Appendix B

This appendix contains the clean copy version of the proposed changes to Chapter 3 - Water Quality Objectives.

3. WATER QUALITY OBJECTIVES

3.1 INTRODUCTION

Water Code section 13241 provides that the Regional Water Quality Control Board (Regional Water Board) is responsible for establishing water quality objectives which, in the Regional Water Board's judgment, are necessary for the reasonable protection of the beneficial uses and for the prevention of nuisance.[1], [2] Establishing objectives involves, first designating beneficial uses; and second selecting the water quality constituents or characteristics and limits or levels necessary to protect those beneficial uses. The beneficial uses of waters in the North Coast Region are described in Chapter 2 and include uses associated with aquatic life, ecological functioning, and human health and welfare. Existing and potential beneficial uses are designated for individual waterbodies in Table 2-1. Programs of implementation for achieving water quality objectives are contained within Chapter 4.

The Regional Water Board reviews the Basin Plan, including the water quality standards, every triennial review period to evaluate the need for appropriate modification, as described in Chapter 1. As part of the state's continuing planning process, data is collected and new or revised numeric water quality objectives are developed as sufficient information becomes available for the establishment of such objectives.

3.1.1 FEDERAL AND STATE LAW

The federal Clean Water Act (33 U.S.C. § 303) requires the State to submit to the Administrator of the U.S. Environmental Protection Agency for approval all new or revised water quality standards, which are established for surface and ocean waters that are waters of the United States. Water quality standards include designated uses (i.e., beneficial uses), water quality criteria (i.e., water quality objectives), and an antidegradation policy. The beneficial uses in Chapter 2 of this Basin Plan, the water quality objectives contained in this Chapter, and the *Statement of Policy with Respect to Maintaining High Quality Waters in California*, comprise water quality standards for purposes of the federal Clean Water Act.

The Porter-Cologne Water Quality Control Act requires the Regional Water Board to establish beneficial uses and water quality objectives for waters of the state.[3] "Water quality objectives" 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.[4] Other water quality objectives [e.g., taste and odor thresholds or other secondary Maximum Contaminant Levels (MCLs)] and policies (e.g., State Water Board Resolution No. 92-49 *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section* 13304) may apply and may be more stringent. Where more than one objective exists for the same water quality parameter, the objective protective of the most sensitive beneficial use applies. The water quality objectives for ocean waters, inland surface waters, enclosed bays, and estuaries, and groundwaters contained herein are designed to satisfy all state and federal requirements.

The quality of water is defined by the chemical, physical, biological, bacteriological, radiological, and other properties and characteristics of water that affect its use.[5] Water quality objectives can be either *narrative* or *numeric*. Narrative objectives provide a general description of water quality that must be attained, and numeric objectives provide a quantitative limitation on pollutant concentrations or levels, to protect beneficial uses of the water body. Both must be attained through pollution control measures, watershed management, restoration and other actions.

[1] Wat. Code § 13241
[2] Wat. Code § 13050(m)
[3] Waters of the state are any surface water or groundwater, including saline water, within the boundary of the state.
[4] Wat. Code, § 13050, subd. (h)
[5] Wat. Code § 13050(g)

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, then 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.

3.2 ANTIDEGRADATION POLICY

The following policy shall apply to all waters of the Region, or as described.

Whenever the existing quality of water is better than that established by water quality objectives, such existing water quality shall be maintained unless otherwise provided by the provisions of State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (state Antidegradation Policy), including any revisions thereto.

The State Water Board has interpreted the state Antidegradation Policy to incorporate the federal Antidegradation Policy where the federal policy applies (State Board Order WQO 86-17). The state Antidegradation Policy can be found at the State Water Board's website. The federal Antidegradation Policy is found at 40 CFR Section 131.12. A summary of the state and federal antidegradation policies is provided here for the convenience of the reader. These summaries are not intended to augment or modify the state and federal policies.

The state Antidegradation Policy applies more comprehensively to water quality changes than the federal policy. In particular, the state Antidegradation Policy applies to those groundwaters and surface waters in which the existing water quality meets or exceeds (is better than) water quality objectives. Such groundwaters and surface waters are defined as high quality waters. The state Antidegradation Policy establishes two conditions that must be met before the quality of high quality waters may be lowered by nonpoint or point source waste discharges, whether or not such a discharge is allowed under a new, renewed, or revised permit.

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

1) Will be consistent with the maximum benefit to the people of the state,

2) Will not unreasonably affect present and anticipated beneficial uses of such water, and

3) 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:

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

If best practicable 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.

Likewise, a discharge to high quality water could not be allowed under the state Antidegradation Policy if the discharge, even after treatment or control, would unreasonably affect beneficial uses or would not comply with applicable provisions of water quality control plans.

The federal Antidegradation Policy 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 anticipated beneficial uses of surface water, the federal Antidegradation Policy requires that quality to be maintained and protected, unless the state finds, after ensuring public participation, that:

1) Such activity is necessary to accommodate important economic or social development in the area in which the waters are located;

2) Water quality is adequate to protect existing beneficial uses fully; and,

3) 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 to surface water would be prohibited if the discharge would 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 water quality lowering, even if incrementally small, can result in a violation of antidegradation policies through cumulative effects, especially, for example, when the waste discharge contains a cumulative, persistent, or bioaccumulative pollutant or pollutants.

3.3 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.

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

Federal water quality criteria contained in the National Toxics Rule[6] (NTR) and the California Toxics Rule[7] (CTR) address human health and aquatic life protection and 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 to, the Antidegradation Policy, the waterbody-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. The water quality objectives are presented below alphabetically.

3.4.1 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).

[6] 40 C.F.R. § 131.36.
[7] 40 C.F.R. § 131.38.

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*).

3.4.2 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.

3.4.3 Chemical Constituents

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

In no case shall waters designated for use as domestic or municipal supply (MUN) 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:

a) Table 64431-A, MCLs - Inorganic Chemicals (§ 64431)
b) Table 64444-A, MCLs - Organic Chemicals (§ 64444)
c) Table 64449-A, SMCLs - "Consumer Acceptance Contaminant Levels" (§ 64449)
d) Table 64449-B, SMCLs - "Consumer Acceptance Contaminant Level Ranges" (§ 64449)
e) Table 64442, Radionuclide Maximum Containment Levels and Detection Levels for Purposes of Reporting (DLRs) (§ 64442)
f) Table 64443, Radionuclide Maximum Contaminant Levels and
g) 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.

Numeric water quality objectives for individual waterbodies are contained in Table 3-1, 3-1a, and 3-1b.

3.4.4 Color

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

3.4.5 Dissolved Oxygen

Dissolved oxygen (DO) concentrations shall conform to the following aquatic life requirements or as specified.

Beneficial Use	Daily Minimum Objective (mg/L)	7-Day Moving Average Objective (mg/L)[8]
Marine Habitat (MAR) Inland Saline Water Habitat (SAL)	5.0	NA
Warm Freshwater Habitat (WARM)	5.0	6.0
Cold Freshwater Habitat (COLD)[9]	6.0	8.0
Spawning, Reproduction, and/or Early Development (SPWN)[10]	9.0	11.0

Dissolved oxygen concentrations in Humboldt Bay and Bodega Bay shall conform to a daily minimum objective of 6.0 mg/L. As required by the Ocean Plan, dissolved oxygen concentrations in ocean waters shall not at any time be depressed more than 10 percent from that which occurs naturally in ocean waters.

Upon approval from the Executive Officer, in those waterbodies for which the aquatic life-based DO requirements are unachievable due to natural conditions[11], site specific background DO requirements can be applied as water quality objectives by calculating the daily minimum DO necessary to maintain 85% DO saturation during the dry season and 90% DO saturation during the wet season under site salinity, site atmospheric pressure, and natural receiving water temperatures.[12] In no event may controllable factors reduce the daily minimum DO below 6.0 mg/L.

For the protection of estuarine habitat (EST), the dissolved oxygen concentration of enclosed bays and estuaries shall not be depressed to levels adversely affecting beneficial uses as a result of controllable water quality factors.

Dissolved oxygen concentrations for the Klamath River Watershed shall conform to the waterbody-specific objectives listed in Table 3-1a.

3.4.6 Floating Material

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

3.4.7 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.

[8] A 7-day moving average is calculated by taking the average of each set of seven consecutive daily averages.
[9] Water quality objectives designed to protect COLD-designated waters are based on the aquatic life-based requirements of salmonids but apply to all waters designated in Table 2-1 of the Basin Plan as COLD regardless of the presence or absence of salmonids.
[10] Water quality objectives designed to protect SPWN-designated waters apply to all fresh waters designated in Table 2-1 of the Basin Plan as SPWN in those reaches and during those periods of time when spawning, egg incubation, and larval development are occurring or have historically occurred. The period of spawning, egg incubation, and emergence generally occur in the North Coast Region between the dates of September 15 and June 4.
[11] Natural conditions are conditions or circumstances affecting the physical, chemical, or biological integrity of water that are not influenced by past or present anthropogenic activities.
[12] The method(s) used to estimate natural temperatures for a given waterbody or stream length must be approved by the Executive Officer and may include, as appropriate, comparison with reference streams, simple calculation, or computer models.

3.4.8 Pesticides

Waters shall not contain any individual pesticide or combination of pesticides in concentrations that cause nuisance or adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations in bottom sediments or aquatic life that cause nuisance or adversely affect beneficial uses.

In no case shall waters designated for use as domestic or municipal supply (MUN) contain concentrations of pesticides in excess of the numeric limits established in title 22 and as prospectively incorporated in 3.4.3 Chemical Constituents**.**

3.4.9 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 MAR or SAL beneficial uses nor 0.5 units within the range specified above in fresh waters with COLD or WARM beneficial uses.

3.4.10 Radioactivity

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

In no case shall waters designated for use as MUN contain concentrations of radionuclides in excess of the numeric limits established in title 22 and as prospectively incorporated in 3.4.3 Chemical Constituents.

3.4.11 Sediment

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

3.4.12 Settleable Material

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

3.4.13 Suspended Material

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

3.4.14 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.

In no case shall waters designated for use as MUN contain concentrations of chemicals in excess of the numeric taste and odor limits established in title 22 and as prospectively incorporated in 3.4.3 Chemical Constituents.

3.4.15 Temperature

Temperature objectives for interstate waters associated with COLD, 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 COLD water be increased by more than 5°F above natural receiving water temperature.

At no time or place shall the temperature of WARM intrastate waters be increased more than 5°F above natural receiving water temperature.

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

3.4.16 Toxicity

Waters shall not contain 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 synergistic 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 bioassays of effluents will be prescribed, where appropriate. Additional numeric receiving water objectives for specific toxicants will be established as sufficient data become available and source control of toxic substances may be required.

3.4.17 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.

3.5 WATER QUALITY OBJECTIVES FOR GROUNDWATERS[13]

The following objectives shall apply to groundwaters of the North Coast Region. Waterbody-specific objectives contained in Table 3-1 also apply.

3.5.1 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).

3.5.2 Chemical Constituents

Groundwaters shall not contain concentrations of chemical constituents in amounts that cause nuisance or adversely affect beneficial uses.

In no case shall groundwaters designated for use as MUN contain concentrations of chemical constituents in excess of the following MCL and SMCL provisions specified in title 22 of the California Code of Regulations:

a) Table 64431-A, MCLs - Inorganic Chemicals (§ 64431)
b) Table 64444-A, MCLs - Organic Chemicals (§ 64444)
c) Table 64449-A, SMCLs - "Consumer Acceptance Contaminant Levels" (§ 64449)
d) Table 64449-B, SMCLs - "Consumer Acceptance Contaminant Level Ranges" (§ 64449)
e) Table 64442, Radionuclide MCLs and Detection Levels for Purposes of Reporting (DLRs) (§ 64442)
f) Table 64443, Radionuclide MCLs and
g) 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.

Waterbody-specific numeric objectives for individual groundwaters are contained in Table 3-1.

3.5.3 Radioactivity

Groundwaters shall not contain concentrations of radionuclides in concentrations that cause nuisance or adversely affect beneficial uses.

In no case shall waters designated for use as MUN contain concentrations of radionuclides in excess of the numeric limits established in title 22 and as prospectively incorporated in 3.5.2 Chemical Constituents.

3.5.4 Tastes and Odors

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

In no case shall waters designated for use as MUN contain concentrations of chemicals in excess of the numeric taste and odor limits established in title 22 and as prospectively incorporated in 3.5.2 Chemical Constituents.

[13] Groundwater is defined as subsurface water in soils and geologic formations that are fully saturated all or part of the year. Groundwater is any subsurface body of water which is beneficially used or usable; and includes perched water if such water is used or usable or is hydraulically continuous with used or usable water.

3.5.5 Toxicity

Groundwaters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, humans or that adversely affects beneficial uses. This objective applies regardless of whether the toxicity is caused by a single substance or the synergistic effect of multiple substances.

3.6. COMPLIANCE WITH WATER QUALITY OBJECTIVES

The primary ways in which the Regional Water Board implements water quality objectives is through permits, orders, and other actions for specific and general categories of discharges and potential discharges, and associated controllable water quality factors. These permits, orders, and other 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, water quality certifications, waste discharge prohibitions, and cleanup orders. Water quality objectives are also implemented by other state and federal agencies in some circumstances.

Water quality objectives must be implemented in accordance with the applicable laws governing the regulated activity. Compliance with applicable water quality objectives is achieved through implementation of individual or general permits, orders and other regulatory actions in accordance with statute, regulation, and actions plans contained in Chapter 4. It is not feasible to predetermine the circumstances and conditions that could be created by all discharges. Also, it is not practical to specify how water quality objectives are implemented as appropriate for all conditions which could be created by discharges and other controllable water quality factors.

The Regional Water Board recognizes that immediate compliance with new effluent and/or receiving water limitations or cleanup levels 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. Environmental Protection Agency (U.S. EPA)[14], may not be technically or economically feasible in all circumstances. Therefore, it is within the discretion of the Regional Water Board to establish the terms of compliance with applicable water quality objectives and the Antidegrdation Policy within individual or general permits, orders and other regulatory actions, by evaluating site-specific characteristics or constraints and establishing schedules of compliance.[15] Any schedule of compliance shall require attainment of water quality objectives within the shortest feasible period of time. The issuance of an NPDES permit containing a compliance schedule will be in accordance with the State Water Board *Policy for Compliance Schedules in NPDES Permits.*[16]

3.6.1 Discharge Limitations and Cleanup Levels

The Regional Water Board, in setting waste discharge requirements, will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the appropriate water quality objectives, the existing quality of receiving waters, and the Antidegradation Policy. The Regional Water Board will make a finding as to the beneficial uses to be protected and establish requirements to protect those uses, to meet water quality objectives and the Antidegradation Policy.

[14] 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.
[15] Wat. Code § 13300
[16] State Water Board Resolution No. 2008-0025.

In setting discharge limitations and cleanup levels, the Regional Water Board need not authorize the utilization of the full waste assimilation capacities of the receiving waters.[17] Therefore, in some cases, with appropriate considerations and findings, the Regional Water Board may adopt discharge limitations and cleanup levels that are more stringent in order preserve high quality waters and to fully protect the existing and potential beneficial uses.

For NPDES permits, discharge limitations are developed in accordance with 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). Cleanup levels are developed in conformance with State Water Board Resolution No. 92-49 *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section* 13304, which sets natural background as the presumptive cleanup level.

When it is necessary to derive numeric values in order to develop discharge limitations and cleanup levels that implement narrative water quality objectives, or to evaluate compliance with narrative water quality objectives, the Regional Water Board may consider all relevant and scientifically valid evidence. Generally, numeric values are derived from validated site-specific data, scientific peer-reviewed literature, and numeric values established in other state or federal laws, regulations, plans, policies, or guidelines, or developed and published by other governmental or non-governmental agencies and organizations.

Established governmental and non-governmental agencies and organizations include, but are not limited to: California State Water Resources Control Board, California Department of Public Health, California Office of Environmental Health Hazard Assessment, California Department of Toxic Substances Control, University of California Cooperative Extension, California Department of Fish and Wildlife, U.S. Environmental Protection Agency, U.S. Food and Drug Administration, National Academy of Sciences, U.S. Fish and Wildlife Service, the Food and Agricultural Organization of the United Nations and the World Health Organization. The State Water Board has compiled numeric chemical constituent and toxicant values from the literature for over 860 chemical constituents in a document entitled *A Compilation of Water Quality Goals*. A searchable *Water Quality Goals* database is accessible on the State Water Board website. The Regional Water Board has compiled sediment thresholds from the literature for sediment-related indices and published them in a peer-reviewed report entitled *Desired Salmonid Freshwater Habitat Conditions for Sediment-Related Indices* (July 2006). This document can be found on the Regional Water Board website. On a case by case basis, the Regional Water Board may collect or require that a discharger collect site-specific data or conduct site-specific water quality assessments or studies for the purpose of supporting the development of appropriate discharge limitations or cleanup levels, which translate the applicable narrative water quality objective for unique site conditions.

[17] Wat. Code § 13263 (b)

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

Waterbody[1]	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (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]	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			9.0	7.0	60	0.5	0.1
Lower Lost River	1000	700			9.0	7.0	-	0.5	0.1
Other Streams	250	150			8.4	7.0	50	0.2	0.1
Tule Lake	1300	900			9.0	7.0	400	-	-
Lower Klamath Lake	1150	850			9.0	7.0	400	-	-
Groundwaters[4]	1100	500			8.5	7.0	250	0.3	0.2
Butte Valley HA									
Streams	150	100			8.5	7.0	30	0.1	0.0
Meiss Lake	2000	1300			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			8.5	7.0	220	1.0	0.5
Other Streams	700	400			8.5	7.0	200	0.5	0.1
Lake Shastina	300	250			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			8.5	7.0	100	0.4	0.1
Other Streams	400	275			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			8.5	7.0	60	0.1	0.0
Middle Klamath River HA									

TABLE 3-1
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Waterbody[1]	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (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]	Max	Min	50% Upper Limit[2]	90% Upper Limit[3]	50% Upper Limit[2]
Klamath River above Iron Gate Dam including Iron Gate & Copco Reservoirs [11]	425	275			8.5	7.0	60	0.3	0.2
Klamath River below Iron Gate Dam [11]	350	275			8.5	7.0	80	0.5	0.2
Other Streams	300	150			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			8.5	7.0	60	-	-
Upper Trinity River HA									
Trinity River	200	175			8.5	7.0	80	0.1	0.0
Other Streams	200	150			8.5	7.0	60	0.0	0.0
Trinity Lake & Lewiston Reservoir	200	150			8.5	7.0	60	0.0	0.0
Hayfork Creek									
Hayfork Creek	400	275			8.5	7.0	150	0.2	0.1
Other Streams	300	250			8.5	7.0	125	0.0	0.0
Ewing Reservoir	250	200			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			8.5	7.0	100	0.2	0.0
Other Streams	250	175			8.5	7.0	100	0.0	0.0

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

Waterbody[1]	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (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]	Max	Min	50% Upper Limit[2]	90% Upper Limit[3]	50% Upper Limit[2]
Lower Trinity River HA									
Trinity River	275	200			8.5	7.0	100	0.2	0.0
Other Streams	250	200			8.5	7.0	100	0.1	0.0
Groundwaters[4]	200	150			8.5	7.0	75	0.1	0.1
Lower Klamath River HA									
Klamath River[11]	300[6]	200[6]			8.5	7.0	75[5]	0.5[5]	0.2[5]
Other Streams	200[5]	125[5]			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			8.5	7.0	75	0.1	0.0
Winchuck River HU									
All Streams	200[5]	125[5]			8.5	7.0	50[5]	0.0[5]	0.0[5]
Smith River HU									
Smith River-Main Forks	200	125			8.5	7.0	60	0.1	0.1
Other Streams	150[5]	125[5]			8.5	7.0	60[5]	0.1[5]	0.0[5]
Smith River Plain HSA									
Smith River	200[5]	150[5]			8.5	7.0	60[5]	0.1[5]	0.0[5]
Other Streams	150[5]	125[5]			8.5	6.5	60[5]	0.1[5]	0.0[5]
Lakes Earl & Talawa	-	-			8.5	6.5	-	-	-
Groundwaters[4]	350	100			8.5	6.5	75	1.0	0.0
Redwood Creek HU									
Redwood Creek	220[5]	125[5]	115[5]	75[5]	8.5	6.5			

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

Waterbody[1]	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (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]	Max	Min	50% Upper Limit[2]	90% Upper Limit[3]	50% Upper Limit[2]
Mad River HU									
Mad River	300[5]	150[5]	160[5]	90[5]	8.5	6.5			
Eureka Plain HU									
Humboldt Bay	-	-	-	-	8.5	Footnote 6			
Eel River HU									
Eel River	375[5]	225[5]	275[5]	140[5]	8.5	6.5			
Van Duzen River	375	175	200	100	8.5	6.5			
South Fork Eel River	350	200	200	120	8.5	6.5			
Middle Fork Eel River	450	200	230	130	8.5	6.5			
Outlet Creek	400	200	230	125	8.5	6.5			
Cape Mendocino HU									
Bear River	390[5]	255[5]	240[5]	150[5]	8.5	6.5			
Mattole River	300[5]	170[5]	170[5]	105[5]	8.5	6.5			
Mendocino Coast HU									
Ten Mile River	-	-	-	-	8.5	6.5			
Noyo River	185[5]	150[5]	120[5]	105[5]	8.5	6.5			
Jug Handle Creek	-	-	-	-	8.5	6.5			
Big River	300[5]	195[5]	190[5]	130[5]	8.5	6.5			
Albion River	-	-	-	-	8.5	6.5			
Navarro River	285[5]	250[5]	170[5]	150[5]	8.5	6.5			
Garcia River	-	-	-	-	8.5	6.5			
Gualala River	-	-	-	-	8.5	6.5			
Russian River HU									
(upstream)[7]	320	250	170	150	8.5	6.5			
(downstream)[8]	375[5]	285[5]	200[5]	170[5]	8.5	6.5			

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

Waterbody[1]	Specific Conductance (micromhos) @ 77°F		Total Dissolved Solids (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]	Max	Min	50% Upper Limit[2]	90% Upper Limit[3]	50% Upper Limit[2]
Laguna de Santa Rosa	-	-	-	-	8.5	6.5			
Bodega Bay	-	-	-	-	8.5	Footnote 6			
Coastal Waters[9]	-	-	-	-	Footnote 10	Footnote 10			

1 Water-bodies 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 pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
11 The Waterbody Specific Objectives (WSOs) for dissolved oxygen (DO) have been recalculated for the mainstem Klamath River and are presented separately in Table 3-1a.
- no water-body specific objective available.

TABLE 3-1a[1] WATERBODY-SPECIFIC OBJECTIVES FOR DISSOLVED OXYGEN (DO) IN THE MAINSTEM KLAMATH RIVER		
Location[2]	**Percent DO Saturation Based On Natural Receiving Water Temperatures[3]**	**Time Period**
Stateline to the Scott River	85%	April 1 through September 30
	90%	October 1 through March 31
Scott River to Upstream Hoopa-California boundary	90%	Year round
Downstream 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 waterbody- specific objectives equal to natural background (USEPA, 1986. Ambient Water Quality Criteria for Dissolved Oxygen, EPA 440/5-86-033; USEPA Memo from Tudor T. Davies, Director of Office of Science and Technology, USEPA 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 reach 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 waterbody- specific barometric pressure, water-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 WATERBODY-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