

Final Staff Report for the
Amendment to the
WATER QUALITY CONTROL PLAN
for the
NORTH COAST REGION
to
Update Water Quality Objectives
Supplemental Environmental Document
(SED)

June 18, 2015



State of California
North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403
707-576-2220

www.waterboards.ca.gov/northcoast

Executive Summary

On June 18, 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) adopted Resolution R1-2015-0018, Amending the Water Quality Control Plan for the North Coast Region to Update Section 3 Water Quality Objectives.

This staff report presents the necessary information and findings to support the proposed Water Quality Objective (WQO) Update Amendment. The WQO Update Amendment was developed by North Coast Regional Water Quality Control Board (Regional Water Board) staff to update the Basin Plan by revising the Water Quality Objectives (Section 3) of the Basin Plan. Many of the water quality objectives described in Section 3 were developed in the 1970s or 1980s and have not been revised since. Some of these are outdated, with respect to the findings of current scientific literature.

The primary goals of the WQO Update Amendment are to update the surface waters and groundwaters objectives for chemical constituents, to develop a narrative water quality objective for groundwater toxicity objective, update the surface water objectives for dissolved oxygen (DO), and clarify the process the Regional Water Board uses when narrative objectives are translated into numeric limits for use in permits, orders, or other actions.

To accomplish these goals staff proposes that:

- 1) The objectives for chemical constituents for surface water and groundwater be updated to reflect current scientific understanding and to more clearly apply to the protection of all beneficial uses;
- 2) A toxicity objective for groundwater be articulated, using the toxicity objective for surface water as a model for the explicit protection of human health;
- 3) The DO objectives be revised to: a) better protect sensitive aquatic organisms from depressed DO; b) better ensure that the natural pattern and range of DO variation is maintained in those waterbodies unable to meet the aquatic life-based objectives due to natural conditions; and c) reduce the possibility that natural variation in DO is erroneously identified as DO impairment leading to improper 303(d) listings; and
- 4) Language be added to Section 3 to clarify how numeric values are identified to implement narrative water quality objectives in accordance with the specific circumstances of a project and the specific controlling statute and regulations.

Currently, Regional Water Board staff establishes appropriate water quality criteria when issuing permits, orders, and other regulatory actions by using the authorities in the existing Basin Plan in combination with statewide policies such as the *Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP); *Antidegradation Policy Resolution No. 68-16* (Res No. 68-16); and *Policy on Cleanup and Abatement Resolution No. 92-49* (Res No. 92-49), and other established and relevant resources. Staff has developed this proposed WQO Update Amendment to make more explicit the responsibilities and authorities of the

Regional Water Board with respect to the establishment and use of water quality objectives by prospectively incorporating MCLs, adding a narrative groundwater toxicity objective, and describing the process used to translate narrative objectives into numeric criteria.

The proposed amendment for DO is designed to update the existing aquatic life criteria to include protection against both acute and chronic effects of DO impairment. The proposed amendment also addresses the problems associated with Table 3-1 of the Basin Plan in which waterbody-specific objectives (WSOs) for DO are assigned to individually named waterbodies in the Region. The problems to be solved include: 1) a reliance on day time grab sample data to define the daily minimum condition, and an inconsistency in approach to the WSOs between waterbodies in the Klamath River Basin and those in the North Coastal Basin. The proposed solution to the problems associated with the WSOs for DO is to replace the WSOs with a natural conditions clause which requires that the natural pattern and range of ambient DO variability be maintained in those waterbodies which cannot, due to natural conditions, meet the aquatic life criteria.

This proposed amendment seeks to clarify the longstanding procedures for implementing water quality objectives within the framework of the Basin Plan so as to provide regulatory transparency. The goal of the proposed revisions is to elaborate on existing authorities so as to make clear and transparent the process staff has been using and will continue to use when identifying the most appropriate numeric threshold when protecting beneficial uses.

The actual draft language for Section 3 is included in Appendices A and B (strikethrough/underline copy and clean copy, respectively). This staff report is organized into the following chapters:

1. Introduction
2. Existing Conditions
3. Proposed Revisions to Basin Plan Section 3 (Water Quality Objectives)
4. California Environmental Quality Act Analysis
5. Economic Considerations
6. Antidegradation
7. Public Participation Plan
8. References

Appendix A: Basin Plan Chapter 3 Update Language (strikethrough/underline).....	A-1
Appendix B: Basin Plan Chapter 3 Update Language (clean version)	B-1
Appendix C Peer Review Draft Staff Report for the Revision of Dissolved Oxygen Water Quality Objective.....	E-1
Appendix D Response to Peer Review Comments on the Staff Report for the Revision of Dissolved Oxygen Water Quality Objectives Peer Review Draft.....	D-1

Table of Contents

Executive Summary	ii
Table of Contents	iv
1. Introduction	1-1
1.1 Function and Framework of the Basin Plan.....	1-1
1.2 Triennial Review List of Basin Plan Priorities	1-4
1.2.1 Planning History of Chemical Constituents and Ground Water Toxicity Objectives .	1-5
1.2.2 Planning History of Dissolved Oxygen Objectives	1-6
1.3 Goals of the Draft WQO Update Amendment.....	1-6
1.3.1 Chemical Constituents and Groundwater Toxicity.....	1-7
1.3.2 Dissolved Oxygen	1-8
1.4 Regulation That Apply to Adopting Water Quality Objectives.....	1-8
2. Existing Conditions	2-1
2.1 Environmental Setting.....	2-1
2.1.1 Aesthetics	2-4
2.1.2 Agriculture	2-5
2.1.3 Air Quality	2-5
2.1.4 Biological Resources.....	2-7
2.1.5 Cultural Resources.....	2-8
2.1.6 Geology and Soils.....	2-9
2.1.7 Greenhouse Gas Emissions (GHGs).....	2-11
2.1.8 Hazards and Hazardous Materials.....	2-12
2.1.9 Hydrology and Water Quality	2-13
2.1.10 Land Use Planning	2-18
2.1.11 Mineral Resources	2-18
2.1.12 Noise	2-18
2.1.13 Population, Housing, and Public Services.....	2-18
2.1.14 Recreation	2-20
2.1.15 Transportation/Traffic, Utilities and Service Systems	2-20
2.2 Existing Regulatory Framework	2-22
2.2.1 Existing Program of Implementation for Chemical Constituents and Groundwater Toxicity	2-29
2.2.2 Existing Program of Implementation for Dissolved Oxygen	2-34
2.3 Water Quality Conditions that Could be Reasonably Achieved	2-39
3. Proposed Revision to Basin Plan Section 3 (Water Quality Objectives)	3-1
3.1 Chemical Constituents.....	3-1
3.2 Groundwater Toxicity.....	3-3
3.3 Chemical Constituents.....	3-5
3.4 Revisions to the Introduction.....	3-7
3.4.1 Water Quality Objectives	3-8

Table of Contents

3.4.1	Water Quality Objectives vs Effluent Limitations	3-12
3.5	General Organization and Editorial Changes.....	3-13
3.5.1	Revisions to the “Antidegradation Policies” Section.....	3-14
3.5.2	Revisions to the Water Quality Objectives for Surface Waters	3-14
3.5.3	Revisions to “Objectives for Ocean Waters” Section.....	3-15
3.5.4	Revisions to “Objectives for Inland Surface Waters, Enclosed Bays and Estuaries” Section	3-15
3.5.5	“Bacteria” Objective	3-15
3.5.6	“Biostimulatory Substances” Objectives.....	3-15
3.5.7	“Color” Objective	3-16
3.5.8	“Floating Material” Objective.....	3-16
3.5.9	“Oil and Grease” Objective.....	3-16
3.5.10	Revisions to “Pesticides” Objective	3-16
3.5.11	Revisions to “pH” Objective	3-16
3.5.12	Revisions to “Radioactivity” Objective.....	3-16
3.5.13	“Sediment” Objective	3-16
3.5.14	“Settable Material” Objective	3-16
3.5.15	“Suspended Sediment” Objective	3-16
3.5.16	Revisions to “Taste and Odors” Objective	3-16
3.5.17	Revisions to “Temperature” Objective.....	3-17
3.5.18	Revisions to “Toxicity” Objective	3-17
3.5.19	Revisions to “Turbidity” Objective	3-18
3.6	Revisions to Table 3-1 and 3-1a – “Specific Water Quality Objectives”	3-18
3.7	Deletion of Table 3-2 – “Inorganic, Organic and Fluoride Concentrations Not to be Exceeded in Domestic or Municipal Supply”	3-18
3.8	Revisions to Water Quality Objectives for Groundwaters	3-19
3.8.1	“Bacteria” Objective	3-19
3.8.2	Revisions to “Radioactivity” Objective.....	3-19
3.8.3	Revisions to “Taste and Odors” Objective	3-19
3.9	Revisions to “Compliance with Water Quality Objectives” Section	3-19
4.	Compliance with the California Environmental Quality Act.....	4-1
4.1	Description of the Proposed Project	4-3
4.2	CEQA Scoping	4-6
4.3	Analysis of Reasonable Alternatives to the Proposed Activity	4-6
4.3.1	No Action – No change in Basin Plan Language or in Program Implementation (Alternative 1).....	4-7
4.3.2	Adopt a Basin Plan Amendment that Updates the Chemical Constituents Objectives with the Current Numeric Values Title 22, New Numeric Groundwater Toxicity Objectives and Site-Specific Objectives for DO (Alternative 2)	4-8
4.3.3	Adopt Basin Plan Amendment That Includes Narrative Objectives for Toxicity, Chemical Constituents, DO and Includes a Narrative Water Quality Objective Translation Policy Used To Establishes Site-Specific Water Quality Objectives (Alternative 3)	4-9
4.3.4	Proposed Alternative: Adopt Basin Plan Amendment that Prospectively Incorporates Numeric Values Listed in Title 22 as the Chemical Constituents Objective, Includes a Narrative Groundwater Toxicity Objective, Revises the Aquatic Life DO Objectives and Includes a Narrative Water Quality Objective Translation	

Table of Contents

	Policy Which Describes the Process of How Numeric Thresholds are Identified to implement Narrative Objectives in Regional Water Board Actions (Alternative 4)...	4-9
4.4	Analysis of Compliance Measures, Potential Environmental Impacts, and Possible Mitigation Measures.....	4-10
4.4.1	Analysis of Compliance Measures to Address Water Quality Objectives for Chemical Constituents and Toxicity in Surface Waters and Groundwater	4-12
4.4.2	Analysis of Compliance Measures to Address the Dissolved Oxygen Water Quality Objective in Surface Waters.....	4-20
4.4.3	Potential Environmental Impacts and Mitigation Measures Associated with Compliance Measures to Address Chemical Constituents, Dissolved Oxygen and Toxicity Water Quality Objectives.....	4-28
4.4.4	Discussion of Potential Environmental Impacts	4-40
4.5	Environmental Checklist Project-Specific Information	4-43
4.5.1	Preliminary Staff Determination	4-44
4.5.2	Discussion of Environmental Checklist Findings.....	4-44
4.6	Alternative Means of Compliance	4-91
5.	Economic Considerations	5-1
5.1	Scope of the Economic Considerations	5-1
5.1.1	Methodology.....	5-2
5.1.2	Existing Requirements.....	5-3
5.1.2	Geographic Scope	5-4
5.2	Costs of Compliance Measures to Address Water Quality Objectives for Chemical Constituents and Toxicity in Surface Waters and Groundwaters.....	5-4
5.2.1	Potential Costs for Groundwater Remediation.....	5-4
5.2.2	Potential Costs for Wastewater Treatment	5-8
5.3	Costs of Compliance Measures to Address the Water Quality Objective for Dissolved Oxygen.....	5-11
5.4	Sources of Funding.....	5-19
5.4.1	Summary of Pertinent State Funding Programs.....	5-19
5.4.2	Summary of Pertinent Federal Funding Programs	5-21
6.	Antidegradation	6-1
7.	Public Participation Plan.....	7-1
7.1	Stakeholder Involvement.....	7-1
8.	References	8-1

FIGURES

Figure 3-1	Theoretical DO at 100% Saturation
Figure 3-2	Appropriate Range of Water Quality Objectives
Figure 3-3	Numeric Value Selection Process for Narrative Water Quality Objectives

Table of Contents

TABLES

Table 4-1	Potential Environmental Impacts and Mitigation Measures.....	4-94
Table 5-1	Estimated Cost Range for Soil and Groundwater Remediation Compliance Measures	5-5
Table 5-2	Estimated Cost Range for Wastewater Treatment Compliance Measures.....	5-8
Table 5-3	Estimated Costs of Reasonably Foreseeable Compliance Measures to Preserve, Maintain and Restore Shade	5-13
Table 5-4	Estimated Costs of Reasonably Foreseeable Compliance Measures Associated with Erosion and Sediment Control.....	5-14
Table 5-5	Estimated Compliance Measures Associated to Address Tailwater / Surface Water Impoundments/ Cold Water Resources/In-Stream Flows.....	5-18
Table 5-6	Summary of Federal Funding Programs	5-22
Table 6-1	Existing Basin Plan Objectives for Chemical Constituents Vs. Current Title 22 Maximum Contaminant Levels	5-6

APPENDICES

Appendix A:	Basin Plan Chapter 3 Update Language (strikethrough/underline).....	A-1
Appendix B:	Basin Plan Chapter 3 Update Language (clean version).....	B-1
Appendix C	Peer Review Draft Staff Report for the Revision of Dissolved Oxygen Water Quality Objective.....	C-1
Appendix D	Response to Peer Review Comments on the Staff Report for the Revision of Dissolved Oxygen Water Quality Objectives Peer Review Draft.....	D-1