementation into the local economy is significant. Under the proposed WQCP the State will be taking all of OID's salable water supplies leaving OID with no revenue stream for continuation of CIP programs and further conservation improvements. Without outside water sales these water projects are not economically viable locally. Thus, the State's actions will end OID's ability to rebuild and modernized its water delivery system resulting in an end to the advancement of water conservation implementation at OID. Additionally, the loss of all water sales revenue will mean that twenty percent of operational expenses previously funded by water sales, roughly $1.2 million annually, will be passed onto OID constituents. This will increase the annual cost of water by forty-three percent in the Districts' service area. Fifty percent of the Districts' irrigated crops are low value feed and field crops that are not conducive to higher water rates as the return on investment is low. The fallowing or conversion of low value crops coupled with the loss of $5-6 million in local economic stimulus will result in a host of impacts locally. Furthermore, OID's constituents can ill afford to absorb the remaining $4.6 million to continue the CIP programs for conservation on water that is not economically viable to conserve. As none of these direct, indirect, or induced impacts were evaluated in Section 18: Summary of Impacts, nor in Appendix G: Agricultural Economic Effects of the SED, OID requests the State Water Board address these impacts in its economic analysis prior to adopting the WQCP.	waters. This means that the entitlement extends only to the reasonable and beneficial use of water, but not to indefinite benefit of any excess water. Commenter's claim, when boiled down to its essentials, is that OID will continue to have sufficient water for its own needs but will lose the ability to profit from water sales. The commenter claims the State Water Board was required to do an in-depth analysis of the environmental consequences of OID ceasing to sell surplus water, but a search of the State Clearinghouse provided no comparative review of the environmental impact of OID's water sales for the State Water Board to evaluate. OID's water sales have generated controversy for allegedly avoiding environmental review by abandoning water instream and allowing it to be picked up downstream (Modesto Bee 2016). The commenter claims that the loss of a subsidy from water sales will cause fallowing and end conservation improvements in OID's service area, but provides no substantial evidence for either claim. Moreover, there are growers neighboring OID's service area that are not subsidized by equivalent water sales but find it economically viable to continue producing crops, maintaining infrastructure, and investing in improvements. OID claims its annual water costs will increase 43%. According to Section 3.8 of OID's 2015 Agricultural Water Management Plan, its water rates include a fixed, per-acre charge of $27, plus a volumetric charge that ranges by acre-foot (af) as follows: $3.15 per af for 0 to 3 af per acre; $8.30 per af for 5 to 7 af per acre; and, $20.75 per af for those using more than 8 af per acre (OID 2016). For illustrative purposes, a 43% increase in these water rates would result in an increased fixed per-acre charge of $34.32 and increased volumetric rate that ranges per af as follows: $4.50 per af for 0-3 af per acre; $11.87 per af for 5 to 7 af per acre; and, $29.67 per af for over 8 af per acre. In comparison, the AWMP of Merced Irrigation District (MeID) states that its 2015 rate for surface water was $100.00 per af (MeID 2016). This means that even after a 43% increase, an OID grower irrigating 100 acres with 5 af/ac of water would pay approximately $9,367 (or $34.32 x 100 + ($11.87 x 5) x 100) while the MeID grower irrigating 100 acres with 5 af/ac would pay $50,000. Therefore, it is speculative to assume that famers within OID's service will be forced to fallow crops or be unable to pay for conservation improvements if they have to pay increased rates for water. According to OID's general manager, the implementation of conservation improvements in OID's service area has allowed OID to conserve almost 31 thousand acre-feet of water (OID 2017b). OID's Agricultural Water Management Plan Executive Summary states that critical infrastructure and conservation improvements have been funded through land annexations, bonds, and transfers of conserved water in addition to transfers of surplus water (OID 2015). This demonstrates that mechanisms other than transfers of surplus water remain available for OID to use to fund conservation improvements that benefit both the district and the local economy. OID claims that its water transfers have benefitted wildlife because it required parties such as the San Luis and Delta Mendota Water Authority to pay for water and then OID abandoned that water instream at times when fish were present. However, such ad hoc wildlife benefits do not compare to the plan amendments which will directly benefit fish and wildlife by requiring unimpaired flows on a schedule that more closely mimics the variability of a natural hydrology. Fourteen years of rotary screw trap data on the Stanislaus River indicates that hydrology is a significant driver of several demographic characteristics of the Chinook salmon population and that incongruities between flow and life history traits can lead to reduced migration success and reduced diversity of migratory life history strategies. Please see Master Response 3.1, Fish Protection, for a discussion of the current fish decline and the need for increased and more variable flows.
1031	63	Urban Water Demand in Stanislaus The cities of Escalon, Lathrop, Manteca and Tracy in joint planning efforts with South San Joaquin Irrigation District (SSJID) created the South County Water Supply Project (Project) in	Forty-two million gallons per day is approximately 47,044 acre-feet (af) per year. The South County Water Supply Project (SCWSP) began deliveries in 2005. Between 2005 and 2015, SCWSP's combined yearly deliveries to Lathrop, Manteca, and Tracy (LM&T) ranged from a low of 6,493 af in 2005 to a high of 20,361 af in 2013, or less than half the capacity stated in the comment. Escalon did not utilize water from SSJID via

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		1995 to enhance water quality and supply to the nearly 200,000 residents and thousands of businesses that depend on these services for urban water supplies. At a cost of over $127,000,000, from the cities of one of the most economically challenged areas of California, this project was an extraordinary undertaking for its people. Able to supply up to 42 million gallons per day (mgd) from its central plant, the Project draws from SSJID water rights on the Stanislaus River. The treated water is used in residential, commercial, industrial, manufacturing and agricultural processing in the region. The treated surface water supplements, and in some cases largely replaces, local ground water supplies. In addition, the Project was designed to be modular in that it could expand to meet the demand expected from future urban growth. Even with the recent economic downturn and its especially harsh impact on this region, population growth surged ahead in the South San Joaquin Region increasing 30% between 2000 and 2014 according to the Housing Element of the San Joaquin County General Plan, with growth projected to continue and accelerate in the region as more of the Bay Area population seeks affordable, but commutable housing and as commerce increases to serve that population. Though SSJID owns and operates the treatment plant and much of the distribution system [of South County Water Supply project] it does so in financial partnership with its retail cities. The Stanislaus River water supply to these cities has become critically necessary for human health and safety for several reasons: a. Water Supply: Much of the urban service area is located over a groundwater basin designated as critically overdrafted, suggesting that water supply (quantity) could become a growth and economic drag on the local economy. Continuing to chase ever more limited supplies of groundwater in the region is just not sustainable. Currently the SSJID facilities can supply up to 42 mgd and provides between 50-70 percent of the annual water supply to the partner cities an indispensable resource for current and future urban water supply and fully necessary to the health and safety of its population. b. Water Quality: Over the years the primary water demand in the region has been and continues to be for agriculture. That industry and its related manufacturing activities as well as other local urban operations, as in other parts of California, has reduced the availability of good quality groundwater contributing cost and challenges in specific areas to meeting rigid drinking water standards for supply and quality. In addition virtually the entire region overlies or directly borders the south delta such that much of the region suffers from high salinity and intrusion in the ground water supply. The Project treated water is critical to the delivery of safe treated water to the residents and businesses of the region by delivering extraordinarily high quality water that can be used much of the time to meet demand and, when mixed with ground water supplies, to increase its quality at other times. c. Reliability: Currently SSJID supplied water is highly reliable as a local water supply because of the nature of the Stanislaus River hydrology and its associated water right priorities. With an average runoff in excess of 1 million acre feet annually and access to storage and direct diversions that are both pre-1914 adjudicated rights, SSJID water supplies have historically been impacted by extended drought only occasionally. The delivery of water by the [South County Water Supply] Project is governed by the Water Supply Development and Operating Agreement which provides that in the event of water shortage, deliveries by SSJID to cities is curtailed by approximately the same percentage as deliveries to agriculture. For instance, this requirement led to urban water supply reduction	the SCWSP because it did not have the infrastructure to do so (Lathrop 2017, Manteca 2016, Tracy 2016, SSJID 2015). It is speculative to assume what actions water suppliers would take in response to reduced surface water supplies from SSJID because LM&T are not dependent on SSJID for all of their water supplies. LM&T have diversified water supply portfolios and, as required by state law, are actively engaged in water supply planning, including conservation, recycling, and drought contingencies. For example, since 2011, Lathrop reduced its use of SCWSP supplies from 28% of its portfolio (1,053 af) to 7% of its portfolio in 2016 (252 af) citing cost (Lathrop 2017). In addition, according to the urban water management plans of LM&T as well as SSJID, there are no immediate plans to implement an expansion of SCWSP. "Currently, SSJID has no immediate plans to implement Phase II." (SSJID 2015). SSJID's maximum contractual entitlement for surface water is 300,000 af. During the height of the drought, in 2015, SSJID received approximately 225,000 af of its contractual entitlement. According to SSJID's 2015 UWMP it delivered 16,009 acre-feet (af) of surface water supply to LM&T from the SCWSP (SSJID 2015). According to LM&T, the 16,009 af represented a 20% reduction to the requested supply. Stated another way, in 2015 SSJID delivered what would amount to a little over 7% of 225,000 to LM&T for urban use. The rest (93%) was delivered for agricultural irrigation. Commenter is asserting that a 60% reduction in agricultural irrigation supplies would be likewise be imposed upon LM&T, referred to in the comment as SSJID's partner cities. For illustrative purposes it is possible to compute the relative change in percentage of reduction between agricultural and urban use. If 16,009 af is a 20% reduction in base supply, then the base amount is approximately 20,000 af. A 60% reduction to 20,000 af would be 8,000 af. The difference between the 20% reduction and the 60% reduction is only 8,000 af. Using the base amount of approximately 225,000 af in 2015 for a rough comparison, the commenter is claiming that SSJID would impose what commenter deems a "catastrophic" water curtailment upon its partner cities in order to increase its water supply for agricultural irrigation by roughly another 3.6%. Inherent in this conclusion is that they could not negotiate or otherwise purchase additional supplies. Such a conclusion is speculative and unsupported. Furthermore, in severe drought conditions, 8,000 af is well within the capacity that can be replaced by available groundwater from standby wells. Commenter's inference that residential growth requires ever increasing regional water supplies is likewise unsupported. In California's largest metropolitan areas, water use has fallen despite population growth. This is because per capita water use has been decreasing, from an average of 232 gallons per capita per day (gpcd) in 1995 to 178 gpcd in 2010. In 2015, this reached 130 gpcd due to drought-related conservation. In addition, agricultural water use is decreasing even as the economic value of farm production is growing. (PPIC 2016). Moreover, cities such as Manteca have identified that where urban growth is occurring on irrigated agricultural land, the raw agricultural water supply of the annexed lands could either be treated for potable municipal use or used to offset potable water for irrigation (2016 Manteca). SSJID disputes that the city will necessarily be entitled to this water. But what this illustrates is that the trend for meeting water for urban growth is a portfolio approach that includes serving more uses with the same amount of water through increased efficiencies, reusing water multiple times by recycling, moving water from one use to another, and other strategies. The primary water use in LM&T is single family residential. Approximately 50% of all single family residential water use is outdoor landscaping (PPIC 2016). Lathrop currently has a water conservation goal of 188 gpcd by 2020 but reached 148 gpcd in 2015. Similarly, Manteca and Tracy have goals of 179 gpcd and 181 gpcd by 2020, respectively, but reached 139 gpcd and 146 gpcd, respectively, in 2015. (Lathrop 2017, Manteca 2016, Tracy 2016.) All three cities have conservation goals that are lower than the actual conservation they achieved in 2015, demonstrating the latent potential each has for urban efficiency and demand reduction. In addition, in accordance with Water Code section 10633, all three cities' UWMPs identify increased potential for recycled water use.

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		in 2015 of 20% and in 2016 of 16%. Within the context of local conservation during extended droughts, these reductions are currently manageable by local authorities. The Water Quality Control Plan as analyzed by the Substitute Environmental Document (SED) will radically alter that sustainable condition. The analysis set forth in the State Water Resources Control Board's SED is fatally flawed in multiple ways, but one of its more shocking errors is its analysis of water supply impacts. Indeed, as referenced elsewhere in these comments (Stanislaus parties) there are a few years, based on historical analysis, that result in water supply curtailment to SSJID in excess of 60%. This arises not just from diversion restrictions necessary to meet the unimpaired flow requirements but also from the reservoir carry over targets set for the cold water pool at New Melones, in the plan of implementation. While discussed in detail elsewhere as a discussion of service water supply impacts generally, in the context of urban water supply such a loss of supply is more than catastrophic. Recall that percentage reductions in supply to SSJID are shared in approximately the same percentages between agriculture and urban deliveries. Fifty to sixty percent reductions or more to agriculture is not survivable for extended periods but accommodations in the short term can be orchestrated for economic survival (though certainly not at the levels set out in the SED.	As noted above, the water supply portfolios of LM&T are diverse and not limited to the SCWSP. In addition, the cities are actively engaged in water supply planning, including for drought and other contingencies, and are aware of the plan amendments as they submitted a joint comment letter together with Escalon, Ripon, and SSJID. Moreover, SSJID's deliveries for domestic use comprise a small proportion of its overall demand. Domestic use is established by the state to be the highest use of water (Wat. Code § 106). For all of these reasons, it is speculative, unreasonable and unsupported that the plan amendments will affect Lathrop, Manteca, and Tracy in the way that commenter has described. Please refer to Master Response 1.1, General Comments, regarding the adequacy of the approach to the analysis. For SED analyses related to Lathrop, Manteca, Tracy, Escalon, and SSJID, please see Chapter 2, Water Resources, and Master Response 3.2, Surface Water Analyses and Modeling; Chapter 9, Groundwater Resources; and Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act; Chapter 11 Agricultural Resources; Master Response 8.1, Local Agricultural Economic Effects and the SWAP Model; and, Master Response 8.2, Regional Agricultural Economic Effects, regarding regional agricultural economic effects. Please also see Master Response 8.4, Non-Agricultural Economic Considerations, regarding potential municipal economic considerations. The State Water Board has done its best to make the SED as fair, objective, and complete as possible. Please also refer to Chapter 13, Service Providers, and Master Response 3.6, Service Providers, regarding the potential impacts of the plan amendments on service providers' ability to provide safe and reliable water.
1031	64	We [OID and SSJID] are unaware of any city in California that has achieved anything approaching a 50% or 60% conservation rate for any single year let alone for an extended drought period. There are no other sources of water currently available to the SSJID service area other than its Stanislaus River rights and groundwater. As previously indicated the very genesis of the [South County Water Supply] Project began over 25 years ago with the recognition that continuing reliance on groundwater as an exclusive source for urban water supply was not sustainable. No amount of regulatory manipulation can change that basic fact. Increased pressure on the area without alternate or surface supply was and is continuing to impair the sustainability of groundwater as a source of urban supply. Additionally, the generally high salinity of groundwater in areas of the region further limits any increased reliance on groundwater for urban supply. Indeed accelerated use of groundwater in and around the local groundwater basin from users without alternative supplies has simply confirmed the wisdom of SSJID and its partner cities to initiate the diversification of local water supply implemented by the Project.	Please see responses to comments 1031-63 and 1031-65. In addition, the commenter does not provide any support for that cities will be required to conserve 50-60% based on a partial reduction in water supply from the SCWSP.
1031	65	With respect to supply, California's adoption of the Sustainable Groundwater Management Act (SGMA) confirms as a matter of law what the [South County Water Supply] Project parties concluded 25 years ago; continuing reliance on groundwater for sustained urban supply and growth was not possible long term, even in a conjunctive use program. SGMA will require further adaptation by the Project parties in resource management. Indeed, because of its critical overdraft status management plans for the basin are due shortly and implementation required by 2022. Consequently SSJID and its partner cities find themselves in a catch-22 with respect to supplies. On the one hand, the SED recognizes a significant water supply impact from the implementation of the revised Water Quality Control Plan (WQCP) even though SSJID and its partners realize this impact is vastly understated in the SED. Nevertheless the SED plan finds	Please see response to comment 1031-63 regarding Lathrop, Manteca, and Tracy water supplies and growth. Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act for a discussion on the approach to the groundwater impact analysis, SED consideration of SGMA, and compliance with SGMA in the context of the plan amendments. SGMA was passed by the legislature in 2014 to address overdraft issues and associated negative impacts to groundwater basins from overextraction. SGMA requires local public agencies in the plan area form groundwater sustainability agencies (GSAs) by June 30, 2017 and draft groundwater sustainability plans (GSPs) by 2020 for critically overdrafted basins and 2022 for all other basins. GSAs have 20 years to implement GSPs and achieve sustainability. GSAs are now formed in the plan area, but GSPs have yet to be drafted or implemented. The State Water Board acknowledges reaching sustainability in these overdrafted

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		such an impact to be unavoidable and suggests, without any justification about available supply and with full knowledge of the status of the groundwater basin and the impending impacts of SGMA, that much of the impact will simply be made up by the use of groundwater. This conclusion, without supported analysis is a gross violation of the California Environmental Quality Act (CEQA). On the other hand the catch 22 turns even more vicious. SGMA requires groundwater management plans that achieve a sustainable management of the basin. Tools to achieve sustainability include conservation extending to extraction limitations. The theory is that surface water can be imported and stored in the basin as a tool to achieve sustainability. So, one part of state government is dictating groundwater sustainability by suggesting (if not regulating) limiting groundwater extraction and importing surface water, while at the same time another arm of the state is taking that imported surface water and suggesting it will be mitigated by more use of groundwater. No reasonable management is sustainable in such a legal / regulatory environment. The citizens of South San Joaquin County will pay at both pumps. The notion that the WQCP, (SED) and SGMA can both successfully be implemented in this region is pure fantasy. Nowhere in the SED is this sufficiently analyzed. Finally, no economic theory we are aware of ever suggests that any economy is sustainable with permanent zero growth. No new housing, no new schools or businesses, no ability to absorb indigenous population growth let alone demands placed on the region by those with more financial resources seeking to relocate in the area. Nevertheless, this bleak scenario is a real and probable outcome if both the SED and SGMA are implemented without modifications.	basins will be challenging, but the plan amendments do not conflict with SGMA. Instead, knowledge of the plan amendments during the GSP drafting phase allows for integrated planning of scarce water resources that does not trade impacts between surface and groundwater. The SED and plan amendments do not require or encourage increased groundwater pumping. The SED analyses reflect that the historical local response to reduced surface water availability has been to choose to increase groundwater pumping; therefore, the SED was required to analyze this reasonably foreseeable and its impact on the groundwater basin from this local response. The SED does not assume that all reductions in surface water supplies can be met with increased groundwater pumping. Rather, if local water users choose to replace reduced surface water with groundwater, maximum groundwater pumping could reach the levels associated with 2009 and 2014 infrastructure. The level of detail in the SED is reasonable and appropriate for a program-level analysis and is not meant to be, nor required to be, a site-specific analysis of, for example, each cone of depression or potential cone of depression in each basin. Moreover, it is speculative to assume how pumpers in each area will respond to implementation of the flow objectives because it will depend on many individual and collective decisions including, but not limited to, the discrete actions of local water users in response to reductions in surface water, crop choices in response to markets and other factors, and implementation of SGMA and conservation measures. The State Water Board strived to use best available science and information for the SED, and wrote the SED as objectively and completely as possible, following the appropriate legal process and in compliance with State CEQA Guidelines. A wide range of published literature, official reports and personal communications is cited to reasonably and objectively disclose the environmental setting of the plan area. Chapter 9, Groundwater Resources, Section 9.2.2, Subbasin Groundwater Use, provides an overview of the use of groundwater in the four primary subbasins underlying the plan area. The discussions in this chapter fully acknowledge overdraft conditions in the basin and potential impacts from reduced surface water supplies. For a discussion on the scope and programmatic nature of the SED, adequacy of the approach, and State CEQA program-level review, please see Master Response 1.1, General Comments. For a discussion on the basis for establishing the baseline, please see Master Response 2.5, Baseline and No Project. For a discussion on modeling assumptions of the level of pumping associated with 2009 and 2014 infrastructure in the SWE model, please see Master Response 3.2, Surface Water Analyses and Modeling. For discussions on modeling assumptions for groundwater resources used for the agricultural economic analyses and agricultural economic effects, please see Master Response 8.1, Local Agricultural Economic Effects and the SWAP Model; and Master Response 8.2, Regional Agricultural Economic Effects.
1031	66	The California Water Code deals with Urban Water Management Planning ([sections] 10611-10656). Specifically, each urban water supplier, including SSJID and its partner cities are required to submit an urban water management plan that includes provisions for conservation methods and targets, shortage contingencies, alternate supplies of water, and reliability. Section 10635 (CWC) requires that water supply reliability be assessed for supply availability during “normal, dry, and multiple dry water years”. This projected supply is compared to projected demand over 20 years, taking into account growth projections from local entities. These projections are set forth for San Joaquin County as a whole in its General Plan. Table 7-1 of the Housing Element catalogues historical growth of the County population. From	Please see response to comment 1031-63 regarding Lathrop, Manteca, and Tracy water supplies and growth. Please refer to Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act, regarding implementation of the LSJR flow objectives and SGMA. Please refer to Master Response 3.6, Service Providers, regarding compliance with SGMA and the plan amendments, availability of municipal water supply, alternative water supply sources, and water for minimum health and safety needs. Please refer to Master Response 8.4, Non-Agricultural Economic Considerations, regarding growth and economic development.

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		2000-2010 the county population grew at 2% average annual growth rate (AAGR), twice the state average of 1%. Even after 2010 during the implosion of the local housing market the AAGR was, and remains, 1%. The loss of groundwater supply from the implementation of SGMA and increased agriculture demands from WQCP implementation and water quality issues, the loss of direct surface water supply, also from the WQCP (SED), particularly exacting in dry and sequentially dry or critical years, and the current unavailability of alternate supplies, will have the likely effect of turning currently safe reliable urban water supplies on their head. Section 10631(c)(2) (CWC) requires that plans analyze either alternate sources or demand management controls for sources of water not consistently available for use based on legal, environmental, quality or climatic conditions. When the shortage, including temporary supplies, in any given year exceed reasonably obtainable conservation measures urban water supplies are faced with extraordinary choices. Many communities have responded by simply halting any new water connections. SSJID and its partner cities are all urban water suppliers. It is unknown how the collision of the SED with SGMA and regional growth induced demand will impact decisions of the partner cities but continuing the issuance of building permits and water connections in the face of unreliable water supplies seems unlikely, bringing economic progress in an impoverished section of California to a halt while allowing it to potentially flourish in other areas of the state unaffected by the SED. The implementations of the WQCP as envisioned by the SED would truly be catastrophic for the region as a whole including its urban population.	
1031	67	The Federal Endanger Species Act (ESA) The State Water Board's adoption of the WQCP will require USBR to modify its long-term operation of the Central Valley Project and State Water Project (hereafter CVP/SWP), thus, triggering the requirement for re-initiation of the formal consultation process pursuant to §7 of the Endangered Species Act (ESA). (16 U.S.C. [section] 1531 et. seq.) The ESA requires interagency cooperation in carrying out the objective of protecting endangered and threatened species. Under section 7, subdivision (a)(2) it states: "[e]ach Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species…" (16 U.S.C. [section] 1536(a)(2).) The USBR and the California Department of Water Resources (DWR) jointly operate the CVP/SWP. The coordinated operation agreement between the two is the Federal nexus (i.e., agency action) requiring ESA section 7 consultation on operation of the CVP/SWP. The first formal consultation and subsequent biological opinion (BO) issued on the long-term CVP/SWP operations was completed in 2004. Then in 2006, USBR requested re-initiation of consultation on CVP/SWP operations based on the new species listings and critical habitat designations, this led to the 2009 NMFS BO. The law requires USBR to reinitiate formal consultation with NMFS whenever (1) the amount or extent of the taking specified in the incidental take statement is exceeded; (2) new information reveals that listed species or critical habitat may be affected in a manner or to an extent not previously	The United States Bureau of Reclamation (USBR) does not operate the State Water Project (SWP). The SWP is operated by the California Department of Water Resources (DWR). The USBR and DWR coordinate operations of the CVP and SWP under the 1986 Coordinated Operations Agreement. The coordinated operations of the CVP/SWP are described in the Operations Criteria and Plan (OCAP). With regard to Endangered Species Act (ESA) consultation on the OCAP, the United States District Court for the Eastern District of California found the 2004 National Marine Fisheries Service (NMFS) OCAP salmon and steelhead biological opinion (BiOp) and the US Fish and Wildlife Service (USFWS) 2005 OCAP Delta smelt BiOp inadequate for protection of the species and imposed a 2008 deadline on NMFS and USFWS for preparation of new BiOps. Section 7 of the Endangered Species Act mandates that a federal agency ensure "that any action authorized, funded, or carried out by such agency…is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary…to be critical[.]" (16 U.S.C. § 1536(a)(2).) For an action to "jeopardize" a species, it must "reasonably [] be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." (50 C.F.R. § 402.02.) An action would "adversely modify" a species' habitat if it would result in "a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species." (Id.) Federal agencies are obligated to review their actions "at the earliest possible time to determine whether any action may affect" listed species or their habitat. (50 C.F.R. § 402.14(a).) If an agency action "may affect" a listed species, the acting agency must initiate a formal consultation with the federal agency responsible for protecting the species in-question (the "consulting agency") to assess the likely impacts.

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		considered; (3) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 C.F.R. [section] 402.16).	(50 C.F.R. § 402.14(a); 16 U.S.C. § 1536(a)(4).) This process is commonly referred to as the Section 7 consultation requirement. The type of federal agency "actions" that could trigger a Section 7 consultation are broad, and include, but are not limited to: "(a) actions intended to conserve listed species or their habitat…(c) the granting of licenses, contracts…permits…, or (d) actions directly or indirectly causing modifications to the land, water, or air." (50 C.F.R. § 402.02.) Any federal action must meet three criteria to warrant consultation under the Act. First, the federal agency must "affirmatively authorize[], fund[] or carr[y] out" the action. (Wild Equity Institute v. United States Environmental Protection Agency (N.D. Cal. 2015) 147 F.Supp.3d 853, 855.) "[T]he mere existence of unexercised [federal] authority" to take some action is insufficient. (Id. at p. 866.) Nor are actions taken by state or private entities subject to Section 7. (Id. at p. 867 ["The ESA § 7 consultation requirement does not apply to permitting decisions by state authorities"], quotation omitted; California Sportsfishing Protection Alliance v. Federal Energy Regulatory Commission (9th Cir. 2006) 472 F.3d 593, 598 ["We held that because private parties, and not the government, were diverting the water, there was no agency action triggering a duty to consult."].) Second, the action must be discretionary. (Grand Canyon Trust, supra, 691 F.3d at p. 1017 ["Federal regulation limits this consultation requirement to all actions in which there is discretionary Federal involvement or control."], emphasis in original.) Specifically, Section 7 only applies where a federal agency "has some discretion to take actions for the benefit of a protected species." (Natural Resources Defense Council v. Jewell (9th Cir. 2014) 749 F.3d 776, 779; Grand Canyon Trust, supra, 691 F.3d at p. 1018.) Section 7 consultation does not attach where a "legal obligation makes it impossible for the [federal] agency to exercise discretion for the protected species' benefit." (Jewell, supra, 749 F.3d at p. 784). Third, the action requires consultation if it may, directly or indirectly, jeopardize listed species or adversely modify their habitat. To make this determination, the federal agency must inquire with the appropriate consulting agency on "whether any threatened or endangered species may be present in the area of the proposed action." (Natural Resources Defense Council v. Norton (E.D. Cal. 2017) 236 F.Supp.3d 1198, 1202-1203, quotations omitted.) If listed species may be present, "the action agency must prepare a 'biological assessment' [] to determine whether such species is 'likely to be affected by the action.'" (Id.) In analyzing potential impacts, the agency must look broadly to "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action[.]" (50 C.F.R. § 402.02.) To qualify as an indirect effect, a party must show the effect is "caused by the action", will occur "later in time than the action," and is "reasonably likely to occur." (Sierra Club v. Bureau of Land Management (9th Cir. 2015) 786 F.3d 1219, 1224.) "The test for interrelatedness or interdependentness is 'but for causation: but for the federal project, these activities would not occur[.]'" (Id. at 1225, italics in original, citation omitted.) If the action, directly, indirectly, or in connection with some related activity, would affect listed species or critical habitat, then formal consultation could be required. "To begin formal consultation, the acting agency must make a written request describing the circumstances of the request and must provide the consulting agency with the best available scientific and commercial data. [Citation]. After considering the submissions, the consulting agency must issue a biological opinion [] stating its position as to whether the agency action will jeopardize or adversely modify or destroy the critical habitat of a listed species." (Grand Canyon Trust, supra, 691 F.3d at p. 1112.) If the agency action is found to impermissibly harm listed species, the consulting agency can suggest reasonable and prudent alternatives to avoid that harm. (16 U.S.C. § 1536(b)(3)(A).) If the agency action will not jeopardize a

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			species or adversely modify its habitat, or if a reasonable prudent alternative exists, the consulting agency must then provide a statement describing the incidental take of listed species that may occur, and the terms and conditions required for any reasonably prudent alternative. (Id. § 1536(b)(4).) The consulting agency must also provide, as necessary, an Incidental Take permit, which exempts the action agency from the take limitations imposed under the Act. (Norton, supra, 236 F.Supp.3d at p. 1203.) Formal consultation can be avoided if the acting agency determines through its own biological assessment, or through informal consultation with the consulting agency, that the action "is not likely to adversely affect any listed species or critical habitat." (50 C.F.R. §§ 402.14(b)(1).) If such impacts are expected under either analysis, formal consultation is required. (Id., §§ 402.12(k)(2); Wild Equity Institute, supra, 147 F.Supp.3d at p. 856.) In sum, before Section 7 consultation is required, the acting and consulting federal agencies must perform a fact-specific inquiry. The federal agencies must determine if a federal agency: (1) is acting in a discretionary manner (2) to affirmatively fund, authorize, or implement some action, that (3) "may affect" listed species or critical habitat. (Grand Canyon Trust, supra, 691 F.3d at p. 1018 fn. 12; see Wild Equity Institute, supra, 147 F.Supp.3d at p. 856; California Sportsfishing Protection Alliance, supra, 472 F.3d at p. 598.) If each of these factors is met, the acting federal agency must formally engage with the appropriate consulting agency. The federal agency action may proceed if the formal consultation process—or the biological assessment or the informal consultation process—reveals that the action, or a reasonably prudent alternative, would not likely jeopardize listed species or adversely impact their habitat. Once consultation is complete and the action is permitted, the federal agency may be required to re-initiate the Section 7 consultation process. The decision to re-consult requires a fact-specific inquiry into whether the federal agency's "involvement or control over the action has been retained or is authorized by law." (50 C.F.R. § 402.16; Norton, supra, 236 F.Supp.3d at p. 1212.) A federal agency's ability to maintain control over an action depends on the exact statutory, permit, or contractual language governing the action. (See, e.g., Norton, supra, 236 F.Supp.3d at p. 1215 [noting that a "the terms of the contract or agreement must be examined to determine whether and to what extent the agency retained discretion to impose measures to protect the species in question."]; California Sportsfishing Protection Alliance, supra, 472 F.3d at p. 595 [noting that a federal agency retained sufficient discretion to trigger re-consultation because through its licensing process, it "could unilaterally institute proceedings to amend the license if it so chose."].) General discretion over an action, however, is not enough. To support re-initiation of Section 7 consultation, the federal agency's discretionary control must relate directly to its ability to "impose measures [on a party] to protect" the species in-question. (Environmental Protection Information Center v. Simpson Timber Co. (9th Cir. 2001) 255 F.3d 1073, 1082.) Absent that level of discretion, an agency is not required to re-initiate consultation. (Norton, supra, 236 F.Supp.3d at pp. 1216-1218 [rejecting Section 7 re-initiation argument because there were no provisions in the water contracts that preserved USBR's authority to "impose revisions to the executed contracts to address the needs of the relevant listed species."].) If the appropriate discretion exists, then re-initiation of consultation can be necessary where "new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered," or "the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion." (50 C.F.R. § 402.16 (b), (c).) Whether those impacts warrant formal consultation, and, if so, what steps are required during formal consultation will proceed as outlined above.

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			The Section 7 requirement is a federal requirement that does not apply to the Board. Instead, USBR and the appropriate consulting agencies must evaluate whether consultation must be initiated or re-initiated based on whether: (1) the Plan amendments require USBR to alter its long-term operation of the water projects, (2) the change will impact listed species, and (3) USBR will have sufficient discretion to protect listed species. It is premature to reach a conclusion that re-initiation of consultation is required at this stage. As set forth in the SED, responsibility for implementing flow objectives, including USBR's responsibility (and how that will impact its long-term operations of the water projects), will be assigned through water right actions and water quality actions that have yet to take place. As the Bay-Delta Plan makes clear: it is "not to be construed as establishing the responsibilities of water right holders. Nor is this plan to be construed as establishing the quantities of water that any particular water right holder or group of water right holders may be required to release or forego to meet the objectives in this plan. The State Water Board will consider, in a future water rights proceeding or proceedings, the nature and extent of water right holders' responsibilities to meet these objectives."
1031	68	The adoption of the WQCP will modify the manner USBR operates the New Melones Dam, this may affect the threatened Central Valley (CV) steelhead population and their designated critical habitat in a manner not considered by the 2009 NFMS BO. CV steelhead are on the Stanislaus River (2009 NFMS BO, at p. 106-108.) and CV steelhead critical habitat was designated on the Stanislaus River from Goodwin Dam to the confluence with the San Joaquin River. (70 F.R. 52488) The factors affecting the current status of CV steelhead and their critical habitat are related to operations of the East Side Division of the CVP. Temperature control and flow variations on the Stanislaus River affect both the CV steelhead and their critical habitat. The new regulations proposed by the WQCP affecting the operations of New Melones will impact CV steelhead on the Stanislaus River. The 2009 NFMS BO reasonable and prudent alternatives for the New Melones Project are only for CV steelhead. They are not for CVFRCS or Spring-run. There is no other federally listed species in the Stanislaus River. CV steelhead distinct population segment (DPS) is comprised of two elements. The first is steelhead or O'mykiss. These are fish that smoltify and leave the Stanislaus River, go to the ocean, return to spawn (unlike the CVFRCS they do not die after spawning) and continue to cycle until their demise. The second element of CV steelhead DPS are Resident Rainbow Trout (RRT), hatchery or native, below an impassible dam. RRT were included in the listing and critical habitat designation because it is unknown where RRT will exhibit the smoltification trait/behavior. The 2009 NMFS BO RPA Appendix 2e has not stabilized or recovered either the O'mykiss or RRT in the Stanislaus River. Rather than helping these listed species the 2009 NFMS BO Appendix 2e flows have devastated RRT. Attached to these comments are the field notes from Fish-bio RRT/O'mykiss survey. Since the inception of 2009 and Appendix 2e flows, the RRT has gone from just over 20,000 fish to approximately 5,000 fish in 2016. The reason, Appendix 2e flows. The drawdown in storage in New Melones is set forth below for 2009-2016. This drawdown in storage is caused by the releases required under Appendix 2e as described above in project purpose. The large releases in the spring are supposedly to help O'mykiss migrate out from the Stanislaus River to the ocean.	Please see Master Response 3.1, Fish Protection, for information about the adequacy of modeling to support the analysis and further information about below optimal temperatures The commenter has asserted that existing 2009 NMFS BO Appendix 2e flows have devastated resident rainbow trout (O. mykiss), but the commenter has provided insufficient evidence to support this claim. The commenter primarily relies on their Figure 10-3 (which is from Figure 2 of FishBio 2015), which shows summertime O. mykiss abundance estimates in the Stanislaus River during 2009-2015. Because these estimates are not available prior to implementation of the Appendix 2e flows, it is not reasonable to draw conclusions on the effects of the 2e flows based solely from this figure over this time frame. Additionally, the commenter has attributed the decline in reservoir storage and the related rise in reservoir release temperature solely to the Appendix 2e flows; however, the commenter fails to acknowledge that direct water diversion and diversions from storage typically have a much greater effect on reservoir storage than the Appendix 2e flow requirements. The commenter also fails to acknowledge that the storage and temperature conditions affecting abundance in later years of their figure are largely caused by one of the most severe long-term droughts (2012-2015) on record. It is possible that the Appendix 2e flow requirements are the reason that the Stanislaus River did not run dry during the drought and why there are as many O. mykiss left in the Stanislaus River as there are. We note that the commenter's Figures 10-1 and 10-2 have conflicting labels at the top and bottom of each of these figures and the figures do not appear to support the commenter's assertion that there has been decline in O. mykiss since the Appendix 2e flows. Additionally, the 2009 to 2015 average line that the commenter shows on their Figure 10-3 includes abundance estimated for 2012, which dramatically raises the average over this time period. The extraordinarily high abundance estimates in 2012 are related to flood control operations during 2011 when more than approximately 2,000 cfs was released from approximately April 8th to the end of October, which are flows that are much higher than what is required by Appendix 2e (See Stanislaus Operation Group Annual Report of Activities, October 2011). What the results that the commenter has provided appear to show is that water temperature and flow are important to O. mykiss during the summer time period, which the plan amendments recognize. The State Water Board disagrees that the plan amendments will further exacerbate conditions for resident rainbow trout. The commenter's assertion is based on their modeling in which reservoirs are drained. It is not based on the plan amendments. For example, it includes no carryover storage requirements, which is contrary to how the plan amendments will be implemented. Appendix K states that the State Water Board will included minimum carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have adverse temperature or other impacts on fish and wildlife. Please

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		As shown in this graph [see ATT: 34], there has been no increase, in out-migrating O'mykiss under Appendix 2e flows, but rather a decline. Similar results appear when looking at in-migrating steelhead. (See Figure 10-2, below [see ATT: 35]) Finally, and most revealing is the precipitous decline of RRT. (Attachment 5, p. 4.) [see ATT: 45] Why are RRT below an impassible dam so devastated by the 2009 NFMS BO Appendix 2e flows? The reason can be explained by the water temperature graph below. (Attachment 5, p. 10.) [see ATT: 45] As New Melones Reservoir declined the temperature of the water released from the outlet of the dam began and continued to increase. Water released at New Melones Dam makes its way through Tulloch Reservoir and then immediately downstream of Tulloch Reservoir flows over Goodwin Dam to the Stanislaus River. The majority of RRT in the Stanislaus are from Goodwin Dam to Knights Ferry. When water temperatures in the summer start to exceed 18° degrees Celsius (64° degrees Fahrenheit) at Goodwin Dam the RRT become stressed. Every summer of every year water temperatures increased and RRT populations declined. [see ATT: 37] As explained above, the SWB 40% UIF objective will only exacerbate this problem. In addition, while New Melones Reservoir never went broke in the recent drought, in any future drought it would. Thus, there would be no cold-water pool at all in New Melones. If the USBR does not reinitiate formal consultation for the long-term operation of the CVP/SWP based on the proposed regulations of the WQCP it will "take" CV steelhead in violation of section 9 of the ESA. Section 9 states, "…with respect to any endangered (or threatened) species of fish or wildlife… it is unlawful for any person (including federal, state, and local governments) subject to the jurisdiction of the United States to… take any such species." (16 U.S.C. § 1538(a)(1)(B).) The operational requirements imposed on New Melones by the WQCP would create the potential for taking of CV steelhead without the issuance of an incidental take permit. The Secretary of the Interior recently instructed the USBR and other state and federal agencies to complete the "recently reinitiated consultation" of long-term effects of the operations of the CVP/SWP. (Secretarial Order, January 3, 2017.) Are the objectives of the WQCP analyzed in the recent reinitiated consultation as project impacts? Moreover, how does the State intended to implement the WQCP against USBR's operation of the CVP? If not, will the USBR and DWR be required to ask for re-initiation of the consultation process to comply with 50 C.F.R. § 402.16 when the WQCP modifies current operations of New Melones that may affect CV steelhead and critical habitat? Does the SWB have to issue a water right order against USBR in order to meet the WQCP's objectives? If so and USBR finds that the WQCP "takes" CV steelhead without an incidental take permit, can USBR then refuse to comply with WQCP regulations?	see Master Response 3.2, Surface Water Analyses and Modeling, regarding why hydrologic modeling analyses presented by commenters rely on operational assumptions that are inconsistent with the requirements of the plan amendments. Modeling in AQUA-4 of Chapter 7, Aquatic Biological Resources, and in Chapter 19, Analyses of Benefits to Native Fish Populations from Increased Flow between February 1 and June 30, does not indicate that there would be significant impacts to temperature habitat for salmon or steelhead. The benefits to O. mykiss are described in Chapter 19 and Master Response 3.1. Commenters assertion that the plan amendments will "take" steelhead is unsupported. As stated above, the program of implementation requires minimum reservoir carryover storage targets or other requirements to help ensure that providing flows to meet the flow objectives will not have significant adverse temperature or other impacts on fish and wildlife. With respect to how the plan amendments will specifically be implemented as to USBR, as stated in the SED (see, e.g., Appendix K and Executive Summary), responsibility for implementing the flow objectives will be assigned through future water right and water quality actions, including USBR's responsibility. Where USBR's responsibility is determined through a water right order, USBR, like any state water holder, must comply with the State Water Board's order relating to water permits and conditions, or regulations. (See California v. U.S. (1978) 438 U.S. 645, 98 [a state may impose any condition on control, appropriation, use or distribution of water in a federal reclamation project which is not inconsistent with clear congressional directives respecting the project]); United States v. State Water Resources Control Bd., supra, 182 Cal.App.3d at p. 106 ["Under section 8 of the Reclamation Act of 1902 (43 U.S.C. § 383), the ... Bureau is required to comply with state law and to acquire water rights for diversion and storage of water by the CVP."].) Please see the response to comment 1031-67 on the issue of whether USBR and DWR will be required to reinitiate Endangered Species Act consultation for their water projects.
1031	69	[ATT 34: Figure 10-1. CV Steelhead Out-Migration #s for the Stanislaus]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	70	[ATT 35: Figure 10-2. CV Steelhead In-Migration #s for the Stanislaus River]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.

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1031	71	[ATT 36: Figure 10-3. # of Resident Rainbow Trout on the Stanislaus River]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	72	[ATT 37: Figure 10-4. Impact of New Melones Reservoir Levels on Water Temperature Below Goodwin Dam]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	73	Project Purpose The Project Purpose of New Melones will be destroyed by the SWB Flow requirement. As proposed, the State Water Board's WQCP will frustrate the public purpose of the New Melones Dam as authorized by Congress. The Reclamation Act of 1902, set forth the controlling law, whether State or Federal, pertaining to the operation of reclamation projects. It states, "[n]othing in this Act shall be construed as affecting or intending to affect or to in any way interfere with the laws of any State or Territory relating to control, appropriation, use, or distribution of water used in irrigation." (43 U.S.C. [section] 383.) From the legislative history of the Act it is clear that state law was expected to control in two important respects. First, the Secretary of the Department of the Interior would have to appropriate, purchase, or condemn necessary water rights in strict conformity with state law. Second, once the waters are released from projects, their distribution to individual landowners would be controlled by state law. (35 Cong. Rec. (1902) 6678.) Past cases analyzed the effect of congressional directives in relation to the language and legislative history of section 383 of U.S.C., granting authority to state law. Overwhelmingly the courts have held "a state limitation or condition on the federal management or control of a federally financed water project is valid unless it clashes with express or clearly implied congressional intent or works at cross-purposes with an important federal interest served by the congressional scheme." (United States v. California, State Water Resource Control Bd. (9th Cir., 1982) 694 F.2d 1171, 1177; See also Ivanhoe Irrigation District v. McCracken (1958) 357 U.S. 275, 291-292 [holding that section 383 of U.S.C. did not override the congressional directives in the Reclamation Act of 1902.]; City of Fresno v. California (1963) 372 U.S. 627, 630-631[holding that section 383 of U.S.C. did not require the Secretary of the Interior to ignore explicit congressional provisions preferring irrigation use over domestic and municipal use.]; and California v. United States (1978) 438 U.S. 645, 676 [holding a state may impose any condition on a federal reclamation project not inconsistent with congressional directives.]. As such, all conditions imposed on the operation of New Melones Dam by California are invalid if inconsistent with congressional directives. There is an array of congressional directives in federal reclamation law relevant to implementation of the WQCP/SED. "[F]ederal reclamation law is contained in the Reclamation Act of 1902, which, together with Acts amendatory and supplementary thereto, forms a complete legislative pattern in the field." (Solicitor Harper Opinion (May 31, 1945) M-33902 at p. 2.) Implementation of the regulations proposed in the WQCP are inconsistent with congressional directives in section 9, subdivision (c) of the Reclamation Act of 1939 and with section 203 of the Flood Control Act of 1962 authorizing construction of New Melones Dam. The WQCP regulations will impact the operation of the New Melones Dam by letting the lake go dry. This is inconsistent with the express congressional directives of the Reclamation Act of 1939. Section 9, subdivision (c) of the Act provides, "[n]o contract relating to	The authorized purposes of the New Melones Project include water quality control and protection of fish and wildlife. As described in SED Chapter 3, Alternatives Description, and SED Appendix K, Revised Water Quality Control Plan, the responsibility for implementing flow objectives will be assigned in a future proceeding through water right actions and water quality actions. Any allegations that conditions that may be imposed in a future proceeding are inconsistent with congressional directives under the Reclamation Act of 1939 and the Flood Control Act of 1962 are unsupported by the law and any facts, as well as hypothetical and premature. California has clear authority to require federal reclamation projects to comply with state water law. The United States Supreme Court addressed the issue of federal preemption of state water right regulation when it upheld the State Water Board's ability to impose conditions on Reclamation's New Melones permits. (California v. United States (1978) 438 U.S. 645.) Under section 8 of the Reclamation Act of 1902 (32 Stat. 390, as codified, 43 U.S.C. §§ 372, 383), the Court held that a state may impose any condition on the control, appropriation, use or distribution of water in a federal reclamation project that is not inconsistent with clear congressional directives. Reclamation subsequently challenged the validity of the State Water Board's conditions, including water quality goals, included in the board's approval of Reclamation's water right applications. The Ninth Circuit Court of Appeals considered the Flood Control Act of 1962 in rejecting Reclamation's claims, concluding that none of the conditions imposed by the State Water Board were invalid and further declining to opine on hypothetical actions (United States v. State Water Resources Control Bd. (1982) 694 F.2d 1171.) Thus, the comment does not support a conclusion that federal law will preempt implementation of the proposed Plan amendments merely because the availability of surface water diversions from New Melones water supplies may be affected.

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		municipal water supply or miscellaneous purposes… shall be made unless, in the judgment of the Secretary [of the Interior], it will not impair the efficiency of the project for irrigation purposes." (Reclamation Act of 1939, [section] 9, subd. (c) [emphasis supplied].) As set forth above New Melones does not have a viable plan of operation under current conditions. The current contractual and regulatory obligations on New Melones have the reservoir going to zero in the 1928-1934, 1987-1992, and 2011-2016 droughts. The current releases for the 2009 NFMS BO, Appendix 2e flows are too great. Set forth below are the releases that occurred in the recent drought. It shows the percentage of releases February – June and for the entire year. (Attachment 1, p. 19.) [see ATT: 41] This is not sustainable. The Districts' modeling shows the impacts from the combination of the 2009 NMFS BO, Appendix 2e flows and 40% UIF bypass for February – June. It is important to remember the SWB flow objective is additive to the 2009 NFMS, Appendix 2e flows. Thus, whatever flow prescription is higher will be released or bypassed [Footnote 10: The distinction between release and bypass is important. 40% UIF is a bypass of the inflow. 2009 NFMS BO, Appendix 2e can be a release of stored project water.]. The Districts' analysis results in the following storage for New Melones. New Melones Reservoir now goes to zero water in approximately 10 years out of 95 years. This means water is not delivered to CVP customers for irrigation in the many years and more due to the physical reality of no water or the rules that guide CVP customer allocations. The deliveries to CVP contractors are set forth below. [see ATT: 40] The project as designed, authorized, funded, and built was to deliver 55,000 afa of firm water to CSJWCD, in the Stanislaus Basin. There can be no dispute that the WQCP will not deliver a firm supply of 55,000 afa to CSJWCD.	
1031	74	[ATT 38: Figure 11-1. Stanislaus River Runoff and River Release]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	75	[ATT 39: Figure 11-2. New Melones Storage Under 2009 NMFS BO and Appendix 2e Flows with 40% UIF Bypass]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	76	[ATT 40: Figure 11-3. CVP Contractor Water Deliveries under the above Flow Regime]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	77	The State's WQCP regulations will impact New Melones' ability to generate hydropower as congressionally mandated by the Flood Control Act of 1962. The plan for a reservoir on the Stanislaus River was first introduced in Congress in the Flood Control Act of 1944. When first introduced, appropriations for the dam did not include a hydropower facility. In House Document 367, 81st Congress, 1st session, the Chief of Engineers of the U.S. Army recommended that power generating facilities be constructed concurrently with and as part of New Melones Dam to more fully develop the water resources of the Stanislaus River. New Melones Dam with a power generation component was subsequently approved in the Flood Control Act of 1962. While there is no express congressional directive that New Melones be used as a power generation facility for the CVP, it is clear from the legislative history that power generation is an implied directive from Congress.	Implementation of the plan amendments would not prevent hydropower generation at New Melones Dam. Potential effects of increased flows (and hydropower generation) in the spring and reduced hydropower generation in the summer are considered in Master Response 3.2, Surface Water Analyses and Modeling, as well as in chapter 14, Energy and Greenhouse Gases, under impacts EG-1, through EG-4. The economic effects associate with hydropower are considered in Chapter 20, Economic Analysis, Section 20.3.4, Effects on Hydropower Generation, Revenues, and Regional Economy and Master Response 8.4, Non-Agricultural Economic Considerations. To review responses to comments submitted by other entities (e.g., Western Area Power Administration) within the comment period on the 2016 Recirculated Draft SED, please refer to the index of commenters in Volume 3 to locate the letter number(s) of interest.

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		OID and SSJID concur with the Western Area Power Administration's (WAPA) general comment that the SED does not adequately identify or address the impacts the proposed 40% UIF would have on CVP power generation. WAPA evaluated the potential impacts on the regional hydropower system associated with alternative unimpaired flow standards. It concluded if a 40% UIF regime standard were imposed upon the CVP for both Sacramento and San Joaquin River systems, the total hydropower generation output of the project would be reduced by approximately thirty percent. A hydropower generation reduction of this magnitude would have major impacts on CVP operations. Yet, the SED concludes the WQCP 40% UIF regime results in less than significant impacts on hydropower production. The proposed standards would require increased releases from reservoirs during spring runoff months, which translates to less hydropower generation during peak summer months. This results in (1) loss of financial value, (2) potential need to purchase power on the market during peak summer months, and (3) increased reliance on out-of-state power. These are significant impacts that need to be addressed and highlight the importance of the congressional directive to include hydropower production in CVP facilities.	
1031	78	Congress directed public recreation and preservation and propagation of fish and wildlife. The recent drought is illustrative of how public recreation was devastated at New Melones. Visitor days trickled down to almost nothing as the reservoir dropped. Local communities, like Sonora, that rely on selling gas, food, fishing supplies, etc. were especially hard hit. In the last two years of the drought the New Melones Reservoir was a ghost town. With the regulatory drought of the SWB 40% objective, public recreation will cease to exist in 90% of the years.	The commenter does not provide data or sources to verify their claims. Please see Chapter 20, Economic Analyses, Section 20.3.6, Effects on Recreational Opportunities, Activity, and the Regional Economy, for a discussion of recreational-related economic effects and visitor days (e.g., Table 20.3.6-1, Estimated Use in Visitor Days of Affected Recreation Areas, by Watershed). Please see Master Response 8.4, Non-Agricultural Economic Considerations, for a further discussion of potential recreation—related economic effects in the extended plan area and plan area.
1031	79	We will briefly address fish and wildlife here in regards to the fishery in the reservoir. The reservoir fishery was devastated in the recent drought. The SWB WQCP will continually suppress the reservoir fishery, which will suppress public recreation because there are no fish to catch.	Please see Master Response 1.1, General Comments, for responses to comments that either make a general comment regarding the plan amendments or do not raise significant environmental issues. Please see Chapter 7, Aquatic Biological Resources, Impact AQUA-1, Changes in spawning success and habitat availability for warmwater species resulting from changes in reservoir levels, which describes the changes in reservoir elevations would result in a less-than-significant impact to reservoir fish species. Finally, please refer to Chapter 10, Recreational Resources and Aesthetics, for a discussion of recreational impacts on the rim reservoirs, including New Melones.
1031	80	If the State's WQCP is challenged in court, it is likely its proposed regulations and provisions would be found inconsistent with the congressional directives relating to New Melones. In United States v. California, State Water Resource Control Bd., the USBR challenged the conditions placed on its water right permit for management of New Melones. (SWRCB., 694 F.2d 1171.) However, USBR refused to present evidence of the impracticality or harmful consequences of the SWRCB's conditions on the congressional directives for New Melones. It took the position that "since it built the dam it need not justify its operational plans so long as those plans are consistent with the scope of the project as envisioned by Congress." (Id. at 1174.) As a result, the court held "[w]e find nothing in California's conditions that cannot be in harmony with the letter and spirit of the 1962 statute given the failure of the United States (USBR) to introduce evidence to show the existence of facts that might dictate a contrary result." (Ibid. [emphasis supplied].) The present issue is distinguishable from U.S. v. SWRCB, in that there is a plethora of facts highlighting WQCP's inconsistencies with Congress' directives from the Reclamation Act of 1939 and Flood Control Act of 1962. It can be shown under the WQCP New Melones water	This comment does not provide a basis for modifying the Plan amendments or raise significant environmental issues. The commenter asserts that the implementation of the Plan amendments is inconsistent with express and clearly implied congressional directives in the Reclamation Act of 1939 (53 Stat. 1187, as codified 43 U.S.C. § 485 et seq.), which authorized multi-purpose projects and allocated construction costs for such projects, and the Flood Control Act of 1962 (Pub.L. No. 87–874, § 203, 76 Stat. 1173, 1191–92), pursuant to which Congress appropriated funds for the New Melones project and authorized construction of the project for flood control and other purposes. The authorized purposes of the New Melones Project include water quality control and protection of fish and wildlife. As described in SED Chapter 3, Alternatives Description, and SED Appendix K, Revised Water Quality Control Plan, the responsibility for implementing LSJR flow objectives will be assigned in a future proceeding through water right actions and water quality actions. Any allegations that conditions that may be imposed in a future proceeding are inconsistent with congressional directives under the Reclamation Act of 1939 and the Flood Control Act of 1962 are unsupported by the law and any facts, as well as hypothetical and premature.

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		use and releases will be significantly affected. For example, diversions to CVP contractors will be reduced by the states action. Under the WQCP's baseline CVP contractors receive 107 (TAF) annually, however, under a 40% UIF regime CVP contractors will receive 74 (TAF) annually. (Attachment 1, p. 2, 8.) This action alone stands as an obstacle to the accomplishment of an important federal interests served by New Melones Dam. Moreover, the Supremacy Clause of the Constitution will be implicated if the WQCP is adopted, and federal reclamation law will preempt critical portions of the regulations relating to New Melones, leaving the WQCP un-implementable. The Constitution's Supremacy Clause states, "[t]his Constitution, and the laws of the United States which shall be made in pursuance thereof… shall be the supreme law of the land; …anything in the constitution or laws of any state to the contrary notwithstanding." (U.S. Const., art. VI.) The Supreme Court ruled that, in order for federal preemption to apply "Congress' command must be explicitly stated in the statute's language or implicitly contained in its structure and purpose." (Jones v. Rath Packing Co. (1977) 430 U.S. 519, 525.) Therefore, a state statute or regulation is preempted by a federal rule when it conflicts with a federal statute, or where it stands as an obstacle to the accomplishment and execution of a full purpose and objective of Congress. (See Maryland v. Louisiana (1981) 451 U.S. 725, 747; Perez v. Campbell (1971) 402 U.S. 637, 649.) The regulations placed on New Melones pursuant to the State's amended WQCP are inconsistent with the express and clearly implied congressional directives dictating the public and project purposes served by New Melones Dam. The SWB much fully implement its water quality control plan. (Water Code [section] 13247.) However, as written it will be impossible to implement the WQCP because it stands as an obstacle to Congress' intent behind constructing the New Melones Dam. Both the Reclamation Act of 1939 and the Flood Control Act of 1962 preempt the WQCP and may stop its implementation.	California has clear authority to require federal reclamation projects to comply with state water law. The United States Supreme Court addressed the issue of federal preemption of state water right regulation when it upheld the State Water Board's ability to impose conditions on Reclamation's New Melones permits. (California v. United States (1978) 438 U.S. 645.) Under section 8 of the Reclamation Act of 1902 (32 Stat. 390, as codified, 43 U.S.C. §§ 372, 383), the Court held that a state may impose any condition on the control, appropriation, use or distribution of water in a federal reclamation project that is not inconsistent with clear congressional directives. Reclamation subsequently challenged the validity of the State Water Board's conditions, including water quality goals, included in the board's approval of Reclamation's water right applications. The Ninth Circuit Court of Appeals considered the Flood Control Act of 1962 in rejecting Reclamation's claims, concluding that none of the conditions imposed by the State Water Board were invalid and further declining to opine on hypothetical actions. (United States v. State Water Resources Control Bd. (1982) 694 F.2d 1171.) Thus, the comment does not support a conclusion that federal law will preempt implementation of the proposed Plan amendments merely because the availability of surface water diversions from New Melones water supplies may be affected.
1031	81	HydroPower Impacts The SED's analysis of the WQCP's impacts on hydropower production fails to disclose the real impacts of implementing the LSJR Alternatives on hydropower facilities located on the Stanislaus River. SWB staff include refill in their analysis of reservoir levels, which keeps storage levels artificially high. The SED's figures depict approximately 700,000 acre-feet of storage in New Melones Dam in many dry years. This is an artificial condition incorporated into the model and serves to mask the impacts of sequential dry years. The SWB staff used these figures to estimate the effects of the WQCP on hydropower generation, but only on the "rim dams". (SED, at J-15.) The SED's focus on the impacts to the New Melones Dam ignores the cumulative impacts a 40% UIF regime will have on upstream and/or downstream reservoirs. Tulloch Dam and New Melones Dam on the Stanislaus River illustrate how the SED's averages (including refill) do not reveal the true impacts and why upstream and downstream facilities should be analyzed in the SED. The average reduction in hydropower at Tulloch Dam under a 40% UIF is 2,871 megawatt hour (MWh) annually. At the current price of $69 per MWh this equates to an annual loss in revenue of $198,144. However, if a 40% UIF had been implemented on Tulloch Dam in 1931, it would have resulted in a loss of 47,951 MWh, equating in a revenue loss of $3,308,619. A sequential dry year cycle sheds further light on the hidden impacts behind the SWB's misleading averages. Looking at Tulloch Dam figures between 1987-1992 shows a net loss of 57,276 MWh, resulting in a loss	Please see the Master Response 3.2, Surface Water Analyses and Modeling, for a discussion about carryover storage. Hydropower generation in the extended plan area is qualitatively considered in Chapter 14, Energy and Greenhouse Gases, in Section 14.4.4 Impacts and Mitigation Measures: Extended Plan Area, and potential hydropower impacts are considered to be significant. In addition, please see Master Response 8.5, Assessment of Potential Effects on the San Francisco Bay Area Regional Water System, regarding hydropower generation in the extended plan area. As described in Chapter 14, hydropower generation at facilities downstream of the rim dams is calculated by the WSE model. These facilities are categorized as either in-stream or off-stream and the method of calculation is described in Appendix J, Hydropower and Electric Grid Analysis of Lower San Joaquin River Flow Alternatives. Tulloch Reservoir is considered to be an in-stream reservoir. As described in Appendix J, in-stream facilities located downstream of the rim dams are assumed to have constant head because these facilities are generally run-of-the-river. Given the relatively small storage capacity of Tulloch Reservoir, there is no reason to draw down storage in Tulloch Reservoir. The comment indicates there would be a reduction in Tulloch Reservoir storage during times of water scarcity, which would affect hydropower generation at Tulloch Reservoir in response to the implementation of the LSJR alternatives. However, based on a review of data, this assertion is unlikely because even during 2015, an extremely dry year, storage in Tulloch Reservoir was similar to levels during 2011, a wet year (California Data Exchange Center [CDEC] data from station TUL downloaded November 2017). Regarding "loss" during sequential dry years – Note that the "loss" described here is actually a reduction in

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		of $3,952,044 in revenue. (Attachment 10.) [see ATT: 50] The impacts on New Melones Dam during a critically dry year and sequential dry years further highlight the significant impacts a 40% UIF regime will have on hydropower. If a 40% UIF had been implemented on the Stanislaus River in 2015, it would have resulted in a net loss of 195,510 (MWh) at New Melones, equating to a revenue loss of $6,096,017. When you look at two different sets of sequential dry years (1987-1992 and 2011-2016) the impacts of a 40% UIF exceed those on Tulloch Dam. Between 1987-1992, New Melones would suffer a net loss of 288,846 MWh and $19,930,374 in revenue. Looking at more recent sequential dry years 2011-2016, New Melones would suffer a net loss of 670,882 MWh and $46,290,858 in revenue. (Attachment 11) [see ATT: 51]	revenue, not a negative balance. As described in Chapter 20 on p. 20-55, following the reservoir storage requirements of the water quality control plan, average annual revenue of $24.8 million would actually increase by $0.7 million. While the analysis in Chapter 20 did not specifically address multi-year droughts, these numbers do not agree with those presented in the comment because the SED analysis included carryover storage provisions to protect fish as described in Appendix K. Long-term annualized averages, which account for all hydrologic year types, are more pertinent to determining effects, rather than a focus on just the driest years. This is consistent with hydro project investment decision making, which acknowledge varying benefits across all water year types (see also Master Response 8.4, Non-Agricultural Economic Considerations).
1031	82	Losses in hydropower generation would need to be offset, most likely by use of gas turbines or coal fired power plants, thus increasing greenhouse gas emissions (GHG) within the state. Table 14-14 and Table 14-15 (SED, at 14-36 – 14-37) illustrate the increase in GHG emissions due to the loss of hydropower generation and the resulting reliance on alternative energy sources. Just within the Turlock Irrigation District Service Area offsetting the loss of hydropower is anticipated to increase emissions of Carbon Dioxide by 139.69 pounds per megawatt hour (lb/MWh). Total GHG emission increases within the plan area to compensate for the loss of hydropower and for increased groundwater pumping is 16,948 metric tons of Carbon Dioxide per year. Once again, the SWB's numbers hide the true impact the loss of hydropower will have on GHG emissions. In 2014, for the California region, the total annual emissions output for GHG was 619.6 pounds of Carbon Dioxide generated per megawatt hour (lb/MWh). (USEPA eGRID2014.) Based on the figures above, the GHG emissions increase to offset the loss of hydropower production from only Tulloch Dam in a critically dry year amounts to 13,483 metric tons of Carbon Dioxide. To put this number into context, in 2015 the Almond Power Plant in Modesto reported emitting 104,448 metric tons of Carbon Dioxide. (USEPA, Facility Level Information on GreenHouse gases Tool.) Thus, the lost output from Tulloch Dam alone results in a 10% increase in a single power plant's Carbon Dioxide emissions. The increase in greenhouse gases to offset the loss of hydropower at New Melones Dam is even greater. In sequential dry years (2011-2016) the Carbon Dioxide emissions output to offset the loss of hydropower is 188,640 metric tons or an average of 31,440 metric tons per year. We have not run the figures on facilities located on the Merced and Tuolumne Rivers, however, it is foreseeable a similar result would occur. As such, when you take into account the lost output of other regional hydropower facilities, Carbon Dioxide emissions at a single power plant may increase by more than 50% in dry years if a 40% UIF regime is implemented.	Appendix J, Hydropower and Electric Grid Analysis of LSJR Flow Alternatives, presents the estimated change in hydropower generation based on a simulation period of 82 year for power plants located at and downstream of the rim dams. This timeframe includes average, drought, and non-drought years. As such, the analysis accounts for increased greenhouse gas (GHG) emissions related to reduction in hydropower generation at these facilities during dry years. Please refer to Chapter 14, Energy and Greenhouse Gases (Section 14.4.2), and Appendix J for information regarding the approach to and methods used in the GHG analysis. The analysis of changes in GHG emissions associated with implementation of the plan amendments is found in Table 14-15 in Chapter 14. Table 14-15 summarizes the annual GHG emissions generated from (1) the increased power generation at other generation facilities to balance the loss of hydropower production, and (2) the increased energy consumption for groundwater pumping to compensate for the reduction of surface water supply. The emissions presented in Table 14-15 are based on Table 14-10, which summarizes the reduction of average annual hydropower produced by each of the three eastside tributaries for LSJR Alternatives 2, 3, and 4 in comparison to the baseline hydropower production. Table 14-11, summarizes the increase in average annual groundwater pumping estimated for each of the three eastside tributaries for LSJR Alternatives 2, 3, and 4. The information in Tables 14-10 and 14-11 are multiplied by the power generation GHG emission factors presented in Table 14-14. As noted in Chapter 14, hydropower generation upstream of the rim dams was considered qualitatively as described in Chapter 14, Section 14.4.4, Impacts and Mitigation Measures: Extended Plan Area. The comment provides emission rates (lbs. CO2 per MWh) for the Turlock Irrigation District Service Area and California region of 139.69 and 619.6 lbs/WMh, respectively. The emission rates used in the SED and presented in Table 14-14 are higher than those provided in the comment and represent a more conservative (i.e., higher) scenario than those provided in the comment. The comment further identifies GHG emission increases associated with the offset of hydropower at Tulloch Dam and New Melones Dam during dry conditions at 13,483 and 31,440 metric tons of CO2/yr, respectively. As indicated above, the analysis presented in Chapter 14 (Table 14-15) is based on the total hydropower generation capacity of the three eastside tributaries downstream of the rim dams. The commenter focusses on GHG effects during dry years. However, climate change is a long-term process, so average conditions are the metric that should be evaluated. Please see Master Response 2.3, Presentation of Data and Results in SED and Responses to Comments, and Master Response 2.5, Baseline and No Project, for information regarding the use of averages. The estimated hydropower effects presented by the commenter are based on the assumption that New Melones Reservoir would be drawn down well below the levels modelled for the SED to represent attainment of the full set of Appendix K objectives (e.g., including protection of water temperature for fish). Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding carryover storage.

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			The comment indicates there would be a reduction in Tulloch Reservoir storage during times of water scarcity, which would affect hydropower generation at Tulloch Reservoir in response to the implementation of the LSJR alternatives. However, based on a review of data, this assertion is unlikely because even during 2015, an extremely dry year, storage in Tulloch Reservoir was similar to levels during 2011, a wet year (California Data Exchange Center [CDEC] data from station TUL downloaded November 2017)
1031	83	The SED assumes in its analysis that in-stream facilities located downstream of the rim dams have constant reservoir elevations equal to the maximum head of the reservoir, as these facilities are generally run-of-the-river. (SED, at J-4.) This assumption, however, masks the impacts of sequentially dry years. If water needs to be bypassed upstream to meet the 40% UIF this results in lower reservoir elevations, lower reservoir head, less efficient release through turbines, and less energy production. While SWB's assumption that downstream dams have constant reservoir levels is correct during many years, it is incorrect during critically dry years and sequential dry years as demonstrated by the Tulloch Dam and New Melones Dam figures (Attachments 10, 11.) [see ATT: 50 & 51] Similarly, upstream hydropower facility impacts are ignored. For example, if 1,000 cfs is required at New Melones in order to obtain a 40% UIF and upstream reservoirs are storing water, will the SWB require upstream reservoirs to bypass inflow to meet the 40% UIF and downstream senior water rights holder demand? If so, this result is the same dilemma downstream facilities will face: lower reservoir elevations, lower reservoir head, less efficient release through turbines, and less energy production. As the impacts to hydropower generation, revenue, and GHG emissions are significant on ALL hydropower facilities, CEQA mandates the SWB analyze and disclose these impacts, not just those of the "rim dams".	Please refer to response to comment 1031-81 regarding the analysis of hydropower facilities in the plan area and extended plan area.
1031	84	Chapter 2: Water Resources Section 2.5.1, first paragraph, second sentence, should read, "The Stanislaus River originates in the high elevations of the Sierra Nevada and flows into the LSJR [insert] at Vernalis, located approximately 11 miles southwest of the City of Ripon [insert] [delete] approximately 3 miles upstream of Vernalis at Ripon. [delete] (SED, at 2-25.) Section 2.5.1, second paragraph, first sentence, should read, "The New Melones Dam, the [insert] only [insert] [delete] major [delete] CVP dam on the Stanislaus River, is located just downstream of the confluence of the river's three forks. (SED, at 2-25.) Section 2.5.1, second paragraph, third sentence, should read, OID and SSJID "divert water from the Stanislaus River [insert] both upstream and downstream of New Melones for the purpose of generating [insert] [delete] and generate [delete] hydropower, which they sell to the [insert] City of Santa Clara [insert] [delete] California Independent System Operator (CalISO) [delete]. (SED, at 2-25.) Section 2.5.1., second paragraph, should reflect that there are other small diverters on the Stanislaus River in addition to the ones noted. (SED, at 2-25.) Section 2.5.1, third paragraph, first sentence, should read, "The Stanislaus River has 28 dams under DSOD jurisdiction storing an approximate 2.8 MAF of water; these include the New Melones, Tulloch, and Goodwin Dams and several small dams [delete] both [delete] upstream [delete] and downstream [delete] of New Melones." Other than Goodwin and	The incorporation of these editorial changes would not result in any changes to the analysis or conclusions in the SED, therefore no changes have been made.

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		Tulloch, there are no dams on the Stanislaus downstream of New Melones. Section 2.5.1, fifth paragraph, the following sentence should be deleted because it is an incorrect statement: [delete] "Goodwin Dam also creates a reregulating reservoir for peaking power releases from Tulloch power plant." [delete] (SED, at 2-26.) Section 2.5.2, second paragraph under heading of Oakdale Irrigation District heading, first sentence, should read, "Surface water is [insert] nominally [insert] supplemented by groundwater pumping from 22 groundwater wells located throughout the district on both sides of the Stanislaus River, [delete] especially during dry periods when water supplies are limited [delete]. [insert] The average annual pumping rate is 8,000 AF/y from these wells. [insert] [delete] Approximately 8,000 AF/y is pumped from these wells in dry years [delete]. (SED, at 2-27.) Section 2.5.2, second paragraph under heading of Oakdale Irrigation District, should also include the following sentence, [insert] "OID installed a few wells in the 1950's for the purpose of controlling shallow water tables in localized areas but does not use them today for that purpose."[insert] (SED, at 2-27.) Section 2.5.2, second paragraph under heading of Oakdale Irrigation District, last sentence, states, "Over the last 10 years, these domestic wells have produced approximately 1,000 AF/y." It is not clear what domestic wells are being referenced in this statement. (SED, at 2-27.) Section 2.5.2, second paragraph under heading Stockton East Water District, last sentence, should read, "This agreement ended in 2009, [delete] but [delete] was extended [delete] beyond [delete] [insert] into [insert] 2010 and [insert] then termed out at the end of 2010. The original agreement ended and there is no provision to extend the contract without establishing a new contract and new terms [insert] [delete] may be renewed pending further studies[delete]." (SED, at 2-28.) Section 2.5.2, first paragraph under heading Central San Joaquin Water Conservation District, last sentence, should read, "On occasion, SSJID [delete] and OID have also [delete] [insert] has [insert] made water available to CSJWCD for irrigation." (SED, at 2-29.) Section 2.5.2, first paragraph under heading Tri-Dams Project, second sentence should read, "Together they [insert] funded [insert], developed, operate, and maintain the Beardsley, Donnells, and Tulloch projects [insert] (collectively the Tri-Dam Project), and also the Sand Bar Project [insert], including the dams, tunnels, penstocks, power houses, communications systems, and general offices." (SED, at 2-29.)	
1031	85	Chapter 5: Surface Hydrology and Water Quality Section 5.2.5, second paragraph under heading Unimpaired and Historical Flow, the second and third sentences should be replaced as follows: "[delete] SSJID and OID jointly hold right with USBR to divert 600 TAF when the projected annual inflow to New Melones is greater than 600 TAF. OID and SSJID have an agreement to equally divide the available water, each receiving 300 TAF [delete]. [insert] Prior to construction of the New Melones Dam and Reservoir by the USBR, and as part of the condemnation of (Old) Melones Reservoir, OID and SSJID entered into a 1972 Stipulation and Agreement with USBR. Pursuant to the 1972 Stipulation and Agreement, USBR agreed to operate New Melones Reservoir by ensuring	The commenter suggests multiple edits for the Chapter 5, Surface Hydrology and Water Quality, environmental setting section. None of the suggested edits would affect any of the conclusions in the chapter. Regarding dividing the maximum possible diversion on the Stanislaus River by the average unimpaired flow on the Stanislaus River: this statistic is removed as requested, although the average unimpaired flow is still shown for context. Regarding more information about water rights upstream of New Melones Reservoir inflow patterns, statements about these patterns are based on the presence of upstream reservoirs that are used for

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		that a total of 654,000 acre-feet per year was available to OID and SSJID in recognition of their senior, jointlyheld water rights of 1,816.6 cfs (adjudicated in 1926). In 1988, OID and SSJID renegotiated the 1972 Stipulation and Agreement with the USBR. Under the 1988 Agreement, USBR agreed to operate New Melones Reservoir by ensuring that a maximum of 600,000 acre-feet per year was available to OID and SSJID in recognition of their adjudicated water rights of 1,816.6 cfs. Based on an even split of the available supply, 300,000 acre-feet of water is available to both OID and SSJID each year. Under the terms of the 1988 Agreement, OID and SSJID agreed to forego 54,000 acre-feet per year of water in exchange for an obligation from the USBR to make up 33 percent of any deficiency below 600,000 acrefeet per year. In years when the inflow into New Melones Reservoir is less than 600,000 acre feet, the Districts' entitlement is set forth as follows: Annual Entitlement = Inflow + [600,000 acre-feet – Inflow] / 3. [insert]" (SED, at 5-26.) Section 5.2.5, second paragraph under heading Unimpaired and Historical Flow, should reflect – in accordance with Section 2.5.2 (pp. 2-28 to 2-29) – that SEWD has a contract with USBR for 75,000 acre-feet per year, and that CSJWCD has a contract with USBR for 80,000 acre-feet per year, with 49,000 as a firm supply and 31,000 as an interim supply. (SED, at 5-26.) Section 5.2.5, second paragraph under heading Unimpaired and Historical Flow, states, "The maximum diversion from the Stanislaus River is therefore 755 TAF/y. This represents approximately 67 percent of the average unimpaired Stanislaus River runoff of 1,120 TAF/y." (SED, at 5-26.) Dividing the maximum allowable diversion by the average inflow for the Stanislaus River is improper and incorrectly reflects the percentage of water diverted by the Districts. Maximum values should not be mixed with averages when performing these computations. Section 5.2.5, third paragraph under heading Unimpaired and Historical Flow, states, "The inflow to New Melones is seasonally shifted from the unimpaired flow by the upstream hydropower operations. The annual inflow to New Melones is about the same as the unimpaired runoff because, although there are several upstream storage reservoirs for hydroelectric generation, there are no major upstream diversions for consumptive uses." (SED, at 5-26.) Please provide a citation for these statements. Section 5.2.5, fourth paragraph under heading Unimpaired and Historical Flow; please identify where the unimpaired flow measurement is determined on the Stanislaus River for the years 1922 to 2003. It could be added to the Heading for Table 5-10a as was done in Table 5-10b which identifies Ripon as the measurement point. Section 5.2.5, fourth paragraph under heading Unimpaired and Historical Flow, to the extent that median values are compared to average (or mean) values, such comparison is improper. Section 5.2.5, fifth paragraph under heading Unimpaired and Historical Flow, compares a series of events that occurred between 1922 and 2003 to a series of events that occurred between 1985 and 2009. Since conclusions are going to be drawn from these comparisons, the time periods should be the same.	hydropower purposes and the relatively small amount of consumptive use upstream of New Melones Reservoir. Please see the portion of Section 5.4.2 titled "Plan Area and Water Supply Effects Model." This section provides information about consumptive use upstream of New Melones Dam extracted from the State Water Board's water rights eWRIMS database. Annual historic inflow is not much different from annual unimpaired inflow because upstream consumptive use is relatively small. Regarding the location of the Stanislaus River unimpaired flow estimate, text has been added to clarify. Regarding the use of medians and averages, both medians and averages are used for descriptive purposes in this paragraph, but they are not directly compared. Regarding comparisons of differing time periods, this text provides only as a general description of conditions in the Stanislaus River Watershed. It is not used to draw conclusions. A comparison of matching time periods would yield slightly different results, as would a comparison that used flows simulated to mimic current operations. For additional information about presentation of data, please see Master Response 2.3, Presentation of Data and Results in SED and Responses to Comments.

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1031	86	Chapter 9: Groundwater Resources This chapter describes groundwater conditions in the region and cites many conflicting studies. While acknowledging DWR designations of high priority and critically over drafted basins, the chapter contains many incomplete statements that seem to imply that the groundwater condition is not as serious as the DWR designations would imply. Some examples and comments related to these statements are provided below: 9-24, middle of third paragraph: "As of 2010, there was a fairly large cone of depression centered east of Stockton below SEWD and CSJWCD service areas (Figure 9-3). However, this cone of depression is not as severe as it once was; between 2005 and 2010, groundwater elevations within some portions of this area showed some signs of improvement (Figure 9-4)." Careful examination of Figure 9-4 also shows a portion of this area (directly east of Stockton on the eastern boundary) where groundwater elevations have dropped by 10 and 20 feet. 9-26 middle of first complete paragraph: "SEWD has continued a conjunctive use management approach; between 2011 and 2014, SEWD pumped no groundwater." What were the SEWD surface water supplies during these years? Even though SEWD did not pump groundwater, the growers inside SEWD likely pumped sufficient groundwater to meet the needs of their agricultural analysis (See DE NDVI analysis for confirmation of this). Chapter 9, p. 9-15, Figure 9-2—Conceptual figure is missing a flow path. There should be a line from irrigated crops to the river representing tailwater. Discussion of irrigated lands with respect to groundwater impacts and irrigation districts implies similar surface water supplies and reliability with respect to irrigated crop demands. This downplays the groundwater impacts of the reduced surface water. Specifically, the analysis as described in Appendix G on page G-14 states: "The SEWD and CSJWCD analysis focused only on the portion of the CVP contract delivery that could come from the Stanislaus River. The other water used by these districts would not be affected by the LSJR Alternatives. If no Stanislaus River water is available to these districts, then it is assumed there would be enough groundwater pumping capacity to fully replace any lost surface water supply, …" This essentially means there is no impact to SEWD and CSJWCD, is this a reasonable assumption when the subbasin is designated as a critically over drafted basin? Nearly all of the shortcomings noted above tend to under-estimate agricultural water supply shortages, suggesting a desire to minimize, or understate, unavoidable negative impacts to water supplies and agricultural production that would be caused by the LSJR alternatives (or a pre-existing belief that impacts to irrigated agricultural will be small). Furthermore, and likely far more important, is the State Board assume that large quantities of groundwater, in aggregate far exceeding those used historically, will be available to offset the reductions in surface water supplies that will unavoidably result from the LSJR alternatives. In fact, when the Sustainable Groundwater Management Act takes effect, allowable quantities of pumping are likely to be less than those pumped historically, not more. Consequently, the State Board's failure to incorporate the effects of SGMA into baseline conditions likely results in a gross understatement of the unavoidable, negative effects of the LSJR alternatives. Until the impacts of the alternatives are correctly assessed, it is impossible to have a fair, rational public policy discussion.	Please see response to Comment 1031-65. The State Water Board does not assume that more groundwater than was used historically will be available. The SED analyses acknowledge that up to the 2014 level of pumping capacity might be utilized to preserve permanent crops in dry years. Please see Master Response 3.4, Groundwater and the Sustainable Groundwater Management Act for a description of dry year pumping and why a "with SGMA" baseline is speculative. Regarding Figure 9-2, field tailwater is encompassed in the. "Surface Water Returns" flow path, which is a general category that accounts for distribution system "operational spills/returns" and tailwater flows from irrigated crops (returned to rivers through drain systems or after recirculation lower in the distribution system.

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1031	87	Effects of Not Incorporating the Sustainable Groundwater Management Act (SGMA) into Baseline Conditions In Chapter 9 – Groundwater Resources, Section 9.2, the SED describes groundwater conditions in the seven subbasins in the plan area, with a primary focus on the four subbasins in the study area. The four subbasins are the East San Joaquin, Modesto, Turlock and Merced, all four of which are designated by DWR as high-priority subbasins, with the East San Joaquin and Merced subbasins designated as basins with critical conditions of overdraft. However, Table 9-4 (SED, at 9-17) and the supporting text describes declining groundwater conditions in all four subbasins, and provides estimates of rates of overdraft for each. In each subbasin, overdraft tends to be more severe in the areas outside of the irrigation districts than within; however, groundwater levels in all four irrigation districts have declined over recent years. Chapter 9 also describes the existing regulatory environment within which groundwater is managed, acknowledging that the Sustainable Groundwater Management Act (SGMA) is part of existing regulations. In general, SGMA requires that subbasins be managed sustainably, meaning that overdraft conditions will not be permitted to continue. Chapter 9 also describes the general authorities granted to local agencies that elect to become Groundwater Sustainability Agencies (GSA), including the authority to "control groundwater extractions by regulating, limiting, or suspending extractions from wells." (SED, at 9-2, last paragraph). From this, it is evident that the SWRCB foresees future limitations on groundwater production relative to historical conditions as a means of achieving sustainable management in the four groundwater subbasins, and in the irrigation districts. After acknowledging the likely effects of SGMA, the SED states: "However, since the groundwater protections that will be afforded by SGMA cannot be determined at this time with precision, this chapter evaluates the potential impacts on groundwater levels from LSJR alternatives without including SGMA as an ameliorating factor, which means that estimates of impacts are likely more conservative (i.e., worse) than would occur in the groundwater basins over time (emphasis added)." The fact that the SWRCB elected to leave SGMA out of the baseline is incredible on its own; however, the statement that doing so results in conservative (worse) estimates of impacts is contrary to the Board's own assessment. It would appear from this statement that the SWRCB rationalizes that the "groundwater protections that will be afforded by SGMA", rather than limiting future groundwater extractions, will somehow enable the vast increases in pumping it assumes to be possible to offset the reductions in surface water supplies due to the LSJR alternatives. Because SGMA will reduce the volumes of groundwater that can be extracted in the future, not increase them, the SWRCB has adopted an unrealistic, seriously flawed baseline condition, resulting in the effects of the proposed LSJR alternatives being vastly understated, not overstated.	Please see response to Comment 1031-65. Also, Chapter 9, Groundwater Resources, addresses potential impacts from pumping to the groundwater resource without consideration of SGMA's requirement for sustainability. Commenter misconstrues the application of SGMA to Chapter 9 as SGMA would mitigate impacts to groundwater as a resource by requiring projects and programs to increase recharge, reduce demand, limit pumping, etc.
1031	88	Chapter 11: Agricultural Resources Table 11-2 (California Department of Conservation's Land Use Classification Acreages in the LSJR Area of Potential Effects): OID's service lands receiving irrigation water have expanded by 10,000 acres since the DOC 2012. Thus, Table 11-2 is incorrect based on those changes. Since most of the additional land is foothill soil, it will likely fall in the Farmland of Local Importance category. (SED, at 11-11.) Table 11-5 (Crop Production in the LSJR Area of Potential Effects by DAU) and Table 11-6	The estimate of total irrigated acreage for Oakdale Irrigation District (OID) is based on information from the district's 2012 Agricultural Water Management Plan and was used in the analysis because it was close to the baseline period for the SED, which was 2010. CEQA does not require the lead agency to continuously update the baseline acreage. The DWR DAU crop distribution data was used for the analysis because it is part of a statewide, consistent database supported by a sister agency. Please see Master Response 2.5, Baseline and No Project, for a discussion of baseline. Please see Chapter 11, Agricultural Resources, Table 11.5, Crop production in the LSJR area of potential

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		(Crop Production in the LSJR Area of Potential Effects by DAU (Percent)): The crop production values for OID are significantly in error. Further explanation is provided in the comments to Appendix G. (SED, at 11-17 to 11-18.) Table 11-12 (Average Annual SWAP Baseline Acreage and Percent by Crop Category for Each Irrigation District): The crop acreages for OID are incorrect. Further explanation is provided in the comments to Appendix G. (SED, at 11-42.)	effects, for information on OID's acreage for the baseline year. Please see the response to comment 1031-91 regarding the crops distribution modeled for OID.
1031	89	Appendix F Table F.1.2-11 (Calculation of Deep Percolation Factors and Distribution Loss Factors): The Operational Spills/Returns (OS) value for OID is incorrect. The number should be 16,826 acre feet, instead of 48,884 acre feet. The former number is the operational spill from the canal delivery system and the latter number is total surface water drainage leaving OID. The 48,884 acre-feet goes to other irrigation districts for reuse; a nominal amount goes down the river. (SED, at F.1-21.) OID's Sphere of Influence Deliveries (SOI) should be 40,000 acre-feet to reflect water sold to State and Federal water contractors on the west side of the San Joaquin River. The sold water is used to irrigate crops, and should be treated the same as sales by Merced ID, whose SOI is listed as 74,712. (SED, at F.1-21.) The changes to OS and SOI will result in changes to the Distribution Loss Factor. (SED, at F.1-22.)	The total surface water drainage leaving OID, 48,884 acre-feet as reported in OID's AWMP, is the appropriate amount to use for calculating District water balance fractions within a total water balance in Table F.1.2-11. This may include any additional surface drainage in addition to spills from the canal system. SED Appendix F.1, Hydrologic and Water Quality Modeling, explains that distribution losses represent the portion of water that is lost from the district distribution system. Losses are estimated based on information provided by irrigation districts in Agricultural Water Management Plans (AWMP). The OID 2012 AWMP indicates that the 40,000 acre-feet sold to State and Federal water contractors is a water transfer and not a delivery, with estimated delivery losses, through OID's delivery system. Using the values reported in the table is a reasonable method for estimating distribution losses.
1031	90	Appendix G There are several issues with the crop distribution computations in G.4.2. First, the number of irrigated acres were taken from the various AWMPs of the irrigation and water districts. Although the AWMPs contain crop distribution data from recent years, that data was not used. Instead, "the crop distribution and applied water rates [were] based on DWR DAU data" for all irrigation districts except SEWD and CSJWCD. Table G.4-2 indicates that DWR has not surveyed some of the land for DAU purposes since 1996. (SED, at G-45.) The most recent DWR survey was 2004. (Table G.4-2.) This data was then used to compute estimated 2010 crop distribution within the Districts. (SED, at G-46; Table G.4-3.) This older data is of little value for determining current crop distribution. California agriculture is moving toward higher value crops, and has been for several years, due to rising operating costs. Some crops grown in 1996 are no longer profitable in today's market. Utilizing this older crop distribution data underestimates the impacts of the project. The recent crop distribution data from the AWMPs should have been used in order to more accurately assess the impact of the project on agriculture. The differences can be significant. (SED, at Appx. G, Attachment 1, Tables 3 &4, pp. 3-5.)	Please see the response to comment 1031-88.
1031	91	Modeling Comments Appendix G describes the methods used to estimate changes (reductions) in applied water associated with the LSJR alternatives. Estimated reductions in applied water are then used as a basis for estimating economic impacts in terms of reduction in irrigated area, changes in cropping patterns and reduction of crop production. This review focuses on the methods for estimating applied water requirements presented in Appendix G. Those methods do not	The methods and terminology used for the analysis to calculate applied water are described in detail in Appendix G, Agricultural Economic Effects of the Lower San Joaquin River Flow Alternatives: Methodology and Modeling Results. There is no requirement that the SED analysis follow any specific guidelines, or use any specific terminology or performance indicators. Please refer to Master Response 3.2, Surface Water Analyses

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		follow generally accepted technical approaches and terminology, such as those described in the first edition and the recently released second edition of Manual 70 Evaporation, Evapotranspiration and Irrigation Water Requirements of the American Society of Civil Engineers (ASCE) series of Manuals and Reports on Engineering Practice (ASCE 2016) and peer reviewed literature on modeling of irrigation distribution and on-farm systems. Additionally, in spite of using basic information reported by the various irrigation districts that divert from the Stanislaus, Tuolumne and Merced Rivers in their respective Agricultural Water Management Plans (AWMPs), the methodology does not utilize accepted performance indicators, such as the Crop Consumptive Use Fraction (CCUF) and Delivery Fraction (DF), cited in many of those AWMPs. These performance indicators are described in the California Department of Water Resources' (DWR's) 2012 report to the Legislature titled "A Proposed Methodology for Quantifying the Efficiency of Agricultural Water Use." A primary shortcoming of the methodology described in Appendix G is not including on-farm losses to tailwater (Appendix G, pg. G-10 and in Appendix F, pg. F.1-21 in Table F.1.2-11). Not including these losses in the determination of water demands means that the actual water supply shortages (and, therefore economic impacts) caused by the LSJR alternatives would be greater than those reported in Appendix G. Additional problems and shortcomings of the methodology used to estimate water demands include: 1. The methodology assumes (SED, at Appx.G-10, section G.2.1.4 Crop Surface Water Demand, equation at bottom of page uses Deep Percolation Factor that does not include tailwater) that all groundwater pumping is applied directly to irrigated lands. In fact, the groundwater pumping volumes used in the analysis include district groundwater pumping, most of which is discharged to the district distribution system. Deep percolation is the only loss from groundwater pumping that is accounted for in the analysis. Tailwater losses from groundwater pumping applied directly to irrigated lands and evaporation and seepage losses from groundwater pumping discharged to district distribution systems should also be accounted for. 2. Appendix G states (SED, at Appx.G-7, first sentence Spills/Returns section) that "estimates of spills and returns come from CALSIM II." But the methodology uses operational spills reported in the AWMP (SED, at Appx. F F.1-21; Table F.1.2-11). 3. For the portion of the Oakdale Irrigation District (OID) north of the Stanislaus the distribution loss factors are assumed to be the same as those used for South San Joaquin Irrigation District (SSJID). No justification is provided in the text, but in the spreadsheet "GW and SW use analysis 09142016.xlsx", tab "Input Parameters", cell F9, the comment states: Nelson, Timothy@Waterboards: Used the same loss factor as SSJID as OID north shares much of the same distribution system." This statement is incorrect. OID north does NOT share much of the same distribution system as SSJID. In fact, the OID north distribution is completely independent of the SSJID distribution system except for a few miles of main canal immediately downstream of the reservoir. Additionally, the OID north distribution system is operated completely independent from the SSJID distribution system. The OID south distribution factor should be used for OID north. Using the SSJID distribution system, under estimates distribution system losses in OID, thus, impacts are underestimated. 4. Appendix G states (SED, at Appx. G-10, section G.2.1.4 Crop Surface Water Demand) that "…the total consumptive use demand for each irrigation district, Cdem, …is based on CALSIM II data." Additional description of how the CALSIM II data is developed should be provided. Upon inspection of the WSE model from which the Cdem data is obtained, one	and Modeling, regarding the methods for determining applied water demand. The commenter is incorrect—field tailwater is considered a part of a district's total diversion demand in the WSE model water balance, as a component of operational spills and return flows (described in Section F.1.2.4 of Appendix F.1, Hydrologic and Water Quality Modeling, and Section G.2.1 of Appendix G). As such, changes in surface runoff from irrigated land were not dynamically modeled as part of the estimates of applied water, that is, these are assumed not to change in response to the implementation of the LSJR alternatives. With regards to additional issues raised: 1) The majority of groundwater pumping within the districts is from private groundwater wells, which do not normally discharge into the distribution system. Assuming that all groundwater is applied directly to the field, as opposed to the distribution system, does not have a significant impact on the results; if all pumping were considered as the commenter proposes, then additional losses would be a small fraction (the distribution loss fraction) of a fraction (the fraction of groundwater pumped by the district). Seepage losses are accounted for in the percolated fraction of applied water, and direct application of groundwater is reasonably assumed to be used more efficiently than other methods of irrigation, with the assumption of no groundwater wasted as tailwater. Thus, commenter's suggested minor change in the modeling assumptions, even if accepted as accurate, would not introduce a new potentially significant impact or significantly change the severity or intensity of the impact as modeled for the SED programmatic analysis. Therefore, no change will be made in the SED. 2) The operational spills used for WSE modeling from 1922 to 2003 were from CALSIM II for consistency of method for all districts, and were held constant between alternatives for consistency in the overall water balance. The Operational spills extracted from the AWMP's for Table F.1.2-11 of Appendix F.1 were only used in estimating each district's distribution loss fraction and deep percolation fraction, that is, in the determination of efficiencies and components as a portion of total surface demand. 3) Assuming that OID north has the same distribution loss factor as SSJID is again a fraction (the portion of OID demand on the north side of the Stanislaus) of a fraction (the difference between OID south distribution loss factor and SSJID distribution loss factor) and would not have a substantial impact on the results. Thus, commenter's suggested minor change in the modeling assumptions, even if accepted as accurate, would not introduce a new potentially significant impact or significantly change the severity or intensity of the impact as modeled for the SED programmatic analysis. Therefore, no change will be made in the SED. 4) Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding determination of surface water demand, and also Appendix F.1, Section F.1.2.4, Comparison of Surface Water Demands for discussion of how the CUAW demands from CALSIM II were adjusted. 5) Variability in the adjusted CUAW demand is inherited from the CALSIM II CUAW demand, which varies monthly and from year to year depending on climatic conditions. CALSIM II CUAW data was used as a basis for WSE Agricultural demands because it was the best available information for modeling consumptive use over the long time period from 1922 to 2003. Please see Master Response 3.2, Surface Water Analyses and Modeling, regarding the determination of surface water demand.

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		finds that the "total consumptive use demand" is the consumptive use of applied water (CUAW) and, furthermore, this value is "adjusted" before it is used in the methodology. Additional explanation of why the adjustment is needed and how it was done should be provided. 5. The variability in the adjusted CUAW is less than that reported in district AWMPs. For example, although, through the adjustment process, the average adjusted CUAW is reasonably close to the average ETaw reported in district plans, the ETaw reported in dry years is greater than the adjusted CUAW. Conversely, the ETaw reported in wet years is less than the adjusted CUAW. This results in an under estimation of water supply shortages, and therefore economic impacts, in dry years.	
1031	92	Calculation of Monthly Surface Water Demand: Appendix F states that "CUAW was calculated by USBR for various regions through the plan area using the DWR consumptive use model (USBR 2005) and is an input to CALSIM II." (SED, Appx. F1, p. F.1-19.) In reviewing the CALSIM II documentation referenced, i.e., USBR 2005, it appears that DWR's CU program is used to calculate the CUAW for CALSIM II. The document states, "The CU model does not currently consider temperature or other meteorological data in its determination of CUAW. The ET data in the current CU model is based on 1976 evaporation values." (USBR 2005, p. 25.) This raises the question, if CUAW uses the same single year of evaporation values for every year of the analysis, then what drives the annual variability in total CUAW. Another question is whether CUAW is based only on precipitation. A better approach to calculating CUAW would be to use the historical climate data. A historic time series of reference ET could be developed, and CUAW calculated for each month a year based on both climatic demand and precipitation in that year. For SSJID, the comment in WSE_model09132016, tab "CUAW-CalSim", cell N4 says "Tim: Degroot WTP demand was not included in SWRCB CalSim. This was added based on information in the SSJID 2012 AWMP." The SSJID AWMP avg 2005-2009 value of 15,700 is distributed equally across 12 months in column N. This value is used in tab "% CUAW met" as the "off the top" M&I demand on the Stanislaus River. This number is too small as the Degroot Demand is projected to increase to 43,000 acre-feet. Thus, by using 15,700 acre-feet for this M&I demand, the M&I Demand "off the top" is underestimated and the impacts on groundwater pumping are also under estimated. Appendix F, p. F.1-20, Figure F.1.2-2—Conceptual figure is missing a flow path. There should be a line from irrigated crops within irrigation districts to the river representing tailwater.	Please see Master Response 3.2, Surface Water Analyses and Modeling, for information regarding calculation of monthly surface water demand and Master Response 2.5, Baseline and No Project, regarding the description of the baseline in the SED. The WSE Model uses an appropriate level of analysis and best available information to model scenarios for the programmatic planning level model used in the SED. The WSE baseline conditions were developed and verified by comparison to CALSIM II SJR module results because CALSIM II is a widely accepted and rigorously reviewed planning-level modeling tool for the Central Valley. WSE inputs from CALSIM II include CUAW monthly values. WSE use of CALSIM II inputs, including CUAW values, are described in the section explaining the modeling approach in SED Chapter 5 and Appendix F.1 with additional discussion in Master response 3.2, Surface Water Analyses and Modeling. Input values were based on best available information for the three tributaries at the time of producing the WSE results and the SED. The SED appropriately focused on impacts to existing conditions, rather than speculative future conditions. Please see Master Response 2.5, Baseline and No Project, for how baseline characterizes the existing environment at the time of the 2009 Notice of Preparation. Water use of the DeGroot WTP through SSJID is estimated to be 15.7 TAF/y, based on information in the SSJID Agricultural Water Management Plan (AWMP) (SSJID 2012). This is consistent with WSE description of baseline conditions for comparison to the LSJR flow alternatives. SED Chapter 17, Cumulative Impacts, Growth-Inducing Effects, and Irreversible Commitment of Resources, discusses the effects of the cumulative impacts of the LSJR and SDWQ alternatives in conjunction with past, present and reasonably foreseeable future projects, including projects that are currently under construction or in the final stages of formal planning. Please see Chapter 13, Service Providers, for programmatic impact determinations and a discussion of potential effects on service providers using service water, especially within the general context of water supply agreements. Modification to the flow path in the figure referenced by the comment does not raise a significant environmental issue or make a comment regarding the plan amendments. Total surface water returns are considered to include both tailwater and operational spills.
1031	93	Naming and labeling across Appendices F and G and spreadsheets GW and SW use analysis 09142016.xls and WSE_Model 09132016.xls are inconsistent. Some examples of such inconsistencies include: a. GW and SW use analysis 09142016.xls, tab "Input Parameters", cells B8, B9 and B10 i. In cell B8, Crop Deep Percolation factor appears to be the Deep Percolation Factor described in Appendix G, pg G-10 and in Appendix F, pg. F.1-21 in Table F.1.2-11. ii. In cell B9, Distribution Total loss factor appears to be the Distribution Loss Factor	Please see Master Response 1.1., General Comments regarding the length and complexity of the SED. The SED includes numerous technical analyses that rely on output from complex hydrologic, agricultural, and economic models. The State Board made every reasonable effort to make the results from these models available to the public in a clearly and in a way that understandable. The State Water Board acknowledges the commenter's suggestions, however, as they are the titles provide reviewers with enough information to understand the model outputs. The suggested changes would not result in a change to the analysis or conclusions, therefore, no changes have been made. Please also refer to Master Response 3.2, Surface Water Analyses and Modeling, for additional information

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		described in Appendix G, pg G-9 and in Appendix F, pg. F.1-21 and F.1-22 in Table F.1.2-11. iii. In cell B10, Distribution Seepage factor is not described anywhere in the 3638pages of SED documentation. b. GW and SW use analysis 09142016.xls, tab "AW Demand", Row 2, columns C-I, Seepage Factor is not described in the SED documentation. (Also, used on tab "Applied SW" and "Total AW" and "Deep Percolation from Crops" tabs) The analysis is difficult to follow in the spreadsheets, data from one spreadsheet is input to the next and many cells have complicated equations that reference multiple tabs. Also, many constants are repeated on many tabs in the spreadsheets.	regarding the methods and modeling used in the SED.
1031	94	[ATT 41: Memorandum from Daniel B. Steiner, dated November 16, 2016 Subject: Stanislaus River Analysis – Baseline and 40% Unimpaired Requirement]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	95	[ATT 42: Stanislaus Temperature Modeling, 2016 Proposed Operations Water Allocation Schedule - March 20, 2016]	This attachment was included with the comment letter. The attachment does not make a general comment regarding the plan amendments or raise a significant environmental issue.
1031	96	[ATT 43: Water Temperature Modeling Principles]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	97	[ATT 44: Letter from FISHBIO to Tim O'Laughlin, dated July 2013. Subject: Stanislaus River Off-Channel Habitat Assessment]	This attachment was included with the comment letter. The attachment does not make a general comment regarding the plan amendments or raise a significant environmental issue.
1031	98	[ATT 45: The Status of Rainbow Trout (Oncorhynchus mykiss) in the Stanislaus River. Summary report of 2015 snorkel surveys]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	99	[ATT 46: Letter from US DOI Bureau of Reclamation to Thomas Howard, SWRCB, dated April 1, 2016. Subject: Temporary Urgency Change Petition - San Joaquin River Flow at Airport Road Bridge, Vernalis; and Dissolved Oxygen on the Stanislaus River]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	100	[ATT 47: Technical memo from FISHBIO to Tim O'Laughlin, dated February 23, 2012. Subject: Review of the scientific basis for increasing the San Joaquin River flows during June to facilitate outmigration of juvenile Central Valley fall-run Chinook salmon and Central Valley steelhead through the Delta]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	101	[ATT 48: Agreement Among the United States of American and the Oakdale Irrigation District and the South San Joaquin Irrigation District for the Operation of New Melones Dam and Reservoir and Tulloch Dam and Reservoir. Agreement No. 8-07-20-W0714]	This attachment was included with the comment letter. The attachment does not make a general comment regarding the plan amendments or raise a significant environmental issue.
1031	102	[ATT 49: Article from North American Journal of Fisheries Management. "Environmental Factors Associated with the Upstream Migration of Fall-Run Chinook Salmon in a Regulation River." Published online December 21, 2016.]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	103	[ATT 50: Tulloch Dam figures between 1987-1992 showing a net loss of 57,267 MWh, resulting in loss of revenue]	The commenter is providing this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.
1031	104	[ATT 51: New Melones loss of 670,882 MWh]	The commenter provided this attachment for reference purposes in support of their comments. Those comments are addressed in these responses to comments; therefore, no additional response is required.