

Staff Report

State Water Resources Control Board

2010 Integrated Report
Clean Water Act Sections 303(d) and 305(b)

April 19, 2010

STATE OF CALIFORNIA

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EXECUTIVE SUMMARY

The 2010 Integrated Report provides the recommendations of the staff of the California Water Resources Control Board (State Water Board) for changes to the 2006 Clean Water Act (CWA) Section 303(d) list of impaired water bodies and Clean Water Act Section 305(b) report on the quality of waters in California. Although the reporting process for 303(d) and 305(b) has been combined, only the 303(d) list requires approval by the State Water Board and USEPA.

The process for the 2010 Integrated Report began after adoption of the 2006 303(d) List by the State Water Board. The Regional Water Quality Control Boards' (Regional Water Boards') staff circulated their Draft Integrated Reports for public comment, and held stakeholder meetings in their Regions to discuss the Draft Integrated Reports {303(d) and 305(b)} or, in some cases, only their 303(d) list. The Regional Water Boards adopted their 2008 Integrated Reports beginning in January 2009 through December 2009. The Integrated Report from each Regional Water Board has been submitted to the State Water Board for inclusion in the California 2010 Integrated Report. Although the Regional Water Boards Integrated Reports were called the 2008 Integrated Reports, the 2010 Integrated Report is the Statewide California 2008-2010 combined report. After approval by the State Water Board, the 2010 Integrated Report will be submitted to USEPA. USEPA may make changes to the 303(d) list before it approves the list and, thus, before it becomes effective.

This State Water Board Staff Report for the proposed California 2010 Integrated Report is a compilation of the Regional Water Boards' 2008 Integrated Reports with State Water Board staff recommendations for additions, deletions or changes. The Staff Report provides an overview of the approach and describes the following information:

- a. Data sources used,
- b. Objectives and criteria against which data were compared,
- c. Methodology for comparing the available data to the criteria to assess attainment of water quality standards and 303(d) listings,
- d. Methodology used to categorize water body segments according to beneficial use support for the 305(b) report, and
- e. State Water Board staff recommendations for the 2010 Integrated Report

Results are shown in detail in the appendices. Appendices A through G provide lists of water bodies in each Integrated Report category of beneficial use support. [Appendix G](#) presents fact sheets for each water body-pollutant combination in the 2010 Integrated Report. These fact sheets include a listing recommendation and at least one Line of Evidence (LOE) describing the data and information used as a basis for each proposed decision. [Appendix H](#) is the 2006 California CWA Section 303(d) list of Water Quality Limited Segments. [Appendix I](#) contains miscellaneous changes. [Appendix J](#) provides citations for all of the references used in developing this Integrated Report. [Appendix K](#) provides a link to an interactive map of the water bodies assessed for the 2010 Integrated Report.

Water quality data collected by internal programs and provided by outside agencies and entities resulted in significantly more information than was available for the 2006 303(d) list. Over 22,400 fact sheets assessing unique water body-pollutant combinations were developed during this evaluation. These fact sheets contain over 22,000 LOEs.

California is divided into of 190 hydrologic units with 655 hydrologic sub-areas. These cover more than 211,000 miles of rivers and streams, more than 10,000 lakes spanning 1.6 million

acres, more than 600,000 acres of bays and estuaries, and a coastline stretching more than 1,000 miles. Due to the fact that Regional Water Boards have divided many of their water bodies into segments, it is difficult to determine the overall percentage of water bodies that have been assessed.

For the 305(b) report, those water body segments that were assessed were placed into one of USEPA's five Integrated Report beneficial use support related categories. The placement of a water body into the appropriate Integrated Report category was based on the assessment of the available water quality data. The most common core beneficial uses evaluated were aquatic life, drinking water supply, fish consumption, non-contact recreation, shell fishing, and swimming. Table 1 shows the 2010 Integrated Report categories and the number of water bodies in each category.

Table 1 Integrated Report Category Summary

Category	Description	Water Bodies
1 and 2	All core beneficial uses are supported or at least one core beneficial use is supported and none are impaired	302
3	Insufficient information to determine beneficial use support	274
4	At least one beneficial use is not supported but a Total Maximum Daily Load (TMDL) is not needed	112
5	At least one beneficial use is not supported and a TMDL is needed	1018
Total		1,706

For 303(d), State Water Board staff recommend 1,464 additional listings and 195 delistings, for a total of 3,507 listings. Each listing is for a water body-pollutant combination. A total of 350 new water bodies are being added to the list for the first time for one or more pollutants. Table 2 shows a summary of the State Water Board staff recommendations for the 2010 303(d) List.

Table 2 Summary of State Water Board Staff Recommendations for 2010 303(d) List

Region	2006 303(d) Listings	State Water Board Staff Recommendation					2010 Total 303(d) Listings (Category 4a, 4b and 5)
		2010 New 303(d) Listings	2010 New 303(d) Delistings	Miscellaneous Changes (Resulted in listings)	Miscellaneous Changes (Resulted in Delistings)		
1	117	22	5	8	4	138	
2	295	41	3	0	0	333	
3	222	498	21	24	16	707	
4	793	64	32	0	9	816	
5	342	411	23	0	0	730	
6	93	40	9	11	8	127	
7	46	18	8	0	0	56	
8	101	52	8	4	2	147	
9	229	182	22	89	25	453	
Total	2,238	1,328	131	136	64	3,507	

The large number of new listings is most likely a result of the large volume of new water quality data that became available since the 2006 303(d) List. In addition, more protective water quality standards are now applicable to some water bodies. The number of listings from 1996 to 2006 listing cycles, the proposed 2010 303(d) list, and the 303(d) listings addressed to date are shown in Figure 1. The proposed 2010 303(d) list includes the assessment of a large volume of new water quality data that became available since the 2006 303(d) List and data for water bodies that were not assessed in previous listing cycles. As shown in Figure 1, Regional Water Boards are developing TMDLs, or other appropriate regulatory response, to address the 303(d) listings in each Region as required by the State Water Board's Water Quality Control Policy for Addressing Impaired Waters.

Figure 1 Trend in 303(d) List

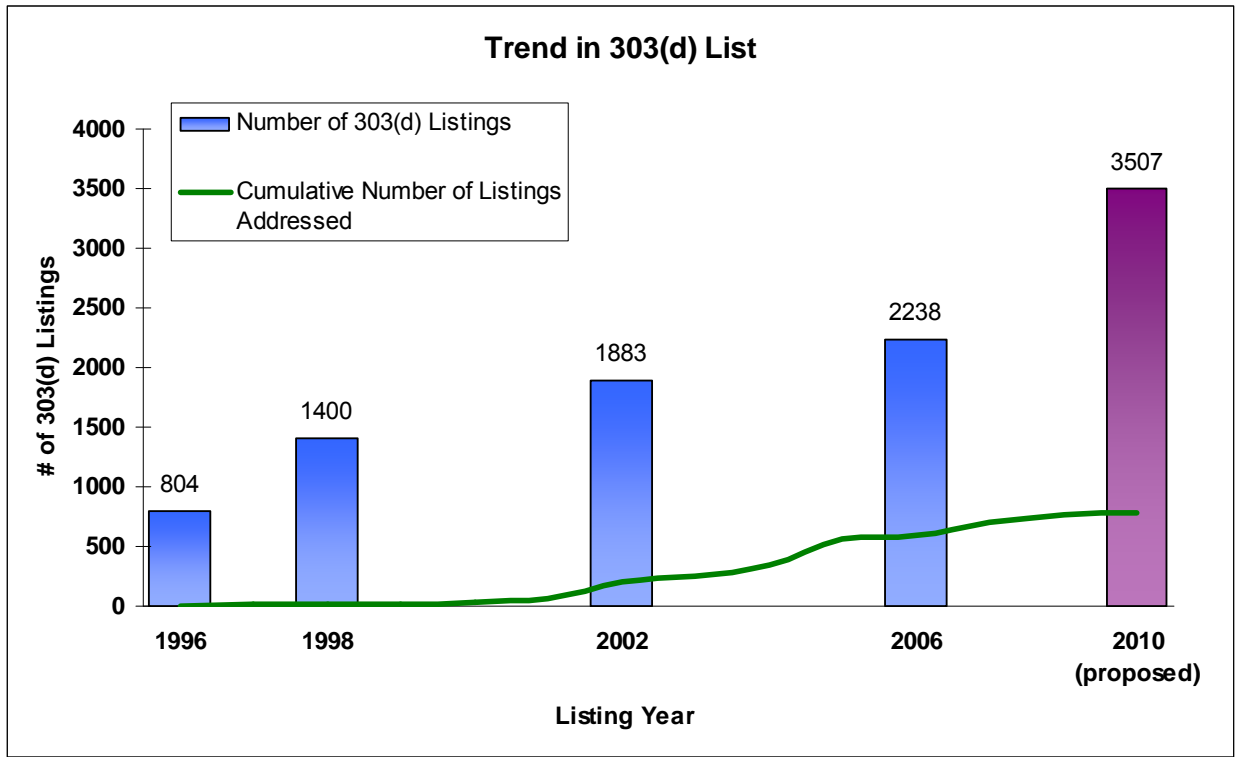


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List of Abbreviations

Basin Plan	Regional Water Quality Control Plan
BPTCP	Bay Protection and Toxic Cleanup Program
BMI	Benthic Macro Invertebrates
CalEPA	California Environmental Protection Agency
CalWQA	California Water Quality Assessment (database)
CCAMP	Central Coast Ambient Monitoring Program
CCC	Criteria Continuous Concentration
CCR	California Code of Regulations
CDF	California Department of Forestry and Fire Protection
CDPH	California Department of Public Health
CFCP	Coastal Fish Contamination Program
CFR	Code of Federal Regulations
CMC	Criteria Maximum Concentration
CSTF	Contaminated Sediment Task Force
CTR	California Toxics Rule
CWA	Clean Water Act
°C	degrees Celsius
°F	degrees Fahrenheit
FED	Functional Equivalent Document
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DFG	Department of Fish and Game
DO	Dissolved oxygen
dw	dry weight
EDL	Elevated Data Level
ERM	Effects Range Median
HCH	Hexachlorocyclohexane
HSA	Hydrologic Sub Area
HU	Hydrologic Unit
IBI	Index of Biological Integrity
ILRP	Irrigated Lands Regulatory Program
IR	Integrated Report
kg	kilogram(s)
Listing Policy	Water Quality Control Policy for Developing California's Section 303(d) List
LOE	Line of Evidence
MCL	Maximum Contaminant Level
MDL	Method Detection Limit
mg/kg	milligrams per kilogram (parts per million)
mg/L	milligrams per liter (parts per million)
µg/g	micrograms per gram (parts per million)
µg/L	micrograms per liter (parts per billion)
MPN	Most Probable Number
MTBE	Methyl tertiary-butyl ether
MTRL	Maximum Tissue Residue Level
NAS	National Academy of Sciences
ng/g	nanograms per gram (parts per billion)
ng/L	nanograms per liter (parts per trillion)
NOAA	National Oceanic and Atmospheric Administration

NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NTU	Nephelometric Turbidity Unit
oc	organic carbon
OEHHA	Office of Environmental Health Hazard Assessment
PAH	Polynuclear aromatic hydrocarbon
PBDE	Polybrominated diphenyl ethers
PCB	Polychlorinated biphenyl
PEL	Probable Effects Level
pg/L	picograms per liter
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBI	Relative Benthic Index
RL	Reporting Level
SFEI	San Francisco Estuary Institute
SMWP	State Mussel Watch Program
SQG	Sediment quality guideline
SWAMP	Surface Water Ambient Monitoring Program
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSMP	Toxic Substance Monitoring Program
TSS	Total Suspended Solids
UAA	Use Attainability Analysis
USBR	U.S. Bureau of Reclamation
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirement
WQO	Water quality objective
WQS	Water quality standard
ww	wet weight

I. Introduction

The Federal Clean Water Act (CWA) gives States the primary responsibility for protecting and restoring surface water quality. Under the CWA, States that administer the CWA must review, make necessary changes, and submit the CWA section 303(d) list to the U.S. Environmental Protection Agency (USEPA). CWA Section 305(b) requires each State to report biennially to USEPA, on the condition of its surface water quality. The USEPA has issued guidance to States which requires the two reports to be integrated. For California, this “Integrated Report” is called the 2010 California 305(b)/303(d) Integrated Report.

II. Assessment Process

The water quality assessment process for 305(b) and 303(d) began with the evaluation of data collected from the surface water quality monitoring activities in California. The monitoring information is critical to understand and protect beneficial uses of water, develop water quality standards, and determine the effect of pollution and pollution prevention programs. Determining the exceedance of water quality standards, objectives, criteria, and guidelines (protective limits) forms the basis of water quality assessment for 303(d) and 305(b). Whether or not these protective limits are exceeded determines a water segment’s ability to support its assigned beneficial uses and also determines whether or not the pollutant water body combination should be placed on the Section 303(d) list.

The basis for the 2010 Integrated Report Section 303(d) List is the 2006 Section 303(d) List, which was approved by USEPA on June 28, 2007. USEPA modified the 2006 303(d) list on May 29, 2008. After the State Water Board staff recommendations are approved by the State Water Board, the 2010 Integrated Report will be submitted to USEPA for final approval to become the California 2010 Integrated Report. Throughout the assessment process, Regional Water Boards and State Water Board staff follow the requirements of the “Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List (“Listing Policy”), which was adopted by the State Water Board on September 30, 2004.

Data and Information Used for the Assessment

Data were solicited by the State Water Board in a public data and information solicitation that began on December 4, 2006 and concluded on February 28, 2007. All of these data and information were considered in developing the 2010 Integrated Report. Specifically, data and information that were reviewed included:

- a. 2006 California CWA Section 303(d) list and its supporting data and information.
- b. Applicable Surface Water Ambient Monitoring Program (SWAMP) data from 2000-2007. Date range of SWAMP data varied from region to region;
- c. Irrigated Lands Regulatory Program monitoring results;
- d. Municipal Separate Storm Sewer System monitoring report data;
- e. Fish and shellfish advisories; beach postings, advisories, and closures; or other water quality based restrictions;
- f. Reports of fish kills, cancers, lesions or tumors.
- g. USEPA’s Storage and Retrieval Database, Access and other USEPA databases and information sources;
- h. Southern California Coastal Water Research Project data, and the San Francisco Estuary Institute’s Regional Monitoring Program data;
- i. Existing internal Water Board data and reports;

- j. Existing and readily available water quality data and information reported by local, State and federal agencies (including receiving water monitoring data from discharger monitoring reports), citizen monitoring groups, academic institutions, and the public;
- k. Other sources of data and information that became readily available to Regional Water Board staff.

A. Data Processing and Analysis

This section provides a description of the process for development of LOEs, the contents of the LOEs, and the standards and evaluation guidelines used to evaluate the monitoring data.

Data Processing

All readily available data and information in the administrative record were considered in the development of the 2010 Integrated Report. Staff of the Regional Water Boards developed LOEs in the State's California Water Quality Assessment (CalWQA) database that summarized the available data and information, and used these LOEs to make 303(d) listing recommendations and overall beneficial use support ratings. According to the Regional Water Board staff, all available data were considered for the development of Regional Water Boards' Integrated Reports. Due to the large volume of data and limited staff resources, some Regional Water Board staff found it necessary to prioritize their data and chose not to develop LOEs and Decisions in the CalWQA database for every single data set that was reviewed.

Contents of the LOEs

LOEs are data assessments that are housed in the CalWQA database. They contain specific information used to determine if water quality standards for that water segment-pollutant combination are being met. This specific information includes:

- a. beneficial use(s) affected;
- b. pollutant name(s) pertaining to that water segment and data;
- c. water quality objective (WQO) found in Basin Plans and federally promulgated water quality criterion (WQC) (e.g. CTR) used to assess the data. WQOs and federally promulgated WQCs are the limits or level of water quality constituents, which are established for the reasonable protection of beneficial uses of water.
- d. evaluation guidelines used for interpretation of narrative objectives. Evaluation guidelines are numeric values, scientifically-based and peer reviewed, that have been determined to protect applicable beneficial uses.
- e. detailed information specific to that data; type of data, the total number of samples assessed and the total number of those samples that exceeded the WQO or WQC,
- f. spatial and temporal information that explain where and when the data were collected,
- g. references, and
- h. quality assurance (QA) information.

Fact Sheet

A fact sheet is composed of a recommendation and the supporting lines of evidence (LOE) for each water body-pollutant combination assessed. The results of the staff analysis are presented as staff recommendations in the form of fact sheets. Fact sheets are presented in [Appendix G](#).

Analysis

Analysis begins when the pollutant sampling results, described in the LOE, are compared with the pollutant's water quality standards, criteria, objectives and guidelines that were developed to protect water quality. Results of this comparison, in terms of numbers of exceedances, and beneficial uses being evaluated in this comparison, are recorded in the LOE.

References Used in the Analysis

This section of the staff report outlines the references used by staff to identify beneficial uses of water, WQO or WQC, and, for interpretation of narrative WQCs, evaluation guidelines.

Beneficial Uses

The beneficial uses for waters of the State are identified in the Regional Water Quality Control Plans (Basin Plans). If beneficial uses were not identified for a water segment in the Basin Plan, but it was determined that the use exists in the water segment, the water segment was assessed using the existing beneficial uses of the water.

WQOs/WQCs

The water quality objectives and water quality criteria used in the assessments were from existing and available State Policy and Plans including the following:

- a. Basin Plans
- b. Statewide Water Quality Control Plans (e.g., the California Ocean Plan)
- c. California Toxics Rule (40 CFR 131.38)
- d. Bacteria standards at bathing beaches (17 CCR 7958)
- e. Maximum Contaminant Levels to the extent applicable [e.g., Table 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of 22 CCR section 64431, Table 64444-A (Organic Chemicals) of 22 CCR section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of 22 CCR section 64449]

Evaluation Guidelines

Narrative water quality objectives were evaluated using “evaluation guidelines” as that term is used in the Listing Policy¹. When evaluating narrative water quality objectives or beneficial use protection, State Water Board staff identified evaluation guidelines that represent standards attainment or beneficial use protection. In selecting an evaluation guideline, State Water Board and Regional Water Board staff:

- a. Identified the water segment, pollutants, and beneficial uses;
- b. Identified the narrative water quality objectives or applicable water quality criteria;
- c. Identified the appropriate interpretive evaluation guideline that potentially represented water quality objective attainment or protection of beneficial uses. Depending on the beneficial use and narrative standard, the following Listing Policy considerations were used in the selection of evaluation guidelines:

1. Sediment Quality Guidelines for Marine, Estuarine, and Freshwater Sediments:

Sediment quality guidelines published in the peer-reviewed literature or developed by state or federal agencies were used when applicable. Acceptable guidelines included selected values (e.g., effects range-median, probable effects level, probable effects concentration), and other sediment quality guidelines. Only those sediment guidelines that are predictive of sediment toxicity were used (i.e., those guidelines that have been shown in published studies to be predictive of sediment toxicity in 50 percent or more of the samples analyzed).

2. Evaluation Guidelines for Protection from the Consumption of Fish and Shellfish:

Regional Water Board staff may select evaluation guidelines published by USEPA or OEHH. Maximum Tissue Residue Levels (MTRLs) and Elevated Data Levels (EDLs) were not used to evaluate fish or shellfish tissue data.

¹ State Water Board, Water Quality Control Policy For Developing California’s Clean Water Act Section 303(d) List (2004). p.20, §6.1.3.

3. Evaluation Guidelines for Protection of Aquatic Life from Bioaccumulation of Toxic Substances:

Regional Water Board staff may select the evaluation values for the protection of aquatic life published by the National Academy of Science.

III. Development of 2010 303(d) Listing Recommendations, Beneficial Use Support Ratings, and Integrated Report Categories

Pollutant water segment listing recommendations and beneficial use support ratings are determined and developed in the CalWQA database. These recommendations are created by summarizing all relevant LOEs for a water segment pollutant combination and, based on the Listing Policy, determining if the number of exceedances constitute a listing.

A. 2010 303(d) Listing Recommendations

Federal Listing Requirements

CWA section 303(d) requires States to identify waters that do not meet applicable water quality standards after the application of certain technology-based controls. The section 303(d) list must include a description of the pollutants causing the violation of water quality standards and a priority ranking of the water quality limited segments, taking into account the severity of the pollution and the uses to be made of the waters 40 CFR 130.7(b)(iii)(4). As defined in CWA and federal regulations, water quality standards include the designated uses of a water segment, the adopted water quality criteria, and the State's Antidegradation Policy (State Water Resources Control Board (Resolution No. 68-16). Under State law (Porter-Cologne Water Quality Control Act, California Water Code section 13300 et seq.), water quality standards are beneficial uses to be made of a water segment, the established WQOs (both narrative and numeric), and the State's Antidegradation Policy. Federal regulation defines a "water quality limited segment" as "any segment [of a water segment] where it is known that water quality does not meet applicable water quality standards, and/or is not expected to meet applicable water quality standards, even after application of technology-based effluent limitations required by CWA Sections 301(b) or 306." [40 CFR 130.2(j)]. A Total Maximum Daily Load (TMDL) must be developed for water quality limited segments still needing a TMDL. A TMDL is the sum of the individual wasteload allocations for point sources, load allocations for nonpoint sources, and natural background, tributaries, or adjacent segments. [40 CFR 130.2(j)].

State Listing Requirements

The Listing Policy identifies the process by which the State Water Board and Regional Water Boards will comply with the listing requirements of CWA section 303(d). The objective of the Listing Policy is to establish a standardized approach for developing California's section 303(d) list with the overall goal of achieving water quality standards and maintaining beneficial uses in all of California's surface waters.

Provisions of the Listing Policy

The Listing Policy outlines a "weight of evidence" approach that provides the rules for making recommendations based upon different kinds of data; an approach for analyzing data statistically; and requirements for data quality; data quantity; and administration of the listing process. Staff recommendations for listing and delisting are provided for: chemical-specific

water quality standards; bacterial water quality standards; health advisories; bioaccumulation of chemicals in aquatic life tissues; nuisance such as trash, odor, and foam; nutrients; water and sediment toxicity; adverse biological response; and degradation of aquatic life populations and communities. The Listing Policy also requires that situation-specific weight of evidence listing or delisting factors be used if available information indicates water quality standards are not attained (or are attained) and the other decision rules do not support listing or delisting. The federal requirement for setting priorities on which TMDLs will be developed first is addressed in the Listing Policy by the establishment of schedules for TMDL development. The Listing Policy also provides direction related to:

1. Definition of readily available data and information.
2. Administration of the listing process including data solicitation and fact sheet preparation.
3. Interpretation of narrative water quality objectives using numeric evaluation guidelines.
4. Data quality assessments.
5. Data quantity assessments including water segment specific information, data spatial and temporal representation, aggregation of data by reach/area, quantitation of chemical concentrations, evaluation of data consistent with the expression of water quality objectives or criteria, binomial model statistical evaluation, evaluation of bioassessment data, and evaluation of temperature data. Justification of each portion of the Listing Policy is presented in the Final Functional Equivalent Document (FED) (SWRCB, 2004) that was developed to support the provisions of the Listing Policy.

California 303(d) List Structure

The Listing Policy requires that all waters that do not meet water quality standards be placed on the section 303(d) list. The Listing Policy also states that the California 303(d) list includes (1) waters still requiring a TMDL, and (2) waters where the water quality limited segment is being addressed. Water segments in the “Water Quality Limited Segments Being Addressed” category must meet either of the following conditions:

1. A TMDL has been developed and approved by USEPA and the approved implementation plan is expected to result in full attainment of the standard within a reasonable, specified time frame.
2. It has been determined that an existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame.

This means that, for California, waters that fall into the Integrated Report Categories 4a, 4b, and 5 are also part of the California 303(d) list (see criteria of these categories in section III.B of this report).

Listing & Delisting Methodology

After reviewing of the Regional Water Boards’ assessment, State Water Board staff determined whether or not the data showed the assessed water body was attaining water quality standards (i.e. whether the water body was impaired or not impaired). The determination for each water body-pollutant combination along with a presentation of the data assessment and the State Water Board staff recommended changes, when applicable, are documented in a fact sheet.

For a water body-pollutant combination that is not listed on the 2006 303(d) List as impaired, the Regional Water Boards and the State Water Board staff made a recommendation to either list the water body-pollutant combination or not list it based upon the methodology specified in the Listing Policy.

For a water body-pollutant combination that is already listed on the 2006 303(d) List as impaired, staff made a recommendation to either keep the water body-pollutant combination on the list or delist it based upon the methodology specified in the Listing Policy.

Staff recommend to list or not delist a water-body pollutant combination if adequate data existed to show that any of the following statements were true:

1. Numeric data exceed the numeric objective or evaluation guideline more than a certain number of times. The number of times varies by the number of samples and is based a binomial distribution as described in the Listing Policy. See Sections 3.1, 3.2, 3.3, 3.5, 3.6, 4.1, 4.2, 4.3, 4.5, and 4.6 of the Listing Policy for more information.
2. A health advisory against the consumption of edible resident organisms or a shellfish harvest ban has been issued. See Section 3.4 of the Listing Policy for more information.
3. Nuisance conditions exist for odor, taste, excessive algae growth, foam, turbidity, oil, trash, litter, and color when compared to reference conditions. See Section 3.7 of the Listing Policy for more information.
4. Adverse biological response is measured in resident individuals as compared to referenced conditions and the impacts are associated with water or sediment concentrations of pollutants as described in Section 3.6 of the Listing Policy. See Section 3.8 of the Listing Policy for more information.
5. Significant degradation of biological populations and/or communities is exhibited as compared to reference sites. See Section 3.9 of the Listing Policy for more information.
6. A trend of declining water quality standards attainment is exhibited. See Section 3.10 of the Listing Policy for more information.
7. The weight of evidence demonstrates that a water quality standard is not attained. See Section 3.11 of the Listing Policy for more information.

Assumptions

In developing recommendations, staff assumed that:

1. The 2006 CWA section 303(d) list ([Appendix H](#)) would form the basis for the 2010 list submittal.
2. The provisions of the Listing Policy would guide staff recommendations.
3. Invasive species would be considered as pollutants and would be considered for inclusion on the section 303(d) list.
4. Water segment or pollutant listings are independent of the TMDLs that have been approved and are being implemented for a water segment. If a pollutant listing is removed from the list for any reason, that fact has no effect on the validity or requirements for implementing a TMDL that has been adopted and approved by USEPA. Implementation of Basin Plan provisions is not affected by the section 303(d) list.
5. Provisions of Basin Plans, Statewide plans, and other documents containing water quality standards were used as they are written. Judgments were not made during the list development process regarding the suitability, quality, or applicability of beneficial uses or water quality objectives. Novel approaches for interpreting objectives were not used unless the approach was specifically allowed by the applicable water quality standards (e.g., analyzing wet and dry season data separately).

TMDL Scheduling

For water quality limited segments needing a TMDL, a completion schedule was developed by the Regional Water Boards (in compliance with federal law and regulation) based on the following Listing Policy provisions:

- a. Water segment significance (such as importance and extent of beneficial uses, threatened and endangered species concerns, and size of water segment);

- b. Degree that water quality objectives are not met or beneficial uses are not attained or threatened (such as the severity of the pollution or number of pollutants/stressors of concern) [40 CFR 130.7(b)(4)];
- c. Degree of impairment;
- d. Potential threat to human health and the environment;
- e. Water quality benefits of activities ongoing in the watershed;
- f. Potential for beneficial use protection and recovery;
- g. Degree of public concern;
- h. Availability of funding; and
- i. Availability of data and information to address the water quality problem.

The recommendation for TMDL completion is the target year for Regional Water Boards adoption of the TMDL. In some circumstances, TMDLs have been adopted by Regional Water Boards in the past but the approvals from USEPA are pending. In these cases, the water segment-pollutant combination will remain in the Water Quality Limited Segments category of the section 303(d) list. For those TMDLs that have been developed and approved by USEPA and the implementation plans have been approved, the water segment and pollutant was placed in the Water Quality Limited Segments Being Addressed category of the section 303(d) list.

Additions, Deletions, and Changes to the 2006 303(d) List

The Regional Water Boards' additions, deletions and changes to the 2006 303(d) List are described in the Regional Water Boards' 2008 Integrated Reports.

The 2010 Integrated Report Staff Report shows the proposed new and revised changes to the 303(d) list. Appendices A through G provide lists of water bodies in each Integrated Report category of beneficial use support. The rationale for all 303(d) listing/de-listing decisions are documented in fact sheets in [Appendix G](#). In addition to the changes discussed above and shown in the Staff Report, some water body segments' geographic delineations or names have been revised, as documented in the "Miscellaneous Changes" fact sheets in [Appendix I](#). [Appendix J](#) provides citations for all of the references used in developing this Integrated Report.

Description of Staff Recommendations for 2010 303(d) List:

In developing the 2010 Integrated Report section 303(d) list, the State Water Board staff reviewed and evaluated the water quality assessments and listing decisions adopted by the Regional Water Boards (Regional Water Boards' 2008 Integrated Reports).

State Water Board staff reviewed the fact sheets that were prepared by the Regional Water Board staff in the CalWQA Database. These fact sheets were reviewed for compliance with the Listing Policy and to ensure the use of good scientific judgment. State Water Board staff also considered Statewide consistency when reviewing the Regional Water Boards' Integrated Reports. In some cases the water quality data and information were requested from Regional Water Board staff and were reviewed for accuracy.

State Water Board staff recommendations for each Regional Water Board's 303(d) List are described below.

The State Water Board staff recommended changes to the Regional Water Boards' 303(d) list are summarized in Table 4. A summary of the State Water Board staff recommendations for the 2010 303(d) list is presented in Table 5. Each added or deleted water-pollutant combinations and the State Water Board staff proposed changes are documented in fact sheets contained in [Appendix G](#) of this staff report.

North Coast Region (Region 1):

The North Coast Water Board added 22 water body-pollutant combinations to the 2006 California 303(d) list. North Coast Water Board delisted 5 water body pollutant combinations from the 2006 California 303(d) list. State Water Board staff recommend no changes to the Region 1 303(d) list.

San Francisco Bay Region (Region 2):

The San Francisco Water Board added 40 water body-pollutant combinations to the 2006 California 303(d) List. San Francisco Water Board delisted 3 water body pollutant combinations from the 2006 California 303(d) list. Other than the change shown in Table 3, State Water Board staff recommend no changes to Region 2 303(d) list.

Central Coast Region (Region 3):

Central Coast Water Board added 495 water body-pollutant combinations to the 2006 California 303(d) List. Central Coast Water Board delisted 19 water body pollutant combinations from the 2006 California 303(d) list. In addition to the changes shown in Table 3, State Water Board staff recommend the following changes to Central Coast Region 303(d) list:

San Vicente Creek (Santa Cruz County): A Do Not Delist decision was made for Sedimentation/Siltation by the Central Coast Water Board. However, all data and information for this water body were not included in the Central Coast Water Board staff report. The Central Coast Water Board staff provided their data evaluation to Delist this water body for Sedimentation/Siltation to State Water Board staff. State Water Board staff recommend to change the decision for Sedimentation/Siltation from Do Not Delist to Delist based on data and information provided by staff of the Central Coast Water Board.

Oso Flaco Lake: pH was listed by Central Coast Water Board. The Central Coast Water Board staff provided additional information to the State Water Board staff that was mistakenly omitted from the original decision. Based on the data and information, State Water Board staff recommend this decision be changed to Do Not List.

Los Angeles Region (Region 4):

The Los Angeles Water Board added 57 water body-pollutant combinations to the 2006 California 303(d) List. The Los Angeles Water Board delisted 29 water body pollutant combinations from the 2006 California 303(d) list. In addition to changes shown in Table 3, State Water Board staff recommend the following changes to the Los Angeles Region 303(d) list:

Ballona Creek: The water body was listed incorrectly for “Shellfish Harvesting Advisory” in the 2006 303(d) list. The Los Angeles water Board recommend to State Water Board staff to delist Ballona Creek for “Shellfish Harvesting Advisory” because the water body does not possess a Beneficial Use of shellfish harvesting and is not part of the Ballona Creek Coliform TMDL for which the shellfish advisory had been issued. Based on the review of information received from the Los Angeles Region, State Water Board staff recommend to Delist Ballona Creek for “Shellfish Harvesting Advisory.”

Los Cerritos Channel: A previous decision in 2006 303(d) List for this water body was Do Not List. Los Angeles Water Board staff provided State Water Board staff the pH data that were mistakenly omitted from the staff report for consideration of adoption by Los Angeles Water Board in their 2008 Integrated Report. Based on the line of evidence, State Water Board staff recommend to List Los Cerritos Channel for pH.

Santa Clara River Estuary Beach-Surfers Knoll: The Los Angeles Water Board approved the listing of this water body for Indicator Bacteria. The Regional Water Board staff mistakenly omitted additional Indicator Bacteria data and requested the State Water Board staff to reassess the water body-pollutant combination using the additional data. Based upon the inclusion of the additional line of evidence, State Water Board staff recommend changing the decision to Do Not List for the Santa Clara River Estuary Beach at Surfers Knoll for Indicator Bacteria.

Rio Hondo Reach 2: The Los Angeles Water Board staff assessed Rio Hondo Reach 1 for Cyanide instead of the appropriate reach, Reach 2. The Los Angeles Water Board approved the listing of Reach 1 for Cyanide. The Regional Water Board staff asked State Water Board staff to correct the error and place the correct water segment on 303(d) list. State Water Board staff evaluated the information and propose to remove the Rio Hondo Reach 1 from the 303(d) list and to List Rio Hondo Reach 2 for Cyanide.

Santa Clara River Reach 5 and Reach 6: The Los Angeles Water Board made a Do Not List decision for Benthic Macroinvertebrate –Bioassessment for Reach 6, for which the data and information corresponds with a location that falls within Santa Clara River Reach 5. The correction was made to associate the data and information with the appropriate Reach. State Water Board staff evaluated the water quality and Benthic Macroinvertebrate –Bioassessment data for Santa Clara Reach 5 and Reach 6. State Water Board staff used a situation-specific weight of evidence approach to evaluate the Santa Clara River Reach 5 and Reach 6 Benthic Macroinvertebrate–Bioassessment listing decision made by the Los Angeles Water Board. State Water Board staff determined that water quality data, with multiple LOEs, show that benthic macroinvertebrate populations are impacted by a wide range of stressors. Using this approach, staff followed a two-step process for evaluation of all available water quality data including the chemistry and bioassessment data. State Water Board staff evaluated the bioassessment data using the Southern California Index of Biological Integrity (IBI). Staff reviewed the LOEs prepared by the Los Angeles Water Board. Benthic Macroinvertebrate, as measured by Southern California IBI, were poor indicating impairment of benthic community structure. In step 2, the chemistry data for Reach 5 for coliform, iron and chloride; and for Reach 6 for Chloride, Chlorpyrifos, Coliform, Copper, Diazinon, Iron, and Toxicity were evaluated. The LOEs for the data and information indicate that the beneficial use of the water is not supported. The water quality chemistry and bioassessment data provide a substantial basis that benthic macroinvertebrate populations are impacted by a wide range of stressors. Based on the available data and information, staff recommend to List for Benthic Macroinvertebrate-Bioassessment.

Central Valley Region (Region 5):

The Central Valley Water Board added 388 water body-pollutant combinations to the 2006 California 303(d) List. The Central Valley Water Board delisted 22 water body pollutant combinations from 2006 California 303(d) list. In addition to the changes shown in Table 3, State Water Board staff recommends the following changes to the Central Valley Water Board 303(d) list:

Agatha Canal: An incorrect water quality objective was used to evaluate the water quality data for selenium and make a Do Not List decision. State Water Board staff re-evaluated the data and the line of evidence. Based on the result of data re-evaluation, State Water Board staff recommend to List Agatha Canal for Selenium.

Bear Creek (San Joaquin and Calaveras Counties; partly in Delta Waterways, eastern portion): The data and information in the central database supported a List recommendation. However, Diazinon was mistakenly omitted from the Regional Water Board 303(d) list because a decision of Do Not List was incorrectly selected for Diazinon in the database. State Water Board staff recommend to List for Diazinon.

Colusa Basin Drain: The data and information in the central database supported a List recommendation. However, DDT was mistakenly omitted from the Regional Water Board 303(d) list because a decision of Do Not List was incorrectly selected for DDT in the database. State Water Board staff recommend to List for DDT.

Harding Drain: In their October 21, 2009 memorandum transmitting their 303(d) list, the Central Valley Water Board staff requested the State Water Board to remove Harding Drain for Unknown Toxicity from the 303(d) list. According to the transmittal letter, Central Valley Water Board staff analyzed the data and determined that data show that fish and invertebrate toxicity is no longer present. State Water Board staff recommend to Delist for Unknown Toxicity based on the Regional Water Board's memorandum.

Kings River, Lower (Pine Flat Reservoir to Island Weir): The fact sheet for this decision contained errors and did not reflect the data that was contained for Chlorpyrifos in the line of evidence. The State Water Board staff recommend to List Chlorpyrifos based on the data in the line of evidence.

Sediment Toxicity: Sediment Toxicity data associated with Pyrethroid listing were not included in the database when the Central Valley Water Board staff prepared the Pyrethroids line of evidence. Sediment Toxicity LOEs were developed by the State Water Board staff. Central Valley Water Board's Decisions to List for Pyrethroids have not been changed. Based on sediment toxicity data, State Water Board staff now recommend to List the following 10 additional water bodies for Sediment Toxicity:

1. Arcade Creek
2. Chicken Ranch Slough
3. Curry Creek (Placer and Sutter Counties)
4. Elder Creek
5. Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing)
6. Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)
7. Morrison Creek
8. Pleasant Grove Creek
9. Pleasant Grove Creek, South Branch
10. Strong Ranch Slough

Lahontan Region (Region 6):

The Lahontan Water Board added 9 water body-pollutant combinations to the 2006 California 303(d) List. Lahontan Water Board delisted 9 water body pollutant combinations from California 303(d) list. State Water Board staff recommend the following changes to the Lahontan Water Board 303(d) list:

Multiple Water Bodies: Lahontan Water Board staff decided not to list certain water bodies even though there were exceedances of their Basin Plan WQOs because staff believed the data for these water bodies was not "temporally representative" to meet the Listing Policy requirements. State Water Board staff determined that the data were collected over a broad period of time to meet section 6.1.5.3 of the Listing Policy. A total

of 31 water body-pollutant combinations showed exceedances of the Lahontan Water Board Basin Plan water quality objectives to be placed on the 303(d) list. These exceedances meet the Listing Policy listing requirement for Section 3.1, numeric water quality objectives for toxicants, and Section 3.2, numeric water quality objectives for conventional pollutants, with sample size exceeding the minimum sample size requirements of Table 3.1 and 3.2. State Water Board staff recommends listing the following water body-pollutant combinations:

1. Bidwell Creek (TDS)
2. Crab Creek (TDS)
3. E. Fork Carson River (TDS)
4. E. Fork Carson River (Boron)
5. E. Walker River (Manganese)
6. E. Walker River (Turbidity)
7. Holcomb Creek (TDS)
8. Hilton Creek (Dissolved Oxygen)
9. Littlerock Reservoir (Boron)
10. Littlerock Reservoir (Manganese)
11. Mammoth Creek (unnamed tributaries) (Mercury)
12. Mammoth Creek (Hdwaters to Twin Lakes) (Iron)
13. Mammoth Creek (Hdwaters to Twin Lakes) (TDS)
14. Mammoth Creek (Twin Lakes to Old Mammoth Rd.) (Iron)
15. Mammoth Creek (Twin Lakes to Old Mammoth Rd.) (Manganese)
16. Mammoth Creek (Old Mammoth Road to Highway 395) (Iron)
17. Mammoth Creek (Old mammoth Rd to Hwy 395) (TDS)
18. Mammoth Creek (Old Mammoth Road to Highway 395) (Manganese)
19. Mammoth Creek (Old Mammoth Road to Highway 395) (Phosphate)
20. Mill Creek (TDS)
21. Mojave River (Mojave Forks to Upper Narrows) (TDS)
22. Mojave River (Upper narrows to Lower Narrows) (TDS)
23. Mojave River (Upper Narrows to Lower Narrows) (Sulfates)
24. Sheep Creek (Nitrate)
25. Sheep Creek (TDS)
26. Susan River (Hdwaters to Susanville) (TDS)
27. Susan River (Hdwaters to Susanville) (Total Nitrogen as N)
28. Susan River (Susanville to Litchfield) (TDS)
29. Susan River (Susanville to Litchfield) (Turbidity)
30. Rock Creek (TDS)
31. West Walker River (Boron)

Colorado River (Region 7):

The Colorado River Water Board listed 17 new water body-pollutant combinations on the 303(d) list. The Colorado River Water Board delisted 8 water body-pollutant combinations on the 303(d) list. State Water Board staff recommend the following change to Colorado River Water Board 303(d) list:

New River: The Colorado River Water Board staff incorrectly assessed zinc in sediment as a conventional pollutant and applied Table 3.2 of the Listing Policy. Zinc is a toxicant and should be assessed using Table 3.1. In 2006 the New River was listed for toxicity in sediment. State Water Board staff recommend to List for Zinc.

Santa Ana Region (Region 8):

Santa Ana Water Board added 22 water body-pollutant combinations to the 2006 California 303(d) List. Santa Ana Water Board delisted 7 water body pollutant combinations from the 2006 California 303(d) list. State Water Board staff recommends the following changes to the Santa Ana Water Board 303(d) list:

Bolsa Chica Channel: The Listing Policy was incorrectly applied for determining the minimum number of measured exceedances needed in the Regional Water Board Decision. The LOE shows that 14 of 74 samples exceeded the Basin Plan water quality objective for pH. State Water Board staff recommend to List for pH.

Chino Creek Reach 1A, Mill Creek, Prado Area, Santiago Creek Reach 4: A decision to List these water bodies was made by the Santa Ana Water Board staff in the centralized database. However, the centralized database was not used to generate the final Staff Report for Region 8 and the decisions were not included for Regional Water Board approval. Based on the review of the data and information in the centralized database, State Water Board staff recommends to List these water body-pollutant combinations:

1. Chino Creek Reach 1A (pathogen and nutrient)
2. Mill Creek, Prado Area (pathogen, nutrients and TSS)
3. Santiago Creek Reach 4 (salinity, TDS and chloride)

City Creek: The Santa Ana Water Board staff made a recommendation of Do Not List for this water body for Cadmium in the centralized database for the assessment. However, the centralized database was not used to generate the final Staff Report for Region 8. Therefore, Regional Water Board staff recommendation that went to the Regional Water Board for approval was incorrectly presented as List on the 303(d) list. Based on the review of the data and information in the centralized database, State Water Board staff recommends Do Not List for this water body-pollutant combination.

Multiple Water Bodies: The Santa Ana Water Board made a Do Not List decision for E. coli for 12 water bodies. Water quality data for bacteria were assessed by the Regional Water Board staff using the USEPA freshwater standard of 235 MPN/ 100 m. The LOEs for all water bodies show exceedances of the fresh water standard of 235 MPN/100 ml in most of the samples used in the LOE. The Santa Ana Water Board staff rationale for the Do Not List decision is based on the fact that stakeholders in the Region are in the process of developing new criteria for freshwater as there may be evidence that these waters are not designated beaches and that the 235 MPN/100 ml single sample maximum should not apply. Although the standards for these water bodies may change in the future, State Water Board staff recommend to List these 12 water bodies that exceeded the current USEPA fresh water standard for bacteria:

1. Bolsa Chica Channel
2. Borrego Creek (Irvine to Barranca)
3. Buck Gully Creek
4. Goldenstar
5. Peters Canyon Channel
6. Santa Ana Delhi Channel
7. Santa Ana River Reach 2
8. Temescal Creek Reach 6
9. Morning Canyon Creek
10. San Diego Creek Reach 1
11. San Diego Creek Reach 2

12. Serrano Creek

Total Metals: A data translator that has not been approved for use to convert the total metals data to dissolved was used by the Santa Ana Water Board. Based on USEPA staff comments to the Santa Ana Water Board, State Water Board staff re-evaluated data with the default California Toxic Rule (CTR) translators that are designed to be used with CTR criteria. Based on re-evaluation of data, State Water Board staff recommends to List the following water body-pollutant combinations:

1. Cucamonga Creek Reach 1 for copper and lead
2. Santa Ana River Reach 2 for cadmium, copper and lead
3. Santa Ana River Reach 3 for cadmium and lead
4. Santa Ana River Reach 6 for copper and lead

San Diego Region (Region 9):

The San Diego Water Board added 155 water body-pollutant combinations to the 2006 California 303(d) List. The San Diego Water Board delisted 15 water body pollutant combinations from the California 303(d) List. In addition to the change shown in Table 3, State Water Board staff recommends the following changes to the San Diego Water Board 303(d) list:

Agua Hedionda Creek: The decision to List for sulfate was incorrectly made in 2006 based on 4 exceedances out of 4 samples. Staff considered sulfates a conventional pollutant and under the Listing Policy, 4 samples are insufficient to make a listing recommendation for a conventional pollutant. State Water Board staff recommends to Delist this water body-pollutant combination.

Beach Bacteria Data: At the San Diego Water Board meeting, staff requested State Water Board staff to conduct an additional evaluation of San Diego Region AB411 beach data. State Water Board staff assessed the dry weather data, created LOEs and made recommendations based on section 3.3 and 4.3 of the Listing Policy. Data for 371 coastal water body-pollutant combinations were evaluated. Based on the lines evidence, State Water Board staff made the following recommendations:

1. Pacific Ocean Shoreline, Coronado HA, at Silver Strand (North end, Oceanside) (List) - Enterococcus
2. Mission Bay Shoreline, at Bahia Point (Do Not Delist) – Fecal Coliform
3. Mission Bay Shoreline, at Bonita Cove (Do Not Delist) – Fecal Coliform
4. Mission Bay Shoreline, at Fanual Park (Do Not Delist) - Enterococcus
5. Pacific Ocean Shoreline, Aliso HSA, at Aliso Beach - north (Do Not Delist) – Total Coliform
6. Pacific Ocean Shoreline, Laguna Beach HSA, at Bluebird Canyon (Do Not Delist) – Total Coliform
7. Pacific Ocean Shoreline, Lower San Juan HSA, at North Beach Creek (Do Not Delist) – Fecal Coliform
8. Pacific Ocean Shoreline, San Clemente HA, at Poche Beach (Delist) – Fecal Coliform
9. Pacific Ocean Shoreline, San Diego HU, at the San Diego River outlet, at Dog Beach (Do Not Delist) - Enterococcus
10. Pacific Ocean Shoreline, Tijuana HU, at Monument Road (Do Not Delist) – Fecal Coliform
11. Pacific Ocean Shoreline, Tijuana HU, at end of Seacoast Drive (Do Not Delist) – Enterococcus

12. Pacific Ocean Shoreline, Tijuana HU, at end of Seacoast Drive (Do Not Delist) – Fecal Coliform
13. Pacific Ocean Shoreline, Tijuana HU, at the US Border (Do Not Delist) – Enterococcus

Buena Creek: In 2006, Phosphate was assessed as a toxicant using Table 3.1 of the Listing Policy. Phosphate is considered a conventional pollutant and should be assessed using Table 3.2. Using Table 3.2, State Water Board staff recommends to Delist Phosphate.

Cottonwood Creek (San Marcos watershed), Encinitas Creek, Forester Creek and San Marcos Lake: In 2006, Phosphorus was assessed as a toxicant using Table 3.1 of the Listing Policy. Phosphorus is considered a conventional pollutant and should be assessed using Table 3.2. Using Table 3.2, State Water Board staff recommends to Delist for Phosphorus in these water bodies.

Long Canyon Creek (tributary to Murrieta Creek): The San Diego Water Board staff incorrectly applied Table 3.2 and listed E. coli with only 4 samples exceeding the standard. Table 3.2 requires 5 exceedances to List. State Water Board staff recommend Do Not List for E. coli.

Moro Canyon Creek, Oso Creek (lower), and Paradise Creek: The San Diego Water Board staff incorrectly assessed Selenium as a conventional pollutant and applied Table 3.2 of the Listing Policy. Selenium is a toxicant and should be assessed using Table 3.1. State Water Board staff recommend to List for Selenium in these water bodies.

Pacific Ocean Shoreline, Laguna HSA, at Laguna Beach at Cleo St. and Pacific Ocean Shoreline, Scripps HA, at Childrens Pool: Indicator Bacteria was accidentally placed on the San Diego Water Board's 303(d) list. In this case, the San Diego Water Board had replaced the Indicator Bacteria assessment decision with assessment decisions for the specific indicator bacteria enterococcus, fecal coliform, and total coliform. However, the original Indicator Bacteria listing remained. State Water Board staff recommend removing the Indicator Bacteria listing.

Pacific Ocean Shoreline, Miramar Reservoir HA, at Los Penasquitos River mouth: The San Diego Water Board factsheets showed listing for Total Coliform. However, this pollutant did not appear on the Regional Water Board's Category 5 list. State Water Board staff made the correction in the database, and the Statewide Category 5 list now displays this listing.

Pacific Ocean Shoreline, San Clemente HA, at San Clemente City Beach at Pier: In the memorandum transmitting their Integrated Report San Diego Water Board requested State Water Board staff to conduct a reevaluation of San Clemente City Beach at Pier. Based on the reevaluation of the data State Water Board staff recommend no change to the regional San Diego Water Board decision of Do Not Delist.

San Diego River (lower), and Santa Gertrudis Creek: The San Diego Water Board staff incorrectly assessed Manganese as a conventional pollutant and applied Table 3.2 of the Listing Policy. Manganese is a toxicant and should be assessed using Table 3.1. State Water Board staff recommend to List for Manganese in these water bodies.

San Vicente Creek: The available data for this water body was not used by the San Diego Water Board. SWAMP water quality data collected during 2004-2006 was used to prepare the LOE for Toxicity, Total Nitrogen, and Ammonia. State Water Board recommend to List San Vicente Creek for these pollutants.

San Vicente Creek: San Diego Water Board made a Do Not List decision for Benthic Macroinvertebrate –Bioassessment. State Water Board staff used a situation-specific weight of evidence approach to evaluate the San Vicente Creek Benthic Macroinvertebrate –Bioassessment listing decision by San Diego Water Board. State Water Board staff determined that water quality data with multiple LOEs show that benthic macroinvertebrate populations are impacted by a wide range of stressors. Using this approach, staff followed a two-step process for evaluation of all available water quality data, including the chemistry and bioassessment data. State Water Board staff evaluated the bioassessment data using the Southern California Index of Biological Integrity (IBI). Staff reviewed the LOE prepared by the San Diego Water Board. Benthic macroinvertebrate as measured by Southern California IBI were poor, indicating impairment of benthic community structure. In step 2, the chemistry data for toxicity, Total Nitrogen, and Ammonia were evaluated by State Water Board staff. The LOE for the data and information indicate that the beneficial use of the water is not supported. The water quality chemistry and bioassessment data provide a substantial basis that benthic macroinvertebrate populations are affected by a wide range of stressors. Based on the available data and information, staff recommend to List for Benthic Macroinvertebrate-Bioassessment.

Sutherland Reservoir: The San Diego Water Board staff incorrectly assessed Iron as a conventional pollutant and applied Table 3.2 of the Listing Policy. Iron is a toxicant and should be assessed using Table 3.1. State Water Board staff recommend to List for Iron.

Sutherland Reservoir: The San Diego Water Board fact sheets for Color, pH, and Manganese showed that these previous 2006 listings should remain on the 303(d) list. The fact sheet for Total Nitrogen as N showed this was a new listing for this water body. However, these 4 pollutants did not appear on the San Diego Water Board's Category 5 list. State Water Board staff recommend to List for Total Nitrogen as N, pH, and Manganese and recommend to Not Delist for Color.

Surface Water Ambient Monitoring (SWAMP) Lake Study Mercury Data:

In 2009, SWAMP published a Lake Study "Contaminants in Fish from the California Lakes and Reservoirs, 2009". These data were collected for use in water quality assessment and listings. The results provide critical health information about the presence of methylmercury, a potent neurotoxin, in the surveyed lakes. These data were not available to Regional Water Board staff during the development of their Integrated Reports. In the 2010 Integrated Report, State Water Board staff used a situation-specific weight of evidence approach to include the data from this study.

The finding of the SWAMP Study was that the methylmercury contamination of lake fish was widespread, particularly in largemouth bass species in Northern California. The study shows that twenty-six percent of the 152 lakes surveyed had methylmercury concentrations high enough that OEHHA would consider recommending no consumption of the contaminated species, and seventy-four percent of the lakes surveyed had samples high methylmercury concentration for OEHHA to consider recommending consumption of less than three servings per week.

State Water Board staff evaluated the available mercury data for the forty-eight large lakes with adequate data. The evaluation of the mercury data showed an exceedance of the mercury numeric guideline in 17 of the lakes. Based on this evaluation, staff recommend 17 new listings for mercury as shown below in Table 3:

Table 3 SWAMP Mercury Lake Data 303(d) List

Region	Water Body
2	Calaveras Reservoir
3	Chesbro Reservoir
3	Uvas Reservoir
3	San Antonio Reservoir
4	Castaic, Lake
4	Lake Casitas
4	Pyramid Lake
5	Tulloch Reservoir
5	Modesto Reservoir
5	Turloch Lake
5	Woodward Reservoir
5	Hetch Hetchy Reservoir
5	Hensley lake
5	ONiell Forebay
5	San Luis Reservoir
5	Pine Flat Reservoir
9	Hodges, Lake

Summary of State Water Board Staff Recommendations

The State Water Board staff recommended specific changes to the Regional Water Boards' 303(d) lists are summarized in Table 4.

Table 4 Summary of State Water Board Staff Recommended Changes to Regional Water Boards 303(d) Lists

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
3	San Vicente Creek	Turbidity	Do Not Delist	Delist
3	Oso Flaco Lake	pH	List	Do Not List
4	Ballona Creek	Shellfish Advisory	Do Not Delist	Delist
4	Los Cerritos Channel	pH	Do Not List	List
4	Rio Honda Reach 1 and Reach 2	Cyanide	List incorrect water body reach	List correct water body reach
4	Santa Clara River Reach 5 and Reach 6	Benthic Macroinvertebrate	List (one Reach)	List (Both Reaches)
4	Santa Clara River Estuary Beach-Surfers Knoll	Indicator bacteria	List	Do Not List
5	Agatha Canal	Selenium	Do Not List	List
5	Bear Creek (San Joaquin and Calaveras Counties; partly in Delta Waterways, eastern portion)	Diazinon	Do Not List	List

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
5	Colusa Basin Drain	DDT	Do Not List	List
5	Harding Drain	Unknown Toxicity	Do Not Delist	Delist
5	Kings River (Pine Flat Reservoir to Island Weir)	Chloropyrifos	Do Not List	List
5	10 Water bodies	Sediment Toxicity	No Decision	List
6	13 Water bodies	TDS	Do Not List	List
6	4 Water bodies	Turbidity, DO, Total Nitrogen as N	Do Not List	List
6	12 Water bodies	Metals, Fluoride and Nitrate	Do Not List	List
6	Mojave River (Upper Narrows to Lower Narrows)	Sulfate	Do Not List	List
6	Mammoth Creek (Old Mammoth Road to Highway 395)	Phosphate	Do Not List	List
7	New River	Zinc	Do Not List	List
8	Bolsa Chica Channel	pH	Do Not List	List
8	Chino Creek Reach 1A	Pathogen, nutrients	Do Not List	List
8	City Creek	Cadmium	List	Do Not List
8	Cucamonga Creek Reach 1	Copper and lead	Do Not List	List
8	Mill Creek, Prado Area	Pathogen, nutrients and TSS	Do Not List	List
8	Santa Ana River Reach 2	Cadmium, copper and lead	Do Not List	List
8	Santa Ana River Reach 3	Cadmium and lead	Do Not List	List
8	Santa Ana River Reach 6	Copper and lead	Do Not List	List
8	Santiago Creek Reach 4	Salinity, TDS and chloride	Do Not List	List
8	12 Water bodies	E. coli	Do Not List	List
9	Agua Hedionda Creek	Sulfate	List	Delist
9	Buena Creek	Phosphate	List	Delist
9	Cottonwood Creek (San Marcos Creek watershed)	Phosphorus	List	Delist
9	Encinitas Creek	Phosphorus	List	Delist
9	Forester Creek	Phosphorus	List	Delist
9	Long Canyon Creek (tributary to Murrieta Creek)	E. coli	List	Do Not List
9	Mission Bay Shoreline, at Bahia Point	Fecal Coliform	Delist	Do Not Delist
9	Mission Bay Shoreline, at Bonita Cove	Fecal Coliform	Delist	Do Not Delist
9	Mission Bay Shoreline, at Fanual Park	Enterococcus	Delist	Do Not Delist
9	Moro Canyon Creek	Selenium	Do Not List	List
9	Oso Creek, Lower	Selenium	Do Not List	List
9	Pacific Ocean Shoreline, Aliso HSA, at Aliso Beach – north	Total Coliform	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Coronado HA, at Silver Strand (North end, Oceanside)	Enterococcus	Do Not List	List

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
9	Pacific Ocean Shoreline, Laguna Beach HSA, at Bluebird Canyon	Total Coliform	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Laguna Beach HSA, at Laguna Beach at Cleo Street	Indicator Bacteria	List	Removed from 303(d) list as a correction
9	Pacific Ocean Shoreline, Miramar Reservoir HA, at Los Penasquitos River mouth	Total Coliform	List (Pollutant was left off of the 303(d) list approved by the Regional Water Board)	List
9	Pacific Ocean Shoreline, Scripps HA, at Childrens Pool	Indicator Bacteria	List	Removed from 303(d) list as a correction
9	Pacific Ocean Shoreline, Tijuana HU, at end of Seacoast Drive	Enterococcus	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Tijuana HU, at end of Seacoast Drive	Fecal Coliform	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Tijuana HU, at Monument Road	Fecal Coliform	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Tijuana HU, at the US Border	Enterococcus	Delist	Do Not Delist
9	Pacific Ocean Shoreline, San Diego HU, at the San Diego River outlet, at Dog Beach	Enterococcus	Delist	Do Not Delist
9	Pacific Ocean Shoreline, Lower San Juan HSA, at North Beach Creek	Fecal Coliform	Delist	Do Not Delist
9	Pacific Ocean Shoreline, San Clemente HA, at Poche Beach	Fecal Coliform	Do Not Delist	Delist
9	Paradise Creek	Selenium	Do Not List	List
9	San Diego River, Lower	Manganese	Do Not List	List
9	Santa Gertrudis Creek	Manganese	Do Not List	List
9	San Vicente Creek	Benthic Macroinvertebrate	No Decision	List
9	San Vicente Creek	Toxicity, Total Nitrogen and Ammonia	No Decision	List
9	San Marcos Lake	Phosphorus	List	Delist

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
9	Sutherland Reservoir	Color	Do Not Delist (Pollutant was left off of the 303(d) list approved by the Regional Water Board)	Do Not Delist
9	Sutherland Reservoir	Total Nitrogen as N Manganese and pH	List (Pollutant was left off of the 303(d) list approved by the Regional Water Board)	List
9	Sutherland Reservoir	Iron	Do Not List	List

The additional listings and delistings and the State Water Board staff recommendations for the 2010 303(d) list are summarized in Table 5. The last column in Table 5 “2010 Total 303(d) Listing (category 4a, 4b and 5)” includes the staff recommendation for the total 2010 303(d) list including both the proposed and miscellaneous changes that were made for corrections. Each added and deleted water-pollutant combinations and the State Water Board staff proposed changes are documented in fact sheets contained in [Appendix G](#) of this staff report.

Table 5 Additional Listings and Delistings with State Water Board Staff Total 303(d) Listing Recommendations

Region	Regional Boards 303(d) List			State Water Board Recommendation				
	2006 Total 303(d) Listings	2010 New 303(d) Listings	2010 New 303(d) Delistings	2010 Additional New 303(d) Listings	2010 Additional New 303(d) Delistings	Miscellaneous Changes (Resulted in listings)	Miscellaneous Changes (Resulted in Delistings)	2010 Total 303(d) Listings (Category 4a, 4b and 5) (*)
1	117	22	5	0	0	8	4	138
2	295	40	3	1	0	0	0	333
3	222	495	19	3	2	24	16	707
4	793	57	29	7	3	0	9	816
5	342	388	22	23	1	0	0	730
6	93	9	9	31	0	11	8	127
7	46	17	8	1	0	0	0	56
8	101	22	7	30	1	4	2	147
9	229	155	15	27	7	89	25	453
Total	2,238	1,205	117	123	14	136	64	3,507

B. 2010 Integrated Report Category and Beneficial Use Support Rating Determination

The 2010 Integrated Report places each California assessed water segment into one of five non-overlapping categories based on the overall beneficial use support of the water segment. These Integrated Report categories, described below, are based on the USEPA guidance for

States' Integrated Reports, but contain some modifications based on the Listing Policy. USEPA and State Water Board staff agreed that California's use of each category will be as follows:

Category 1: A water segment that supports a minimum of one California beneficial use for each Core Beneficial Use that is applicable to the water; and 2) has no other uses impaired.

Category 2: 1) A water segment that supports some, but not all, of its California beneficial uses; 2) can have other uses that are not assessed or lack sufficient information to be assessed; 3) a water segment cannot be in this category if any of its uses are not supported; and 4) in agreement with the USEPA, a water segment may be in this category with a minimum of one pollutant assessed for one use (Note: All pollutants assessed are displayed on the Category 2 list to clearly show the level of assessment for the water segment.)

Category 3: A water segment with water quality information that could not be used for an assessment for reasons such as: monitoring data have poor quality assurance, not enough samples in a dataset, no existing numerical objective or evaluation guideline, the information alone cannot support an assessment; etc. Waters completely lacking water quality information are considered "not assessed." These waters will be summarized in the Statewide Category 3 list.

Category 4a: A water segment for which ALL its 303(d) listings are being addressed; and 2) at least one of those listings is being addressed by a USEPA approved TMDL.

Category 4b: A water segment for which ALL its 303(d) listings are being addressed by action(s) other than TMDL(s).

Category 4c: A water segment that is impaired or affected by non-pollutant related cause(s).

Category 5: A water segment where standards are not being met and a TMDL is required but not yet completed for at least one of the pollutants being listed for this segment.

Beneficial Use Support Rating Determination

Beneficial Use Support Ratings are the basis for determining the Integrated Report Category for each water segment assessed. Three possible beneficial use support ratings are used in California's 2010 Integrated Report. They are fully supporting (supporting), not supporting, and insufficient information. These are the standard use support ratings designed by USEPA for the Integrated Report.

The steps that ultimately lead to determining an overall use support rating for a water segment are described below and are portrayed in Figure 2 as well:

Step 1: Regional Water Board staff determines the number of exceedances of each pollutant in a monitoring dataset line of evidence, by comparing pollutant levels to applicable WQO, WQC or guidelines.

Step 2: Regional Water Board staff then collects all LOEs for each pollutant assessed for the water segment and determines, based on the Listing Policy, whether or not the number of exceedances constitute a 303(d) listing or not.

Step 3: Regional Water Board staff then determines use support ratings based on the findings in Step 2. In general, most of the Regional Water Board staff used the following approach in determining use support ratings when assessing monitoring data:

- The use is supported if, based on the Listing Policy, pollutants do not exceed standards with a frequency that cause a 303(d) listing.
- The use is not supported if, based on the Listing Policy, pollutants exceed standards with a frequency that cause a 303(d) listing.
- Use ratings of “insufficient information” are given when it cannot be determined if a use is supported or not supported. This usually occurs when, based on the Listing Policy, the data have poor quality assurance; there are not enough samples in a dataset, there are no existing numerical criteria, objective, or evaluation guideline; or the information alone cannot support an assessment.

However, two Regional Water Boards’ staff employed a unique approach in determining whether a use is “supported.” The Central Coast Water Board staff included an extra condition that had to be met before a use could be considered supported. The condition was that a monitoring dataset must also consist of at least 26 samples for conventional pollutants, and at least 16 samples for toxic pollutants, before a use could be called “supported.” The sample size condition was derived from the number of samples required in the Listing Policy to run the binomial test, which is used to calculate the number of exceedances per sample size that would cause a 303(d) listing. The Central Valley Water Board staff also used this same approach. However, neither Regional Water Board applied the approach completely in consistent manner. In those cases where this approach was not followed within these two Regions, State Water Board staff made corrections to the use support ratings to make them consistent with the approach.

Step 4: The CalWQA database applies a set of rules that deduce the individual use support rating of each individual use of a water segment from the collection of LOE with use support ratings determined in Step 3 above. These rules are shown in Table 6.

Step 5: The CalWQA database applies the same rules in Table 6 to deduce a water segment’s overall use support rating from the collection of all individual use support ratings determined in Step 4 above.

Figure 2 Example of Determining Individual and Overall Beneficial Use Support Ratings for One Water Segment

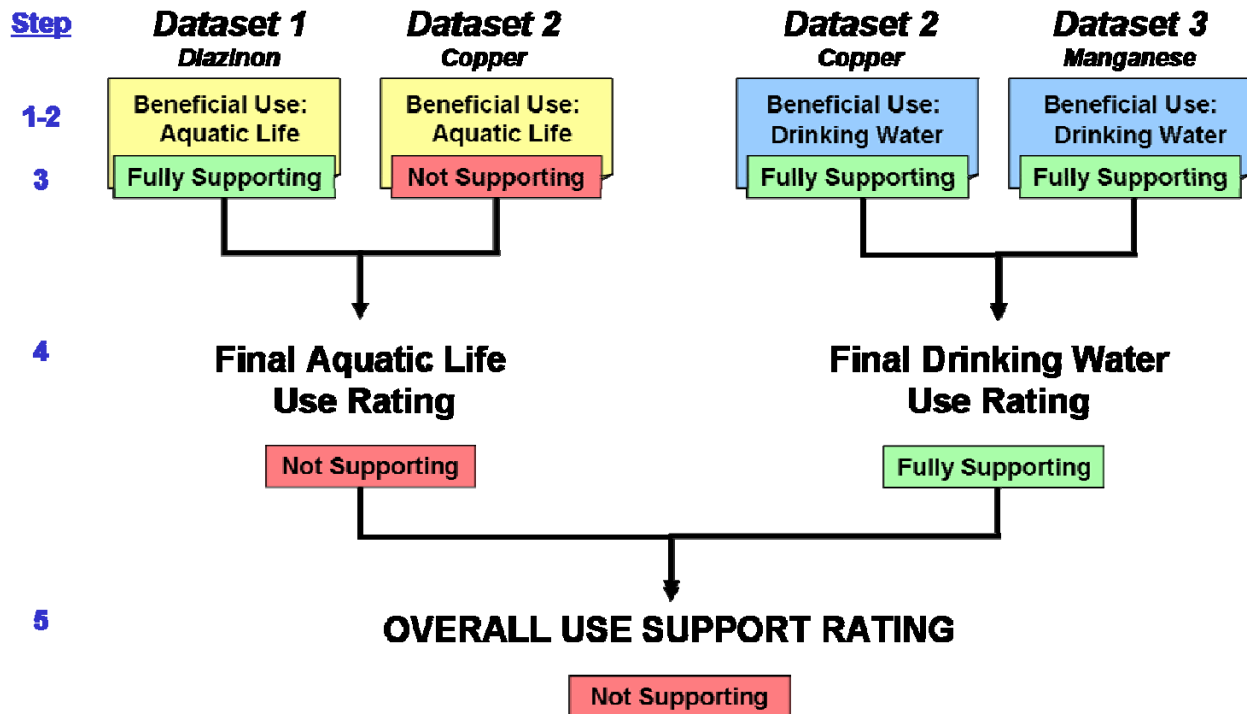


Figure 2 is an example of how beneficial use support ratings can be deduced for individual uses of a water segment, and how you can take those individual use support ratings and deduce just one overall use support rating for the water segment.

Table 6 Rules for Deducing Final Beneficial Use Support Ratings

RATING 1		RATING 2		FINAL RATING
Fully Supporting	+	Fully Supporting	→	FULLY SUPPORTING
Fully Supporting	+	Not Supporting	→	NOT SUPPORTING
Fully Supporting	+	Insufficient Information	→	FULLY SUPPORTING
Not Supporting	+	Insufficient Information	→	NOT SUPPORTING
Not Supporting	+	Not Supporting	→	NOT SUPPORTING
Insufficient Information	+	Insufficient Information	→	INSUFFICIENT INFORMATION

Public Review and Board Approval

Categories 1, 2, and 3 are informational; however, they do not require State approval and will be submitted as part of the Statewide 2010 Integrated Report to the USEPA for their biennial report to Congress. Categories 4a, 4b, and 5 are what California considers the Section 303(d) List of Impaired Waters. This list was reviewed by the public and approved by the Regional Water Board, and is required to be approved by the State Water Board. The status of a water segment's 303(d) listing (i.e., at what stage it is being addressed) determines whether it is a Category 4a, 4b, or 5 water body (see Table 1). A Statewide Category 5 list will be submitted to

the USEPA for final approval, as the USEPA's 303(d) list consists only of Category 5 water bodies.

Public Participation

The Regional Water Boards held public workshops to receive comments on the proposed section 303(d) list in each Regional Water Board Draft Staff Report. Regional Water Board staff responded in writing to the comments received.

IV. Information Management

California Water Quality Assessment (CalWQA) Database

All monitoring data LOEs, listing decisions, and beneficial use support ratings for assessed California water bodies are stored in the Regional and State Water Boards' CalWQA database. This database was developed in 2007 for the purpose of storing detailed water quality assessment information. The database is designed so that this information can be exported to the USEPA's Assessment Database at the end of each assessment cycle.

References

Data and information used in LOEs come from a variety of sources. References are included to help track the sources from which the data and information summarized in the LOEs were derived from. Copies of referenced documents are included as part of the administrative record.

Administrative Record

The administrative record contains all records used to develop the 2010 Integrated Report. Records are any documents produced, received, owned, or used by the State Water Board and Regional Water Boards regardless of media, physical form, or characteristics. An index of the references for data and information in the administrative record used for development of the 2010 Integrated Report is presented in [Appendix J](#) of this report.

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