MARCH 23, 2015 DRAFT
Reflecting **bold-underline** additions and
~~**bold-strikeout**~~ deletions to the 12/31/2014 draft.

Staff Report

State Water Resources Control Board

2012 California Integrated Report
Clean Water Act Sections 303(d) and 305(b)

March 23, 2015
~~December 31, 2014~~

STATE OF CALIFORNIA
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EXECUTIVE SUMMARY

The goal of the Clean Water Act (CWA) is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (33 U.S.C § 1251(a).) Pursuant to Clean Water Act sections 303(d) and 305(b) (33 U.S.C. §§ 1313(d), 1315(b)), states are required to report to the U.S. Environmental Protection Agency (U.S. EPA) on the overall quality of the **waters** of the United States ~~**waters**~~ within their state. The U.S. EPA then compiles these assessments into their biennial "National Water Quality Inventory Report" to Congress. Under CWA section 303(d), states are required to review, make changes as necessary, and submit to U.S. EPA a list identifying waterbodies not meeting water quality standards and the water quality parameter (i.e., pollutant) not being met**.** (303(d) List**.**)~~.~~ States are required to include a priority ranking of such waters, taking into account the severity of the pollution and the uses to be made of such waters, including waters targeted for the development of total maximum daily loads (TMDLs). Under CWA section 305(b), states are required to report biennially to the U.S. EPA on the water quality conditions of their surface water**.** (305(b) Report**.**)~~.~~ States are required to submit their 303(d) Lists and 305(b) Reports every two years (the listing cycle). (40 C.F.R. § 130.7(d).) The State Water Resources Control Board (State Water Board) administers this portion of the Clean Water Act for the State of California. The U.S. EPA issued guidance to states requiring that the 305(b) Report and the 303(d) List be integrated into a single report. For California, this report is called the "Integrated Report" and it satisf~~y~~**ies** both the CWA section 305(b) and section 303(d) requirements.

For the 2012 listing cycle, the reporting processes for the 303(d) List and 305(b) Report have been combined into the proposed 2012 California Integrated Report. Only the 303(d) List portion of the proposed 2012 California Integrated Report requires approval by the State Water Board and U.S. EPA. The proposed 2012 California Integrated Report is a compilation of the North Coast (Region 1), Lahontan (Region 6), and Colorado River (Region 7) Regional Water Quality Control Boards' (Regional Water Boards) 2012 Integrated Reports. The 2012 California Integrated Report also includes State Water Board staff recommendations for additions, deletions, or changes. Regional Water Board staff held stakeholder meetings in each Region during 2014 prior to approval of their Regional Integrated Reports. After approval of the 303(d) List portion of the California Integrated Report by the State Water Board, the complete California Integrated Report will be submitted to U.S. EPA., which may make changes to the 303(d) List portion of the California Integrated Report before it approves the final California 303(d) List. The 305(b) portion of the California Integrated Report requires no approval by the State Water Board or U.S. EPA.

The 2012 California Integrated Report provides the recommendations of Water Board staff for changes to the 2010 California Integrated Report. Prior to approving their respective 303(d) Lists, the Regional Water Boards for the North Coast, Lahontan, and Colorado River regions provided advance notice and opportunity to the public to submit written comments, responded in writing to those written comments, and considered oral testimony and readily available data and information. The three Regional Water Boards approved the 303(d) List portion of their 2012 Integrated Reports beginning in February 2014 with the final report approved in August 2014. The Regional Water Boards submitted to the State Water Board the water body facts sheets, responses to comments, documentation of the hearing process, and a copy of all data and information considered.

The State Water Board evaluated the water body fact sheets for completeness, consistency with the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (Listing Policy), and consistency with applicable law. The State Water Board assembled the fact sheets and consolidated the three Regional Water Board lists into the statewide proposed 2012 303(d) List. The proposed 303(d) List and the 305(b) Report was compiled into this 2012 California Integrated Report.

This Staff Report provides the following information and overview of the approach utilized to develop the 2012 California Integrated Report:

a. Data sources used,
b. Objectives, criteria, and evaluation guidelines against which data were compared,
c. Methodology for assessing the 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 303(d) List portion of the 2012 California Integrated Report.

Waterbody assessments are detailed in the appendices. Appendices A through G provide assessments of water bodies in each California Integrated Report category based on beneficial use support. Appendix H presents all the fact sheets and supporting documentation for each water body-pollutant combination in the 2012 California 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 I is the 2010 California CWA section 303(d) List of Water Quality Limited Segments. Appendix J contains the miscellaneous changes report. Appendix K provides citations for all of the references used in developing the 2012 California Integrated Report. Appendix L provides a link to an interactive map of the water bodies assessed for the proposed 2012 California Integrated Report.

Water quality data collected by internal programs and provided by outside agencies and entities during the current listing cycle resulted in significantly more information than that which was available for the 2010 303(d) List. Over 4,600 new fact sheets assessing unique water body-pollutant combinations in Regions 1, 6, and 7 were developed during this evaluation. These fact sheets contain over 8,300 new LOEs for Regions 1, 6 and 7 and recommended 78 new listings and 18 delistings.

For the 305(b) report, those water body segments that were assessed were placed into one of U.S. EPA's recommended 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 are aquatic life, drinking water supply, human consumption of fish, non-contact water recreation, shell fish harvesting, and water contact recreation. Table 1 shows the 2012 California Integrated Report categories and the number of water bodies in each category.

Table 1 Integrated Report Category Summary

Category	Description	Water Bodies
1	All core beneficial uses are supported.	0
2	At least one core beneficial use is supported and none are known to be impaired.	~~**310**~~**307**

3	Insufficient information to determine beneficial use support.	~~**1503**~~**329**
4	At least one beneficial use is not supported but TMDL is not needed.	~~**114**~~**110 (Total)**
4a	A TMDL has been developed and approved by U.S. EPA for any waterbody-pollutant combination, and the approved implementation plan is expected to result in full attainment of the water quality standard within a specified time frame.	95
4b	Another regulatory program is reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame.	15
4c	The non-attainment of any applicable water quality standard for the waterbody segment is the result of pollution and is not caused by a pollutant.	0
5	At least one beneficial use is not supported and a TMDL is needed.	~~**1043**~~**1051**
Total		~~**2996**~~**1797**

The 303(d) List portion of the 2012 California Integrated Report consists of waterbody-pollutant combinations in Categories 4a, 4b, and 5. U.S. EPA considers only waterbody-pollutant combinations in Category 5 to be responsive to the reporting requirement of CWA section 303(d). For the 303(d) portion of the 2012 California Integrated Report, staff recommends an additional 14 listings and changing ~~**5**~~**6** delistings. With State Water Board revisions and additions, ~~**107**~~**92** additional listings and ~~**30**~~**14** delistings in Regions 1, 6 and 7 were made to the 2010 303(d) List, for a total of ~~**3,583**~~**3584** listings statewide on the proposed 2012 303(d) List. 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 2012 section 303(d) List.

Table 2 Summary of State Water Board Staff Recommendations for 2012 303(d) List

Region	2010 303(d) List (Categories 4a, 4b and 5)	2012 303(d) List				
		State Water Board Recommendations		All Miscellaneous Changes		Total 303(d) Listings (Categories 4a, 4b and 5)
		New 303(d) Listings	New 303(d) Delistings	Resulting in Listings*	Resulting in Delistings*	
1	137	37	~~**4**~~**6**	15	15	185
2	333	0	0	0	1	333
3	712	0	0	0	0	712
4	823	0	0	0	0	823
5	730	0	0	0	0	730
6	121	**36**	~~**2**~~**1**	0	1	~~**155**~~**156**
7	56	19	7	0	0	68
8	132	0	0	0	0	132
9	445	0	0	0	0	445
TOTALS	3489	**92**	~~**13**~~**14**	15	17	~~**3583**~~**3584**

** Additional listings and delistings can be an artifact created from mapping changes such as the splitting of a water body into additional segments or the merging of water bodies into one single water body. Original 303(d) listings are copied from old segments to new segments and then delisted from the old segment. This generates more listings and delistings that should not be included in important counts of 2014 new listings and delistings.*

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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
Cal/EPA	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
CDFW	California Department of Fish and Wildlife
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
ºC	degrees Celsius
ºF	degrees Fahrenheit
FED	Functional Equivalent Document
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DFG	Department of Fish and Game (see CDFW)
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)
NMFS	National Marine Fisheries Service
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
U.S. EPA	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 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 to, and submit the CWA section 303(d) list to the U.S. Environmental Protection Agency (U.S. EPA). CWA section 305(b) requires each state to report biennially to U.S. EPA, on the condition of its surface water quality. The U.S. EPA guidance to the states recommends the two reports be integrated. For California, this "Integrated Report" is called the 2012 California Integrated Report and combines the State Water Board's section 303(d) and 305(b) reporting requirements. The purpose of this Staff Report for the 2012 California Integrated Report is to describe the assessment process, provide a report of surface water quality for the water body segments assessed as required by CWA section 305(b), and provide staff recommendations for additions, deletions, and changes to the 2010 California CWA section 303(d) List.

II. Assessment Process

The water quality assessment process for CWA sections 303(d) and 305(b) 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 303(d) List.

The underlying basis for the 2012 California Integrated Report 303(d) List is the 2010 Section 303(d) List, which was approved by U.S. EPA on October 11, 2011. After the State Water Board staff recommendations are approved by the State Water Board, the 2012 Integrated Report will be submitted to U.S. EPA for final approval to become the California 2012 Integrated Report. Throughout the assessment process, the Regional Water Boards and State Water Board follow the requirements of the 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 January 14, 2010 and concluded on August 30, 2010. All of the data and information submitted for Regions 1, 6, and 7 were considered in developing the 2012 California Integrated Report. Specifically, data and information that were reviewed included:

a. 2010 California 303(d) List and its supporting data and information.
b. Applicable Surface Water Ambient Monitoring Program (SWAMP) data;
c. Irrigated Lands Regulatory Program monitoring data;
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. U.S. EPA's Storage and Retrieval Database and other U.S. EPA 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 2012 California Integrated Report. Water Board staff 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. All available data and information for Regions 1, 6, and 7 were considered for the development of the California Integrated Report.

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 objectives (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 LOEs 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 H.

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 California are identified in the Regional Water Boards 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 water quality control policies plans and applicable law:

a. Basin Plans;
b. Statewide Water Quality Control Plans (e.g., the California Ocean Plan (2012));
c. California Toxics Rule (40 C.F.R. § 131.38);
d. Bacteria standards at bathing beaches (Cal. Code Regs., tit. 17, § 7958); and
e. Maximum Contaminant Levels to the extent applicable [e.g., Table 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of the California Code of Regulations, title 22, section 64431, Table 64444-A (Organic Chemicals) of the California Code of Regulations, title 22, section 64444, and Tables 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) and 64449-B (Secondary Maximum Contaminant Levels-Ranges) of the California Code of Regulations, title 22,section 64449].

Evaluation Guidelines
Narrative water quality objectives were evaluated using "evaluation guidelines" as that term is used in the Listing Policy[1]. 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

[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.

(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 U.S. EPA or OEHHA. Maximum Tissue Residue Levels (MTRLs) and Elevated Data Levels (EDLs) were not used to evaluate fish or shellfish tissue data.

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.

B. Explanation of Specific Analyses

In this section some of the analyses conducted by State and Regional Water Board staff are explained in more detail in order to allow for a better understanding of how data and information were evaluated.

Sediment Matrix Analyses

Pyrethroids, Organophosphates, Fipronil, and Fipronil Metabolites

Evaluation guidelines used for assessments included peer reviewed journal articles. Toxicity of these pollutants is dependent on the amount of organic carbon in the sediment. As a result, these pollutants are organic carbon normalized (OC normalized) using the amount of organic carbon residing in the sediment sample. The OC normalized result for the sample is then compared with the evaluation guideline. The equation used for OC normalization is:

$$C_{\mathrm{oc}} = \frac{C_{\mathrm{total}}}{f_{\ \mathrm{OC}}}$$

where,

C_{oc} = OC normalized pesticide concentration (e.g., µg/g OC)
C_{total} = Total pesticide concentration measured (usually dry weight)
f_{oc} = the fraction of organic carbon in the sample (%OC/100)

For sample results that were reported as "non-detect" (ND), the method detection limit (MDL) was OC normalized and compared against the evaluation guideline. In the event that the OC normalized MDL result was above the guideline, the sample was not included in the analysis. However, if the OC normalized MDL was below the guideline, the result was counted as a non-exceeding sample. For sample results that were reported as "detected, not quantified" (DNQ), the reporting limit (RL) was OC normalized before being compared against the evaluation guideline. In the event that the OC normalized RL was above the guideline, the sample was not included in the analysis. However, if the OC normalized RL was below the guideline, the result was counted as a non-exceeding sample.

Tissue Matrix Analyses

Composite and Individual Fish Tissue Data Treatment

In accordance with the Listing Policy, samples were initially assessed by averaging multiple composites that were not spatially and temporally independent. Each averaged sample consisted of one species. In certain cases the evaluation of the fish tissue data according to temporal and spatial independence was not reflective of water quality conditions. As a result, mercury data in fish tissue was re-assessed using a situation specific weight of evidence approach. This approach is to assess an individual fish as one sample when individual fish data was reported as part of a composite. The justification for this approach is fish continually move throughout the water body and accumulate mercury in tissue over time. Due to the movement of fish within a water body, each single fish can be assessed as one sample that can be considered temporally and spatially independent.

Fish Tissue Screening Values and Mercury Criterion

OEHHA Fish Contaminant Goal:
The Office of Environmental Health Hazard Assessment (OEHHA) has developed equations to determine Fish Contaminant Goals (FCGs) for the following pollutants: chlordane, DDTs, dieldrin, methylmercury, PCBs, selenium, and toxaphene (OEHHA, 2008). These equations are developed for chemicals that are carcinogens, non-carcinogens, or are considered non-carcenogenic nutrients. The FCG equations are:

- For a carcinogen,

$$Tissue\ concentration\ (ppb) = \frac{(Risk\ Level)(kg\ BW)(1000\mu g/mg)}{[CSF\ (mg/kg/day)^{-1}](CR\ kg/day)(ED/AT)(CRF)}$$

- For a non-carcinogen,

$$Tissue\ concentration\ (ppb) = \frac{(RfD\ mg/kg\text{-}day)(kg\ BW)(1000\mu g/mg)}{(CR\ kg/day)(CRF)}$$

- For a non-carcinogenic nutrient,

$$Tissue\ concentration\ (ppb) = \frac{[(RfD\ mg/kg\text{-}day)(kg\ BW) - mg/day\ Background\ Dietary\ Level](1000\mu g/mg)}{(CR\ kg/day)}$$

where,

Risk Level = 1.0×10^{-6}
CSF = cancer slope factor (OEHHA, 2008; OEHHA, 2005; or U.S.EPA, 2000)
BW = Body Weight (consumer) = 70 kg
CR = consumption rate as daily amount of fish or shellfish consumed
CRF = cooking reduction factor (OEHHA uses 0.7 for organic contaminants, State Board will use 1)
ED/AT = exposure duration/averaging time (30 yr exposure/70 yr lifetime)
RfD = chemical specific reference dose (OEHHA 2008 or U.S. EPA 2000)
Background dietary level = 0.114 mg/day (applicable to selenium only)

State Board extended use of this equation (with modification) to calculate Fish Contaminant Goals for these and other contaminants in fish and shellfish tissue. The FCG equation was modified by changing the cooking reduction factor from 0.7 to one. A cooking reduction factor is a numeric value that represents the approximate amount of contaminant that may remain in tissue after cooking. A cooking reduction factor of 1 implies that there is no net reduction in contaminant concentration from cooking. U.S. EPA guidance allows for the assumption of no contaminant loss during preparation and cooking (U.S. EPA 2000).

Whole Organism and Fillet:
Tissue sample fractions were reported as either "Whole organism" or "Fish fillet". The OEHHA modified FCGs were used for assessment of both whole organism and fish fillet data.

U.S. EPA Methylmercury Criterion:
The U.S. EPA criterion for methylmercury in tissue with a consumption rate of 32 g/day was used for assessment of methylmercury in tissue (OEHHA 2008, U.S. EPA 2000). The assessed data results were primarily for mercury and not methylmercury. U.S. EPA (2000) recommends that tissue be analyzed for total mercury with the assumption that most mercury in fish tissue is comprised of methylmercury.

Arsenic
Inorganic arsenic is the assessed pollutant. When results were reported as total arsenic, inorganic arsenic was calculated as 10% of the total arsenic result.

Polycyclic Aromatic Hydrocarbons:
Polycyclic aromatic hydrocarbons (PAHs) were assessed by comparing a potency-weighted total concentration of PAHs with the screening value for benzo(a)pyrene. The potency weighted concentration was calculated for each PAH by multiplying the concentration of the PAH by a toxicity equivalency factor (TEF). The TEF is the toxicity of each PAH relative to benzo(a)pyrene. The potency weighted concentrations for all PAHs were summed to create the potency-weighted total concentration for total PAH. The potency-weighted total concentration was then compared with the screening value for benzo(a)pyrene. The equation for the potency equivalency concentration is:

$$PEC = \Sigma\,(RP * C)$$

where,

RP = Relative potency for the individual PAH
C = Concentration of the individual PAH

<u>Shellfish Tissue</u>

Quantitation limits
Quantitation limits for Mussel Watch shellfish results were not submitted with data results. For this dataset, a Minimum Level was calculated based on the Method Detection Limit. The Minimum Level is calculated as the Method Detection Limit multiplied by 3.18.

Arsenic
Inorganic arsenic is the assessed pollutant. When results were reported as total arsenic, inorganic arsenic was calculated as 10% of the total arsenic result.

Water Matrix Analyses

Metals

The U.S. EPA 304(a) aquatic life criteria were calculated for the dissolved fraction of a metal in water. The dissolved fraction of the reported metal is most toxic to aquatic life, whereas the total fraction is considered in human health assessments. The data submitted for metals was sometimes reported as the total fraction and not the dissolved fraction. If the data was reported as the total fraction, then a total criteria and not a dissolved criteria was used for assessment. The assessment outcomes were the same whether using a total metal result or a dissolved metal result due to the use of the CTR conversion equations. In the future, metals assessment will be made for the dissolved fraction as that is the most bioavailable form of the pollutants.

Pyrethroids

Evaluation guidelines used for assessments include the UC Davis Aquatic Life Water Quality Criteria and the U.S. EPA Office of Pesticide Programs Pesticide Ecotoxicity Database.
UC Davis recommends using the dissolved concentration of the pyrethroids with the UC Davis criteria; however, UC Davis does state that the use of whole water concentrations is also valid. Pyrethroid data was reported only as whole water concentrations and so assessments are for whole water concentrations. Conversion of whole water concentration to a dissolved concentration was not possible due to lack of information needed for the conversion.

Pesticide Evaluation Guidelines for Freshwater

Regional Board Water Quality Control Plans (basin plans) often contain a narrative objective in place of a numeric objective for the protection of beneficial uses. Narrative objectives do not provide a numeric guideline for assessment of data and so evaluation guidelines must be selected for comparison with data results in order to make an assessment. Evaluation guidelines from previous listing cycles were used and, in addition, studies from the U.S. EPA Office of Pesticide Program Ecotoxicity Database were selected for use as guidelines. Studies selected from the Ecotoxicity Database were required to meet certain parameters for use as a guideline. The parameters focused on the quality and applicability of the study and included the following:

- Core study
- Freshwater study
- Chemical > 80% pure
- Endpoint linked to survival, growth, or reproduction
- Species in a family that resides in North America
- Acceptable standard or equivalent method used
- Toxicity values calculated or calculable (i.e. LC50)
- Controls – described (i.e. solvent, negative) and response reported meets acceptability requirements

The study that met the above parameters with the lowest toxicity value was selected as the guideline. If multiple studies for the same species and endpoint were available, the geometric mean was calculated and used as the guideline.

Indicator Bacteria Assessment Approach

The 2012 U.S. EPA Criteria for Recreational Water Quality was not finalized until November 26, 2012. The bacteria lines of evidence for water contact recreation (REC-1) had already been written using the 1986 U.S. EPA Ambient Water Quality Criteria for Bacteria, which were current at the time. The U.S. EPA 2012 criteria will be used to assess data collected as part of the next solicitation period.

For CWA section 303(d) listing purposes bacterial data should be assessed against the geometric mean criteria and the single sample maximum criteria. The Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000 U.S. EPA recommends that the geometric mean (geomean) be calculated as a rolling average. State Board staff assessed bacterial data collected from marine and freshwater sources against the geometric mean objective in a rolling fashion if 4 or more data points per 30 day period were available. Using four or more samples allows for more of the available data to be used especially since most bacteria samples are collected weekly and the rolling geomean looks at the steady state bacteria level.

Clarification for AB411

Section 3.3 of the Listing Policy states: "*For bacterial measurements from coastal beaches, if water quality monitoring was conducted April 1 through October 31* ***only****, a four percent exceedance percentage shall be used. For bacterial measurements from inland waters, if water quality monitoring data were collected April 1 through October 31* ***only****, a four percent exceedance percentage shall be used if (1) bacterial measurements are indicative of human fecal matter, and (2) there is substantial human contact in the water body."* (Emphasis added.)

State Water Board staff interprets this to mean that all coastal beaches with data collected for only dry weather shall be evaluated based on a four percent exceedance frequency. This also holds true for inland surface waters. The Regional Board staff has discretion to determine if the water body in question satisfies caveats one and two listed in Section 3.3 above. If data is submitted for the entire year, then the associated LOE should be evaluated based on either a ten percent exceedance rate or some site specific frequency. Regional Board staff have the ability to separate year round data and apply the dry weather months to the 4% exceedance frequency and the remainder of the months to the 10% exceedance frequency. This requires the development of two separate LOEs.

During the 2012 Listing Cycle, bacteria LOEs were based on the interpretation above and staff made a concerted effort to indicate when water bodies were assessed using only dry weather data. However, the Regional Board staff determined which exceedance frequency to use to make the appropriate listing decision recommendation. Data that were assessed with different exceedance frequencies were evaluated independently to determine accurate use support ratings. Samples were not grouped unless they were applied to the same exceedance frequency.

Clarification for Data Assessed for the Shellfish Harvesting Beneficial Use (SHELL)

For marine water bodies with the shellfish harvesting beneficial use, the total coliform objective in the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) states: "The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL." The State Board staff has applied the median 70 MPN/100 mL objective as a rolling geomean consistent with the implementation methodology outlined in the National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish (2011). In addition, a geomean captures the bacteria information consistent with the REC-1 objectives. The 230 MPN/100 mL was applies as a single sample maximum.

The Ocean Plan does not apply to enclosed bays, harbors, estuaries, and coastal lagoons. Applicable Basin Plan objectives were used for these water bodies. This same implementation described above was utilized for the assessment of enclosed bays, harbors, estuaries, and coastal lagoons having the SHELL beneficial use when the basin plan uses a median value as an objective.

Region-specific Indicator Bacteria Information

North Coast Regional Water Quality Control Board:

Total coliforms are no longer recommended as indicators for assessing the support of contact recreation beneficial uses in fresh and marine waters because they can come from non-fecal sources. Therefore, total coliform LOEs were disassociated from the final use support rating and decision recommendations for the 2012 California Integrated Report. Total coliform bacteria data can be used for determining beneficial use support of other beneficial uses like the harvesting and consumption of shellfish.

Toxicity Assessments

Water samples are usually tested for toxicity with multiple test species covering vertebrates, invertebrates, and plants. For toxicity assessments, one sample is defined as being of the same matrix from the same station on the same day. Each sample tested that has at least one species with a statistically significant difference from the control would be considered to have a toxic effect and thereby an exceedance. Each sample with an exceedance is counted once even if more than one species for that sample shows a significant difference. Because one LOE will summarize data that contains multiple tests and species specific results, it is important to record the specific species that showed toxicity.

The t-test statistical comparison method was used to determine if there was a statistically significant decrease in organism response in the sample as compared to the control. With SWAMP data the statistical evaluation has already been completed and the sample is given a code to determine if the test showed a significant effect. Initially during the 2012 California Integrated Report process, SWAMP toxicity data was counted as an exceedance if the result had the Significantly Lower (SL) or the Significantly Greater (SG) result code. The SL code is defined as the result being significant compared to the negative control based on a statistical test, less than the stated alpha level, and less than the evaluation threshold. Whereas the SG code is defined as significantly different compared to the control but the sample response is higher than the threshold, in this case the response is unlikely to be biologically significant. Through discussions with the Regional Water Board staff and the SWAMP Toxicity Work Group,

State Water Board staff determined, for 303 (d) assessment purposes, only the SL code should be used to determine whether a sample is declared toxic.

Flow Related Information

Lack of flow is treated as pollution and a causative factor related to pollutant impairments including increased water temperature and sedimentation. The State Water Board, as part of the data solicitation for the 2012 California Integrated Report, received flow information from a coalition of environmental, fishing, and tribal groups represented primarily by the California CoastKeeper (the Coalition). The submittal included information for sixteen waterbodies throughout the state including: the Carmel River and San Clemente Creek, the Eel River, the Gualala River, Mark West Creek, the Mattole River, the Napa River, the Navarro River, Redwood and Maacama Creeks, the Russian River, the Salina River, the Santa Clara River, the Scott River, the Shasta River, and the Sacramento-San Joaquin Delta.

California has not considered the direct assessment of flow data since the adoption of the Listing Policy. There are four listings on the existing 303(d) List due to flow related alterations in the Ballona Creek and Ventura River watersheds. These decisions were made ~~**in**~~ prior to adoption of the Listing Policy and before guidance was developed on the method to inventory waters impaired by pollution, and not pollutants. Those four listings waters will likely be proposed for delisting as part of the next Listing Cycle.

In 2006, U.S. EPA released the Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b), and 314 of the Clean Water Act. As part of Section V of that guidance U.S. EPA states:

> Segments should be placed in Category 4c when the states demonstrates that the failure to meet an applicable water quality standard is **not caused by a pollutant** ~~**(emphasis added)**~~, but instead is caused by other types of pollution. Segments placed in Category 4c do not require the development of a TMDL. Pollution, as defined by the CWA is "the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water**.**" (section 502(19)**.**)~~.~~ In some cases, the pollution is caused by the presence of a pollutant and a TMDL is required. In other cases, pollution does not result from a pollutant and a TMDL is not required. States should schedule these segments for monitoring to confirm that there continues to be no pollutant associated with the failure to meet the water quality standard and to support water quality management actions necessary to address the cause(s) of the impairment. Examples of circumstances where an impaired segment may be placed in Category 4c include segments impaired **solely** ~~**(emphasis added)**~~ due to lack of adequate flow or to stream channelization ~~**(Page 56)**~~.

(Page 56. ~~E~~emphasis added.) In accordance with that guidance, the State Water Board has not placed waters in category 4c for pollution when other impairments by pollutants are identified for the same waterbody segment. The current strategy relies on the TMDL process or other regulatory alternatives to identify causative factors and linkage analyses to control the pollution associated with pollutant impairments. All of the flow information submitted by the Coalition is for waterbodies already identified on the 303(d) List as being impaired by pollutants including but not limited to water temperature and sedimentation. In cases where TMDLs have been developed for increased water temperature or sedimentation, lack of flow has been

identified as a causal factor. For example, the Shasta River Watershed Temperature and Dissolved Oxygen TMDL action plan established a flow recommendation of an additional 45 cubic feet per second (cfs) of dedicated cold water as a means of addressing the temperature impairment. This approach is supported by U.S. EPA, which addressed flow impairment factors in the Ballona Creek watershed through the development and implementation of a sediment and invasive exotic vegetation TMDL.

State Water Board staff met with representatives of the Coalition several times to discuss the issue of flow impairments. The Coalition requested that identified waterbodies be included in Category 4c of the CWA section 305(b) portion of the 2012 California Integrated Report regardless of whether a pollutant impairment is identified for the same waterbody. The Coalition asserted that inclusion into Category 4c would impact future planning efforts as well as highlight opportunities for restoration funding.

The State Water Board asked North Coast Regional Water Board staff to examine the information for the ten waterbodies identified by the Coalition in their region and the feasibility for inclusion of those waterbodies into Category 4c of the 2012 Regional Integrated Report. Regional Water Board staff summarized and responded to that information. In addition, North Coast Water Board staff outlined findings regarding the assessment of flow information and next steps. The major finding iterated that a lack of methodology for assessing pollution like flow alteration impairments makes appropriate Category 4c determination very difficult. As a result, the Regional Water Board staff did not write lines of evidence (LOEs) or decision recommendations related to the flow information submitted. However, the North Coast Regional Water Board Resolution No. R1-2014-0043 (Resolution) directs the Regional Water Board staff to conduct a workshop with State Water Board staff from the Division of Water Quality and Division of Water Rights, along with other applicable agencies and interested parties on the region's authorities over water quality and water quantity. **The goal of this workshop is to present regulatory approaches to address low flows, with particular focus on the development and implementation of flow objectives.** ~~**The goal of this workshop is to develop a statewide approach to evaluate flow alteration impairment through the Integrated Report process to ensure consistency and objectivity.**~~ The Resolution also directs North Coast Regional Water Board staff to continue their efforts to address low flow conditions via the TMDL process and water rights processes to develop instream flow studies and applicable flow recommendations or objectives.

State Water Board staff independently reviewed the information submitted regarding low flows in the North Coast Region. State Water Board staff looked beyond the information submitted and located data from the United States Geological Survey (USGS), California Department of Fish and Wildlife (CDFW), and the Division of Water Rights. State Water Board staff reached similar conclusions to the North Coast Regional Water Board staff. State Water Board staff found that a consistent source of high quality flow data across watersheds is lacking. The main source for quantitative data was USGS flow gages. While the USGS data are of high quality, the data often have large gaps and lack consistent historical flow data due to an absence of gages across watersheds. In addition, there is an overall lack of fish population information over time, most of the historic information available are from intermittent CDFW stream surveys spanning several years, and only recently have video monitored fish weirs been put in place to provide accurate fish counts for high profile waterbodies. Not only is there a general lack of consistent data readily available, but there is no Regional or State water quality objective, narrative or numeric, related to flow. Without a numeric or narrative objective to apply as an evaluation guideline, the use of current assessment methods is not appropriate. Currently, the

only approved methodology available for assessment of data for developing the California Integrated Report is that detailed in the Listing Policy.

The Listing Policy is designed to comply with the CWA Section 303(d) portion of the California Integrated Report which only addresses impairments by pollutants. Flow, being pollution with no applicable water quality objectives, is difficult to assess within the Listing Policy framework. State Water Board staff recommends developing a consistent methodology for addressing pollution related impairments for the CWA section 305(b) portion of the California Integrated Report prior to including assessments of flow-related information. If a methodology for assessing flow is developed, it should address issues associated with the lack of consistent and constant flow measurements. As part of a flow assessment methodology, State Water Board staff would also recommend, at a minimum, the development of a narrative water quality objective related to surface flows. The North Coast Regional Water Board as part of the Resolution (Resolve No. 11) similarly directed staff to coordinate with Division of Water Rights on the development of flow objectives or other flow criteria, as appropriate. The Resolution includes an example that for instance, "a watershed hydrology objective that describes narrative goals for the timing, quantity, and distribution of water could be incorporated into the Basin Plan, as could a numeric flow objective for a particular water body where specific flow related thresholds are understood."

Although it is not recommended that flow related impairments be addressed via the CWA section 305(b) portion of the California Integrated Report at this time, it is important to acknowledge that the State and Regional Water Boards address flow through various other programs; mainly within the Division of Water Rights. In 2010, the Division of Water Rights issued a legislatively mandated prioritization report in 2010 that identifies 138 rivers and streams for instream flow studies. The report to the Legislature also identifies the estimated cost to conduct scientific instream flow studies for high priority rivers and streams in California. The State Water Board is in the process of developing and implementing updates to the Bay-Delta Water Quality Control Plan (Bay-Delta Plan) and flow objectives for priority tributaries to the Delta to protect beneficial uses in the Bay-Delta watershed. This work will be conducted in four phases. Phases 1 and 2 will update the 2006 Bay-Delta Plan. In Phase 1, the State Water Board is considering amendments to the Bay-Delta Plan related to the flows of the San Joaquin River and its tributaries (Merced, Tuolumne, and Stanislaus Rivers), and Southern Delta salinity standards. In Phase 2, the State Water Board is considering other potential comprehensive changes to the Bay-Delta Plan to protect beneficial uses not addressed in Phase 1. In Phase 3, the State Water Board will consider potential changes to water rights and other measures to implement the changes to the Bay-Delta Plan resulting from Phases 1 and 2. In Phase 4, the State Water Board will develop and implement tributary-specific polices for water quality control (policies) or regulations for priority tributaries to the Bay-Delta watershed, with a focus on the Sacramento River watershed. This effort includes: 1) development of non-binding flow criteria; 2) development of flow objectives and implementation plans; 3) development of policies or regulations that incorporate flow objectives, methods for adaptive management, and implementation plans; and 4) implementation of policies or regulations through conditioning of water rights and other measures as appropriate.

Additionally, the Division of Water Rights responds to public trust complaints and takes public trust actions to protect beneficial uses negatively impacted by surface flow diversions. On May 21, 2014, the State Water Board adopted emergency regulations for the Curtailment of Diversions due to Insufficient Flow for Specific Fisheries (California Code of Regulations., title 23, sections 877 through 879.2) (Regulations). The Regulations went into effect on

June 2, 2014, and established drought emergency minimum flow requirements for the protection of specific runs of federal- and state-listed anadromous fish in Mill Creek, Deer Creek and Antelope Creek.

Another mechanism in place to protect fisheries is the Russian River Frost Protection regulations adopted by the State Water Board in 2011. The Russian River Frost Protection regulations have been under litigation since 2012 and recently reached a conclusion on October 1, 2014, such that the State Water Board may now implement the provisions of the regulations. The Russian River Frost Protection regulations provide that, with the exception of diversions upstream of Warm Springs Dam in Sonoma County or Coyote Dam in Mendocino County, any diversion of water from the Russian River stream system, including the pumping of hydraulically connected groundwater, for purposes of frost protection from March 15 through May 15, shall be diverted in accordance with a State Water Board-approved Water Demand Management Program (WDMP). The Russian River Frost Protection regulations require any WDMP to manage the instantaneous demand on the Russian River stream system during frost events to prevent stranding and mortality of salmonids.

Moreover, the State Water Board adopted the Policy for Maintaining Instream Flows in Northern California Coastal Streams (North Coast Instream Flow Policy) which became effective February 4, 2014. The North Coast Instream Flow Policy contains guidelines for evaluating the potential impacts of water diversion projects on stream hydrology and biological resources. It contains principles to ensure that new water appropriations and changes to existing water right permits and licenses will not affect instream flows needed for fish spawning, migration, and rearing, or the flows needed to maintain natural flow variability, which protects the various biological functions that are dependent on that variability. It focuses on measures that protect native fish populations, with a particular focus on anadromous salmonids, and their habitat. The protective measures include a season during which diversion may occur, a formula for establishing minimum bypass flows past a diversion, and limits on the maximum cumulative water diversion rate in a watershed. The Policy also provides guidance for site-specific studies to evaluate whether alternative measures would be protective of fishery resources.

In addition to the work that the Water Boards perform on flow related issues they also coordinate with the federal and state agencies. CDFW engages in the State Water Board's water right process via review, analysis, and comment on new water rights applications and registrations, as well as any proposed changes to existing water rights. CDFW applies science through the identification of studies, surveys, and data needs associated with water projects and development of bypass flows and other conditions necessary to protect fish and wildlife resources. CDFW uses the results of applied science in development of terms and conditions, such as bypass flows, to protect public trust resources for new water rights and change petitions. CDFW also develops streamflow recommendations and submits them to the State Water Board as required by the Public Resources Code sections 10000-10005. Under Water Code section 1257.5, "the State Water Board is required to consider streamflow requirements proposed for fish and wildlife purposes pursuant to sections 10001 and 10002 of the Public Resources Code when acting upon applications to appropriate water, and the State Water Board may establish such streamflow requirements as it deems necessary to protect fish and wildlife as conditions in permits and licenses in accordance with Division 2 of the Water Code." Additionally, within the Division of Water Rights, State Water Board staff in the Water Quality Certification Program also conducts work that results in improved flow conditions through the development of water quality certifications for hydropower projects that are licensed by the Federal Energy Regulatory Commission (FERC). Certifications issued for FERC hydropower

projects establish instream flow requirements, ramping rates, and other provisions targeted at ensuring the hydropower projects are operated in a manner that meets water quality standards with an emphasis placed on flow related conditions necessary to protect beneficial uses and public trust resources.

State Water Board staff concurs with the direction given by the North Coast Regional Water Board to participate in a working group with inter-agency coordination from CDFW, the Division of Water Rights, the Division of Water Quality, and stakeholders to develop a strategy to help protect the State's public trust resources that are threatened by low flows. The group should examine the value of including low flow information in Category 4c of the California Integrated Report. If it is determined that inclusion is appropriate, then a methodology should be developed that, at a minimum, would establish a narrative objective, minimum data quantity and quality requirements, and define assessment options in cases where a waterbody is already impaired by pollutants. If it is determined that including low flows in Category 4c is not appropriate, then other options should continue to be examined to better highlight the work and progress being made to address the flow related issues in California water bodies. At this time, State Water Board staff recommends that lines of evidence and decision recommendations regarding the information submitted for flow not be included in the 2012 California Integrated Report.

III. Development of 2012 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 warrant a listing. Potential sources are only identified in fact sheets when a specific source analysis has been performed as part of a TMDL or other regulatory process. Otherwise, the potential source was marked "Source Unknown".

A. 2012 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 C.F.R. § 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 § 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 C.F.R. § 130.2(j)**.)**~~]~~ A TMDL or alternative 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 C.F.R. § 130.2(j)**.)**~~]~~

State Listing Requirements
The Listing Policy identifies the process by which the State Water Board and Regional Water Boards 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 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. Application and interpretation of 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.
4. Interpretation of narrative water quality objectives using numeric evaluation guidelines.
5. Data quality assessments.
6. 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.
7. The use of a situation-specific weight of evidence approach when all other factors don't support a listing or delisting recommendation individually.

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 U.S. EPA 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.

For California, this means that 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 the Regional Water Boards' assessment, State Water Board staff determined whether or not the data demonstrated that 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 2010 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 2010 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 the prescribed 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 3.8 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 2010 CWA section 303(d) list (Appendix I) would form the basis for the 2012 list submittal.
2. The provisions of the Listing Policy would direct 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 U.S.EPA. 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 C.F.R. § 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 U.S. EPA 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 U.S. EPA 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 2010 303(d) List

The 2012 California Integrated Report Staff Report shows the proposed 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 H. 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 J. Appendix K provides citations for all of the references used in developing this Integrated Report.

Description of Staff Recommendations for 2012 303(d) List:
In developing the 2012 California Integrated Report section 303(d) list, the State Water Board staff reviewed and evaluated the water quality assessments and listing decisions approved by the Regional Water Boards (Regional Water Boards' 2012 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 3. A summary of the State Water Board staff recommendations for the 2012 303(d) list is presented in Table 4. Each added or deleted a water-pollutant combination and the State Water Board staff proposed changes are documented in fact sheets contained in Appendix H of this staff report.

North Coast Region (Region 1):
The North Coast Water Board added 32 water body-pollutant combinations to the 2010 California 303(d) list. The North Coast Water Board delisted 11 water body pollutant combinations from the 2010 California 303(d) list. The North Coast Water Board also re-segmented many of their waterbodies that resulted in several changes in scope of listings and delistings. State Water Board staff recommends the following changes to the North Coast Water Board 2012 303(d) list:

> *Multiple Waterbodies*: The majority of waterbodies sampled as part of the Beach Watch program are also designated as having the shellfish harvesting beneficial use (SHELL). This beneficial use was not assessed by the Regional Water Board. State Water Board staff assessed the following waterbodies for the SHELL beneficial uses (only those in **bold** resulted in a decision recommendation to list):
>
> **1. Big River Beach at Mendocino Bay**
> 2. Black Point
> 3. Campbell Cove
> 4. **Caspar Headlands State Beach**
> **5. Clam Beach (near Mad River mouth)**
> 6. Clam Beach (near Strawberry Creek)
> 7. Doran Regional Park
> 8. Goat Rock State Beach
> 9. Gualala Regional Park Beach
> **10. Hare Creek Beach**

11. Luffenholtz Beach
12. MacKerricher State Park (near Mill Creek)
13. MacKerricher State Park (near Virgin Creek)
14. Manchester State Beach
15. Moonstone County Park
16. Old Home Beach
17. Pudding Creek Beach
18. Salmon Creek Park (south)
19. Stillwater Cove Regional Park Beach
20. Trinidad State Beach
21. Van Damme State Park (beach area)

Lahontan Region (Region 6):
The Lahontan Water Board added 27 water body-pollutant combinations to the 2010 California 303(d) List. Lahontan Water Board delisted 2 water body pollutant combinations from the 2010 California 303(d) list. State Water Board staff recommend the following changes to the Lahontan Water Board 2012 303(d) list:

Buckeye Creek: An error regarding the carryover decision made for Fecal Coliform in Buckeye Creek was identified. After consultation between the State Water Board and Regional Water Board staff, the recommendation was changed from Do Not Delist (TMDL still required) to Do Not Delist (being addressed by action other than a TMDL) was made.

Lake Tahoe: The carryover decision for Nitrogen in Lake Tahoe was inadvertently deleted. **State** Water Board~~s~~ staff created a replacement LOE and listing decision for this waterbody-pollutant combination.

Twin Lake, Upper: Although the sample size is low and the species sampled is not ideal, the results show a significant exceedance of the Mercury guideline for fish tissue. In addition, Mammoth Creek (Twin Lakes outlet to Old Mammoth Road) is listed for Mercury which provides additional evidence that a mercury impairment exists in Twin Lake. **State** Water Board~~s~~ staff found that the minimum number of samples and exceedances exist under section 3.1 to recommend a new listing. Staff also agrees more samples should be collected, but in the meantime this waterbody should be listed for Mercury for the protection of human health.

***Amargosa River (Willow Creek confluence to Badwater)*: The initial decision by the Lahontan Regional Board indicates that the chronic saltwater CTR objectives for arsenic are not applicable to this waterbody because it is an inland saline water. However, the CTR saltwater criteria do apply to inland saline waters in the absence of any other applicable objective. Therefore, State Water Board staff recommends listing this waterbody segment as impaired due to arsenic.**

Multiple Water Bodies: **State** Water Board~~s~~ staff determined that the data were collected over a broad period of time to meet Section 6.1.5.3 of the Listing Policy. Furthermore, Water Boards staff found that the pollutants had site-specific objectives (SSOs) in the Basin Plan and when creating an SSO the any potential natural sources are taken into account. A total of 8 waterbody-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~~s~~ staff recommends listing the following water body-pollutant combinations:

1. Hidden Valley Creek – Phosphorus
2. Tahoe Keys Sailing Lagoon – pH
3. Carson River, East Fork – Boron
4. Carson River, East Fork – Phosphorus
5. Carson River, East Fork – Sulfates
6. Dressler Ditch – Turbidity
7. West Walker River – Boron
8. West Walker River - Chloride

Colorado River (Region 7):

The Colorado River Water Board added 19 new water body-pollutant combinations to the 2010 303(d) List. The Colorado River Water Board delisted 7 water body-pollutant combinations on the 2010 303(d) list. State Water Board staff recommends **the following** ~~**no**~~changes to the Colorado River Water Board **2012** 303(d) list:

***Multiple Water Bodies*: U.S. EPA determined that Colorado River Water Board staff inappropriately changed the TMDL requirement status from TMDL still required (5A) to being addressed by action other than a TMDL (5C) for several waterbody-pollutant combinations. U.S. EPA staff acknowledges that the programs the Colorado River Water Board has implemented may partially address the impairments and agreed that the waterbody-pollutant combinations might be a lower priority for TMDLs. Although the TMDL requirement status was changed at the Colorado Regional Water Board the waterbody itself was never removed from Category 5. State Water Board staff recommends changing the TMDL requirement status for the following water body-pollutant combinations:**

1. Alamo River – Chlordane
2. Alamo River – Chlorpyrifos
3. Alamo River – DDT (Dichlorodiphenyltrichloroethane)
4. Alamo River – Diazinon
5. Alamo River – Dieldrin
6. Alamo River – PCBs (Polychlorinated biphenyls)
7. Alamo River – Toxaphene
8. Imperial Valley Drains – Chlordane
9. Imperial Valley Drains – DDT (Dichlorodiphenyltrichloroethane)
10. Imperial Valley Drains – Dieldrin
11. Imperial Valley Drains – PCBs (Polychlorinated biphenyls)
12. Imperial Valley Drains – Toxaphene
13. New River (Imperial County) – Chlordane
14. New River (Imperial County) – Chlorpyrifos
15. New River (Imperial County) – DDT (Dichlorodiphenyltrichloroethane)
16. New River (Imperial County) – Diazinon
17. New River (Imperial County) – Dieldrin
18. New River (Imperial County) – PCBs (Polychlorinated biphenyls)

19. New River (Imperial County) – Toxaphene
20. Palo Verde Outfall Drain and Lagoon – DDT (Dichlorodiphenyltrichloroethane)
21. Palo Verde Outfall Drain and Lagoon – Toxaphene

Summary of State Water Board Staff Recommendations

The State Water Board staff recommends specific changes to the Regional Water Boards' 303(d) lists as summarized in

Table 3.

Table 3 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
1	Big River Beach at Mendocino Bay	Indicator Bacteria	Do Not List	List
1	Caspar Headlands State Beach	Indicator Bacteria	Do Not List	List
1	Clam Beach (near Mad River mouth)	Indicator Bacteria	Do Not List	List
1	Hare Creek Beach	Indicator Bacteria	Delist	Do Not Delist
1	Luffenholtz Beach	Indicator Bacteria	Delist	Do Not Delist
1	MacKerricher State Park (near Virgin Creek)	Indicator Bacteria	Do Not List	List
1	Moonstone County Park	Indicator Bacteria	Delist	Do Not Delist
1	Old Home Beach	Indicator Bacteria	Do Not List	List
1	Pudding Creek Beach	Indicator Bacteria	Delist	Do Not Delist
1	Trinidad State Beach	Indicator Bacteria	Delist	Do Not Delist
6	Buckeye Creek	Fecal Coliform	Do Not Delist (TMDL still required)	Do Not Delist (being addressed by action other than a TMDL)
6	Lake Tahoe	Nitrogen	*No Decision	List (being addressed by U.S.EPA approved TMDL)
6	Twin Lakes, Upper	Mercury	Do Not List	List
6	**Amargosa River (Willow Creek confluence to Badwater)**	**Arsenic**	**Delist**	**Do Not Delist**
6	Hidden Valley Creek	Phosphorus	Do Not List	List
6	Tahoe Keys Sailing Lagoon	pH	Do Not List	List

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
6	Carson River, East Fork	Boron	Do Not List	List ~~**(being addressed by and action other than a TMDL)**~~
6	Carson River, East Fork	Phosphorus	Do Not List	List ~~**(being addressed by and action other than a TMDL)**~~
6	Carson River, East Fork	Sulfates	Do Not List	List ~~**(being addressed by and action other than a TMDL)**~~
6	Dressler Ditch	Turbidity	Do Not List	List
6	West Walker River	Boron	Do Not List	List
6	West Walker River	Chloride	Do Not List	List
7	**Alamo River**	**Chlordane**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**Chlorpyrifos**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**DDT (Dichlorodiphenyltrichloroethane)**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**Diazinon**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**Dieldrin**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**PCBs (Polychlorinated biphenyls)**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Alamo River**	**Toxaphene**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
7	Imperial Valley Drains	Chlordane	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	Imperial Valley Drains	DDT (Dichlorodiphenyltrichloroethane)	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	Imperial Valley Drains	Dieldrin	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	Imperial Valley Drains	PCBs (Polychlorinated biphenyls)	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	Imperial Valley Drains	Toxaphene	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	New River (Imperial County)	Chlordane	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	New River (Imperial County)	Chlorpyrifos	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	New River (Imperial County)	DDT (Dichlorodiphenyltrichloroethane)	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	New River (Imperial County)	Diazinon	List (being addressed by action other than a TMDL)	List (TMDL still required)
7	New River (Imperial County)	Dieldrin	List (being addressed by action other than a TMDL)	List (TMDL still required)

Region	Water Body	Pollutant	Regional Water Board Decision	State Water Board Recommendation
7	**New River (Imperial County)**	**PCBs (Polychlorinated biphenyls)**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**New River (Imperial County)**	**Toxaphene**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Palo Verde Outfall Drain and Lagoon**	**DDT (Dichlorodiphenyltrichloroethane)**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**
7	**Palo Verde Outfall Drain and Lagoon**	**Toxaphene**	**List (being addressed by action other than a TMDL)**	**List (TMDL still required)**

*Due to a technical error, the Lake Tahoe-Nitrogen listing was not included in the approved Lahontan Region 2012 303(d) List. The State Water Board has corrected this error and recommends an unchanged 2010 decision to List (being addressed by U.S. EPA approved TMDL).

The additional listings and delistings and the State Water Board staff recommendations for the 2012 303(d) list are summarized in Table 4. The last column in Table 4, "2012 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 H of this staff report.

Table 4 Additional Listings and Delistings with State Water Board Staff Total 303(d) Listing Recommendations

2012 CALIFORNIA INTEGRATED REPORT Summary Totals of Regional Board Approved 303(d) Listings and Delistings and State Water Board Recommended Revisions										
Region	**2010 303(d) List**	**2012 303(d) List**								
	Total 303(d) Listings (Categories 4a, 4b and 5)	**Regional Boards Approved 303(d) Lists**		**State Water Board Recommendations**				**All Miscellaneous Changes**		**Total 303(d) Listings (Categories 4a, 4b and 5)**
		New Listings	**New Delistings**	**Removal of Regional Board New Listing**	**Removal of Regional Board New Delisting**	**New 303(d) Listings**	**New 303(d) Delistings**	**Resulting in Listings***	**Resulting in Delistings***	
1	**137**	**32**	**~~9~~11**	**0**	**5**	**5**	**0**	**15**	**15**	**185**
2	333	0	0	0	0	0	0	0	1	333
3	712	0	0	0	0	0	0	0	0	712
4	823	0	0	0	0	0	0	0	0	823
5	730	0	0	0	0	0	0	0	0	730
6	**121**	**27**	**2**	**0**	**~~0~~1**	**9**	**0**	**0**	**1**	**~~155~~156**
7	**56**	**19**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**68**
8	132	0	0	0	0	0	0	0	0	132
9	445	0	0	0	0	0	0	0	0	445
TOTALS	3489	78	**~~18~~20**	0	**~~5~~6**	**14**	0	15	17	**~~358~~3584**

** Additional listings and delistings can be an artifact created from mapping changes such as the splitting of a water body into additional segments or the merging of water bodies into one single water body. Original 303(d) listings are copied from old segments to new segments and then delisted from the old segment. This generates more listings and delistings that should not be included in important counts of 2014 new listings and delistings*

B. 2012 Integrated Report Category and Beneficial Use Support Rating Determination

The 2012 California 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 U.S. EPA guidance for States' Integrated Reports, but contain some modifications based on the Listing Policy. U.S. EPA and State Water Board staff agreed that California's use of each category will be as follows:

Category 1: A water segment that, 1) 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: A water segment that, 1) supports some of the designated California beneficial uses; 2) that can have other uses that are not assessed or lack sufficient information to be assessed; 3) cannot be in this category if any of its uses are not supported; and 4) in agreement with the U.S.EPA, 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, 1) ALL its 303(d) listings are being addressed, and 2) at least one of those listings is being addressed by a U.S.EPA 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. **In Category 5, the TMDL requirement status is defined as follows: 5A = TMDL still required, 5B = being addressed by U.S.EPA approved TMDL, and 5C = being addressed by action other than a TMDL.**

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 2012 California Integrated Report. They are fully supporting (supporting), not supporting, and insufficient information. These are the standard use support ratings designed by U.S.EPA 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 1 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.

State Water Board staff encouraged the Regional Boards to employ an extra condition used in the 2010 Listing Cycle in determining whether a beneficial use is "supported". This condition is 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.

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 LOEs with use support ratings determined in Step 3 above. These rules are shown in Table 5.

Step 5: The CalWQA database applies the same rules in Table 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 1 Example of Determining Individual and Overall Beneficial Use Support Ratings for One Water Segment

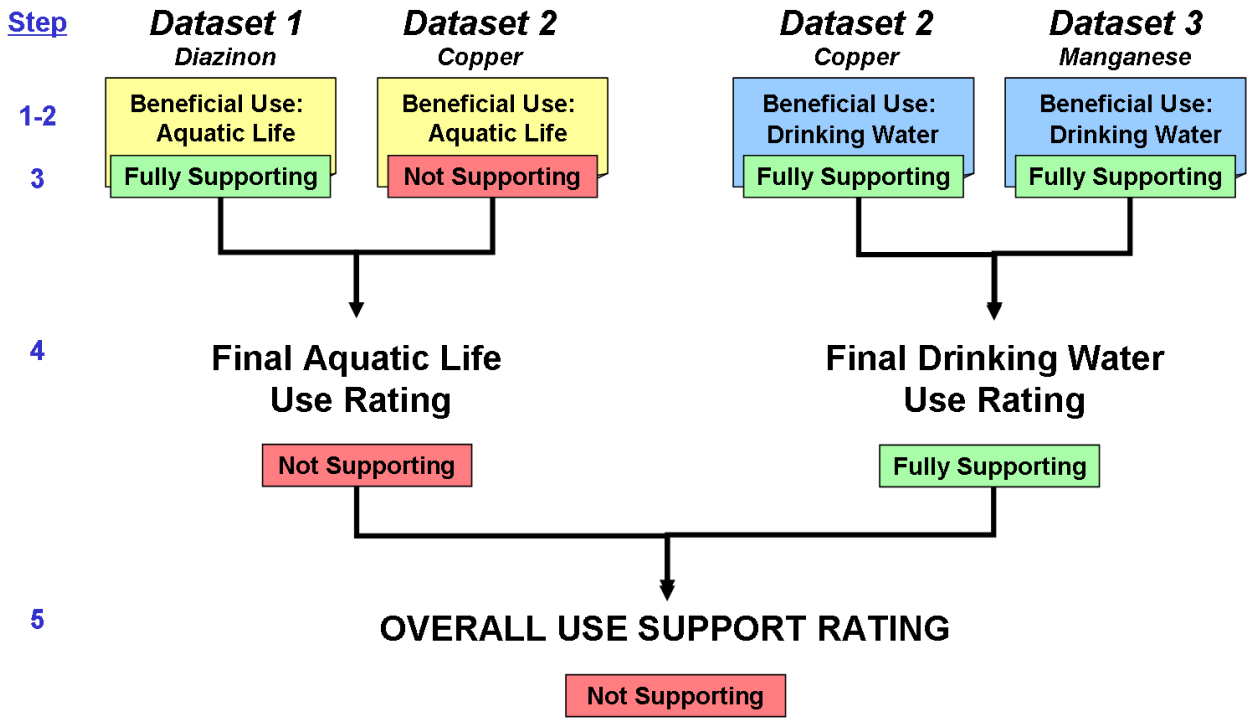

Figure 1 is an example of how beneficial use support ratings can be deduced for individual uses of a water segment, and how individual use support ratings can be used to deduce one overall use support rating for the water segment.

Table 5 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, 3, and 4c are informational and do not require State approval. They will be submitted as part of the 2012 California Integrated Report to the U.S.EPA 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 respective 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 U.S. EPA for final approval, as the U.S. EPA'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 U.S. EPA'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 2012 California 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 2012 California Integrated Report is presented in Appendix K of this report.

REFERENCES

California Regional Water Quality Control Board, North Coast Region. 2014. 303(d) List Portion of the North Coast Region's 2012 Integrated Report for the Clean Water Act 305(b) Assessment of Surface Water Quality and Clean Water Act Section 303(d) List of Water Quality Limited Segments. Approved August 14, 2014. Board Resolution No. R1-2014-0043. Santa Rosa, CA: California Regional Water Quality Control Board, North Coast Region (1).

California Regional Water Quality Control Board Lahontan Region. 2014. 2012 Clean Water Act Section 305(b) and 303(d) Integrated Report for the Lahontan Region, Approved June 19, 2014. Board Resolution No. R6T-2014-0052. South Lake Tahoe, CA: California Regional Water Quality Control Board, Lahontan Region (6).

California Regional Water Quality Control Board. 2014. Revisions to the Clean Water Act Section 303(d) List of Impaired Water Bodies and Preparation of the 2012 Integrated Report, Approved March 20, 2014. Board Resolution No. R7-2014-0025. Palm Desert, CA: Regional Water Quality Control Board, Colorado River Basin Region (7).

Office of Environmental Health Hazard Assessment. 2005. Air Toxics Hot Spots Program Risk Assessment Guidelines Part ll Technical Support Document for Describing Available Cancer Potency Factors. Office of Environmental Health Hazard Assessment. California Environmental Protection Agency, Sacramento.

Office of Environmental Health Hazard Assessment. 2008. Development of Fish Contaminant Goals and Advisory Tissue Levels for Common Contaminants in California Sport Fish: Chlordane, DDTs, Dieldrin, Methylmercury, PCBs, Selenium, and Toxaphene. Office of Environmental Health Hazard Assessment. California Environmental Protection Agency, Sacramento.

State Water Resources Control Board. 2004. Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List, Adopted September 2004. Sacramento, CA: State Water Resources Control Board.

State Water Resources Control Board. 2004. Final Functional Equivalent Document for the Water Quality Control Policy Developing California's Clean Water Act Section 303(d) List, September 2004. Sacramento, CA: State Water Resources Control Board.

State Water Resources Control Board. 2011. California's 2010 Clean Water Act Section 303(d) List of Water Quality Limited Segments, Approved October 25, 2006. Board Resolution No. 2006-0079. Sacramento, CA: State Water Resources Control Board.

U.S. Food and Drug Administration, 2011. National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish: 2011 Revision.
http://www.fda.gov/Food/GuidanceRegulation/FederalStateFoodPrograms/ucm2006754.htm

U.S. EPA. 2001. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories Volume 1 Fish Sampling and Analysis 3rd ed. EPA 823-B-00-007.

U.S. EPA 2005. Guidance for 2006 assessment, listing and reporting requirements pursuant to sections 303(d), 305(b) and 314 of the Clean Water Act. July 29, 2005.