

Appendix C

This appendix contains the clean copy version of the proposed changes to the Water Quality Objectives chapter (Chapter 3) of the Basin Plan.

3. WATER QUALITY OBJECTIVES

3.1 INTRODUCTION

The Regional Water Board is responsible for establishing water quality objectives, which in the Board's judgment are necessary for the reasonable protection of beneficial uses and the prevention of nuisance.¹ Water quality objectives are expressed in narrative or numeric form and describe the physical, chemical, and/or biological qualities of water necessary to protect and support aquatic life, ecological functioning, and human health and welfare.

As new information becomes available, the Regional Water Board reviews the appropriateness of the objectives contained herein. The Basin Plan, including these objectives, is subject to public hearing at least once during each Triennial Review period to evaluate the need for review and appropriate modification. The Triennial Review process is described in the Introduction to the Basin Plan (Chapter 1).

The water quality objectives contained herein are a compilation of objectives adopted by the State Water Board and the Regional Water Board. Additional water quality objectives and policies that are more stringent may apply. The State Water Board *Policy with Respect to Maintaining High Quality Waters in California*, commonly referred to as the state Antidegradation Policy, also applies. Wherever more than one objective exists for the same water quality parameter, the most stringent objective applies.

States are required to obtain U.S. EPA approval of all new or revised water quality standards which are established for surface and ocean waters. Under federal terminology, water quality standards consist of the designated uses² of a waterbody, the water quality criteria³ necessary to protect those uses, and implementation of state and federal antidegradation policies. The water quality objectives contained herein are designed to satisfy all state and federal requirements.

3.2 CONTROLLABLE WATER QUALITY FACTORS

Controllable water quality factors shall conform to the water quality objectives contained herein. When other factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, controllable factors shall not cause further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled.

¹ Wat. Code § 13241.

² Federal law uses the term "designated use" whereas state law uses the term "beneficial use."

³ Federal law uses the term "water quality criteria" whereas state law uses the term "water quality objectives."

3.3 GENERAL WATER QUALITY OBJECTIVES

The following general water quality objectives shall apply to all waters in the North Coast Region.

3.3.1 Antidegradation Policies

Whenever the existing quality of water exceeds the water quality objectives established herein, such existing high quality waters shall be maintained unless otherwise provided for by the provisions of the State Water Board *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (state Antidegradation Policy).⁴ The State Water Board has interpreted the state Antidegradation Policy to incorporate the federal Antidegradation Policy where the federal policy applies.⁵ The state and federal antidegradation policies can be found at the State Water Board website.

The state Antidegradation Policy applies more comprehensively to water quality changes than the federal policy. In particular, the state Antidegradation Policy applies to both groundwaters and surface waters in which water quality meets or exceeds (is better than) water quality objectives. The state Antidegradation Policy establishes two conditions that must be met before the quality of high quality waters may be lowered by waste discharges.

First, the state must determine that lowering the quality of high quality waters:

- Will be consistent with the maximum benefit to the people of the state;
- Will not unreasonably affect present and anticipated beneficial uses of such water; and
- Will not result in water quality less than that prescribed in state policies (e.g., water quality objectives in water quality control plans).

Second, any activities that result in discharges to high quality waters are required to:

- Meet waste discharge requirements that will result in the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance; and
- Maintain the highest water quality consistent with the maximum benefit to the people of the state.

If such treatment or control results in a discharge that maintains the existing high water quality, then a less stringent level of treatment or control would not be in compliance with the state Antidegradation Policy.

⁴ State Water Board Resolution No. 68-16.

⁵ State Water Board Order WQO 86-17.

Likewise, the discharge could not be allowed under the state Antidegradation Policy if:

- The discharge, even after treatment, would unreasonably affect beneficial uses; or
- The discharge would not comply with applicable provisions of water quality control plans.

The federal Antidegradation Policy⁶ applies to surface waters regardless of the level of existing water quality. Where water quality is better than the minimum necessary to support existing or probable future beneficial uses of surface water, the federal policy requires that quality to be maintained and protected, unless the state finds, after ensuring public participation, that:

- Such activity is necessary to accommodate important economic or social development in the area in which the waters are located;
- Water quality is adequate to protect existing beneficial uses fully; and
- The highest statutory and regulatory requirements for all new and existing point source discharges and all cost-effective and reasonable best management practices for nonpoint source control are achieved.

Under the federal Antidegradation Policy, an activity that results in discharge would be prohibited if the discharge will lower the quality of surface waters that do not currently attain water quality standards.

Both the state and federal antidegradation policies acknowledge that an activity that results in a minor lowering of water quality, even if incrementally small, can result in a violation of antidegradation policies through cumulative effects, especially when the waste is a cumulative, persistent, or bioaccumulative pollutant.

The state and federal antidegradation policies are enforceable independent of this Basin Plan provision.

⁶ 40 C.F.R. § 131.12.

3.3.2 Minimum Chemical Constituents Levels for Municipal and Domestic Water Supplies

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall not contain concentrations of chemical constituents in excess of the following maximum contaminant level (MCL) and secondary maximum contaminant level (SMCL) provisions specified in Title 22 of the California Code of Regulations:

- Table 64431-A, Maximum Contaminant Levels - Inorganic Chemicals (§ 64431)
- Table 64444-A, Maximum Contaminant Levels - Organic Chemicals (§ 64444)
- Table 64449-A, Secondary Maximum Contaminant Levels - "Consumer Acceptance Contaminant Levels" (§ 64449)
- Table 64449-B, Secondary Maximum Contaminant Levels - "Consumer Acceptance Contaminant Level Ranges" (§ 64449)
- Table 64442, Radionuclide Maximum Containment Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs) (§ 64442)
- Table 64443, Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs) (§ 64443)

These provisions are incorporated by reference into this Basin Plan. This incorporation by reference is prospective, including future changes to the incorporated provisions as the changes take effect.

3.4 WATER QUALITY OBJECTIVES FOR OCEAN WATERS

The provisions of the State Water Board *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan) and *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) and any revisions thereto shall apply to ocean waters within the North Coast Region. These plans can be found at the State Water Board website.

3.5 WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS, ENCLOSED BAYS, AND ESTUARIES

Federal water quality criteria contained in the National Toxics Rule⁷ (NTR) and the California Toxics Rule⁸ (CTR) and any revisions thereto shall apply to inland surface waters, enclosed bays, and estuaries of the North Coast Region. NTR and CTR water quality criteria are implemented through the provisions of the State Water Board's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP). This policy can be found at the State Water Board website.

In addition, the general water quality objectives, the site-specific objectives contained in Tables 3-1, 3-1a, and 3-1b, and the following objectives shall apply to inland surface waters, enclosed bays, and estuaries of the North Coast Region. Water quality objectives are presented in alphabetical order.

3.5.1 Bacteria

The bacteriological quality of waters of the North Coast Region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the North Coast Region exceed the following:

In waters designated for contact recreation (REC-1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml (State Department of Health Services).

At all areas where shellfish may be harvested for human consumption (SHELL), the fecal coliform concentration throughout the water column shall not exceed 43/100 ml for a 5-tube decimal dilution test or 49/100 ml when a three tube decimal dilution test is used (National Shellfish Sanitation Program, *Manual of Operation*).

3.5.2 Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

⁷ 40 C.F.R. § 131.36.

⁸ 40 C.F.R. § 131.38.

3.5.3 Chemical Constituents

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall comply with the minimum chemical constituents levels for municipal and domestic water supplies objective.

Waters shall not contain chemical constituents at concentrations that cause nuisance or adversely affect beneficial uses.

Table 3-1 contains waterbody specific numeric water quality objectives for certain chemical constituents.

3.5.4 Color

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

3.5.5 Dissolved Oxygen

Dissolved oxygen concentrations shall conform to the limits listed in Table 3-1 and 3-1a. For waters not listed in Table 3-1 or 3-1a, and where dissolved oxygen objectives are not prescribed, the dissolved oxygen concentrations shall not be reduced below the following minimum levels at any time:

- Waters designated WARM, MAR, or SAL5.0 mg/L
- Waters designated COLD6.0 mg/L
- Waters designated SPWN7.0 mg/L
- Waters designated SPWN during critical spawning and egg incubation periods9.0 mg/L

3.5.6 Floating Material

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

3.5.7 Oil and Grease

Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

3.5.8 Pesticides

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall comply with the minimum chemical constituents levels for municipal and domestic water supplies objective.

No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations in bottom sediments or aquatic life.

3.5.9 pH

The pH shall conform to those limits listed in Table 3-1. For waters not listed in Table 3-1 and where pH objectives are not prescribed, the pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.2 units in waters with marine habitat (MAR) or inland saline water habitat (SAL) beneficial uses nor 0.5 units within the range specified above in fresh waters with cold freshwater habitat (COLD) or warm freshwater habitat (WARM) beneficial uses.

3.5.10 Radioactivity

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall comply with the minimum chemical constituents levels for municipal and domestic water supplies objective.

Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal, or aquatic life, nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or indigenous aquatic life.

3.5.11 Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

3.5.12 Settleable Material

Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.

3.5.13 Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

3.5.14 Tastes and Odors

Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance or adversely affect beneficial uses.

3.5.15 Temperature

Temperature objectives for interstate waters associated with cold freshwater habitat (COLD), warm freshwater habitat (WARM), enclosed bays, and estuaries are as specified in the State Water Board *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California* (Thermal Plan) including any revisions thereto. The Thermal Plan is available at the State Water Board website.

In addition, the following temperature objectives apply to surface waters:

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses.

At no time or place shall the temperature of any waters associated with cold freshwater habitat (COLD) be increased by more than 5°F above natural receiving water temperature.

At no time or place shall the temperature of intrastate waters associated with warm freshwater habitat (WARM) be increased more than 5°F above natural receiving water temperature.

Site-specific objectives for temperature in the Upper Trinity River are listed in Table 3-1b.

3.5.16 Toxicity

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective shall be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Water Board.

The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same waterbody in areas unaffected by the waste discharge, or when necessary for other control water that is consistent with the requirements for "experimental water" as described in *Standard Methods for the Examination of Water and Wastewater*, latest edition (American Public Health Association, et al.). As a minimum, compliance with this objective shall be evaluated with a 96-hour bioassay.

In addition, effluent limits based upon acute bioassays of effluents will be prescribed. Where appropriate, additional numeric receiving water objectives for specific toxicants will be established. As sufficient data become available, source control of toxic substances may be required.

3.5.17 Turbidity

Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

3.6 WATER QUALITY OBJECTIVES FOR GROUNDWATERS

In addition to the general water quality objectives and the site-specific objectives contained in Table 3-1, the following objectives shall apply to groundwaters⁹ of the North Coast Region. Water quality objectives are presented in alphabetical order.

3.6.1 Bacteria

In groundwaters used for domestic or municipal supply (MUN), the median of the most probable number of coliform organisms over any 7-day period shall be less than 1.1 MPN/100 ml, less than 1 colony/100 ml, or absent (State Department of Health Services).

⁹ Groundwater is defined as subsurface water in soils and geologic formations that are fully saturated all or part of the year.

3.6.2 Chemical Constituents

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall comply with the minimum chemical constituents levels for municipal and domestic water supplies objective.

Groundwaters shall not contain chemical constituents at concentrations that adversely affect beneficial uses. Numeric objectives for certain chemical constituents for individual groundwaters are contained in Table 3-1.

3.6.3 Radioactivity

At a minimum, waters with the municipal and domestic supply (MUN) beneficial use shall comply with the minimum chemical constituents levels for municipal and domestic water supplies objective.

Groundwaters shall not contain radionuclides at concentrations that adversely affect beneficial uses.

3.6.4 Tastes and Odors

Groundwaters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

3.6.5 Toxicity

Groundwaters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, humans or aquatic life associated with the beneficial use(s) or that adversely impact one or more beneficial uses. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.

3.7 COMPLIANCE WITH WATER QUALITY OBJECTIVES

Water quality objectives form the basis for establishment of the various permits and other regulatory actions that are subject to the Regional Water Board's authority. These permits and actions include, but are not limited to, waste discharge requirements (including provisions required by federal law), waivers of waste discharge requirements, total maximum daily loads, waste discharge prohibitions, and maximum acceptable cleanup levels. Water quality objectives are considered necessary to protect beneficial uses and the existing high quality waters of the state. The Regional Water Board will determine the appropriate water quality objectives in permits, cleanup orders, and in other Board actions on a case-by-case basis. When establishing requirements in permits and other regulatory actions, the Regional Water Board will consider, among other factors, the existing quality of receiving waters, the potential impact on beneficial uses of water within the area of influence of the discharge, and the appropriate water quality objectives.

Water quality objectives include the general water quality objectives contained in the Basin Plan along with numeric and narrative objectives for specific constituents for surface waters and groundwaters. The process for interpreting narrative objectives when establishing numeric limits for a given activity is outlined in the *Policy for the Application of Narrative Water Quality Objectives* (Narrative WQO Policy). The Regional Water Board uses this process when developing numeric limits in NPDES permits and when establishing cleanup levels for contaminated surface waters and groundwaters. The process in the Narrative WQO Policy may also be useful in other contexts, but in no way limits the discretion of the Regional Water Board to apply objectives in a manner appropriate for a specific activity, project, or program.

The Regional Water Board recognizes that immediate compliance with new National Pollutant Discharge Elimination System (NPDES) permit effluent and/or receiving water limitations based on new, revised, or newly interpreted water quality objectives or prohibitions adopted by the Regional Water Board or the State Water Board, or with new, revised, or newly interpreted water quality criteria promulgated by the U.S. EPA,¹⁰ may not be technically and/or economically feasible in all circumstances.

Issuance of a schedule of compliance¹¹ may be appropriate where the Regional Water Board determines that it is infeasible for an existing NPDES discharger¹² or for an existing

¹⁰ New, revised, or newly interpreted water quality objectives, criteria, or prohibitions means: 1) objectives as defined in Section 13050(h) of Porter-Cologne; 2) criteria as promulgated by the U.S. EPA; or 3) prohibitions as defined in the Water Quality Control Plan for the North Coast Region that are adopted, revised, or newly interpreted after November 29, 2006. Objectives and criteria may be narrative or numeric.

¹¹ As defined in Clean Water Act Section 502 (17) a schedule of compliance means: a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard.

non-NPDES dischargers (whom under new interpretation of law are required to comply with NPDES permitting requirements) to immediately comply with NPDES permit effluent limitations or where appropriate, receiving water limitations, specified to implement new, revised, or newly interpreted water quality objectives, criteria or prohibitions. Schedules of compliance may also be appropriate to comply with effluent and/or receiving water limitations specified to implement objectives, criteria, or prohibitions that are adopted, revised, or reinterpreted after July 1, 1977, and that were not included in the non-NPDES permit.

Any schedule of compliance shall require attainment of the effluent limitations and/or receiving water limitations within the shortest feasible time period, taking into account the factors identified in the State Water Board *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*,¹³ which can be found at the State Water Board website. In the issuance of cleanup and abatement orders and other regulatory actions related to cleanup of contaminated sites, the Regional Water Board requires the cleanup and abatement of discharges and threatened discharges to the extent feasible with attainment of naturally occurring background levels as the presumptive standard. Alternative cleanup levels may be authorized by the Regional Water Board if the discharger can demonstrate that it is infeasible to attain background levels and that the alternative cleanup level provides the maximum benefit to the people of the state, will not unreasonably affect beneficial uses of water, and will be compliant with other provisions of the Basin Plan. To authorize alternative levels of cleanup, the Regional Water Board relies on the provisions of the State Water Board *Policies and Procedures for the Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304*,¹⁴ and the California Code of Regulations, Title 23, which can both be found at the State Water Board website.

¹² Existing discharger as defined in the state *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) means: any discharger (non-NPDES or NPDES) that is not a new discharger. An existing discharger includes an increasing discharger (i.e., an existing facility, with treatment systems in place for its current discharge that is or will be expanding, upgrading, or modifying its existing permitted discharge after November 29, 2006). A new discharger includes any building, structure, facility, or installation from which there is, or may be, a discharge of pollutants, the construction of which commenced after November 29, 2006.

¹³ State Water Board Resolution No. 2008-0025.

¹⁴ State Water Board Resolution 92-49, as amended by Resolution 96-79.

TABLE 3-1. SITE-SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION

Waterbody ¹	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit ³	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²	Min	90% Upper Limit ³	50% Upper Limit ²	Max	Min	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²
Lost River HA												
Clear Lake Reservoir & Upper Lost River	300	200			5.0		8.0	9.0	7.0	60	0.5	0.1
Lower Lost River	1000	700			5.0		-	9.0	7.0	-	0.5	0.1
Other Streams	250	150			7.0		8.0	8.4	7.0	50	0.2	0.1
Tule Lake	1300	900			5.0		-	9.0	7.0	400	-	-
Lower Klamath Lake	1150	850			5.0		-	9.0	7.0	400	-	-
Groundwaters ⁴	1100	500			-		-	8.5	7.0	250	0.3	0.2
Butte Valley HA												
Streams	150	100			7.0		9.0	8.5	7.0	30	0.1	0.0
Meiss Lake	2000	1300			7.0		8.0	9.0	7.5	100	0.3	0.1
Groundwaters ⁴	800	400			-		-	8.5	6.5	120	0.2	0.1
Shasta Valley HA												
Shasta River	800	600			7.0		9.0	8.5	7.0	220	1.0	0.5
Other Streams	700	400			7.0		9.0	8.5	7.0	200	0.5	0.1
Lake Shastina	300	250			6.0		9.0	8.5	7.0	120	0.4	0.2
Groundwaters ⁴	800	500			-		-	8.5	7.0	180	1.0	0.3
Scott River HA												
Scott River	350	250			7.0		9.0	8.5	7.0	100	0.4	0.1
Other Streams	400	275			7.0		9.0	8.5	7.0	120	0.2	0.1
Groundwaters ⁴	500	250			-		-	8.0	7.0	120	0.1	0.1
Salmon River HA												
All Streams	150	125			9.0		10.0	8.5	7.0	60	0.1	0.0

TABLE 3-1. SITE-SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION (CONTINUED)

Waterbody ¹	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit ³	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²	Min	90% Upper Limit ³	50% Upper Limit ²	Max	Min	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²
Middle Klamath River HA												
Klamath River above Iron Gate Dam including Iron Gate & Copco Reservoirs	425	275			Footnote 12		Footnote 12	8.5	7.0	60	0.3	0.2
Klamath River below Iron Gate Dam	350	275			Footnote 12		Footnote 12	8.5	7.0	80	0.5	0.2
Other Streams	300	150			7.0		9.0	8.5	7.0	60	0.1	0.0
Groundwaters ⁴	750	600			-		-	8.5	7.5	200	0.3	0.1
Applegate River HA												
All Streams	250	175			7.0		9.0	8.5	7.0	60	-	-
Upper Trinity River HA												
Trinity River	200	175			7.0		10.0	8.5	7.0	80	0.1	0.0
Other Streams	200	150			7.0		10.0	8.5	7.0	60	0.0	0.0
Trinity Lake & Lewiston Reservoir	200	150			7.0		10.0	8.5	7.0	60	0.0	0.0
Hayfork Creek												
Hayfork Creek	400	275			7.0		9.0	8.5	7.0	150	0.2	0.1
Other Streams	300	250			7.0		9.0	8.5	7.0	125	0.0	0.0
Ewing Reservoir	250	200			7.0		9.0	8.0	6.5	150	0.1	0.0
Groundwaters ⁴	350	225			-		-	8.5	7.0	100	0.2	0.1
S.F. Trinity River HA												
S.F. Trinity River	275	200			7.0		10.0	8.5	7.0	100	0.2	0.0
Other Streams	250	175			7.0		9.0	8.5	7.0	100	0.0	0.0
Lower Trinity River HA												
Trinity River	275	200			8.0		10.0	8.5	7.0	100	0.2	0.0
Other Streams	250	200			9.0		10.0	8.5	7.0	100	0.1	0.0
Groundwaters ⁴	200	150			-		-	8.5	7.0	75	0.1	0.1

TABLE 3-1. SITE-SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION (CONTINUED)

Waterbody ¹	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit ³	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²	Min	90% Upper Limit ³	50% Upper Limit ²	Max	Min	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²
Lower Klamath River HA												
Klamath River	300 ⁵	200 ⁵			Footnote 12		Footnote 12	8.5	7.0	75 ⁵	0.5 ⁵	0.2 ⁵
Other Streams	200 ⁵	125 ⁵			8.0		10.0	8.5	6.5	25 ⁵	0.1 ⁵	0.0 ⁵
Groundwaters ⁴	300	225			-		-	8.5	6.5	100	0.1	0.0
Illinois River HA												
All Streams	200	125			8.0		10.0	8.5	7.0	75	0.1	0.0
Winchuck River HU												
All Streams	200 ⁵	125 ⁵			8.0		10.0	8.5	7.0	50 ⁵	0.0 ⁵	0.0 ⁵
Smith River HU												
Smith River-Main Forks	200	125			8.0		11.0	8.5	7.0	60	0.1	0.1
Other Streams	150 ⁵	125 ⁵			7.0		10.0	8.5	7.0	60 ⁵	0.1 ⁵	0.0 ⁵
Smith River Plain HSA												
Smith River	200 ⁵	150 ⁵			8.0		11.0	8.5	7.0	60 ⁵	0.1 ⁵	0.0 ⁵
Other Streams	150 ⁵	125 ⁵			7.0		10.0	8.5	6.5	60 ⁵	0.1 ⁵	0.0 ⁵
Lakes Earl & Talawa	-	-			7.0		9.0	8.5	6.5	-	-	-
Groundwaters ⁴	350	100			-		-	8.5	6.5	75	1.0	0.0
Crescent City Harbor	-	-										
Redwood Creek HU												
Redwood Creek	220 ⁵	125 ⁵	115 ⁵	75 ⁵	7.0	7.5	10.0	8.5	6.5			
Mad River HU												
Mad River	300 ⁵	150 ⁵	160 ⁵	90 ⁵	7.0	7.5	10.0	8.5	6.5			
Eureka Plain HU												
Humboldt Bay	-	-	-	-	6.0	6.2	7.0	8.5	Footnote 6			

TABLE 3-1. SITE-SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION (CONTINUED)

Waterbody ¹	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit ³	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²	Min	90% Upper Limit ³	50% Upper Limit ²	Max	Min	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²
Eel River HU												
Eel River	375 ⁵	225 ⁵	275 ⁵	140 ⁵	7.0	7.5	10.0	8.5	6.5			
Van Duzen River	375	175	200	100	7.0	7.5	10.0	8.5	6.5			
South Fork Eel River	350	200	200	120	7.0	7.5	10.0	8.5	6.5			
Middle Fork Eel River	450	200	230	130	7.0	7.5	10.0	8.5	6.5			
Outlet Creek	400	200	230	125	7.0	7.5	10.0	8.5	6.5			
Cape Mendocino HU												
Bear River	390 ⁵	255 ⁵	240 ⁵	150 ⁵	7.0	7.5	10.0	8.5	6.5			
Mattole River	300 ⁵	170 ⁵	170 ⁵	105 ⁵	7.0	7.5	10.0	8.5	6.5			
Mendocino Coast HU												
Ten Mile River	-	-	-	-	7.0	7.5	10.0	8.5	6.5			
Noyo River	185 ⁵	150 ⁵	120 ⁵	105 ⁵	7.0	7.5	10.0	8.5	6.5			
Jug Handle Creek	-	-	-	-	7.0	7.5	10.0	8.5	6.5			
Big River	300 ⁵	195 ⁵	190 ⁵	130 ⁵	7.0	7.5	10.0	8.5	6.5			
Albion River	-	-	-	-	7.0	7.5	10.0	8.5	6.5			
Navarro River	285 ⁵	250 ⁵	170 ⁵	150 ⁵	7.0	7.5	10.0	8.5	6.5			
Garcia River	-	-	-	-	7.0	7.5	10.0	8.5	6.5			
Gualala River	-	-	-	-	7.0	7.5	10.0	8.5	6.5			
Russian River HU												
(upstream) ⁷	320	250	170	150	7.0	7.5	10.0	8.5	6.5			
(downstream) ⁸	375 ⁵	285 ⁵	200 ⁵	170 ⁵	7.0	7.5	10.0	8.5	6.5			
Laguna de Santa Rosa	-	-	-	-	7.0	7.5	10.0	8.5	6.5			

TABLE 3-1. SITE-SPECIFIC WATER QUALITY OBJECTIVES FOR THE NORTH COAST REGION (CONTINUED)

Waterbody ¹	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (mg/L)		Dissolved Oxygen (mg/L)			Hydrogen Ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90% Upper Limit ³	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²	Min	90% Upper Limit ³	50% Upper Limit ²	Max	Min	50% Upper Limit ²	90% Upper Limit ³	50% Upper Limit ²
Bodega Bay	-	-	-	-	6.0	6.2	7.0	8.5	Footnote 6			
Coastal Waters ⁹	-	-	-	-	Footnote 10	Footnote 10	Footnote 10	Footnote 11	Footnote 11			

- ¹ Waterbodies are grouped by hydrologic unit (HU), hydrologic area (HA), or hydrologic subarea (HSA).
- ² 50% upper and lower limits represent the 50 percentile values of the monthly means for a calendar year. 50% or more of the monthly means must be less than or equal to an upper limit and greater than or equal to a lower limit.
- ³ 90% upper and lower limits represent the 90 percentile values for a calendar year. 90% or more of the values must be less than or equal to an upper limit and greater than or equal to a lower limit.
- ⁴ Value may vary depending on the aquifer being sampled. This value is the result of sampling over time, and as pumped, from more than one aquifer.
- ⁵ Does not apply to estuarine areas.
- ⁶ pH shall not be depressed below natural background levels.
- ⁷ Russian River (upstream) refers to the mainstem river upstream of its confluence with Laguna de Santa Rosa.
- ⁸ Russian River (downstream) refers to the mainstem river downstream of its confluence with Laguna de Santa Rosa.
- ⁹ The State Water Board Ocean Plan applies to all North Coast Region coastal waters.
- ¹⁰ Dissolved oxygen concentrations shall not at any time be depressed more than 10 percent from that which occurs naturally.
- ¹¹ pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- ¹² The Site-Specific Objectives (SSOs) for dissolved oxygen (DO) have been recalculated for the mainstem Klamath River and are presented separately in Table 3-1a.
- No waterbody specific objective available.

TABLE 3-1a. SITE-SPECIFIC OBJECTIVES (SSOs) FOR DISSOLVED OXYGEN (DO) IN THE MAINSTEM KLAMATH RIVER¹

Location ²	Percent DO Saturation Based On Natural Receiving Water Temperatures ³	Time Period
Stateline to the Scott River	90%	October 1 through March 31
	85%	April 1 through September 30
Scott River to Hoopa	90%	Year round
Downstream of Hoopa-California boundary to Turwar	85%	June 1 through August 31
	90%	September 1 through May 31
Upper and Middle Estuary	80%	August 1 through August 31
	85%	September 1 through October 31 and June 1 through July 31
	90%	November 1 through May 31
Lower Estuary	For the protection of estuarine habitat (EST), the dissolved oxygen content of the lower estuary shall not be depressed to levels adversely affecting beneficial uses as a result of controllable water quality factors.	

¹ States may establish site-specific objectives equal to natural background (U.S. EPA, 1986. Ambient Water Quality Criteria for Dissolved Oxygen, EPA 440/5-86-033; U.S. EPA Memo from Tudor T. Davies, Director of Office of Science and Technology, U.S. EPA Washington, D.C. dated November 5, 1997). For aquatic life uses, where the natural background condition for a specific parameter is documented, by definition that condition is sufficient to support the level of aquatic life expected to occur naturally at the site absent any interference by humans (Davies, 1997). These DO objectives are derived from the T1BSR run of the Klamath TMDL model and described in Tetra Tech, December 23, 2009 *Modeling Scenarios: Klamath River Model for TMDL Development*. They represent natural DO background conditions due only to non-anthropogenic sources and a natural flow regime.

² These objectives apply to the maximum extent allowed by law. To the extent that the State lacks jurisdiction, the Site Specific Dissolved Oxygen Objectives for the Mainstem Klamath River are extended as a recommendation to the applicable regulatory authority.

³ Corresponding DO concentrations are calculated as daily minima, based on site-specific barometric pressure, site-specific salinity, and natural receiving water temperatures as estimated by the T1BSR run of the Klamath TMDL model and described in Tetra Tech, December 23, 2009. *Modeling Scenarios: Klamath River Model for TMDL Development*. The estimates of natural receiving water temperatures used in these calculations may be updated as new data or method(s) become available. After opportunity for public comment, any update or improvements to the estimate of natural receiving water temperature must be reviewed and approved by Executive Officer before being used for this purpose.

**TABLE 3-1b. SITE-SPECIFIC OBJECTIVES FOR TEMPERATURE
IN THE UPPER TRINITY RIVER**

Location/River Reach	Daily Average Not to Exceed	Time Period
Lewiston Dam to Douglas City Bridge	60°F	July 1 – September 14
	56°F	September 15 – October 1
Lewiston Dam to confluence of North Fork Trinity River	56°F	October 1 - December 31