



REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CLEAN WATER ACT
SECTIONS 305(b) AND 303(d)
2014 INTEGRATED REPORT
FOR THE CENTRAL VALLEY REGION

DRAFT STAFF REPORT

September 2016



CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY



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**CLEAN WATER ACT SECTIONS 305(B) AND 303(D)
INTEGRATED REPORT FOR THE CENTRAL VALLEY REGION**

Draft Staff Report

September 2016

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REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Executive Summary

This report provides the draft recommendations of the staff of the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) for updates to the federal Clean Water Act (CWA) section 303(d) list of impaired surface water bodies (303(d) List), and, pursuant to CWA section 305(b), analyzes the extent to which all navigable waters in the Central Valley Region are meeting the minimum fishable/swimmable beneficial uses. These include six “core” beneficial uses: municipal and domestic supply; aquatic life support; fish consumption; shellfish harvesting; contact recreation; and non-contact recreation. The water quality assessment applies to surface waters of the United States within the Central Valley Region. The combination of the 303(d) List and 305(b) analyses is known as the Integrated Report.

Following a public participation process, the Central Valley Water Board will consider adopting recommendations to the State Water Resources Control Board (State Water Board) for updates to the 2010 Central Valley 303(d) List. The adopted recommendations will be considered by the State Water Board for inclusion in a statewide 303(d) List.

The Central Valley Water Board will not take action on staff’s overall 305(b) assessment of Central Valley surface water bodies, but may provide direction to staff. Public comments will be accepted on 305(b) issues and included in the administrative record. The State Water Board will compile the individual Integrated Reports from all nine Regional Boards into a single, statewide Integrated Report that it will submit to the U.S. Environmental Protection Agency (USEPA).

This staff report provides background on the assessment process and the methods used. Results and recommendations are tabulated in nine separate appendices to this report that document not only proposed updates to the 2012 303(d) List, but also sort water body segments into different assessment categories. The appendices also include “fact sheets” for specific water body-pollutant combinations that provide more detailed information and links to online data and reference documents. Data sources for the Central Valley Region’s 2014 Integrated Report include government agencies, municipalities, environmental groups, citizen groups, and receiving water data from the National Pollutant Discharge Elimination System (NPDES) dischargers. Data collected by the State and Regional Water Boards under the Surface Water Ambient Monitoring Program (SWAMP) and from the Central Valley Water Board’s Irrigated Lands Regulatory Program provided the majority of the data used to develop and revise fact sheets for the 2014 Integrated Report. Per State Water Board direction, for consistency between Regional Water Boards, only water quality data received through August 30, 2010, were evaluated for this update.

Over 11,000 fact sheets, each assessing a unique water body-pollutant combination, were developed during the 2014 assessment cycle. This number is significantly larger than for the prior assessment cycle, when approximately 1,800 fact sheets were developed utilizing data received through January 2007. The 2014 cycle fact sheets included in Appendix G contain over 17,000 lines of evidence (summaries of the available data for a water body segment in relation to a specific beneficial use and applicable water quality objective).

Due to the extensive amount of water quality information, evaluations were prioritized to ensure assessment of available data for all natural water bodies and water bodies previously listed. New information on constructed agricultural drains was compiled but not assessed during this cycle.

Summary of Proposed Updates to the 2012 303(d) List of Impaired Surface Water Bodies

The proposed updates for the 303(d) List include:

- New delistings (water bodies meeting standards for previously listed pollutants): 38
- Changes in impairment status (category changes from “TMDL Required” to categories reflecting):
 - Being addressed by an action other than a TMDL: 53
 - Being addressed by a USEPA-approved TMDL: 21
- Newly identified impairments (303(d) listings) that:
 - Require TMDL development: 286
 - Are being addressed by an action other than a TMDL: 23

For comparison, the previous listing process added 389 new 303(d) listings and delisted 23 water body-pollutant combinations, for a total of 707 listings. We are proposing to add 310 new 303(d) listings and to delist 38 water body-pollutant combinations, for a total of 979 listings and net increase of about 40%. Of these 979 listings, 97 are already being addressed by either an existing TMDL or another regulatory control program.

Many of the new listings are a result of a significant increase in available data since the 2012 Integrated Report. In addition, several new listings are chemical specific rather than generic (e.g. specific pyrethroid pesticides rather than a generic “pyrethroid” listing).

The 38 proposed delistings address the following:

- Pesticides: 24, including diuron (4), chlorpyrifos (6), diazinon (7), dimethoate (7)
- Bacteria: 4
- Metals: 2, including mercury (1) and zinc (1)
- Others: 8, including boron (3), pH (2), electrical conductivity (2), and toxicity (1)

When adopting recommendations for updated 303(d) Lists, the Regional Water Boards are required to identify dates for completion of total maximum daily loads (TMDLs). An estimate of 13-years has been provided, however most of the recommended new listings are likely to be addressed through update of water quality standards or alternative regulatory programs, such as the Irrigated Lands Regulatory Program, rather than through development of TMDLs.

Summary of Changes to the 2010 Central Valley 305(b) Assessment of Overall Surface Water Quality (Category Description)

The 305(b) assessment focuses on attainment of “core” beneficial uses related to protection of aquatic life, human health, and recreation. Water bodies are placed in one of five over-arching categories depending on whether or not applicable standards are attained for the core uses and whether there is sufficient information to evaluate whether a specific pollutant is exceeding the water quality objectives for a specific water body. Table E-1 summarizes the category updates to the 2012 305(b) Central Valley evaluation.

With the increased available data set, a total of 648 water body segments are included in this report—270 more than reported in 2012. Although Table E-1 identifies only two water body segments as having all impairment concerns addressed by a non-TMDL regulatory effort, 53 separate individual water body-pollutant listings in multiple water bodies are also noted separately in the 303(d) List (Appendix A) as being addressed by a non-TMDL regulatory program.

A growing number of impairments have been identified utilizing water quality data available through the Irrigated Lands Regulatory Program (ILRP). The ILRP also requires development and implementation of management plans when “triggers” (which roughly equate to water quality objectives and/or guidelines) are exceeded. Several of the additions to Category 4b are a result of such management plans being in place.

Table E-1: Comparison of 2012 and 2014 California Integrated Report Categories for Central Valley Water Bodies

Category / Description	Water Body Segments			
	2012	2014		
		Added	Removed	Total
1. At least one beneficial use fully supported, has other uses that are not assessed or lack sufficient information to be assessed, and no beneficial uses known to be impaired.	24	28	9	43
2. There is insufficient information to determine beneficial use support	88	177	18	247
4a. USEPA-approved TMDL in place for any water body-pollutant combination and the approved implementation plan is expected to result in full attainment of the water quality standard within a specified time frame	6	2	0	8
4b. Another regulatory program is reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame	0	2	0	2
5. At least one beneficial use is not supported and a TMDL is needed	260	97	9	348
Overall Total:	378	--	--	648

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List of Acronyms and Abbreviations

Basin Plan	Regional Water Quality Control Plan
BPTCP	Bay Protection and Toxic Cleanup Program
BMI	Benthic Macro Invertebrates
BMP	Best Management Practice
CalWQA	California Water Quality Assessment (database)
CCC	Criteria Continuous Concentration
CCR	California Code of Regulations
CDPH	California Department of Public Health
CFR	Code of Federal Regulations
CMC	Criteria Maximum Concentration
CTR	California Toxics Rule
CRWQCB-CVR	California Regional Water Quality Control Board, Central Valley Region
CWA	Clean Water Act
°C	degrees Celsius
°F	degrees Fahrenheit
DDE	Dichlorodiphenyldichloroethylene
DDT	Dichlorodiphenyltrichloroethane
DFW	California Department of Fish and Wildlife, formerly Department of Fish and Game (DFG)
DO	Dissolved oxygen
DPR	California Department of Pesticide Regulation
dw	Dry Weight
ERM	Effects Range Median
HCH	Hexachlorocyclohexane
HSA	Hydrologic Sub Area
HU	Hydrologic Unit
IBI	Index of Biological Integrity
ILRP	Irrigated Lands Regulatory Program

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)
MTBE	Methyl tertiary-butyl ether
MTRL	Maximum Tissue Residue Level
NAS	National Academy of Sciences
ng/g	nanograms per gram (parts per billion)
ng/L	nanograms per liter (parts per trillion)
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
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
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TSMP	Toxic Substance Monitoring Program
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirement
WQO	Water quality objective
WQS	Water quality standard
ww	wet weight

Introduction

The federal Clean Water Act (CWA) gives states the primary responsibility for protecting and restoring surface water quality. In California, the State Water Quality Control Board (State Water Board) and nine Regional Water Quality Control Boards (Regional Water Boards), collectively referred to as the California Water Boards, serve as the agencies with the primary responsibility for implementing CWA requirements. One such responsibility includes developing and implementing programs to ensure attainment of water quality standards. Water quality standards, pursuant to the CWA, consist of designated beneficial uses of water bodies and criteria or objectives (numeric and narrative) that are protective of those beneficial uses.

Section 305(b) of the CWA requires each state to report biennially to the United States Environmental Protection Agency (USEPA) on the water quality conditions of its surface waters. USEPA compiles these assessments into their biennial “National Water Quality Inventory Report” to Congress. CWA section 303(d) requires each state to develop, update, and submit to the USEPA for approval, a list of water body segments not meeting water quality standards. Title 40 of the Code of Federal Regulations (CFR) section 130.7(d)(1) requires each state to submit the list biennially. This list is commonly referred to as the “303(d) List” or the “List of Impaired Waters”. Water body segments placed on the 303(d) List must be addressed through the development of total maximum daily loads (TMDLs), or other regulatory programs that are reasonably expected to result in the attainment of water quality standards within a specified timeframe.

In conformance with USEPA guidance (USEPA, 2005), the State and Regional Water Quality Control Boards prepare a single Integrated Report that meets the reporting requirements of CWA sections 303(d) and 305(b). The Central Valley Water Board is responsible for developing and adopting the Integrated Report for surface waters within the Central Valley Region. This staff report provides background on the assessment process and summarizes Central Valley Water Board staff’s recommended updates to the California 303(d) List and 305(b) report. Appendices A through I provide supporting information as follows:

- Appendix A: Proposed changes to the 2012 Central Valley 303(d) List
- Appendix B: Water quality limited segments where a TMDL is required but not yet completed (Category 5)
- Appendix C: Water quality limited segments being addressed by USEPA-approved TMDLs (Category 4a)
- Appendix D: Water quality limited segments being addressed by actions other than TMDLs (Category 4b Water Body Segments)

- Appendix E: Waters with insufficient information to determine beneficial use support (Category 2)
- Appendix F: Waters supporting beneficial uses (Category 1)
- Appendix G: Fact sheets
- Appendix H: Miscellaneous changes report
- Appendix I: References used in the fact sheets
- Appendix J: Description of Delta waterways

Legal Requirements

FEDERAL REQUIREMENTS

CWA Section 305(b) – Water Quality Assessment

Under CWA section 305(b), states are required to report biennially to the USEPA on the water quality conditions of their surface waters. The USEPA then compiles these assessments into their biennial “National Water Quality Inventory Report” to Congress.

CWA Section 303(d) – Impaired Waters

The 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.¹ The 303(d) List must include a description of the pollutants causing the violation of water quality standards (40 CFR 130.7(b)(iii)(4)) 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.

As defined in the CWA and federal regulations, water quality standards include the designated uses of a water body and the adopted water quality criteria. Under state law (Porter-Cologne Water Quality Control Act, Wat. Code § 13300 et seq.), Water Quality Control Plans (Basin Plans) establish water quality standards for particular water bodies and consist of the beneficial uses to be made of a water body, the established water quality objectives (both narrative and numeric), and program of implementation for achieving water quality objectives, including the State’s Antidegradation Policy (State Water Resources Control Board Resolution No. 68-16).

Federal regulation defines a “water quality limited segment” as “any segment [of a surface water body] 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,

¹ Technology-based controls are defined in CWA section 301. They include effluent limits (primary and secondary treatment requirements) for industrial discharges and discharges from publically owned treatment works.

even after application of technology-based effluent limitations required by CWA sections 301(b) or 306” (40 CFR 130.2(j)).

States are required to review the 303(d) List in even-numbered years, make changes as necessary, and submit the list to the USEPA for approval. A TMDL is generally developed for a water quality limited segment. A TMDL is the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources, and natural background (40 CFR 130.2(j)).

STATE REQUIREMENTS

In California, the State Water Board and the nine Regional Water Quality Control Boards (Water Boards) have the primary responsibility for implementing CWA requirements, including developing and implementing programs to achieve water quality standards. The water quality standards for water bodies in the Central Valley Region are primarily contained in two Basin Plans—the Water Quality Control Plan for the Sacramento and San Joaquin River Basins (CRWQCB-CVR, 2015b), and the Water Quality Control Plan for the Tulare Lake Basin (CRWQCB-CVR, 2015a). Additional water quality standards applicable to the surface waters in the Central Valley Region are contained in the Water Quality Control Plan for the San Francisco Bay-Delta (Bay-Delta Plan; SWRCB, 2006) and the federally promulgated California Toxics Rule (CTR) (40 CFR 131.38).

Listing Policy

On September 30, 2004 the State Water Board adopted the “[Water Quality Control Policy for Developing California's Clean Water Act Section 303\(d\) List](#),” also known as the Listing Policy (SWRCB, 2004), in accordance with California Water Code section 13191.3(a). The Listing Policy was amended February 23, 2015. The Listing Policy establishes a standardized approach for developing California’s section 303(d) List. It outlines an approach that provides the rules for making listing decisions based upon different types of data and establishes a systematic framework for statistical analysis of water quality data. The Listing Policy also establishes requirements for data quality, data quantity, and administration of the listing process. Listing and delisting factors are provided for chemical-specific water quality standards; bacterial water quality standards; health advisories; bioaccumulation of chemicals in aquatic life tissues; nuisance such as trash, odor, and foam; nutrients; water and sediment toxicity; adverse biological response; degradation of aquatic life populations and communities; trends in water quality; and weight of evidence.

The Listing Policy requires the water quality assessments and listing decisions for specific water body-pollutant combinations to be documented in water body “fact sheets”. Fact sheets consist of “lines of evidence” (LOEs) summarizing the data for a water body segment in relation to the applicable standard (a specific beneficial use and associated water quality objective). Staff then recommends “decisions” regarding listing

based on beneficial use support. The fact sheets supporting the 2014 Integrated Report for waters in the Central Valley Region are provided in Appendix G.

The Listing Policy requires that *all* surface waters that do not meet water quality standards due to toxicity, a pollutant, or pollutants, be placed on the 303(d) List. The Policy states that the 303(d) List includes (1) water quality limited segments requiring one or more TMDLs to remediate the standards attainment problem, and (2) “water quality limited segments being addressed.” Water bodies in the “water quality limited segments being addressed” category must still be identified as impaired based on available data and meet either of the following conditions:

- A TMDL has been approved by USEPA and the approved implementation plan is expected to result in full attainment of the standard within a specified time frame; or
- The Regional Water Board has determined in fact sheets that an existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified time frame.

Water bodies that are impaired by a non-pollutant source such as flow alteration or habitat alteration do not require a TMDL and the State Water Board, in accordance with the Listing Policy, does not consider these waters as comprising part of the 303(d) List. Monitoring should be conducted to confirm that there continues to be no pollutant-caused impairment and water quality management actions may be necessary to address the cause(s) of the impairment.

This Listing Policy requirement means that the California 303(d) List includes all water quality limited segments except those impaired by non-pollutant sources. In contrast, the USEPA considers only those water quality limited segments that require a TMDL to constitute the 303(d) List. Consequently, this report uses the phrases “California 303(d) List” and “federal 303(d) List.”

Changes to California’s Integrated Report Process

On June 14, 2013, State Water Board management met with USEPA Division of Water Quality management to discuss strategies to create a more efficient and timely Integrated Report preparation process. The strategy agreed upon divides the nine Regional Water Boards into three groups. As proposed, each group of three Regional Boards will submit an Integrated Report in one of the three successive two-year cycles (see Table 1). If this Integrated Report schedule is continued beyond 2016, as proposed, the Central Valley Water Board would again be “on-cycle” to develop and approve its next Integrated Report in 2020.

The State Water Board anticipates that the six Regional Water Boards that are “off-cycle” during each two-year Integrated Report cycle will still have an opportunity to assess new “high-priority” data and make new listing/delisting decisions. Following

adoption by the “off-cycle” Regional Water Board, the new listing/delisting decisions will be transmitted to the State Water Board for approval and inclusion with the “on-cycle” Integrated Report.

Table 1: Integrated Report Schedule

Year	Regional Boards
2012	North Coast (Region 1) Lahontan (Region 6) Colorado Basin (Region 7)
2014	Central Coast (Region 3) Central Valley (Region 5) San Diego (Region 9)
2016	San Francisco Bay (Region 2) Los Angeles (Region 4) Santa Ana (Region 8)

California’s 2012 Integrated Report

The State Water Board adopted the statewide 2012 Integrated Report in 2015. No new data for waters in the Central Valley Region were considered during the 2012 Integrated Report cycle. All assessments made during the 2010 Integrated Report cycle and approved by USEPA were carried over to the 2012 Integrated Report and remained unchanged. Therefore, the 2012 statewide Integrated Report contains information from the 2010 Central Valley Integrated Report that was adopted by the Central Valley Water Board under Resolution 2009-0059.

Water Quality Assessment

The water quality assessment process begins with the solicitation and evaluation of data collected from the monitoring activities in the region. The data is analyzed to determine if a water body is meeting or exceeding water quality standards. The determination of whether water quality standards are being met is determined by comparing data to objectives, criteria, and guidelines (protective limits for the applicable beneficial use). This analysis forms the basis of 303(d) and 305(b) assessments. Whether or not these protective limits are exceeded determines a water segment’s ability to support its assigned beneficial uses and whether to recommend listing, or not listing, the water body-pollutant combination on the California 303(d) List.

DATA SOLICITATION

The State Water Board solicited data from the public with a formal [“Notice of Public Solicitation of Water Quality Data and Information for the California Integrated Report”](#) sent to interested parties subscribed to the State Water Board [Integrated Report](#)

[e-mailing list](#) as well as the Central Valley Water Board [Integrated Report e-mailing list](#). Data used as part of the 2014 Integrated Report were received January 14, 2010 through August 30, 2010. Data sources include government agencies, municipalities, environmental groups, citizen groups, and receiving water data from the National Pollutant Discharge Elimination System (NPDES) dischargers. Data collected by the Regional and State Water Boards under the Surface Water Ambient Monitoring Program (SWAMP), and from the Central Valley Water Board's Irrigated Lands Regulatory Program, provided the majority of the data used to develop and revise fact sheets for the 2014 Integrated Report.

Data sources considered in the 2014 Integrated Report are listed below:

- Bay Delta and Tributaries database (BDAT)
- CalFed mercury studies
- California Department of Fish And Wildlife (formerly Fish and Game)
- California Department of Water Resources
- Central Sierra Environmental Resource Center—Stanislaus National Forest Bacteria
- Central Sierra Environmental Resource Center—Tuolumne Co. Stream Team
- Central Valley Water Board Title 27 program
- City of Sacramento/Sacramento Stormwater Quality Partnership
- Federal Energy Regulatory Commission (FERC) re-licensing projects
- Friends of Deer Creek
- Grasslands Bypass Project
- Irrigated Lands Regulatory Program
- NPDES Program, including stormwater permit monitoring
- Pacific Gas & Electric
- Pyrethroid Working Group
- San Joaquin River Group Authority
- South Yuba River Citizens League
- State Water Contractors
- Individual water body and watershed data reports.

All data and information submitted are available as part of the electronic administrative record. Data and information pertaining to specific water body-pollutant assessments are provided in the fact sheets and link directly to the administrative record.

DATA PROCESSING AND ANALYSIS

All data and information received through August 30, 2010, and compiled in the administrative record were considered in the development of the 2014 Integrated Report. Only high-quality data supported by a Quality Assurance Project Plan were used to make determinations of water quality standards attainment. In the absence of

quality assurance documentation, data are used only as supporting evidence and are not the basis of a listing decision.

In addition, due to the extensive amount of water quality information and limited time available for review, evaluations were prioritized to ensure assessment of available data for all natural water bodies and water bodies previously listed. Information on constructed agricultural drains was compiled but not assessed except for previously listed drains. In addition, per the prioritization, a limited amount of data for natural water bodies could not be assessed and will be assessed during the next cycle.

Most fact sheets and overall beneficial use support determinations were developed in the California Water Quality Assessment (CalWQA) database. Lines of evidence summarize monitoring results from each data source by pollutant and water body segment, and describe where and when the water quality monitoring took place, the pollutant sampled, the beneficial use affected, the water quality objective or guideline protective of the beneficial use, the number of samples collected, and how many samples exceeded the objective or guideline. Potential sources of the constituent of concern 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".

Data were aggregated by water body segment following the requirements of section 6.1.5.4 of the [Listing Policy](#), and assessments were performed on the individual segments. Water bodies were segmented to account for hydrologic features. Some water bodies may have been re-segmented, split into additional segments, or had a modification to the water body name since the last 303(d) List was approved. These and other non-substantive modifications (i.e., modifications that did not change a listing status) are summarized in the Miscellaneous Changes Report (Appendix H).

Spatial and temporal representation of data was assessed using the requirements and guidance of the Listing Policy. The available data were used to represent concentrations during the averaging period associated with the particular pollutant and water quality objective, as required by section 6.1.5.6 of the Listing Policy. For example, if only one data point was available during a 4-day period, it was used to represent the four-day average concentration for that 4-day period.

Following data assessment, Central Valley Water Board staff determined whether or not the water body was attaining relevant water quality standards. Decision recommendations were completed to summarize all relevant LOEs for a water body-pollutant combination and, based on the statistical evaluation described in the Listing Policy, state if the number of exceedances constitutes a California 303(d) listing. All decision recommendations are described in the fact sheets in Appendix G.

WATER QUALITY STANDARDS USED IN THE DATA ASSESSMENT

Beneficial uses for waters in the Central Valley Region are identified in Table 2-1 of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Sacramento-San Joaquin River Basin Plan) and in Table 2-1 of the Water Quality Control Plan for the Tulare Lake Basin Plan (Tulare Lake Basin Plan).

The 2014 Integrated Report was developed by comparing the water quality data to water quality objectives applicable to each water body segment (i.e. objective and pollutant combinations). Numerical and narrative objectives were derived from the Central Valley Region's two Basin Plans (CRWQCB-CVR, 2015a and 2015b) and other applicable water quality plans such as the Bay-Delta Plan. The numerical water quality objectives include site- and/or pollutant-specific values, Maximum Contaminant Levels (MCLs) promulgated by the California Department of Public Health, federally promulgated CTR Criteria, and pesticide toxicity values.

For pollutants that do not have numerical Basin Plan Objectives, MCLs or CTR Criteria, numerical "evaluation guidelines" were used as the criteria to interpret the Basin Plans' applicable narrative objectives, in accordance with section 6.1.3 of the Listing Policy, which states:

"Narrative water quality objectives shall be evaluated using evaluation guidelines. When evaluating narrative water quality objectives or beneficial use protection, the Regional Water Boards and the State Water Board shall identify evaluation guidelines ... (that) ... may be used if it can be demonstrated that the evaluation guideline is:

- *Applicable to the beneficial use*
- *Protective of the beneficial use*
- *Linked to the pollutant under consideration*
- *Scientifically-based and peer reviewed*
- *Well described*
- *Identifies a range above which impacts occur and below which no or few impacts are predicted. For non-threshold chemicals, risk levels shall be consistent with comparable water quality objectives or water quality criteria.*

"The Regional Water Boards shall assess the appropriateness of the guideline in the hydrographic unit. Justification for the alternate evaluation guidelines shall be referenced in the waterbody fact sheet."

DETERMINATION OF BENEFICIAL USE SUPPORT AND INTEGRATED REPORT CATEGORIES

To meet CWA section 305(b) requirements for reporting on water quality conditions, the Integrated Report places each assessed water body segment into one of five non-overlapping categories based on the overall beneficial use support of the water

segment. Water body segments were evaluated for at least one of six “core” beneficial uses including:

- Municipal and domestic supply
- Aquatic life support
- Fish consumption
- Shellfish harvesting
- Contact recreation
- Non-contact recreation

In this 2014 Integrated Report cycle, a total of 648 water body segments were evaluated for the Central Valley Region. For each core beneficial use associated with each water body segment, a rating of supporting, not supporting, or insufficient information was assigned based on the assessment of readily available data and information. Table 2 at the end of this section describes each category and summarizes the number of water body segments placed in each category.

Category reports can be found in Appendices B-F. Pursuant to section 2 of the Listing Policy, water bodies remain in Category 5 until they are no longer impaired or until all 303(d)-listed pollutants are being addressed by USEPA-approved TMDLs or by another regulatory program that is expected to result in the reasonable attainment of the water quality standards, at which point the water body will be placed into Category 4a or 4b. Impaired waters are placed in Category 4c if the impairment is not caused by a pollutant but rather caused by pollution, such as flow alteration or habitat alteration. Water bodies placed in Category 4c do not require the development of a TMDL.

If a water body segment had no existing or proposed 303(d) listings, it was automatically placed into Category 1, 2, or 3.

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Table 2: Comparison of 2012 and 2014 California Integrated Report Categories for Central Valley Water Bodies

Category / Description		Water Body Segments			
		2012 ^(a)	2014 ^(b)		
			Added	Removed	Total
1	At least one beneficial use fully supported, has other uses that are not assessed or lack sufficient information to be assessed, and no beneficial uses known to be impaired.	24	28	9	43
2	There is insufficient information to determine beneficial use support.	88	177	18	247
3	There is insufficient data and/or information to make a beneficial use support determination but information and/or data indicates beneficial uses may be potentially threatened.	(c)	(c)	(c)	(c)
4	At least one beneficial use is not supported but a Total Maximum Daily Load (TMDL) is not needed.	6	4	0	10
4a	A TMDL has been developed and approved by USEPA for any water body-pollutant combination and the approved implementation plan is expected to result in full attainment of the water quality standard within a specified time frame.	6	2	0	8
4b	Another regulatory program is reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame.	0	2	0	2
4c	The non-attainment of any applicable water quality standard for the water body segment is the result of pollution and is not caused by a pollutant.	0	0	0	0
5	At least one beneficial use is not supported and a TMDL is needed.	260	97	9	348
Overall Total:		378	--	--	648

(a) Based on data compiled through January 2007.

(b) Based on data compiled through August 2010.

(c) Category 3 includes zero water body segments because the State's water quality database, CalWQA, is not yet designed to identify water segments in this category.

Explanation of Region-Specific Assessment Methods

This report section provides a description of Integrated Report assessment methods related to individual listings specific to the Central Valley Region as well as substantial changes in and additions to the assessments compared to the 2012 Integrated Report.

EVALUATION OF TOTAL COLIFORM DATA

Total coliforms are a group of bacteria that are widespread in nature. All members of the total coliform group can occur in human feces, but some can also be present in animal manure, soil, submerged wood, and other places outside the human body. Thus, the usefulness of total coliforms as an indicator of fecal contamination depends on the extent to which the bacteria species found are fecal and human in origin. Because total coliforms can come from non-fecal sources, they are no longer recommended as an indicator for assessing the support of recreation beneficial use (USEPA, 1986). Total coliform data received as part of the data solicitation for the 2014 Integrated Report for the Central Valley Region were not considered as part of assessments to determine the use support rating for water contact recreation in surface waters of the Central Valley Region. Indicator bacteria assessments included fecal coliform and *Escherichia coli* (*E. coli*) bacteria data.

EVALUATION OF FISH TISSUE MERCURY DATA

Per section 6.1.5 of the [Listing Policy](#), samples collected on the same day and at the same location should be averaged and considered as a single sample to maintain spatial and temporal independence of the data. At a number of lakes and reservoirs within the Central Valley Region fish tissue samples were only collected at one sampling location and, when data were averaged according to section 6.1.5, results for several fish tissue samples were averaged and assessed as a single sample. From Table 3.1 of the Listing Policy, a minimum of 16 samples is required to determine the appropriate beneficial use support rating and a minimum of 2 exceedances of a water quality standard are required to place a water body on the California 303(d) List. Averaging fish tissue samples from the same date and location as specified in section 6.1.5 of the Listing Policy would result in a number of lakes and reservoirs not being identified on the California 303(d) List regardless of the total number of individual fish collected and number of exceedances.

While the Listing Policy requires that samples be spatially and temporally independent, fish differ from water chemistry in that they are not static and move throughout a lake or stream and accumulate mercury in their tissue over time. Therefore, the data are, by their nature, spatially and temporally independent even though they were collected at the same site on the same day.

For water bodies where assessment of mercury in fish tissue according to Section 6.1.5 of the Listing Policy resulted in the average concentration exceeding the mercury

guideline, a supplementary line of evidence was created to assess each fish tissue sample individually. The original lines of evidence where data are averaged are still included and discussed in the fact sheets although they are not utilized to make the final listing or delisting decision.

The following water bodies were added to the California 303(d) List based upon the weight of evidence indicating an impairment of beneficial uses by mercury:

- California, Lake
- Davis No 2, unnamed spillway (near N Podesta Lane)
- Delta Waterways (eastern portion)
- Discovery Bay
- Fingers Lake
- Los Banos Reservoir
- Loon Lake
- Lower Blue Lake
- Merle Collins Lake
- Meadows Slough (Sacramento County)
- Moon Lake
- Lake Natoma
- Rollins Reservoir
- Siskiyou, Lake
- West Valley Reservoir
- Zayak (Swan) Lake

EVALUATION OF TEMPERATURE DATA

Staff assessed temperature data for 206 water bodies for aquatic life beneficial uses during the 2014 Integrated Report; 189 of these water bodies had not been assessed during prior cycles. Of these 189 water bodies, staff proposes one new water body for listing: the Stockton Ship Channel in the Delta.

The assessment utilized the optimal temperature range for rainbow trout and steelhead for growth and completion of most life stages to interpret the narrative water quality objective for temperature. The optimum range for growth and completion of most rainbow trout life stages is 13 to 21 degrees Celsius (C) (Moyle, 1976). The lethal temperature threshold for steelhead adult migration and holding and juvenile growth and rearing is 24 degrees C (Carter, 2008). These ranges result in guidelines of 21 degrees and 24 degrees C for rainbow trout and steelhead, respectively.

These guidelines were assessed (a) where the COLD aquatic life beneficial use is designated and (b) where the WARM aquatic life beneficial use is designated and steelhead migration occurs. Guidelines for warm water species are not available.

Since temperature conditions are often quite variable in the water column and throughout a water body segment, and that variability can increase and decrease dramatically depending on flow conditions and season, when elevated temperatures were identified, additional review was conducted to ensure that the information provided was spatially and temporally representative of the water body segment being evaluated. In all cases where elevated temperatures were reported (39 of the 189 previously unassessed water body segments), further review indicated that the monitoring programs that generated the temperature data were not designed to evaluate

attainment of temperature standards to support aquatic life. The surface water grab samples collected did not provide sufficient temporal and spatial representation of temperature conditions throughout the water body segment to determine whether growth and all life stages of rainbow trout were being supported. The determinations were based in part on:

- Number and location of sampling stations compared to length and variable depth of the water body segment;
- Time of year and frequency sampled; and
- Original study design purpose (e.g. SWAMP Safe to Swim studies conducted solely during the summer months on the edge of swimming holes).

Staff noted in the fact sheets for these water bodies that available information is not sufficient to assess whether the aquatic beneficial use is supported.

Water Board staff will work internally and with other agencies to design monitoring programs and studies to assess temperature conditions, temperature criteria, and aquatic beneficial uses for these and other water bodies in the Central Valley. The results of these efforts will be used in future Integrated Report cycles.

EVALUATION OF DATA FOR PYRETHROID PESTICIDES

Fourteen water bodies were listed on the 2012 303(d) List as impaired by pyrethroid pesticides; thirteen were listed for “pyrethroids” as a group, and two were listed for individual pyrethroid pesticides, for a total of 15 listings. (One water body had two listings, one for “pyrethroids” and one for bifenthrin.)

Data to support the “pyrethroids” listings included results from toxicity testing of sediment on the invertebrate *Hyaella azteca* along with sediment chemistry analysis for a suite of pyrethroid pesticides. For the purposes of these assessments, concentrations of all the pyrethroid pesticides detected in sediments were compared to toxicity thresholds for *Hyaella azteca* and the waterbodies were listed for pyrethroids when the concentrations of pyrethroids were high enough to account for the toxicity observed in sediment samples.

Water bodies listed as impaired by individual pyrethroid pesticides on the 2012 303(d) List include Del Puerto Creek and Mustang Creek (Merced County). Water bodies listed as impaired by “pyrethroids” on the 2012 303(d) List include:

- Arcade Creek
- Chicken Ranch Slough
- Curry Creek (Placer and Sutter Counties)
- Del Puerto Creek
- Elder Creek
- Hospital Creek (San Joaquin and
- Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing)
- Kaseberg Creek (tributary to Pleasant Grove Creek, Placer County)
- Morrison Creek
- Pleasant Grove Creek
- Pleasant Grove Creek, South Branch

- Stanislaus Counties)
 - Strong Ranch Slough
- Ingram Creek (from confluence with San Joaquin River to confluence with Hospital Creek)

Assessments of pyrethroid pesticides for the 2014 Integrated Report included chemistry data for both water and sediment for individual pyrethroid pesticides for several of the water bodies previously assessed as well as water bodies not assessed before. Pyrethroid pesticides were assessed individually according to their respective evaluation guidelines in both water and sediment rather than collectively. The only exception to this assessment method is the Lower American River (Nimbus Dam to confluence with Sacramento River). Data to support this assessment included water column toxicity testing of the invertebrate *Hyalella azteca* along with water column chemistry analysis of a suite of pyrethroids. When toxicity was observed, a Toxicity Identification Evaluation (TIE) was completed. The TIE found pyrethroids in sufficient concentrations to account for the toxicity observations, and thus the Lower American River was listed for pyrethroids.

Total listings for pyrethroid related impairments increased from 15 to 59 for the 2014 303(d) List. The number of water body segments impaired by pyrethroid-related pesticides increased from 14 to 23. Of the nine additional water bodies, six are tributaries to Pleasant Grove Creek, which was identified as impaired by pyrethroids on the 2012 List. The nine additional water body segments include the following, with tributaries to Pleasant Grove Creek noted with a caret (^):

- American River, Lower (Nimbus Dam to confluence with Sacramento River)
- Kaseberg Creek, eastern tributary (from Green Grove Ln to Del Webb Blvd)^
- Kaseberg Creek, southeastern tributary (from Silverado Middle School to Timber Creek Golf Course, Placer County)^
- Kaseberg Creek, southern tributary (from Baseline Road to Timber Creek Golf Course, Placer County)^
- Marsh Creek (Marsh Creek Reservoir to San Joaquin River)
- Pleasant Grove Creek, South Branch, southeastern tributary (from east of Sierra View Country Club to confluence with Pleasant Grove Creek, South Branch)^
- Pleasant Grove Creek, northern tributary (from Greywood Circle to confluence with Pleasant Grove Creek)^
- Pleasant Grove Creek, northern tributary (from Mt Tamalpais Dr to confluence with Pleasant Grove Creek)^
- Sand Creek (tributary to Marsh Creek, Contra Costa County; partly in Delta Waterways, western portion)

EVALUATION OF DELTA WATERWAYS

The Sacramento-San Joaquin Delta Estuary (Delta), along with the San Francisco Bay, forms the largest estuary on the west coast of North America. The Delta encompasses a maze of over 1,100 miles of river channels surrounding about 738,000 acres (1,153 square miles) of diked islands and tracts in Alameda, Contra Costa, Sacramento, San Joaquin, Solano and Yolo counties. The legal boundary of the Delta is defined in California Water Code Section 12220.

This 2014 Integrated Report assessment continues the practice of evaluating Delta waterways both individually and aggregated by “portions” of the Delta, as was done in prior Integrated Report cycles. Figure 1 in Appendix J illustrates the geographic extent of the eight Delta portion areas, which are based on the dominant hydrologic characteristics and mixing of tributary source waters. Figures 2 through 10 show the (numbered) waterways within each Delta portion. Table 1 in Appendix J lists the individual waterway names, by Delta portion, which correspond with the numbered waterways in the maps.

Proposed 303(d) listings, by Delta portion, apply to all of the waterways within each portion unless there are proposed specific listings for waterbody segments wholly or partly within the legal Delta. In these cases, the proposed 303(d) listing decisions for the specific individual waterways would apply instead of the more general listing decisions for the Delta waterways. Listings for specific water body segments that are partly in the “legal” Delta and partly outside the “legal” Delta apply to the entirety of these segments. An example would be “Mosher Slough upstream of I-5”, which is partly in eastern portion of the Delta and appears in the decision fact sheets and category reports as “Mosher Slough (upstream of I-5; partly in Delta Waterways, eastern portion)”.

The Delta waterways described in the figures and tables in Appendix J were derived from the list of “Sacramento-San Joaquin Delta Waterways” in Appendix 42 of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan), and from the associated Geographic Information System (GIS) files used to create the maps in Appendix 42. However, the numbering of the Delta waterways is not identical between Appendix 42 and Table 1 in Appendix J.

Total listings for Delta waterways increased from 138 to 160 for the 2014 303(d) List. There are 24 proposed new listings, 23 that require TMDL development and 1 that is already being addressed by a regulatory program. In addition, there are two proposed delistings, one for indicator bacteria in the Stockton Ship Channel, and one for diazinon in Marsh Creek.

In addition, 25 Delta waterway listings on the 2012 List are being proposed for re-categorization; 20 of these are now being addressed by USEPA-adopted TMDLs and five are being addressed by other regulatory programs.

WATERBODY-POLLUTANT COMBINATIONS BEING ADDRESSED BY EXISTING POLLUTANT CONTROL REQUIREMENTS

In general, the federal Clean Water Act requires states to establish TMDLs to address pollutant exceedances that result in water quality impairments (e.g., for water-body-pollutant combinations that are on the federal 303(d) List). However, a 2005 USEPA guidance document for the 2006 list assessment recognizes that alternative pollution control requirements may obviate the need for a TMDL for some water body segments:

“[S]egments are not required to be included on the section 303(d) list if technology-based effluent limitations required by the Act, more stringent effluent limitations required by state, local, or federal authority, or “[o]ther pollution control requirements (e.g., best management practices) required by local, State or Federal authority” are stringent enough to implement applicable water quality standards (see 40 CFR 130.7(b)(1)) within a reasonable period of time. This guidance acknowledges that the most effective method for achieving water quality standards for some water quality impaired segments may be through controls developed and implemented without TMDLs (referred to as a <Category> “4b alternative”).” (USEPA, 2005, page 54)

Because the overriding objective of the Category 4b alternative is to promote implementation activities designed to achieve water quality standards in a reasonable period of time, USEPA evaluates each Category 4b alternative on a case-by-case basis including, in particular, the existence of identifiable consequences for the failure to implement the proposed pollution controls (USEPA, 2005). USEPA expects states to address six elements to demonstrate support for Category 4b designations:

1. A statement of the problem causing the impairment
2. A description of the proposed implementation strategy and supporting pollution controls necessary to achieve water quality standards, including the identification of point and nonpoint source loadings that when implemented assure the attainment of all applicable water quality standards
3. An estimate or projection of the time when water quality standards will be met
4. A reasonable schedule for implementing the necessary pollution controls
5. A description of, and schedule for, monitoring milestones for tracking and reporting progress to USEPA on the implementation of pollution controls
6. A commitment to revise, as necessary, the implementation strategy and corresponding pollution controls if progress towards meeting water quality standards is not being shown.

If USEPA determines that the “other pollution controls” are not, in fact, “requirements,” or that they will not result in attainment of applicable water quality standards within a reasonable time, they may disapprove a state’s Category 4b demonstration and add the water body-pollutant combination to the federal 303(d) List. In subsequent 303(d) List submissions, USEPA may determine that a segment that had been placed into Category 4b must go back into Category 5, if the circumstances have changed such that the state can no longer support its original 4b demonstration.

USEPA’s 2005 guidance document provides several examples of controls that may be sufficient to support a Category 4b decision, depending on the facts of the specific case:

- A water body is impaired solely by point sources. Each point source has an NPDES permit containing limits sufficient to implement water quality standards (WQS) in that water body by the end of the permit term.
- A water body is impaired by nonpoint source sediment input. The state has adopted regulations requiring sources to implement certain best management practices (BMPs), and can enforce the regulatory requirements under state law. The state demonstrates that implementation of BMPs by these sources will result in meeting WQS in the water body in a reasonable time.
- A water body is impaired by nonpoint sources and the state has entered into contracts for source remediation. Implementation of the contract terms will result in attainment of WQS in the water body in a reasonable time. While the state cannot obtain specific performance as a contract remedy, it can file a claim for significant monetary damages if the terms are not met.
- A water body is impaired by nonpoint sources that have already implemented some or all of certain measures that will result in attainment of WQS in that water body in a reasonable time. The controls are unlikely to be removed or reversed (e.g., watershed restoration measures pursuant to a Clean Water Act section 319 Nonpoint Source Management Program grant).
- A water body is impaired by nonpoint sources within federal lands where a forest management plan has been developed and is being implemented. In this case, certain elements are included in the forest management plan emphasizing BMP certification programs, require adaptive adjustments of practices, and specify monitoring options needed to demonstrate compliance with state water quality standards.

Staff proposes another example specific to the Central Valley:

A water body is impaired solely by regulated nonpoint source agricultural discharges. Each nonpoint source is regulated by State-enforceable waste discharge requirements (WDRs) that will result in meeting water quality standards in the water body in a reasonable time, for example, Central Valley Water Board Irrigated Lands Regulatory Program WDRs that require agricultural

discharges to implement management plans to address impairments within a 10-year compliance time frame.

Diazinon and Chlorpyrifos Impairments Being Addressed by Existing Pollutant Control Requirements

In 2014 the Central Valley Water Board adopted a comprehensive Basin Plan amendment to establish pollution control requirements for discharges of the organophosphorus insecticides diazinon and chlorpyrifos throughout the Sacramento and San Joaquin River Basins below major dams, a large portion of the Central Valley Region. The Basin Plan amendment established numeric water quality objectives, compliance time frames, and monitoring and implementation (pollutant control) requirements to ensure the numeric water quality objectives will (a) be achieved for water bodies on the 2012 California 303(d) List due to diazinon and chlorpyrifos impairments resulting from agricultural discharges, and (b) prevent or quickly address future chlorpyrifos and diazinon impairments in water bodies not on the 2012 California 303(d) List. The Basin Plan amendment also established monitoring requirements.

The Central Valley Water Board implements and enforces these Basin Plan requirements through waste discharge requirements established under regulatory programs such as the Irrigated Lands Regulatory Program, which have proved effective at rectifying diazinon and chlorpyrifos pesticide water quality impairments (CRWQCB-CVR, 2014). Implementation of the Basin Plan amendment is expected to fully address all diazinon and chlorpyrifos impairments in the Sacramento and San Joaquin River Basins below major dams. Therefore the diazinon and chlorpyrifos listings within this area are being categorized as “being addressed by an action other than a TMDL.” These include 48 listings for 39 water bodies previously identified on the 2012 California 303(d) List as “TMDL required”:

- *Impaired by chlorpyrifos and diazinon:*
 - Del Puerto Creek
 - Mustang Creek (Merced Co.)
 - Orestimba Creek (below Kilburn Rd)
 - Pixley Slough (San Joaquin Co.)
 - Spring Creek (Colusa Co.)
 - Stanislaus River, Lower
 - Tuolumne River, Lower
 - Ulatis Creek (Solano Co.)
 - Wadsworth Canal
- *Impaired by chlorpyrifos:*
 - Bear River, Lower (below Camp Far West Reservoir)
 - Berenda Creek (Madera Co.)
 - Berenda Slough (Madera Co.)
 - Deadman Creek (Merced Co.)
 - Dry Creek (trib. to Tuolumne Riv. at Modesto, E. Stanislaus Co.)
 - Duck Creek (San Joaquin Co.)
 - Duck Slough (Merced Co.)
 - Lone Tree Creek
 - Merced River, Lower
 - Mormon Slough
 - Newman Wasteway
 - Orestimba Creek (above Kilburn Rd)
 - Salt Slough (upstream from confluence with San Joaquin River)
 - Sand Creek (tributary to Marsh Creek, Contra Costa Co.)

- Harding Drain
- Highline Canal (Merced and Stanislaus Counties)
- Ingram Creek
- Stony Creek
- Westley Wasteway (Stanislaus Co.)
- Yankee Slough (Placer and Sutter Counties)
- *Impaired by diazinon:*
 - Bear Creek (San Joaquin and Calaveras Counties)
 - Colusa Basin Drain
 - French Camp Slough (San Joaquin Co.)
 - Gilsizer Slough (Sutter Co.)
 - Jack Slough
 - Live Oak Slough
 - Main Drainage Canal
 - Morrison Slough
 - Natomas East Main Drainage Canal (aka Steelhead Creek)
 - Winters Canal (Yolo Co.)

In addition, twelve new listings proposed for the 2014 California 303(d) List as “being addressed by an action other than a TMDL” that were not identified on the 2012 303(d) List include:

- *Impaired by chlorpyrifos:*
 - Hospital Creek
 - Ingram Creek
 - Littlejohns Creek
 - Pine Creek (Butte Co.)
 - Salt Slough (Mud Slough to Sand Dam)
 - Snake River (Butte & Sutter Co.)
 - Temple Creek
 - Walker Creek (Glenn Co.)
 - Willow Slough Bypass
- *Impaired by diazinon:*
 - Dry Creek (Madera Co.)
 - Lone Tree Creek
 - Sand Creek (trib. to Marsh Creek)

The fact sheets in Appendix G contain documentation of how existing regulatory requirements address USEPA’s six elements for Category 4b designations for chlorpyrifos and diazinon for each of these water bodies.

Diuron, Malathion and Simazine Impairments Being Addressed by Existing Pollutant Control Requirements

Staff proposes that five water bodies categorized as “TMDL required” on the 2012 303(d) List for the herbicide diuron, the insecticide malathion, and the herbicide simazine be re-categorized as “being addressed by an action other than a TMDL”:

- *Impaired by malathion:*
 - Colusa Basin Drain
- *Impaired by simazine:*
 - Mustang Creek (Merced Co.)
- *Impaired by diuron:*
 - Del Puerto Creek
 - Lone Tree Creek
 - Orestimba Creek (below Kilburn Rd.)

In addition, staff proposes 11 new listings for diuron to be categorized as “being addressed by an action other than a TMDL”:

- Cottonwood Creek (S Madera Co.)
- Dry Creek (Madera Co.)
- Dry Creek (tributary to Tuolumne River at Modesto, E. Stanislaus Co.)
- Hospital Creek (San Joaquin and Stanislaus Counties)
- Ingram Creek (from confluence with Hospital Creek to Hwy 33 crossing)
- Main Drain (Kern Co.)
- Orestimba Creek (above Kilburn Rd.)
- Ramona Lake
- San Joaquin River (Bear Creek to Mud Slough)
- Ulatis Creek (Solano Co.)
- Willow Slough Bypass (Yolo Co.)

The weight of evidence indicates these water bodies are not meeting standards but the impairments are being addressed by an enforceable regulatory program, other than a TMDL, that is reasonably expected to result in attainment of the water quality standards within a reasonable, specified time frame. These diuron, simazine, and malathion impairments are being addressed by regulatory requirements for growers specified within waste discharge requirements (WDRs) under the Central Valley Water Board’s Irrigated Lands Regulatory Program. These WDRs require growers to monitor for pollutants of concern and to prepare and implement management plans to achieve water quality standards when water quality monitoring identifies impairments due to agricultural discharges.

All 16 of these diuron-, simazine-, and malathion-impaired water bodies have water quality management plans and the impairments are expected to be resolved through continued implementation and improvement of management practices within the required 10-year compliance time frame specified in the WDRs. The fact sheets in Appendix G contain documentation of how existing regulatory requirements address USEPA’s six elements for Category 4b designations for these pesticides for each water body segment.

Summary of Proposed Changes to the 2012 303(d) List

Appendix A shows the proposed changes to the 2012 California 303(d) List for the 2014 assessment cycle. The rationale for each 303(d) listing and delisting decision is documented in a “fact sheet” in Appendix G.

Proposed new listings to the 2012 303(d) List can include new water body segment-pollutant combinations where a TMDL is needed, or are otherwise being addressed by a USEPA-approved TMDL or pollution control requirements other than a TMDL.

Proposed new listings (impaired/not meeting standards) include:

- List on 303(d) List (TMDL required): 286

- List on 303(d) List (being addressed by a USEPA-approved TMDL): 0
- List on 303(d) List (being addressed by an action other than a TMDL): 23

Proposed new delistings from the 2012 303(d) List include water body segment-pollutant combinations where water bodies now meet standards for previously-listed pollutants. Appendix A identifies 38 new delistings address the following:

- Pesticides: 24, including diuron (4), chlorpyrifos (6), diazinon (7), and dimethoate (7)
- Bacteria: 4
- Metals: 2, including mercury (1) and zinc (1)
- Others: 8, including boron (3), pH (2), electrical conductivity (2), and toxicity (1)

Proposed category changes to the 2012 California 303(d) List include a number of waterbody-pollutant combinations that were previously categorized as “TMDL Required” and are now being addressed by USEPA-approved TMDLs. In addition, staff has determined that for some water body-pollutant combinations alternative pollution control requirements obviate the need for a TMDL and the water body-pollutant combinations can be re-categorized from TMDL Required to being addressed with another enforceable program. Proposed changes from the “List on 303(d) List (TMDL required)” category include:

- List on 303(d) List (being addressed by a USEPA-approved TMDL): 21
- List on 303(d) List (being addressed by an action other than a TMDL): 53

In summary, the 2012 California 303(d) list identified 707 water body-pollutant impairments in the Central Valley. The updated 2014 assessment proposes adding 310 new 303(d) listings and delisting 38 water body-pollutant combinations for a total of 979 listings. Of these 979 listings, 97 are being addressed either by an existing TMDL (21) or regulatory control programs (76).

Other revisions to the 2012 Integrated Report and California 303(d) List include corrections and updates to water body names as well as changes to the mapped extents of some water bodies to reflect new data assessed for the 2014 cycle. The water body name changes and some of the mapping changes are described in Appendix H. However, many of the Central Valley Water Board’s proposed mapping changes are not yet reflected in Appendix H and the state’s water quality database, CalWQA, because of the ongoing State Water Board staff effort to remap all water bodies using the National Hydrography Dataset (NHD). The NHD has 1:24,000 resolution and therefore provides greater flexibility and efficiency when performing analysis using a geographic information system (GIS). This remapping effort will result in Integrated Report water body size re-calculations due to the greater accuracy of this

higher resolution data set. These water body size changes, as well as several of the Central Valley Water Board staff's proposed mapping changes, will be reflected in the State Water Board staff report and statewide 303(d) List, to be compiled and presented for public review prior to the State Water Board hearing in 2017.

TMDL Scheduling

A TMDL is the total maximum daily load(s) of a pollutant(s) that can be discharged into a given waterbody and still ensure the attainment of applicable water quality standards. In conformance with section 5 of the Listing Policy, a TMDL completion schedule date is required for all water body-pollutant combinations placed on the 303(d) List. Water Board staff relied on guidance from the USEPA (1997), which states that "schedules should be expeditious and normally extend from eight to thirteen years in length, but could be shorter or slightly longer depending on State-specific factors." Therefore, the timeline for completing TMDLs for water bodies listed for the first time as part of the 2014 Integrated Report is estimated to be no longer than thirteen years, which equates to an estimated completion date of 2027. Expected TMDL completion dates are proposed by Regional Water Board staff in the fact sheets of this report (Appendix G).

Public Review and Board Approval

Pursuant to section 6.2 of the Listing Policy, water bodies listed in Category 4a, 4b, or 5, require public review and approval by the Central Valley Water Board during a public Board hearing and are then submitted to the State Water Board for compiling into the California 303(d) List of impaired waters. Water bodies listed in Categories 1, 2, 3, or 4c are provided as additional water body information and will be submitted to the State Water Board for inclusion into the California Integrated Report. Once compiled, the California Integrated Report is noticed for additional public review and approval by the Executive Director or State Water Board, as outlined in section 6.3 of the Listing Policy. The California Category 5 list (i.e., 303(d)-listed water bodies that require a TMDL) will require final approval by the USEPA. If USEPA determines that changes are needed to the submitted report they will initiate further public review before finalizing and publishing the report.

References

For a complete list of references used in all the assessment fact sheets, see Appendix I.

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Links to Appendix Webpages

Appendix A: Proposed Changes to the 2012 Central Valley 303(d) List

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_a.pdf

Appendix B: Category 5 Water Body Segments

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_b.pdf

Appendix C: Category 4a Water Body Segments

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_c.pdf

Appendix D: Category 4b Water Body Segments

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_d.pdf

Appendix E: Category 2 Water Body Segments

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_e.pdf

Appendix F: Category 1 Water Body Segments

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_f.pdf

Appendix G: Fact Sheets

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_g/table_of_contents.shtml

Appendix H: Miscellaneous Changes Report

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_h.pdf

Appendix I: References Used in Fact Sheets

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_i/appendix_i.shtml

Appendix J: Delta Waterways

Available online at:

http://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/impaired_waters_list/2014_303d_305b/appendix_j.pdf