# STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

# PROPOSED FINAL STAFF REPORT

## 2026 CALIFORNIA INTEGRATED REPORT: SURFACE WATER QUALITY ASSESSMENTS TO COMPLY WITH CLEAN WATER ACT SECTIONS 303(d) AND 305(b)

**December 22, 2025**


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**California Environmental Protection Agency**
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CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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The Proposed Final Staff Report was posted on December 22, 2025. Revisions to the January 30, 2025 Draft Staff Report are shown with a single underline for additions or a single strikeout for deletions, except for the title page, this page, and the table of contents.

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## List of Regulatory Acronyms, Initialisms, and Abbreviations

| | |
|---|---|
| ARP: | Advance Restoration Plan |
| ATTAINS: | Assessment, Total Maximum Daily Load Tracking and Implementation System |
| Basin Plan: | Regional Water Quality Control Plan |
| CalWQA: | California Water Quality Assessment (Database) |
| CDPR: | California Department of Pesticide Regulation |
| CEDEN: | California Environmental Data Exchange Network |
| CFR: | Code of Federal Regulations |
| CTR: | California Toxics Rule |
| CIWQS: | California Integrated Water Quality System |
| CSCI: | California Stream Condition Index |
| CWA: | Clean Water Act |
| **FCGs:** | **Fish Contaminant Goals** |
| ILRP: | Irrigated Lands Regulatory Program |

| | |
|---|---|
| Impaired Waters Policy: | Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options |
| ISWEBE Plan: | Inland Surface Waters, Enclosed Bays, and Estuaries Plan; more specifically the water quality control plan components previously adopted by the State Water Board for future incorporation into the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California |
| Listing Policy: | Water Quality Control Policy for Developing California's Section 303(d) List |
| LOE: | Line of Evidence |
| MS4: | Municipal Separate Storm Sewer Systems |
| NOAA: | National Oceanic and Atmospheric Administration |
| Ocean Plan: | Water Quality Control Plan for Ocean Waters of California |
| OEHHA: | California Office of Environmental Health Hazard Assessment |
| **QA:** | **Quality Assurance** |
| QAPP: | Quality Assurance Project Plan |
| QC: | Quality Control |
| Regional Water Board: | Regional Water Quality Control Board |
| SCCWRP: | Southern California Coastal Water Research Project |
| SFEI: | San Francisco Estuary Institute |
| SSO: | Site-specific Objective |
| State Water Board: | State Water Resources Control Board |
| SWAMP: | Surface Water Ambient Monitoring Program |
| TMDL: | Total Maximum Daily Load |
| USEPA: | United States Environmental Protection Agency |
| USGS: | United States Geological Survey |
| WOTUS: | Waters of the United States |
| WQX: | Water Quality Exchange |
| ELAP: | Environmental Laboratory Accreditation Program |
| WBID: | Water Body Identification Number |

## List of Scientific Acronyms, Initialisms, and Abbreviations

| | |
|---|---|
| 7DADM: | 7-day Average of Daily Maximum Temperature |
| CFU: | Colony Forming Units |
| CSCI: | California Stream Condition Index |
| DDT: | Dichlorodiphenyltrichloroethane |
| DOC: | Dissolved Organic Carbon |
| Geomean: | Geometric Mean |
| HSA: | Hydrologic Sub Area |
| IBI: | Index of Biological Integrity |
| LC50: | Lethal Concentration 50 |
| mg/L: | Milligrams per Liter (parts per million) |
| PCB: | Polychlorinated Biphenyl |

| | |
|---|---|
| SSM: | Single Sample Maximum |
| STV: | Statistical Threshold Value |

## 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)), each state is required to report to the United States Environmental Protection Agency (“USEPA”) on the overall quality of the waters within its boundaries. The USEPA then compiles these reports into their “National Water Quality Inventory Report” to Congress. (33 U.S.C. § 1315(b)(2).)

CWA section 303(d) requires states to review, revise as necessary, and submit to USEPA a list of waters not meeting water quality standards or not expected to meet water quality standards (i.e., impaired or threatened waters) and to identify the water quality parameter(s) (i.e., pollutant(s)) causing or suspected to be causing the exceedance of the water quality standard. (40 C.F.R. §§ 130.2(j), 130.7(b)(4).) This list of impaired or threatened waters is referred to as the “303(d) list.” States are required to include a priority ranking of such waters for the development of total maximum daily loads, accounting for the severity of the pollution and the uses to be made of such waters. (40 C.F.R. § 130.7(b)(4).) However, alternative pollution control requirements implemented by another regulatory program may obviate the need for a TMDL.

Under CWA section 305(b), each state is required to submit an informational report to the USEPA on the water quality conditions of its surface waters, which is referred to as the “305(b) report.” States are required to submit their 303(d) lists and 305(b) reports every two years (commonly referred to as the “listing cycle”). (40 C.F.R. § 130.7(d).) In California, the State Water Board satisfies its 303(d) listing and 305(b) reporting obligations by compiling both in a single document called the “California Integrated Report.”

The Water Quality Control Policy for Developing California’s Clean Water Act Section 303(d) List (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/020315_8_amendment_clean_version.pdf) (“Listing Policy”) describes the methods and the process the State Water Board is required to use to develop and adopt the 303(d) list.

Each integrated report consists primarily of assessments from three Regional Water Quality Control Boards (“Regional Water Boards”) that are characterized as being "on-cycle" by a notice of public solicitation of water quality data. The other six Regional Water Boards are "off-cycle"; however, they may assess high-priority data, and propose changes to the 305(b) report, as appropriate. Every two years, waterbody segments within the boundaries of the Regional Water Boards characterized as “on-cycle” are rotated, and data for waterbody segments within each Regional Water Board are fully assessed once every six years.

For the 2026 California Integrated Report, the North Coast, Lahontan, and Colorado River Basin Regional Water Boards are “on-cycle.” All readily available data and information for surface waters within the boundaries of these Regional Water Boards received prior to the data solicitation cut-off date of October 21, 2022, were considered. In addition, all readily available data and information from waterbody segments within the San Joaquin River sub-area of the Central Valley Regional Water Board were considered for “off-cycle” assessments. The San Joaquin River sub-area is defined as the San Joaquin River watershed and includes the mainstem of the San Joaquin River upstream of the legal boundary of the Sacramento-San Joaquin Delta and all surface waters tributary to the mainstem. Finally, some data and information from several waterbody segments within the Central Coast and San Diego Regional Water Board were considered as “off-cycle” assessments.

The State Water Board is administering the listing process for all waters assessed for the 2026 California Integrated Report, in accordance with section 6.2 of the Listing Policy. The State Water Board closely coordinates with the Regional Water Boards to review data, make water quality impairment decisions, and develop public documents. The State Water Board sets statewide water quality standards, plans, and policies. The nine Regional Water Boards are semi-autonomous and may set regional standards more stringent than the statewide standards or site-specific standards unique to a waterbody segment. The Regional Water Boards also develop TMDLs and often are the primary permitting authority to control pollutants and restore impaired waters.

Upon State Water Board approval of the 303(d) list portion of the 2026 California Integrated Report, the California Integrated Report is submitted to USEPA for independent review. USEPA’s review may include making changes to the 303(d) list before it approves and establishes the final 303(d) list for California. (33 U.S.C. § 1313 (d)(2).) Unlike the 303(d) list, neither the State Water Board nor the USEPA takes formal approval action on the 305(b) report.

The 2026 California Integrated Report revises the 2024 California Integrated Report. The revisions are based on data and information collected from surface waters (e.g., rivers, streams, lakes, bays, estuaries, enclosed lagoons, and coastal waters) located in the aforementioned regions. The revisions include changes to the 303(d) list and the 305(b) report and describe the extent to which surface waters in California are supporting beneficial uses.

This staff report describes the methods used to compile, evaluate, and assess data and information for the 2026 Integrated Report and summarizes the results. Surface water data and information were downloaded from the California Environmental Data Exchange Network (“CEDEN”), the California Integrated Water Quality System (“CIWQS”), the National Water Quality Monitoring Portal (“WQP”), and the California Integrated Report Upload Portal. Data sources include the Water Boards’ Surface Water Ambient Monitoring Program (“SWAMP”), Irrigated Lands Regulatory Programs (“ILRP”), and other monitoring programs; other state agencies such as the California Department of Fish and Wildlife and the California Department of Pesticide Regulation;

federal agencies such as the U.S. Geological Service ("USGS") and USEPA; California Native American Tribes; and local watershed groups.

Based on assessments of these data and information, there are ~~426~~ 367 new "List" Decisions and ~~136~~ 150 new "Delist" Decisions. A summary of new "List" Decisions are outlined in the table, below. The complete 2026 303(d) List of Impaired Waters is found in Appendix A: 2026 303(d) List of Impaired Waters. The specific waterbody-pollutant combination assessments are described in Appendix B: Statewide Waterbody Fact Sheets.

| Region | 2024 303(d) Listings | New Listings | New Delistings | 2026 303(d) Listings |
|---|---|---|---|---|
| North Coast | 217 | ~~77~~ 71 | ~~13~~ 9 | ~~281~~ 278 |
| San Francisco Bay | 476 | 0 | 0 | 476 |
| Central Coast | 1,200 | 1 | 6 | 1,195 |
| Los Angeles | 1,215 | 0 | 0 | 1,215 |
| Central Valley | 1,246 | ~~149~~ 109 | ~~75~~ 95 | 1,260 |
| Lahontan | 256 | ~~151~~ 141 | ~~35~~ 39 | ~~372~~ 358 |
| Colorado River Basin | 110 | ~~47~~ 46 | 5 | ~~152~~ 151 |
| Santa Ana | 183 | 0 | 0 | 183 |
| San Diego | 839 | ~~1~~ 0 | 2 | ~~838~~ 837 |
| **TOTALS** | **5,742** | ~~426~~ 367 | ~~136~~ 156 | ~~6,032~~ 5,953 |

*Count of 2026 303(d) listings may not equal the addition of new listings and removal of delistings from the 2024 303(d) List due to waterbody segment splits, merges, or other miscellaneous changes.*

# 1 About the California Integrated Report

The State Water Board, along with the nine Regional Water Boards (collectively, "Water Boards"), protect and enhance the quality of California's water resources through implementing the CWA as amended (33 U.S.C. § 1251 et seq.; CWA, § 101 et seq.), and California's Porter-Cologne Water Quality Control Act (Wat. Code, § 13000 et seq.).

States that administer the CWA must submit the CWA section 303(d) list of impaired waters to the USEPA. CWA section 305(b) requires each state to report biennially to USEPA on the condition of its surface water quality. USEPA's guidance to the states recommends the two reports be integrated. For California, this report is called the "California Integrated Report" and combines the State Water Board's Section 303(d) and 305(b) reporting requirements (USEPA 2005). Waterbody segments that are identified as impaired are addressed in accordance with the Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options ("Impaired Waters Policy") (https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/iw_policy.pdf) via Resolution No. 2005-0050. In addition to requirements of federal statutes and regulations, the State Water Board considers a number of USEPA guidance documents in developing the integrated report.

It is essential for the State Water Board to take timely action in developing the 303(d) list to submit the California Integrated Report on time and meet its responsibilities under the Clean Water Act. Timely submissions of the California Integrated Report are critical in achieving the State Water Board's and USEPA's important goals for restoring and maintaining the quality of the nation's waters within California. Timely submittals also provide the public and other interested parties with the most up to date information on the condition of surface waters within California.

The State Water Board, with the assistance of Regional Water Board staff, is administering the listing process for the Regional Water Boards, consistent with section 6.2 of the Listing Policy. The State Water Board will receive oral comments on waterbody segments proposed for addition or deletion from the 303(d) list at a public hearing. The State Water Board will respond to timely written and oral comments and, if needed, will distribute a revised staff report prior to the meeting during which the State Water Board will consider adopting the proposed 303(d) list. For the 2026 California Integrated Report, the public comment period was extended from 45 days to 60 days. In addition, the State Water Board and the Regional Water Boards will hold a joint Staff Workshop during the public review and comment period.

## 1.1 The 303(d) List of Impaired Waters

Federal regulation defines a "water quality-limited segment" as "any 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).) Waterbody segments are also known as waters, and water

quality-limited segments are also known as “impaired waterbodies” or “impaired waters” or “303(d) listings.” For the purposes of this staff report, the term waterbody segment is used. Water quality standards consist of beneficial uses and water quality objectives set at levels to ensure the reasonable protection of beneficial uses, and antidegradation considerations.

Under CWA section 303(d), states are required to review, revise as necessary, and submit to USEPA a list of waterbody segments that are not meeting or are not expected to meet water quality standards. This submission is referred to as the 303(d) list of impaired waters, or the “303(d) list.” The 303(d) list must identify the pollutants causing lack of attainment of water quality standards and include a priority ranking of the waterbody segments considering the severity of the pollution and the uses to be made of the waters. (40 C.F.R. § 130.7(b)(4).) To restore water quality, a total maximum daily load (“TMDL”) or other regulatory action must be developed to address the impaired waterbodies on the 303(d) list. This is in accordance with the Impaired Waters Policy.

**By adopting the 303(d) list, the State Water Board provides recommendations to the USEPA to list or delist waterbody segments. The State Water Board’s approval of the 2026 303(d) List is not a “project” subject to California Environmental Quality Act (“CEQA”) because it has no potential to result in a “direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment.” (Pub. Res. Code, § 21065.)**

In 2013, the USEPA released “A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program” (“2013 Program Vision”) that provides a collaborative framework for implementing the Integrated Report program with states. (https://www.epa.gov/sites/default/files/2015-07/documents/vision_303d_program_dec_2013.pdf.) The 2013 Program Vision describes long-term visions and goals as well as implementation plans for achieving those visions and goals related to prioritization, assessment, protection, alternatives, engagement, and integration. In September 2022, the USEPA released “A New Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program” (“2022-2032 Program Vision”) which builds on the experience gained from implementing the 2013 Program Vision. (https://www.epa.gov/system/files/documents/2022-09/CWA Section 303d Vision_September 2022.pdf.) The 2022-2032 Program Vision outlines four focus areas: environmental justice[1], climate change, tribal engagement, and program building capacity. California’s Integrated Report program is dedicated to aligning the state’s program and practices with the USEPA’s 2022-2032 Program Vision, as appropriate. The 2026 303(d) List satisfies reporting requirements of the CWA and provides information for setting priorities for future actions.

[1] Environmental justice means the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. (Racial Equity Action Plan, SWRCB)

## 1.2 Using the 303(d) List to Address Water Quality Impairments

The 303(d) list, and the data and information used to support the list, is used in many ways in Water Board programs, and its use varies across programs and regions. These include:

- To trigger and prioritize the development of TMDLs or other restoration actions to address the impairment
- To prioritize the review of designated beneficial uses or water quality objectives, potentially leading to a standards change
- To prioritize and target additional water quality monitoring
- To automatically trigger certain types of new permittee obligations in existing permits and to inform permit requirements in new permits.

The CWA says that when a state prepares its 303(d) list, it must establish a priority ranking for impaired waters, "taking into account the severity of the pollution and the uses to be made of such waters." (33 U.S.C. § 1313(d)(1)(A).) Federal regulations further require the ranking to "includ[e] waters targeted for TMDL development within the next two years." (40 C.F.R. § 130.7(d)(1).) The priority ranking itself must include all waters that need a TMDL. (*Id.* § 130.7(b).) (See Staff Report sections 2.6 Prioritization Framework for TMDLs and Other Efforts to Address Water Quality Impairments and 2.7 Priority Rankings for Impaired Waterbody Segments & TMDL Development.)

As described in the Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options (SWRCB. 2005b), the Water Boards have discretion in responding to a listing. For TMDLs, the Regional Water Board can prioritize or de-prioritize TMDL development. Additionally, a listing does not conclusively mean a TMDL will be developed. "A listing is only suggestive of impairment because the standard for listing has been set at a threshold low enough to ensure that all waters of concern are brought within the TMDL regulatory structure." (Water Board Order WQ 2001-006 (*Tosco*), p. 20.) In some cases, additional information may lead to a conclusion that standards are in fact being attained, either because the assumptions underlying the listing were incorrect (e.g., as more data are collected), or because the impairment has been corrected. In other cases, natural sources may be found to be the cause of the impairment and a TMDL is not needed. The 303(d) list may also used as a mechanism to consider a change to a water quality standard during review of all data and information for an impairment (e.g., triggering the review of an objective that is overly restrictive or not restrictive enough to protect beneficial uses or trigger the review of assigned beneficial uses).

USEPA regulations recognize that alternative pollution control requirements implemented by another regulatory program may obviate the need for a TMDL. Regional Water Boards may address water quality impairments through other regulatory programs that are stringent enough to implement applicable water

**quality standards within a reasonable timeframe. Category 4b includes these waters. A waterbody impairment may be also addressed through an Advance Restoration Plan ("ARP"). An ARP "is a plan designed to address impairments for waters that will remain on the CWA 303(d) list (i.e., Category 5r), as restoration activities are implemented prior to TMDL development." (USEPA 2023). If a waterbody-pollutant combination is categorized under 5r, the legal obligation to develop a TMDL remains until the water quality standard is achieved; however, states may justify deprioritizing the development of a TMDL should an ARP be implemented for that waterbody. Should an ARP result in attainment of water quality standards, a waterbody could be removed from the 303(d) list without the need to develop a TMDL. (See Staff Report sections 1.3 and 2.5 for more information on Condition Categories).**

The 303(d) list (as well as the full California Integrated Report) is informational and does not by itself directly establish new regulatory requirements. By adopting the 303(d) list, the State Water Board provides recommendations to the USEPA to list or delist waterbody segments. ~~**The listing of a waterbody segment as impaired on the 303(d) list and the supporting data can and has been used in several ways.**~~ The State Water Board's approval of the 303(d) list is not a regulatory action; however, an impairment decision may trigger contingent requirements (like monitoring and reporting) ~~**that exist**~~ **contained** in ~~**current**~~ **existing** permits~~**, provided there**~~ .

**The 303(d) list is** ~~**independent**~~ **used to automatically trigger new permittee obligations in some existing permits, including:**

- **To require the identification of receiving waters on the 303(d) list.**
- **To require monitoring and reporting for the listed pollutant(s).**
- **To help inform assessment of receiving water conditions.**
- **To require sources of the listed pollutant(s) to be identified.**
- **To require the identification of construction sites or industrial/commercial facilities where the facility generates pollutants for which the waterbody segment is impaired.**
- **To help determine the receiving water risk for sediment-sensitive watersheds, which, along with other information** ~~**indicating**~~**, is used to determine which best management practices are required.**
- **To help determine eligibility for enrollment under a general permit.**
- **In developing a numeric goal for a municipal stormwater permit's optional water quality improvement plan.**
- **To increase the inspection frequency for construction sites.**
- **To prioritize investigations of Illicit discharges and connections.**
- **To help evaluate program effectiveness.**

**A Water Board, as the permitting authority, may also use the existing 303(d) list in many of the above ways when developing a new permit. The 303(d) list is also used in the development of some new permits as follows:**

- **To help inform whether the discharge ~~includes the impairing pollutant. The 303(d) list itself does not directly impose regulatory~~ has reasonable potential to cause or contribute to an exceedance of a water quality standard, which, along with other information, is used to determine if a receiving water limitation or effluent limitation is required.**
- **As partial justification, along with other information, for requiring best management practices or pollutant controls~~, though separate investigations may determine that additional~~**
- **As information explaining why a TMDL or Integrated Report Category 4b Demonstration was developed.**
- **To help evaluate program effectiveness.**

**The 303(d) list, and the data and information used to support a listing, is one piece of information used to drive and inform decision making. Other factors, such as the results of source analyses, targeted monitoring efforts, permit application materials, and other supplemental information, are taken into consideration and used to inform decision-making and permit requirements, including project disapprovals, pollutant control ~~control measures are necessary to manage waste discharge~~ or treatment actions, or compensatory mitigation. Pollutant monitoring and reporting and inventory requirements are sometimes triggered when a waterbody segment is placed on the 303(d) list; however, these requirements do not trigger an indirect or direct change in the environment**. Although a listing does not establish a waterbody's capacity to assimilate a pollutant, it signals that the water is ~~of concern~~ **not attaining a water quality standard** and warrants further evaluation. Additionally, a TMDL may be subsequently developed for a listed waterbody if needed to address the impairing pollutant. Once established, a TMDL can affect effluent limitations in subsequent permits, as these limitations must align with the applicable TMDL.

~~**A permitting or TMDL action must comply with the California Environmental Quality Act ("CEQA") and adopting a permit or TMDL requires public proceedings during which interested parties can fully participate, submit information, and seek review. Each separate action is the forum for consideration of environmental impacts and, if applicable, rulemaking procedural requirements. The State Water Board's approval of the 2026 303(d) List is not a "project" subject to CEQAA Regional Water Board has discretion in its response to a listing.In other cases, natural sources background may be found to be the cause of the impairment and a TMDL is not needed.**~~

~~**For permits, a**~~ **A** Regional Water Board or the State Water Board ~~**also**~~ has discretion in how to use the fact of a listing when determining reasonable potential and establishing

effluent limitations. In discussing implementation of the Policy for the Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California ("SIP"), State Water Board Order WQ 2001-16 (Napa Sanitation District), at pages 21-23 provides:

> [A] water body listing, without more, is an insufficient basis on which to conclude that the water lacks assimilative capacity for the impairing pollutant. The fact of a listing, however, is a sufficient basis on which to conclude that a pollutant should be limited in a permit. Further, the data on which the listing is based may very well justify mass limits for the pollutant.
>
> The Board held in the Tosco order that a listing is suggestive of impairment but is not determinative. A listing is only suggestive of impairment because the standard for listing has been set at a threshold low enough to ensure that all waters of concern are brought within the TMDL regulatory structure. Indeed, EPA has instructed the states to rely on "all existing and readily available water quality-related data and information" in making listing decisions. In addition to sampling data, this information can include, for example, opinions from other agencies, anecdotal information from the public, and circumstantial evidence. Further, as we stated in the Tosco order, the information may not represent conditions throughout the entire water body or in all seasons.
>
> Although a listing alone does not conclusively determine a water's capacity to assimilate an impairing pollutant, the listing does indicate that the water is of concern and deserves further scrutiny. In particular, a 303(d) listing for a priority pollutant may form the basis for a Regional [Water] Board determination that discharge of the pollutant has the reasonable potential to cause or contribute to a water quality standards violation and, therefore, that the pollutant could be limited.

The SIP requires the permitting authority to use all available, valid, relevant, representative information to determine whether a discharge may cause or have a reasonable potential to cause or contribute to an exceedance of an applicable priority pollutant above the water quality criteria or objective. (SIP at pp.5-6.) "Information that may be used to aid in determining if a water quality-based effluent limitation is required includes: the facility type, the discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information." (*Ibid.*) Based on the foregoing, the fact of a listing alone does not require the establishment of an effluent limitation, but it may be considered to aid the evaluation. The Water Boards are required to evaluate all relevant, available, and valid information to assess whether water quality based effluent limits are required in a permit or order.

**A TMDL or non-NPDES permitting action must comply with the CEQA. Adopting a TMDL or any permit requires public proceedings during which interested parties can fully participate, submit information, and seek review.**

### 1.3 ~~1.2~~ California's 305(b) Report Condition Categories

To meet CWA section 305(b) requirements of reporting on water quality conditions, the California Integrated Report places waterbodies into one of five "Condition Categories." This categorization is based on the assessment of all readily available data and information collected in a waterbody segment to inform its ability to support beneficial uses. The 303(d) list portion of the California Integrated Report consists of waterbody-pollutant combinations placed in Categories 4a, 4b, and 5. Each pollutant causing a waterbody segment to be impaired or threatened is referred to as a waterbody-pollutant combination. This is because, in California, a waterbody may be considered impaired if standards are not met, regardless of whether a TMDL or another program of implementation is in place. Additionally, since there may be more than one pollutant causing lack of attainment of water quality standards, each 303(d) listing is a specific waterbody-pollutant combination, and there may be multiple 303(d) listings for one waterbody segment.

~~**The USEPA only considers waterbody-pollutant combinations placed in Category 5 to be on the 303(d) list. The USEPA approves placement of waterbody-pollutant combinations in Categories 4a and 4b separately from the 303(d) list.**~~ Please see section 2.5 for more information about how California places waterbody-pollutant combinations into condition categories.

**The USEPA only considers waterbody-pollutant combinations placed in Category 5 to be on the 303(d) list. The USEPA approves placement of waterbody-pollutant combinations in Categories 4a and 4b separately from the 303(d) list.**

### 1.4 ~~1.3~~ The Listing Policy

In accordance with Water Code section 13191.3, the State Water Board established the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2015/020315_8_amendment_clean_version.pdf), commonly referred to as the "Listing Policy," which outlines the requirements with which the Water Boards must comply to develop the 303(d) list. Recommendations to place a waterbody segment on the 303(d) list or to remove a waterbody segment from the 303(d) list are made in conformance with the Listing Policy. Amendments to the Listing Policy provided for the use of a database known as the California Environmental Data Exchange Network ("CEDEN") (Listing Policy, p. 17, section 6.1.1.). To accommodate increases in data submittals and the development of CEDEN, the State Water Board adopted a regulatory definition of "readily available data and information" required to be evaluated as "data and information that can be submitted to CEDEN or its successor database, as directed in the notice of solicitation." (*Ibid.)*

The Listing Policy provides direction related to the:

1. Administration of the listing process including data solicitation and Waterbody Fact Sheets preparation.

2. Definition of readily available data and information.

3. Application and interpretation of chemical-specific water quality objectives; bacterial water quality objectives; 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. Evaluation of narrative water quality objectives using numeric evaluation guidelines.

5. Data quality evaluation conditions, including the requirement for data to be supported by a Quality Assurance Project Plan ("QAPP").

6. Data quantity evaluation conditions including water segment specific information, data spatial and temporal representation, aggregation of data by segment, 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. Water quality conditions, or listing or delisting factors, that reflect whether waterbody segments shall be placed on or removed from the 303(d) list based on exceedances of water quality standards for specific pollutants. The listing and delisting factors include a situation-specific weight of evidence approach that may be used (if the necessary conditions set forth are met) when all other factors do not result in a listing or delisting but where information suggests standards nonattainment or attainment, respectively.

8. Factors to consider in prioritizing TMDLs

In developing the Listing Policy, the State Water Board prepared the Functional Equivalent Document ("FED") to serve as an environmental review equivalent to a CEQA document with alternatives, options, recommendations, and an analysis of environmental impacts of the Listing Policy (SWRCB 2004) (https://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_093004.pdf).

## 1.5 ~~1.4~~ California Integrated Report Cycles

To achieve timely biennial submittals to the USEPA, the State Water Board administers the development and adoption process of the California Integrated Report. Each integrated report consists primarily of assessments from three Regional Water Boards that are characterized as being "on-cycle" by a notice of public solicitation of water

quality data. The other six Regional Water Boards are "off-cycle"; however, they may assess high-priority data, and propose changes to the 305(b) report, as appropriate. Every two years, waterbody segments within the boundaries of the Regional Water Boards characterized as “on-cycle” are rotated, and data for waterbody segments within each Regional Water Board are fully assessed once every six years.

Each integrated report builds on assessments from the previous integrated report. The listings and 305(b) waterbody category assignments from the prior California Integrated Report for all waterbody segments are carried over into the current California Integrated Report. All readily available data and information received during the data solicitation period for the current listing cycle are assembled and evaluated, and assessments are developed or revised, as appropriate. Thus the 2026 California Integrated Report builds upon the 2024 California Integrated Report and contains all prior assessments as well as any new or revised assessments based on the data received prior to the end of the 2026 California Integrated Report data solicitation period. This assessment approach is referred to as a rotating basin approach.

The rotating basin approach was established after the State Water Board adopted a Listing Policy Amendment in 2015 (Resolution No. 2015-0005 recital, 14). The adopting resolution explains,

> On November 12, 2013, the State Water Board provided electronic notice to persons interested in the California Integrated Report that the State Water Board and U.S. EPA were discussing strategies to make the process for developing the Integrated Report more efficient and submittals to U.S. EPA more timely. That notice included a link to a letter to U.S. EPA from the State Water Board, Division of Water Quality (dated July 15, 2013), which detailed proposed procedural changes to the Listing Policy. The notice also described the strategy of having the 303(d) List be comprised of a portion of the nine Regional Water Board listing recommendations each listing cycle.

Since establishing the rotating basin approach in 2015, USEPA has approved four integrated reports.

The rotating basin approach retains the manageability and feasibility of region-wide water quality assessments and timely integrated report submissions. Conducting water quality assessments on a region-specific level allows time to conduct a thorough assessment of the data ensuring high-quality, transparent assessments are used to inform the integrated report. Additionally, this approach is consistent with USEPA Memorandum: Guidance for 2004 Assessment, listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act; TMDL-01-03 (https://www.epa.gov/sites/default/files/2015-10/documents/2003_07_23_tmdl_tmdl0103_2004rpt_guidance.pdf).

For the 2026 California Integrated Report, the North Coast, Lahontan, and Colorado River Basin Regional Water Boards are “on-cycle.” All readily available data and information for surface waters within the boundaries of these Regional Water Boards

received prior to the data solicitation cut-off date of October 21, 2022, were considered. In addition, all readily available data and information from waterbody segments within the San Joaquin River sub-area of the Central Valley Regional Water Board were considered for “off-cycle” assessments. The San Joaquin River sub-area is defined as the San Joaquin River watershed and includes the mainstem of the San Joaquin River upstream of the legal boundary of the Sacramento-San Joaquin Delta and all surface waters tributary to the mainstem. Finally, some data and information from several waterbody segments within the Central Coast and San Diego Regional Water Board were considered as “off-cycle” assessments.

## 1.6 ~~1.5~~ Racial Equity

The Water Boards’ mission is to preserve, enhance, and restore the quality of California’s water resources and drinking water for the protection of the environment, public health, and all beneficial uses, and to ensure proper water resource allocation and efficient use for the benefit of present and future generations. In relation to this mission, the State Water Boards accept responsibility for confronting structural and institutional racism and advancing racial equity. In 2021, the State Water Board adopted a resolution titled, “Condemning Racism, Xenophobia, Bigotry, and Racial Injustice, and Strengthening Commitment to Racial Equity, Diversity, Inclusion, Access, and Anti-Racism” (Resolution No. 2021-0050) (https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2021/rs2021_0050.pdf).

In response to Resolution No. 2021-0050, the State Water Board developed a Racial Equity Action Plan, which is a compilation of actions intended to set goals for the State Water Board to address racial inequities and identify metrics to measure progress. As part of the Racial Equity Action Plan, the State Water Board is considering a number of actions. For example, the California Integrated Report may be used to advance environmental justice by identifying impaired waterbody segments that are located in disadvantaged communities and identify where there is insufficient data and information to inform if a waterbody segment is impaired.

While the Water Boards work to advance these efforts, the California Office of Environmental Health Hazard Assessment (“OEHHA”) provides the California Communities Environmental Health Screening Tool: CalEnviroScreen 4.0. CalEnviroScreen is an online mapping tool that helps identify California communities that are most affected by many sources of pollution and where people are often especially vulnerable to pollution’s effects. CalEnviroScreen uses environmental, health, and socioeconomic data and information to produce scores for every census tract in California. CalEnviroScreen 4.0 incorporates data and information from the 303(d) list to help inform the extent of environmental degradation within an area. For more information visit the CalEnviroScreen webpage at https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40.

## 1.7 ~~1.6 Partnerships~~ Coordination with California Native American Tribes

California is home to at least 55 non-federally recognized California Native American Tribes ("Tribes") and 109 federally recognized Tribes. The Water Boards are committed to building and strengthening relationships with Tribes, and to continuing efforts to reach the goals described in the Racial Equity Action Plan (https://www.waterboards.ca.gov/racial_equity/docs/racial-equity-action-plan-final-en.pdf), such as equitable data, culturally-relevant data, and developing meaningful partnerships. Starting with the 2026 California Integrated Report, the Water Boards are implementing practices to improve outreach to tribal communities and establishing consistent practices when considering tribal data (refer to section 2.2.3 Tribal Data Considerations for further details).

The Water Boards' development of the integrated report and approval of the CWA section 303(d) list is not subject to statutes that require tribal consultation, such as sections 21080.3.1, 21080.3.2, and 21084.3 of the Public Resources Code (also known as Assembly Bill 52) and section 13149.2 to the Water Code (also known as Assembly Bill 2108.) Nonetheless, in an effort to increase awareness and transparency surrounding the development the integrated report, the State Water Board notified Tribes statewide by email regarding the development of the 2026 and opportunities for participation and discussion.

The Water Boards also distributed letters of notification to individual federally recognized Tribes about submitted data and associated data evaluations for the 2026 California Integrated Report, if applicable. The Water Boards' goals of these notification letters were to inform federally recognized Tribes of data used and excluded, to clarify the purpose and implications of the integrated report, and to establish and strengthen relationships, which may contribute to improving accuracy of information and utilizing tribal data for the integrated report.

The USEPA Policy on Consultation with Indian Tribes (https://www.epa.gov/system/files/documents/2023-12/epa-policy-on-consultation-with-indian-tribes-2023.pdf) is to consult on a government-to-government basis with federally recognized Tribal governments when the USEPA actions or decisions may affect Tribes. The USEPA recognizes that while California's Integrated Report does not include assessment within federally recognized Tribal lands, Tribes or Tribal interests may be affected by state assessment and listing decisions. As such, the USEPA offers tribal consultation on the USEPA's review and of the 303(d) list.

The USEPA is authorized to treat eligible federally recognized Tribes as a state ("Treatment as a State") for the purpose of implementing and managing environmental regulatory programs, administrative functions, and grant programs. Many Tribes in California collect and submit water quality data to the federal Water Quality Exchange ("WQX") database. The USEPA states in Chapter 8 of the Clean Water Act Section 106 Tribal Guidance that when Tribes provide data to WQX, that data are readily available for consideration in the state's integrated report (https://www.epa.gov/system/files/documents/2022-12/clean-water-act-section-106-

tribal-guidance.pdf). Currently no Tribes in California are approved by the USEPA for Treatment as a State to administer a 303(d) program. The USEPA is available to assist those Tribes with water quality assessments.

# 2 California Integrated Report Development

This section describes the rationale, methods, and procedures employed to develop the 2026 California Integrated Report. Note that much of the rationale, methods, and procedures described in the sections below describe the functionality of the California Water Quality Assessment ("CalWQA") database.

## 2.1 Readily Available Data and Information

Listing Policy section 6.1.1 defines readily available data and information as data and information that can be submitted to CEDEN, or its successor database, as directed in the notice of solicitation. If CEDEN is unable to accept a particulate subset of data and information, the Water Boards will accept that data and information if it meets the formatting and quality assurance requirements detailed in section 6.1.4 of the Listing Policy and the notice of solicitation. All readily available data and information received during California's 2026 Integrated Report data solicitation period were considered in the development of the California Integrated Report. As defined by the Notice of Public Solicitation of Water Quality Data and Information for the 2026 California Integrated Report Cycle for the Clean Water Act Section 305(b) Surface Water Quality Assessment and the 303(d) List of Impaired Waters (https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2026_solicitation_notice_final.pdf), "data" are considered a subset of information that consists of reports detailing measurements of specific environmental characteristics (i.e., measurements of physical, chemical, or biological characteristics in aquatic environments) and "information" is any documentation, such as narrative or photographic evidence, describing the water quality condition of a surface waterbody segment.

For the 2026 California Integrated Report, the State Water Board solicited data and information from the public from April 18 to October 21, 2022. All readily available data and information submitted for surface waters in the North Coast, Lahontan, and Colorado River Basin Regional Water Boards, all readily available data and information from the San Joaquin River watershed of the Central Valley Regional Water Board, and high priority data from the San Diego and Central Coast Regional Water Boards were considered.

Data and information considered include:

- The 2024 California Integrated Report and its supporting data and information.
- CEDEN data, which includes data from the SWAMP and other Water Boards monitoring programs, ILRP, Southern California Coastal Water Research Project ("SCCWRP"), San Francisco Estuary Institute's ("SFEI") Regional Monitoring

Program, citizen monitoring groups, academic institutions and other data providers.
- CIWQS data, which includes receiving water monitoring data from discharger monitoring reports.
- Data and information, including QAPPs, submitted through the California Integrated Report Upload Portal.
- Water Quality Portal ("WQP") that includes federal USGS, USEPA, and tribal data.[2]
- Existing internal Water Boards data and reports.
- Other sources of data and information that became readily available to Water Board staff, such as fish and shellfish advisories, beach postings, and closures; reports of fish kills, cancers, lesions or tumors; and reports of dog deaths associated with water contact.

The Regional Water Boards that are "off-cycle" may assess high priority data, make listing or delisting Decisions, or propose changes to the 305(b) report (Listing Policy, section 6.1.2.1). Listing Policy section 6.1.2.1 instructs,

> In its notice of solicitation, the State Water Board shall identify the database in which data and information shall be submitted and which Regional Water Boards shall administer the listing process for that listing cycle and whether the State Water Board will administer a particular Regional Water Board's listing process, pursuant to section 6.2, for that region. If a Regional Water Board is "off cycle" pursuant to the State Water Board's notice of solicitation, that Regional Water Board or State Water Board may administer the process for one or more water segments that would result in a direct listing change from the previous listing cycle pursuant to section 6.2.

In section 6.1.5 of the Listing Policy, it acknowledges that "the Regional Water Boards have wide discretion establishing how data and information are to be evaluated, including the flexibility to establish water segmentation, as well as the scale of spatial and temporal data and information that are to be reviewed," which includes determining what would be considered high priority data for a listing cycle. The following is a list of factors that Regional Water Boards may consider when determining which data to include as a high-priority "off-cycle" assessments:

- Racial equity and environmental justice concerns.
- Changes to regulations, such as updates to numeric water quality objectives or criteria.
- Changes made to correct data errors.

[2] The WQP is the nation's largest source for water quality monitoring data. The WQP uses the Water Quality Exchange ('WQX") data format to share over 380 million water quality data records from 900 federal, state, tribal and other partners.

- Changes made to waterbody segment mapping such as merging or splitting of a waterbody segment.
- Datasets for pollutants that may pose a risk to public health.
- New information that may support the delisting of a waterbody segment.
- Public interest in a specific waterbody segment.
- Assessments that are identified as high-priority by the State Water Board during a previous cycle that are to be conducted off-cycle.
- Consideration of staff resources available during the off-cycle.

For a full list of parent projects evaluated for the 2026 California Integrated Report, see Appendix N: 2026 California Integrated Report Data Evaluated.

## 2.2 Data Assembly and Evaluation

All readily available data and information (as defined by section 6.1.1 of the Listing Policy) received during the 2026 California Integrated Report data solicitation period must be considered in the development of the 303(d) list. Data were assembled (i.e., gathered and organized) and evaluated to consider whether or how data and information were assessed. The following subsections describe how data were assembled and evaluated.

### 2.2.1 Mapping

Readily available data and information were evaluated to determine representative waterbody segments. New monitoring stations were either associated with existing mapped waterbody segments or new waterbody segments were mapped to represent the new monitoring stations. Waterbody segments were mapped to account for hydrologic features or as described in Regional Water Quality Control Plans (“Basin Plans”). Waterbody segments were assigned a waterbody identification number known as a “WBID.”

In accordance with section 6.1.2.1 of the Listing Policy, if a waterbody segment could not be associated with a monitoring station, or the monitoring station did not include required sampling location information (i.e., latitude, and longitude), the data or information from the station were not assessed in accordance with Listing Policy Section 6.1.4. In accordance with sections 1 and 6.1.5.2 of the Listing Policy, effluent data (e.g., data collected from storm drain outfalls, wastewater treatment plant discharges, etc.) were not evaluated for California Integrated Report purposes.

Some waterbody segments were re-segmented, split into additional segments, or renamed since the 2024 California Integrated Report was approved. These and other mapping modifications are summarized in Appendix G: Miscellaneous Mapping Changes Report.

### 2.2.2 Data and Information Quality Review

Readily available data and information submitted during the data solicitation period were assembled (i.e., gathered and organized) and evaluated to consider whether or how the data and information will be used and, if appropriate, assessed to determine the condition of surface waters, identify impaired waters, and identify waters that are no longer impaired. Section 6.1.4. of the Listing Policy provides that "[e]ven though all data and information must be evaluated, the quality of the data used in the development of the section 303(d) list shall be of sufficient high quality to make determinations of water quality standards attainment."

Data and information that met data quality conditions set forth in section 6.1.4 of the Listing Policy were used as primary lines of evidence ("LOE(s)"). A primary LOE is a phrase used to describe an LOE that meets Listing Policy data quality conditions and is used to make a Decision. A Decision refers to the determination on the outcome of a data assessment for a waterbody-pollutant combination. A Decision may be "List," "Do Not List," "Delist," or "Do Not Delist." In some instances, data and information that did not meet Listing Policy quality conditions were used to develop ancillary LOEs. An ancillary LOE is a phrase used to describe a line of evidence that does not meet Listing Policy data quality conditions. An ancillary LOE cannot be used alone or in combination with another ancillary LOE to make a Decision; however, one or more ancillary LOEs may be used as supporting evidence when utilizing the situation-specific weight of evidence approach for Decisions per sections 3.11 and 4.11 of the Listing Policy. Erroneous or inaccurate data and information were not further considered.

Data from receiving water monitoring stations in CIWQS were converted to CEDEN format and reviewed for acceptable quality. Receiving water monitoring stations shown to be effluent samples were not further considered. Only ambient samples were evaluated.

Quality review of data involved the application of filters to screen out data from stations with missing or inaccurate location information (latitude, longitude, and datum); data results that were less than the quantitation limit when the quantitation limit was greater than the water quality standard, objective, criterion, or evaluation guideline; data flagged by a laboratory as rejected during quality control ("QC") review; data from a QC sample (laboratory duplicate, blank); and sample types that were not water quality-related data. The quantitation limit includes the minimum level, practical quantitation level, or reporting limit as noted in section 6.1.5.5. of the Listing Policy.

Data records that passed the screening filters were further evaluated based on available QC metadata and assigned estimated data quality tiers, as follows:

- ~~**Tier 0 – Metadata, QC record: Not a measurement of environmental conditions.**~~
- Tier 1 – Passed QC: Data passed all QC checks.
- Tier 2 – Some review needed: Data did not pass minor QC checks; some effort needed to review and defend data if used.

- Tier 3 – Spatial Accuracy Unknown: Data missing spatial datum information, data should not be used for fine scale spatial analysis.
- Tier 4 – Extensive review needed: Data did not pass some critical QC checks; high level of effort needed to review and defend data if used.
- Tier 5 – Unknown Data Quality: Data were not reviewed by the monitoring program. Data will need review before use.
- Tier 6 – Reject Data: Data were rejected by the monitoring program or data did not pass all critical QC checks. Data deemed unusable.
- Tier 7 – ~~Error in Data~~ **Metadata, QC record: Not a measurement of environmental conditions.**
- **Tier 8 – Quality Assurance ("QA") Code not recognized by the screening tool.**

Data classified in Tier 1 were considered to meet Listing Policy data quality requirements for use as a primary LOE. Data classified in Tiers ~~0,~~ 6~~,~~ and 7 were considered inapplicable, erroneous, or inaccurate and were not further considered. Data classified in Tiers 2 through 5 were evaluated on a case-by-case basis to determine compliance with Listing Policy quality requirements and suitability for use as primary or ancillary LOEs based on determinations of water quality standards attainment. **Data classified as Tier 8 were reviewed, added to the screening process and the data were then qualified as one of the other 7 tiers prior to assessment.**

### 2.2.3 Tribal Data Considerations

Starting with the 2026 California Integrated Report, the Water Boards implemented an approach when considering data collected by California Native American Tribes and data collected from waters on federally recognized tribal lands.

Data and information collected by any entity (i.e., Tribe, government agency, etc.) from surface waters on federally recognized tribal land (referred to here as tribal waters) were not assessed for the integrated report. The USEPA acknowledges federally recognized tribal land to include both formal reservations, established through treaties or executive orders of the President, and lands not formally designated such as tribal trust lands (see e.g. 56 FR § 64876, 64881, and 18 USC § 1151). Water quality standards adopted by the State Water Board and Regional Water Boards are not established for tribal waters and should not be applied to tribal waters, nor do the Water Boards have the authority to assess tribal waters. The USEPA also does not accept assessments of tribal waters in the state's integrated report (See USEPA 2024 Integrated Report Memorandum, https://www.epa.gov/system/files/documents/2023-03/2024IRmemo_032923.pdf).

However, the Water Boards assessed data and information collected by Tribes from surface waters outside of the borders of federally recognized tribal land and data and information collected by any entity from waters bordering federally recognized tribal land. Bordering waters refer to waters on overlapping or adjacent jurisdictions between a state and a Tribe. Bordering waters are subject to the Water Boards' authorities under

CWA sections 303(d) and 305(b), and should be assessed with state and regional water quality standards. States are required to evaluate all readily available water quality-related data and information to develop the 303(d) list [40 CFR § 130.7(b)(5)].

A CWA section 106 grant or any other EPA-funded water sampling project requires Tribes to submit a QAPP to USEPA (2 CFR § 1500.12) for review and approval. QAPPs may include sensitive information including indigenous knowledge developed over generations through observation, innovation, and teachings; indigenous framework of reciprocity (i.e. beneficial connections between human and nature); and tribal cultural practices (refer to Chapter 4 of Clean Water Act Section 106 Tribal Guidance). Therefore, Tribes with USEPA-approved QAPPs were not required to share those documents and information with the Water Boards for their data to be evaluated and assessed for the integrated report. Instead, the Water Boards confirmed with USEPA that Tribes that submit data to WQX have approved QAPPs.

### 2.2.4 Data Averaging & Adjustments

In accordance with section 6.1.5.6 of the Listing Policy, if the numeric water quality objective, criterion or evaluation guideline specifies an averaging period or mathematical transformation, the data were evaluated in the specified manner prior to conducting the statistical analysis for water quality standards attainment. Data were grouped to allow comparison of the data to numeric water quality objectives, criteria or evaluation guidelines that are expressed with a specified averaging period (e.g., annual, 30-day, weekly, four-day, etc.). For example, if the numeric water quality objective, criterion or evaluation guideline is expressed as a 30-day geometric mean, data from samples collected within a 30-day timeframe were grouped and a geometric mean was calculated. If only one data point was available during an averaging period, it was used to represent the average concentration for that period. In accordance with section 6.1.5.6 of the Listing Policy, if the averaging period is not stated in the water quality objective, criterion or evaluation guideline, then data from samples collected less than 7 days apart were grouped into a weekly average value.

## 2.3 Data Analysis to Determine Water Quality Standards Attainment & Make Decisions

All existing readily available data and information that met mapping and quality assurance requirements of the Listing Policy (as described above) were assessed using the listing or delisting factors identified in the Listing Policy to determine if water quality standards are exceeded or attained in a waterbody segment. Standards include numeric water quality objectives, criteria or evaluation guidelines set at levels to ensure the reasonable protection of beneficial uses, and antidegradation policies. Data and information were compared to numeric water quality objectives, criteria or evaluation guidelines. These numeric water quality objectives, criteria and evaluation guidelines inform a waterbody segment's ability to support its beneficial uses and determine the Decision outcome (i.e., "List," "Do Not List," "Delist," or "Do Not Delist") associated with the waterbody-pollutant combination. The State Water Board submits these Decisions as recommendations to the USEPA.

### 2.3.1 Selecting Beneficial Uses, Water Quality Objectives, Criteria, and Evaluation Guidelines

Water quality standards consist of beneficial uses of water, federal water quality criteria established per CWA section 303(c) or state water quality objectives approved by the USEPA per CWA section 303(c), and antidegradation policies. Water Code section 13050(h) defines water quality objectives as "the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water of the prevention of nuisance within a specific area." Water quality objectives are not required to be numeric values. Water quality objectives are included in Regional Water Board basin plans and in statewide water quality control plans.

Beneficial uses for waters in California are identified in the Regional Water Boards' Basin Plans or statewide water quality control plans, including the Water Quality Control Plan for Ocean Waters of California ("Ocean Plan") and components of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries ("ISWEBE Plan"). See Table 2-1 for a list of the most frequently used beneficial uses for the California Integrated Report with the most commonly used definitions. Some basin plans contain variations of the definitions. Beneficial use support was determined by comparing the data to narrative or numeric water quality objectives, numeric criteria or numeric evaluation guidelines.

**Table 2-1: Summary of Beneficial Uses and Common Definitions**

| Beneficial Use Abbreviations | Definition |
|---|---|
| **AGR** | **Agricultural supply:** Uses of water for farming, horticulture or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing. |
| **COLD** | **Cold Freshwater Habitat:** Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. |
| **COMM** | **Commercial and Sport Fishing**: Uses of water for commercial or recreational collection of fish and shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes. |
| **CUL** | **Tribal Tradition and Culture:** Uses of water that support the cultural, spiritual, ceremonial, or traditional rights or lifeways of California Native American Tribes, including, but not limited to: navigation, ceremonies, or fishing, gathering, or consumption of natural aquatic resources, including fish, shellfish, vegetation, and materials. |

| | |
|---|---|
| **EST** | **Estuarine Habitat:** Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds). |
| **MAR** | **Marine Habitat:** Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds). |
| **MIGR** | **Migration of Aquatic Organisms:** Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish. |
| **MUN** | **Municipal and Domestic Supply**: Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. |
| **RARE** | **Rare, Threatened, or Endangered Species:** Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered. |
| **REC-1** | **Water Contact Recreation:** Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs. |
| **REC-2** | **Non-Contact Water Recreation**: Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities |
| **SHELL** | **Shellfish Harvesting:** Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, abalone, and mussels) for human consumption, commercial or sport purposes. |
| **SUB** | **Subsistence Fishing:** Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities, to meet needs for sustenance. |

| | |
|---|---|
| **T-SUB** | **Tribal Subsistence Fishing:** Uses of water involving the non-commercial catching or gathering of natural aquatic resources, including fish and shellfish, for consumption by individuals, households, or communities of California Native American Tribes to meet needs for sustenance. |
| **WARM** | **Warm Freshwater Habitat:** Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. |
| **WILD** | **Wildlife Habitat:** Uses of water that support terrestrial ecosystems including, but not limited to, preservation or enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources. |

When available, numeric water quality objectives or criteria were used to evaluate beneficial use attainment. Numeric water quality objectives are established in basin plans or in statewide water quality control plans, including the ISWEBE Plan and the Ocean Plan. Numeric water quality objectives may apply statewide, apply across an entire region, or be site-specific to a watershed or waterbody reach. Additionally, numeric water quality objectives and criteria include:

- Numeric criteria for priority toxic pollutants contained in the California Toxics Rule or "CTR." (40 C.F.R. § 131.38.) Aquatic life numeric water quality objectives for 24 priority toxic pollutants and human health numeric objectives for 92 priority toxic pollutants are included in the CTR (40 CFR §§ 131.38(a), (c)(1), and (d)(1).) The CTR was promulgated by the USEPA, exercising authority under CWA section 303(c)(4)(B), to adopt new or revised water quality standards for California to meet CWA requirements after statewide water quality objectives for many toxic pollutants were invalidated by a 1994 court decision.
- Maximum Contaminant Levels or "MCL(s)," to the extent applicable. MCLs were applied differently depending on how they are incorporated in Regional Water Board Basin Plans. Examples include:
    - 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
    - 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

In the absence of a numeric water quality objective or criterion, narrative water quality objectives were evaluated using numeric evaluation guidelines selected in conformance with section 6.1.3 of the Listing Policy. Section 6.1.3 of the Listing Policy describes the process to select evaluation guidelines for sediment quality, fish and shellfish consumption, aquatic life protection from bioaccumulation of toxic substances, as well

as other parameters. Section 6.1.3 of the Listing Policy states, “Regional Water Boards and State Water Boards shall identify evaluation guidelines that represent standards attainment or beneficial use protection. The guidelines are not water quality objectives and shall only be used for the purpose of developing the Section 303(d) list.” An evaluation guideline may be used if it is demonstrated that the evaluation guideline is applicable and protective of the beneficial use, is linked to the pollutant under consideration, is scientifically based, is peer reviewed, is well described, and identifies a range above which impacts occur and below which no or few impacts are predicted. Evaluation guidelines are provided for each LOE under the LOE field “Evaluation Guideline” in Appendix B: Statewide Waterbody Fact Sheets. Numeric water quality objectives, criteria and evaluation guidelines used for 2026 assessments are listed in Appendix O: 2026 California Integrated Report Water Quality Objectives, Criteria, and Evaluation Guidelines.

Water quality objectives, criteria and evaluation guidelines may have been revised since the last listing cycle in which the data were assessed, resulting in the need to reassess all previously assessed data and information. For reassessments, all available previously assessed data were identified and compared with the revised/current numeric water quality objective, criterion or evaluation guideline. The reassessment included making an entirely new Decision based on the updated numeric water quality objective or evaluation guideline. For example, a “List on 303(d) list” Decision may be revised to a “Do Not List” based on the Listing Factors set by Listing Policy Section 3. The assessment was documented in a new LOE, and the previous LOE was retired and not used further. If data and information were unable to be reassessed (e.g., data and information were not readily available, as was the case for data used to make Decisions prior to 2006 because they are not available in CalWQA), the previous LOE with the previous numeric water quality objective, criterion or evaluation guideline was retained and considered as part of the weight of the evidence for determining attainment of standards. LOEs retired during the listing cycle for the 2026 California Integrated Report are available in Appendix J: List of Retired Lines of Evidence.

### 2.3.2 Lines of Evidence

Data and information were organized into LOEs and compared to the applicable numeric water quality objective, criterion or evaluation guideline to determine the beneficial use support rating. An LOE was prepared for each unique combination of a station, pollutant, matrix, fraction, beneficial use, and numeric water quality objective, criterion or evaluation guideline. The term “station” refers to a monitoring station. The term “matrix” refers to the sample medium used in an LOE, such as water, sediment, or tissue. The “fraction” is the analyzed portion of the sample medium. For example, if the matrix of a sample is water, then the fraction can be either the total constituent or the dissolved portion of the constituent.

Beneficial use support ratings are used to inform recommendations for determining a waterbody’s condition category placement in the integrated report. These ratings were determined by the following process:

1. Each individual LOE identifies the number of samples and the number of exceedances of the applicable threshold.

2. LOEs were grouped according to their beneficial use.

3. The number of samples and exceedances for each LOE group were compared to the binomial tables in the Listing Policy.

4. Each LOE group was then assigned one of three possible beneficial use support ratings: Fully Supporting, Not Supporting, or Insufficient Information.

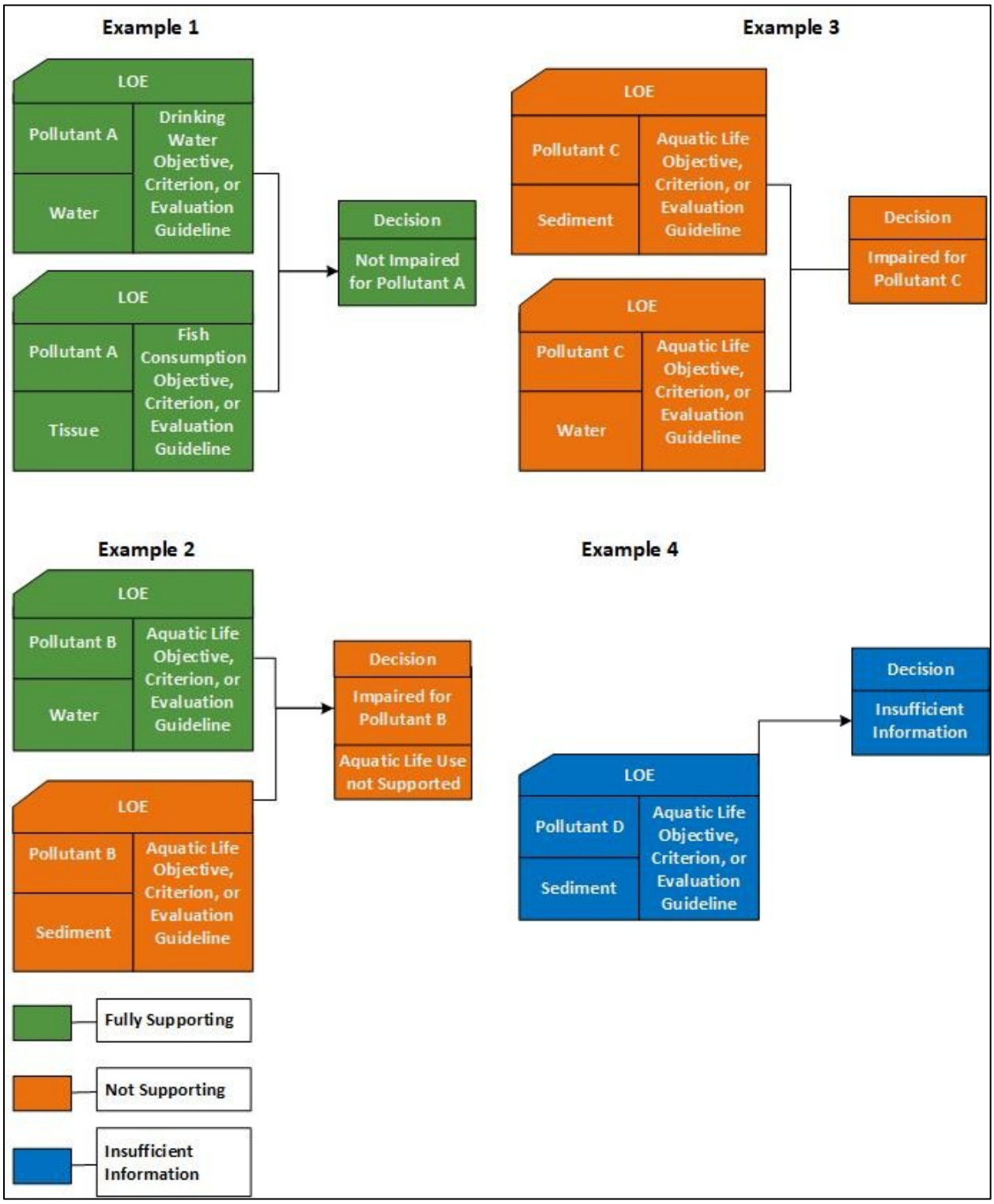
The three possible beneficial use support ratings are defined as follows:

- Fully Supporting: The pollutants does not exceed a numeric water quality objective, criterion or evaluation guideline with a frequency that causes a listing and the dataset consists of at least 16 samples for toxic pollutants per the Listing Policy Table 3.1 or at least 26 samples for conventional or other pollutants per the Listing Policy Table 3.2.
- Insufficient Information: It cannot be determined if a use is supported or not supported. This usually occurs when the data have poor quality assurance, there are not enough samples in a dataset, or the information alone cannot support a "List" or "Delist" Decision.
- Not Supporting: The pollutants exceeds a numeric water quality objective, criterion or evaluation guideline with a frequency that cause a listing. (See Staff Report section 2.3.4.1 – Binomial Test Criteria for Listing Decisions.)

All LOE groups were aggregated into waterbody-pollutant combinations, and a record was developed in CalWQA known as a CalWQA Decision. A CalWQA Decision may be "List," "Do Not List," "Delist," or "Do Not Delist." Retirement of an LOE occurs when it is no longer included in the CalWQA Decision for a waterbody-pollutant combination. Generally, retired LOEs from previous listing cycles are replaced with updated LOEs when data are reassessed using a different numeric water quality objective, criterion or evaluation guideline. LOEs retired during the listing cycle for the 2026 California Integrated Report are available in Appendix J: List of Retired Lines of Evidence.

See Figure 2-1: Example of Aggregation of Lines of Evidence into CalWQA Decisions and Use Support Ratings.

**Figure 2-1: Example of Aggregation of Lines of Evidence into CalWQA Decisions and Use Support Ratings**



### 2.3.3 CalWQA Decisions

Each CalWQA Decision includes an assessment of one or more LOEs available for a specific waterbody-pollutant combination, as required by the Listing Policy. This assessment determines whether a waterbody-pollutant combination is impaired (not supporting beneficial uses) and should be placed on the 303(d) list. The State Water Board adds waterbody segments to the 303(d) list if data or information indicate that one or more beneficial uses are not supported.

**Listing Factors**

Section 3 of the Listing Policy consists of "listing factors" 3.1 through 3.11 used to determine whether waters should be added to the 303(d) list. Listing a waterbody-pollutant combination is recommended if adequate data exist to show that any of the following conditions are met:

1. Numeric data exceed water quality objectives for toxic pollutants, including maximum contaminant levels where applicable, or California/National Toxics Rule water quality criteria more than the prescribed number of times. The number of times varies by the number of samples and is based on a binomial distribution. (Listing Policy, section 3.1.)
2. Numeric data exceed water quality objectives for conventional pollutants more than the prescribed number of times. The number of times varies by the number of samples and is based on a binomial distribution. *(Id.*, section 3.2.)
3. Bacteria data exceeds water quality standards in California Code of Regulations, Basin Plans, or statewide plans based on a binomial distribution, site specific exceedance frequencies or a four percent exceedance frequency. (*Id.*, section 3.3.)
4. A health advisory has been issued against the consumption of edible resident organisms or a shellfish harvest ban and there is a designated or existing fish consumption beneficial use for the waterbody segment. (*Id*, section 3.4.)
5. Tissue pollutant levels in organisms exceed a pollutant-specific evaluation guideline. (*Id.*, section 3.5.)
6. Statistically significant water or sediment toxicity data exhibits statistically significant toxicity using the binomial distribution or narrative sediment quality objectives are exceeded. (*Id.*, section 3.6.)
7. Nuisance condition data for odor, taste, excessive algae growth, foam, turbidity, oil, trash, litter, or color exceed evaluation guidelines or a significant nuisance condition exists when compared to reference conditions. (*Id.*, section 3.7.)
8. Adverse biological response is measured in resident individuals as compared to reference conditions and the impacts are associated with water or sediment concentrations of pollutants. (*Id.*, section 3.8.)
9. Significant degradation of biological populations and/or communities is exhibited as compared to reference sites and is associated with water or sediment concentrations of pollutants. (*Id.*, section 3.9.)
10. A trend of declining water quality standards attainment is exhibited. (*Id.*, section 3.10.)

11. The situation-specific weight of evidence listing factor may be applied when all other listing factors do not result in the listing of a waterbody segment, but information indicates non-attainment of standards. Specific justification must be provided, as per the Listing Policy, when the situation-specific weight of evidence listing factor is applied. (*Id*., section 3.11.)

## Delisting Factors

Section 4 of the Listing Policy consists of "delisting factors" 4.1 through 4.11 used to evaluate whether waters should be removed from the 303(d) list. Delisting, or removing, a waterbody-pollutant combination from the existing 303(d) list is recommended if adequate data exist to show that any of the following conditions are met:

1. Numeric data do not exceed water quality objectives for toxic pollutants, including maximum contaminant levels where applicable, or California/National Toxics Rule water quality criteria more than the prescribed number of times. The number of times varies by the number of samples and is based on a binomial distribution. (Listing Policy, section 4.1.)
2. Numeric data do not exceed water quality objectives for conventional pollutants more than the prescribed number of times. The number of times varies by the number of samples and is based on a binomial distribution. *(Id.*, section 4.2.)
3. A listing was based on faulty data, or objectives or standards have been revised. (*Id*., section 4.)
4. Bacteria data do not exceed water quality standards in California Code of Regulations, Basin Plans, or statewide plans based on the binomial distribution, site specific exceedance frequencies or a four percent exceedance frequency. (*Id*., section 4.3.)
5. A health advisory has been removed or the evaluation guideline is no longer exceeded. (*Id*., section 4.4.)
6. Tissue pollutant levels in organisms do not exceed a pollutant-specific evaluation guideline. (*Id*., section 4.5.)
7. Water or sediment toxicity or associated water data do not exceed water or sediment quality guidelines or narrative sediment quality objectives. (*Id*., section 4.6.)
8. Nuisance condition data no longer exceed evaluation guidelines or there is no significant nuisance condition when compared to reference conditions. (*Id*., section 4.7.)
9. Adverse biological response is no longer evident or associated water or sediment pollutants are no longer exceeded. (*Id*., section 4.8.)
10. Degradation of biological populations and/or communities is no longer evident or associated water or sediment pollutants are no longer exceeded. (*Id*., section 4.9.)
11. Trends in water quality are not substantiated or impacts are no longer observed. *Id*., section 4.10.)
12. The weight of evidence demonstrates that a water quality standard is attained. (*Id*., section 4.11.)

## Integrated Report Development

The 303(d) list was developed per the following assumptions or requirements:

1. The 2024 California Integrated Report (https://www.waterboards.ca.gov/water_issues/programs/tmdl/2023_2024state_ir_reports/apx-a-2024-303d-list-final.xlsx) formed the basis for the 2026 303(d) list. The 2024 303(d) List was the basis for developing the Decisions for the 2026 303(d) List. If a waterbody-pollutant combination was listed on the 2024 303(d) List, a Decision was made to either keep it on the list or delist it. If the waterbody-pollutant combination was not listed on the 2024 303(d) List, a Decision was made to either list it or keep it as not listed. The Decision for each waterbody-pollutant combination along with a presentation of the data assessment and the recommended changes, when applicable, are documented in Appendix B: Statewide Waterbody Fact Sheets.
2. The provisions of the Listing Policy directed Decisions.
3. Waterbody-pollutant listings are independent of the TMDLs that have been approved and are being implemented for the waterbody segment. If a waterbody-pollutant combination is removed from the list, the delisting has no effect on the validity or requirements for implementing an existing TMDL that was adopted and continues to have full force of law under California's Porter-Cologne authority. Changes to the 303(d) list do not result in a concurrent change to an existing basin plan. Any change to an existing basin plan would be made through a separate amendment process.
4. The Listing Policy provides requirements for how to interpret data and information as they are compared to water quality standards as they are written. Neither the Listing Policy nor the listing process may be used to "establish, revise, or refine any water quality objective or beneficial use." (Listing Policy, p. 1, section 1.)

## Source Identification

Potential pollutant sources were only identified in CalWQA Decisions when a specific source analysis was performed as part of a TMDL or other regulatory process. Otherwise, the potential pollutant source was marked "Source Unknown" or "No Source Analysis Available."

## Binomial Test for Determining Acceptable Exceedances

Pollutants in water, sediment, and tissue matrices were assessed by comparing sampling results to numeric water quality objectives, criteria or evaluation guidelines. Per several listing factors set forth in the Listing Policy, the number of measured exceedances for toxic, conventional, and other pollutants were assessed using a statistical hypothesis testing approach to determine beneficial use attainment. The statistical test used for these listing factors is the "binomial test," which identifies the critical number of exceedances for a given sample size needed to accept or reject the null hypothesis while quantifying statistical level of significance and power and controlling for errors (false positives and false negatives). Other Listing Policy listing

factor approaches that were used to determine beneficial use attainment (e.g., use of health advisories, water quality trend, and situation-specific weight of evidence) are not described in this section.

The binomial test was used for dichotomous data (data with two possible analysis outcomes), and thus its application to listing and delisting Decisions is relevant for determining compliance with water quality standards (USEPA 2002; Lin et al. 2000; Smith et al. 2001). For 303(d) assessment purposes, readily available data in raw numeric form were transformed into nominal ("named") information; specifically, "yes" the data attained the numeric water quality objective, criterion or evaluation guideline and counted towards the number of exceedances or "no" the data did not and were not counted towards the number of exceedances.

The binomial test set forth in the Listing Policy minimizes the difference between alpha error (potential for a false positive error, i.e., listing a waterbody segment when the segment is not impaired) and beta error (potential for false negative error, i.e., not listing a waterbody segment when the segment is impaired). Preference is not shown to either error. The potential to commit either of the errors is approximately equal, and as the sample size is increased, the probability to commit either error is progressively reduced. Establishing an effect size (the level of impact essential to detect) also contributes to the control of errors, mainly beta errors. Effect size represents the maximum deviation from the null hypothesis exceedance proportion that would be tolerated and still support the null hypothesis statement. In other words, effect size is the maximum magnitude of exceedance frequency that would be tolerated. In addition to reducing the potential for beta errors (false negatives), effect size increases the power of the analysis, which is the probability that the test correctly rejected the null hypothesis.

The Listing Policy includes binomial tables to use to determine if a waterbody segment is not meeting water quality objectives, criteria or evaluation guidelines and should be placed on the 303(d) list (Listing Policy Tables 3.1 and 3.2) or if a waterbody segment on the 303(d) list now meets standards and should be removed from the list (Listing Policy Tables 4.1 and 4.2). These tables identify the minimum number of exceedances allowed based on the number of samples assessed and the binomial test criteria. The binomial test criteria include the null and alternative hypotheses (which are informed by the acceptable exceedance proportion and the unacceptable exceedance proportion), the alpha error, the beta error, and the effect size.

Using the binomial test, a waterbody segment was deemed impaired and placed on the 303(d) list if a minimum number of water samples exceeded a certain specified water quality objective, criterion, or evaluation guideline. (Listing Policy, p. 9, table 3.1.) With a sample size of between 2 and 24, the minimum number of exceedances is 2; with a sample size of between 25 and 36, the minimum number of exceedances is 3; and so on. (Ibid.) In other words, if 5 water samples are taken from a particular waterbody segment, and 2 or more of those water samples exceeded numeric criteria, then the waterbody segment from which the samples were taken was deemed impaired and placed on the 303(d) list. More information on the application of the binomial test with balanced alpha and beta errors and the development of listing and delisting tables is

available under Issue 6 Statistical Evaluation of Numeric Water Quality Data in the Functional Equivalent Document for the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List ("Functional Equivalent Document") (SWRCB 2004).

## Binomial Test Criteria for Listing Decisions

For listing Decisions, the null hypothesis tests the statement that the actual exceedance proportion, given the data available, is less than the acceptable exceedance proportion for that pollutant type. The acceptable exceedance proportions are 0.03 for toxic pollutants and 0.10 for conventional and other pollutants. If evidence is sufficient to accept the null hypothesis, the recommendation would be to not list the waterbody segment for the pollutant. The alternative hypothesis states that exceedance proportion, given the data available, is greater than the unacceptable exceedance proportion for that pollutant type. The unacceptable exceedance proportions are 0.18 for toxic pollutants and 0.25 for conventional and other pollutants. If evidence is sufficient to reject the null hypothesis and thereby accept the alternative hypothesis, then the Decision would be to list the waterbody segment for the pollutant.

Effect size is shown by a 0.15 difference between the acceptable and unacceptable exceedance proportions for the pollutant types. The use and value of the effect size selected is based on recommendations by USEPA (USEPA 2002). The binomial test for listing Decisions also maintains alpha error (false positive) and beta error (false negative) at or below a probability of 0.2 while minimizing the difference between these two errors so as not to show preference. The binomial test criteria used to establish the binomial tables for Decisions are provided in Table 2-2: Binomial Test Criteria Used to Determine Placement of 303(d) List, below.

Tables 3.1 and 3.2 of the Listing Policy show that the minimum sample size needed to make a listing Decision is extended from 16 and 26 samples to two and five samples, respectively. This is so data with small sample populations are not excluded from assessments. In these instances, the frequency of the observed exceedances is high enough to support reliable listing Decisions as long as the samples are spatially and temporally representative. For toxic pollutants, the minimum sample size of two with two exceedances is supported by a USEPA interpretation of the California Toxics Rule (40 CFR § 131.38(c)(2)(iii)) to mean that waters must be listed if there are two or more independent exceedances of acute or chronic water quality standards within any three consecutive year time frame (SWRCB 2004).

**Table 2-2: Binomial Test Criteria Used to Determine Placement on 303(d) List**

| Binomial Test Criteria | Toxic Pollutant (Table 3.1 of Listing Policy) | Conventional and Other Pollutant (Table 3.2 of Listing Policy) |
|---|---|---|
| Null Hypothesis | Actual exceedance proportion <0.03 | Actual exceedance proportion <0.10 |

| | *If supported: "Do not list on 303(d) list"* | *If supported: "Do not list on 303(d) list"* |
|---|---|---|
| Alternate Hypothesis | Actual exceedance proportion >0.18<br>*If supported: "List on 303(d) list"* | Actual exceedance proportion >0.25<br>*If supported: "List on 303(d) list"* |
| Effect Size | 0.15 | 0.15 |
| Alpha Error | ≤0.20 | ≤0.20 |
| Beta Error | ≤0.20 | ≤0.20 |

## Binomial Test Criteria for Delisting Decisions

For delisting Decisions, the null hypothesis tests the statement that the exceedance proportion, given the data available, is greater than the unacceptable exceedance proportion for the pollutant type. The unacceptable exceedance proportions are 0.18 for toxic pollutants and 0.25 for convention and other pollutants. If evidence is sufficient to accept the null hypothesis, the Decision would be "Do Not Delist" the waterbody segment for the pollutant type. The alternative hypothesis states that the exceedance proportion, given the data available, is less than the acceptable exceedance proportion for the pollutant. The acceptable exceedance proportions are 0.03 for toxic pollutants and 0.18 for conventional and other pollutants. If evidence is sufficient to reject the null hypothesis and thereby accept the alternative hypothesis, then the Decision would be to "Delist" the waterbody segment for the pollutant.

Similar to binomial test listing Decisions, delisting Decisions effect size is shown by a 0.15 difference between the acceptable exceedance proportion and the unacceptable exceedance proportion.

Compared to the listing binomial test criteria, the delisting criteria reduce the acceptable alpha error (false positive) and beta error (false negative) potential from 0.2 to 0.1. By doing so, a higher degree of certainty is required when deciding if a waterbody segment should be delisted from the 303(d) list. The higher degree of certainty requires a larger sample size to support delisting; however, using this approach reduces the chances for removing pollutants from the list before standards are truly achieved. The binomial test criteria used to establish the toxic pollutants and conventional and other pollutants for delisting determinations are provided in Table 2-3: Binomial Test Criteria used to Determine Removal from 303(d) List, below.

**Table 2-3: Binomial Test Criteria used to Determine Removal from 303(d) List**

| Binomial Test Criteria | Toxic Pollutant (Table 4.1 of Listing Policy) | Conventional or Other Pollutant (Table 4.2 of Listing Policy) |
|---|---|---|
| Null Hypothesis | Actual exceedance proportion >0.18<br>*If supported: "Do not delist from 303(d) list"* | Actual exceedance proportion >0.25<br>*If supported: "Do not delist from 303(d) list"* |
| Alternate Hypothesis | Actual exceedance proportion <0.03<br>*If supported: "Delist from 303(d) list"* | Actual exceedance proportion <0.10<br>*If supported: "Delist from 303(d) list"* |
| Effect Size | 0.15 | 0.15 |
| Alpha Error | ≤0.10 | ≤0.10 |
| Beta Error | ≤0.10 | ≤0.10 |

## 2.4 Waterbody Fact Sheets

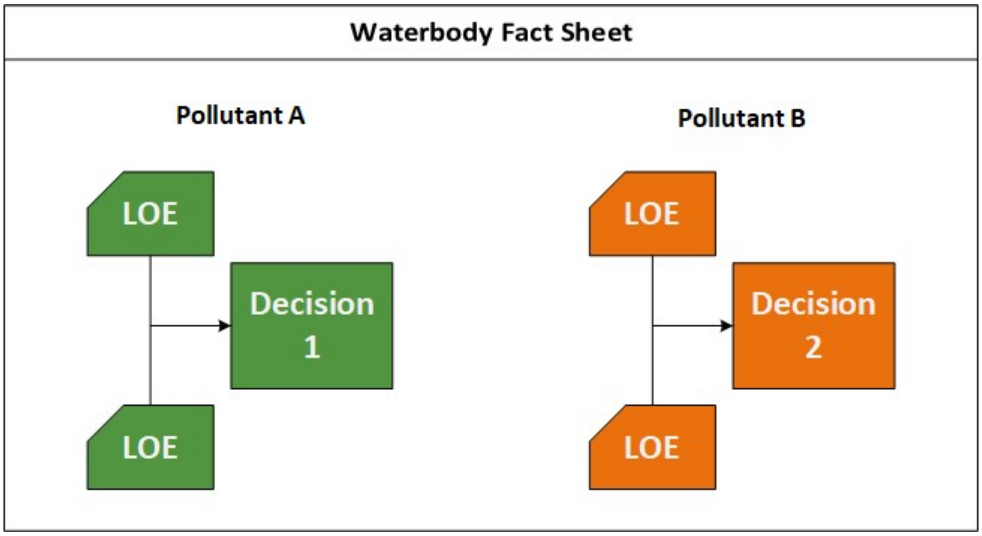
The LOEs and CalWQA Decisions for each waterbody segment are detailed in Waterbody Fact Sheets. Detailed Waterbody Fact Sheets for all waterbody segments assessed for the 2026 California Integrated Report are available in Appendices B and B1. The Waterbody Fact Sheets provide the following information:

- The beneficial use that was assessed.
- The numeric water quality objectives, criteria or evaluation guidelines that were used to make the listing Decision.
- Number of samples and exceedances.
- The final Decision for a waterbody-pollutant.
- The State and/or Regional Water Board's conclusion for the listing Decision.
- Information on the dataset that was used to make the Decision including data references, and QA documentation.
- TMDL priority level, if applicable. See Section 2.6 for more information on TMDL priority levels.

For each waterbody segment, data from multiple pollutants may be assessed, resulting in more than one waterbody-pollutant CalWQA Decision.

Figure 2-2 illustrates the relationship between LOEs and a CalWQA Decision.

**Figure 2-2: Waterbody Fact Sheet – Information Summary**




## 2.5 Integrated Report Condition Categories

The California Integrated Report consists of assessed waterbody segments placed into one of five "Integrated Report Condition Categories." The State Water Board's Integrated Report Condition Categories are assigned at the waterbody level. CalWQA aggregates the individual CalWQA Decisions for all pollutants assessed in the waterbody segment and assigns a Condition Category to the waterbody as described in Figure 2-3 below.

For example, a CalWQA Decision for a waterbody-pollutant combination is placed in Category 3 if there is insufficient data and/or information to make a beneficial use support determination but data and/or information indicates beneficial uses may be potentially threatened. If there are no other CalWQA Decisions for the waterbody segment, the waterbody would be placed in Category 3. However, if there is another CalWQA Decision for a different pollutant, and data indicate standards are not attained, the waterbody would be placed in Category 5.

When the California Integrated Report is submitted to USEPA via its online system called the Assessment, Total Maximum Daily Load Tracking and Implementation System ("ATTAINS"), categories are calculated by ATTAINS using the USEPA's categorization scheme. ATTAINS applies condition categories to each CalWQA Decision. CalWQA assigns condition categories at the waterbody segment level. (See Staff Report, section 2.4, Waterbody Fact Sheets, for information on how Integrated Report Condition Categories are applied to a waterbody.) A comparison of USEPA's and State Water Board's 305(b) Integrated Report Condition Categories is outlined below in Figure 2-3.

**Figure 2-3: Comparison of USEPA's and State Water Board's 305(b) Integrated Report Condition Categories**

| Category | USEPA[3] *(waterbody-pollutant level)* | State Water Board *(waterbody level)* |
|---|---|---|
| 1 | All designated uses are supported, and no use is threatened. | At least one **core**[4] beneficial use is supported, and no beneficial uses are known to be impaired. |
| 2 | Available data and/or information indicate that some, but not all of the designated uses are supported. | Insufficient data and/or information to determine core beneficial use support[5] |
| 3 | There is insufficient available data and/or information to make a use support determination. | Insufficient data and/or information to make a beneficial use support determination but data and/or information indicates beneficial uses may be potentially threatened. |
| 4 | At least one designated use is not being supported or is threatened, but a TMDL is not needed.<br><br>**4a**: A TMDL has been developed and approved by USEPA for any waterbody-pollutant combination~~,~~ ~~**and the state's approved implementation plan is**~~ | At least one beneficial use is not supported but a TMDL is not needed.<br><br>**4a**: A TMDL has been developed and approved by USEPA for at least one waterbody-pollutant combination listing, and the approved implementation plan is expected to result in full attainment |

[3] USEPA 2005.

[4] Core beneficial uses include drinking water supply, water contact recreation such as swimming, non-contact water recreation, fish consumption, shellfish harvesting, and aquatic life support. (SWRCB 2010.)

[5] Reasons for insufficient data and/or information may be due to poor quality assurance, not enough samples in dataset, or another reason that the information alone cannot support an assessment recommendation. The State Water Board's Category 2 does not include beneficial uses that are not assessed, while the USEPA Category 2 does include beneficial uses that are not assessed.

| Category | USEPA[3] *(waterbody-pollutant level)* | State Water Board *(waterbody level)* |
|---|---|---|
| | ~~**expected to result in full attainment of the water quality standard within a reasonable, specified time frame**~~.<br><br>**4b**: Another regulatory program is reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame.<br><br>**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. | of the water quality standard within a reasonable, specified time frame. All other listings in the waterbody are being addressed.<br><br>**4b**: Another regulatory program is reasonably expected to result in attainment of the water quality standard within a reasonable, specified time frame. All other listings in the waterbody are being addressed by action(s) other than a TMDL.<br><br>**4c**: The non-attainment of any applicable water quality standard for the waterbody is the result of pollution and is not caused by a pollutant. |
| **5** | **5**: At least one designated use is not supported or is threatened, and a TMDL is needed.<br><br>**5r**: At least one designated use is not supported and a TMDL is needed, but assigned a low priority for TMDL development because an ~~**Advance Restoration Plan (“**~~ARP~~**”)**~~ is being pursued[6,7]. | **5:** At least one beneficial use is not supported and a TMDL is needed.<br><br>**5-bio: *Degraded biological populations and communities indicate that at least one aquatic life beneficial use is not supported. This impairment determination must be supported by at least one pollutant impairment for an aquatic life beneficial use on the same waterbody segment. A*** |

[6] USEPA 2023.

[7] In USEPA’s Working Draft 2026 Integrated Report memorandum (Nov. 7, 2024), USEPA recommends replacing the term “Alternative Restoration Plan” with “Advance Restoration Plan” and the use of Subcategory 5r. Updates to CalWQA reports were completed for the 2026 California Integrated Report.

| Category | USEPA[3] *(waterbody-pollutant level)* | State Water Board *(waterbody level)* |
|---|---|---|
| | | ***Total Maximum Daily Load for the associated pollutant(s) may be used to further assess the association between the associated pollutant(s) and the degraded biological populations and communities and, as appropriate, help to restore the degraded biological populations and communities. A Total Maximum Daily Load for the degraded biological populations and communities is not appropriate because Total Maximum Daily Loads are intended for pollutants.***<br><br>Note that CalWQA applies a TMDL requirement status for each waterbody-pollutant combination. Waterbody-pollutant combinations being addressed by an ARP are assigned a TMDL requirement status of 5r. Please see below for more details. |

Waterbodies that are placed in Category 1 are those that had no existing or proposed impairment and at least one core beneficial use was fully supported. If use support could not be determined for any beneficial uses, the waterbody was placed into Category 2 indicating that there is insufficient data and/or information to determine core beneficial use support.

If there was indication of impairment but there were insufficient data to determine beneficial use support (i.e., monitoring data have poor quality assurance, not enough samples in the dataset, the information alone cannot support an assessment), the waterbody was placed in Category 3. This approach was taken to prevent waterbodies with insufficient data from being classified as fully attaining standards and to indicate the need for a more thorough assessment in future monitoring programs and listing cycles.

Waterbodies that are placed in Category 4a are waterbodies that have been identified as impaired per Listing Policy sections 3.1 through 3.11, have a USEPA approved TMDL, and the approved implementation plan is expected to result in full attainment of the standard within a specified timeframe (Listing Policy, section 2.2). The TMDL adoption process is a separate and distinct process than that of the development of the integrated report. However, the California Integrated Report reflects the most recent information on adopted and approved TMDLs as well as Regional Water Board prioritization of TMDLs, which is a requirement of the CWA (40 CFR § 130.7(b)).

Waterbodies that are placed in Category 4b are waterbodies that have been identified as impaired per Listing Policy sections 3.1 through 3.11, and an existing regulatory program is reasonably expected to result in the attainment of the water quality standard within a reasonable, specified timeframe (Listing Policy, section 2.2). USEPA regulations recognize that alternative pollution control requirements implemented by another regulatory program may obviate the need for a TMDL. The Water Boards provide evidence, often in the form of information provided in a document called a 4b Demonstration, to the USEPA to justify the placement of a waterbody-pollutant combination in Category 4b. A “4b Demonstration” is included in the applicable CalWQA Decision. A Category 4b Demonstration addresses the following six specific elements:

1. Identification of the waterbody and statement of the problem causing the impairment.
2. Description of pollution controls and how they will achieve water quality standards.
3. An estimate or projection of the time when water quality standards will be met.
4. Schedule for implementing pollution controls.
5. Monitoring plan to track effectiveness of pollution controls.
6. Commitment to revise pollution controls, as necessary.

Waterbodies where the water quality standard is not attained as a result of pollution rather than a pollutant (e.g., the aquatic life beneficial use is not supported due to hydrologic alteration or habitat alteration) are placed in Category 4c. “Pollution” is defined as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.” (40 C.F.R §130.2(c).) “Pollutant” is defined as “dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wasters, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, and as amended, heat wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water).” (40 CFR § 122.2.)

Waterbodies placed in Category 5 are those for which the water quality standard is not attained for at least one waterbody-pollutant combination and a TMDL is required. While the condition category 5 is applied at the waterbody segment level, a TMDL requirement status is applied at the waterbody-pollutant level to track the TMDL requirement status of each waterbody-pollutant combination. The TMDL requirement status options are 5A,

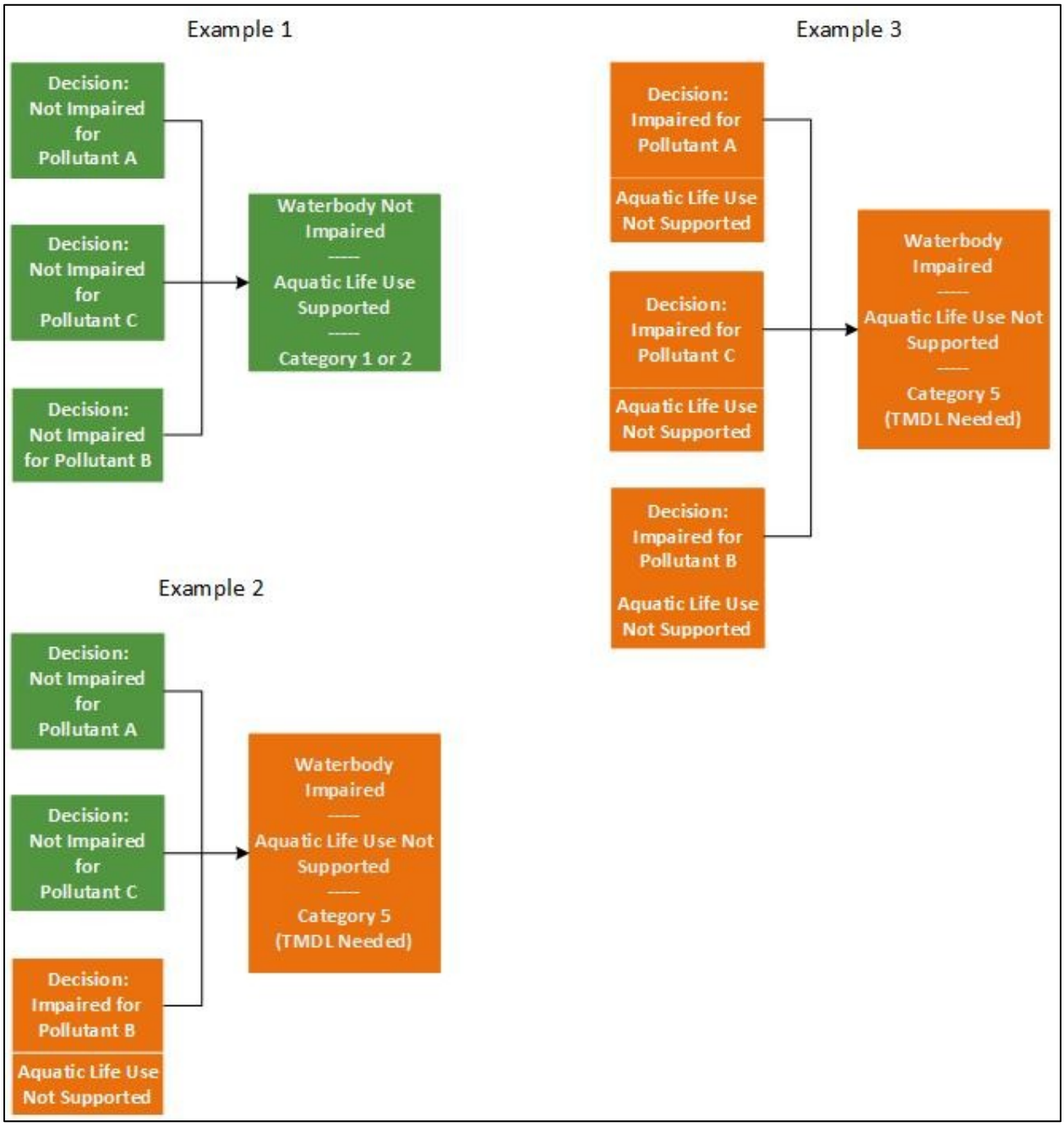
5B, 5C, and 5r are listed in Appendix C5: Category 5 Waterbody Segments. TMDL requirement statuses are defined as follows:

- Status 5A applies to waterbody-pollutant combinations where water quality standards are not attained and a TMDL is required. In some circumstances, TMDLs have been adopted by the Water Boards but approval from USEPA is pending. In these cases, the TMDL requirement status remains 5A.
- Status 5B applies to waterbody-pollutant combinations where water quality standards are not attained, but the listing is being addressed by a USEPA-approved TMDL. Please note that the TMDL requirement status of 5B corresponds with condition category 5A.
- Status 5C applies to waterbody-pollutant combinations where water quality standards are not attained standards, but the listing is being addressed by actions other than a TMDL (such as a 4b determination).
- A status of 5r applies to a waterbody-pollutant combination that is being addressed by a TMDL ARP. This subcategory is used to organize, and clearly articulate, which waterbody-pollutants combinations are listed as impaired but are being addressed by an ARP.

This subcategorization process provides transparency to the public and facilitates tracking of ARP projects that are consistent with the USEPA's 2018 Program Vision. The 2018 Program Vision states that while TMDLs are the dominant analytic and informational tool for addressing impaired waters, there are other tools that may be more immediately beneficial or practicable to achieving water quality standards under certain circumstances, including the implementation of a near-term plan or description of actions, with a schedule and milestones. If a waterbody is categorized under 5r, the legal obligation to develop a TMDL remains until the water quality standard is achieved; however, states may justify deprioritizing the development of a TMDL should an ARP be implemented for that waterbody. Should an ARP result in attainment of water quality standards, a waterbody could be removed from the 303(d) list without the need to develop a TMDL. Finally, because waters for which ARPs are pursued remain on the 303(d) list, the USEPA will not take action to approve or disapprove a state's ARP. See Figure 2-4 for Examples of Integrated Report Condition Categories.

Regional Water Boards have adopted a total of 121 TMDL projects to address water quality impairments since 2009. A summary table of TMDL projects adopted by each of the nine Regional Water Boards since 2009 can be found in Appendix E: TMDLs Adopted by Regional Water Boards since January 2009. For more on TMDL prioritization of high priority TMDLs for on-cycle Regional Water Board's, see sections 6 through 9.

**Figure 2-4: Examples of Integrated Report Condition Category Determination**




## 2.6 Framework for TMDLs and Other Efforts to Address Impaired Waters

The CWA states that when a state prepares its 303(d) list, it must establish a priority ranking for impaired waters, "taking into account the severity of the pollution and the uses to be made of such waters." (33 U.S.C. § 1313(d)(1)(A).) Federal regulations further require the ranking to "includ[e] waters targeted for TMDL development within the next two years." (40 C.F.R. § 130.7(d)(1).) The priority ranking itself must include all waters that need a TMDL. (*Id.* § 130.7(b).)

In September 2022, the USEPA released the 2022-2032 Vision which encourages states to coordinate program activities and identify priorities that align with objectives of these programs. The USEPA encouraged states to submit a Prioritization Framework document that outlines long-term priorities to fulfill the CWA Section 303(d) program.

The State Water Board, in collaboration with the Regional Water Boards, developed California's Prioritization Framework for Plans to Restore Impaired Waterbodies ("Prioritization Framework") to fulfill the goals of the 2022-2032 Vision. Refer to Appendix L: California's Prioritization Framework for Plans to Restore Impaired Waterbodies for details. The Prioritization Framework provides guidance for prioritizing the development of TMDLs and other plans to restore impaired waterbodies. The Prioritization Framework combined, organized, and expanded upon factors that the Water Boards have used to prioritize efforts to restore impaired waters for many years. Table 2-4 below outlines the Prioritization Framework's categories and factors.

**Table 2-4: Prioritization Factors from the California's Prioritization Framework for Plans to Restore Impaired Waterbodies**

| Category | Factors |
|---|---|
| Significance and Severity of Impairment | • Severity 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).<br>• Ecologically important areas.<br>• Relevance to human health protection.<br>• Relevance to threatened and endangered species protection.<br>• Intensity of use of the waterbody segment, such as frequency of use and number of users.<br>• Number of beneficial uses impacted. |
| Environmental Justice | • Use of the waterbody segment by California Native American Tribes.<br>• Use of the waterbody segment by disadvantaged or underserved communities.<br>• Actions that promote equity. |

| Category | Factors |
|---|---|
| Climate Change | • Actions taken to build resilience and to adjust to the impacts of climate change. Decisions that don't worsen the situation or transfer the challenge from one area, sector, or social group to another.<br>• Capacity to prepare for, recover from, and grow from disruptions.<br>• Actions taken to reduce the concentration of greenhouse gases in the atmosphere.<br>• Actions to decrease heightened risk and decrease sensitivity to climate change. Measures to support communities with less capacity and fewer resources to cope with, adapt to, or recover from climate impacts.<br>• Natural and green infrastructure solutions to enhance and protect natural resources.<br>• Consideration of future climate conditions.<br>• Actions likely to reduce present and near future (within 20 years) climate change risks for all Californians. |
| Readiness and Potential for Success | • Water quality benefits of activities ongoing in the watershed.<br>• Potential for beneficial use protection and recovery.<br>• Availability of data and information to address the water quality problem.<br>• Water quality impacts and benefits.<br>• Feasibility<br>• Have multi-benefit outcomes, such as addressing multiple impairments.<br>• Ability to leverage ongoing implementation. |
| Resource Availability | • Availability of funding<br>• Ongoing projects with allocated resources.<br>• Availability of staff capacity, necessary expertise, and other resources. |
| Public Interest and Commitment | • Degree of public concern.<br>• Public interest, internal and external commitments.<br>• Requests of interested parties. |
| Regulatory and Policy Alignment | • Importance to the implementation of other Regional Water Board programs.<br>• Projects aligned with the stated priorities of the State Water Board or the USEPA. |

## 2.7 Priority Rankings for Impaired Waterbody Segments & TMDL Development ~~Priority Rankings~~

Regional Water Boards established priority rankings for impaired waterbody segments and identified waterbody segments targeted for TMDL development in the next two years by considering the severity of the pollution, the beneficial uses to be made of the waters, available resources, and, in many cases, the other factors listed in the Prioritization Framework. Generally, an impaired waterbody segment was given a higher priority when multiple pollutants are impairing uses, when pollutants impair human health or a threatened or endangered species, and when addressing the impairment would address many of the other factors listed in Table 2-4: Prioritization Factors from the California's Prioritization Framework for Plans to Restore Impaired Waterbodies in Section 2.6 TMDLs and Other Efforts to Address Impaired Waters. Regional Water Boards also often considered priorities from the most recent regional water quality control plan triennial review. Regional Water Boards limited the number of priorities based on available staff and resources, and it is important to note that the assignment of low priority does not imply that waterbody is of low importance. Rather, it reflects the current allocation of staff resources and the strategic need to prioritize more immediate and critical impairments.

Waters were often ranked with a low priority for impairments based on outdated numeric water quality objectives, criteria, or evaluation guidelines that may no longer reflect the best available science or current standards. Addressing the outdated numeric water quality objectives, criteria, or evaluation guidelines should be undertaken prior to developing a TMDL. For example, ocean waterbody segments listed as impaired by indicator bacteria for the protection of shellfish harvesting were often placed in the low priority category due to the need to first complete a project to consider and, if needed, amend the water quality objective. Waters were also ranked with a low priority where evidence suggests that the applicable numeric water quality standard may not be appropriate due to natural conditions and a site-specific numeric water quality objective may be more appropriate to determine attainment of the standard.

To fulfill statutory and regulatory requirements, further refine how TMDL development is prioritized, fulfill the goals in the Prioritization Framework, and communicate goals to the public, each impaired waterbody-pollutant combination in Category 5 (the water quality standard is not attained for at least one waterbody-pollutant combination and a TMDL is required) is assigned a high, medium, or low priority. The three TMDL priority levels are defined as follows:

**Priority Level High:** Waterbody-pollutant combinations identified as a high priority are those for which TMDLs are planned for development within the next two years.

**Priority Level Medium:** Waterbody-pollutant combinations identified as a medium priority are those for which TMDLs are planned for development within 2 to 10 years.

**Priority Level Low:** Waterbody-pollutant combinations are identified as a low priority are those for which TMDLs are planned for development in over 10 years.

Priority level low also includes waterbody-pollutant combinations that are planned to be addressed by an ARP (Condition Category 5r) or a Category 4b Demonstration. If a waterbody segment is categorized under 5r, the legal obligation to develop a TMDL remains until the water quality standard is achieved; however, states may justify deprioritizing the development of a TMDL should an ARP be implemented for that waterbody. A waterbody-pollutant combination may also be assigned low priority for TMDL development if a 4b Demonstration is in development. Once a 4b Demonstration is completed and approved by USEPA, the waterbody-pollutant combination will be placed in Category 4b.

If a Regional Water Board identified a waterbody-pollutant combination as TMDL Priority Level High, those TMDLs are listed in the applicable region -specific section of the staff report. The region-specific sections of the staff report also describe other actions that the Regional Waters Boards are considering to address impairments. Those waterbody-pollutant combinations may be assigned a Priority Level of Medium or Low.

The TMDL priority levels for all waterbody-pollutant combinations in Category 5 can be found in the Waterbody Factsheets and Appendix C5: Category 5 Waterbody Segments. **Waterbodies placed in subcategory 5-bio were assigned a "N/A" for "Not Applicable" in the TMDL development priority field in the Proposed Final 2026 Integrated Report Staff Report, Appendix P: Waterbodies in Subcategory 5-bio for Benthic Community Effects.** Note that there is no TMDL priority for waterbody-pollutant combinations in Category 4a because a TMDL has already been developed or for waters in Category 4b because another regulatory program is reasonably expected to result in the attainment of standard within a reasonable, specified timeframe.

# 3 Pollutant Assessment Methods

This section explains how data and information were assessed for selected complex or significant pollutants that applied to waters statewide or in multiple regions. Region-specific assessments or assessments using site-specific objectives ("SSOs"), are described in sections 6 through 10 of the staff report.

## 3.1 Aluminum - Water Matrix

Aluminum data from waterbody segments with the Warm Freshwater Habitat ("WARM"), and Cold Freshwater Habitat ("COLD") beneficial use were assessed using the 2018 USEPA Final Aquatic Life Criteria for Aluminum in Freshwater ("2018 Criteria"), in accordance with the following narrative water quality objective for toxicity:

> All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Each Regional Water Board Basin Plan has a narrative water quality objective for toxicity similar to the above objective. The narrative water quality objective is evaluated by selecting an appropriate numeric evaluation guideline, in accordance with section 6.1.3 of the Listing Policy. The 2018 Criteria are the appropriate numeric evaluation guidelines to evaluate the narrative water quality objective.

The 2018 Criteria recognize that the toxicity of aluminum is dependent on water chemistry conditions. The 2018 Criteria take into account three water chemistry parameters – pH, total hardness, and dissolved organic carbon ("DOC") – known to alter the toxicity of aluminum by affecting the bioavailability[8] of aluminum in the water column (i.e., some forms of aluminum are more bioavailable than others). The more bioavailable the aluminum is, the more likely it is to cause a toxic effect to aquatic life. Accordingly, the 2018 Criteria were adopted in the form of criteria calculators dependent on inputs of the three parameters and were not adopted in the form of a specific numeric value.

To determine the appropriate aluminum numeric criterion for a waterbody segment that reflects water quality standards attainment, the measurements for data for pH, total hardness, and DOC were inputted for a given site into a calculator created by USEPA: Aluminum Criteria Calculator V.2.0.xlsm (https://www.epa.gov/wqc/aquatic-life-criteria-aluminum#2018).

The 2018 Criteria have both chronic and acute ranges:

- Chronic: 0.63 – 3,200 ug/L (Four-day average, total recoverable aluminum) to protect against long-term effects on survival, growth, and reproduction due to longer-term exposure.
- Acute: 1 – 4,800 ug/L (One-hour average, total recoverable aluminum) to protect against mortality due to short-term exposure.

For chronic and acute criteria, the recommended numeric values are not to be exceeded more than once every three years on average.

The chronic criterion was used to determine beneficial use attainment because it is based on the survival, growth, and reproduction due to longer-term exposure of tested aquatic organisms and provides a way to assess for long-term impacts of aluminum on organisms. The exceedance frequency for toxicants specified in Table 3.1 and Table 4.1 of the Listing Policy was used when applying the 2018 Criteria.

As discussed in the following sections, in most instances, listing factor 3.1 and delisting factor 4.1 of the Listing Policy, as applicable, were used to assess aluminum data. However, when there were insufficient pH data, the situation-specific weight of evidence

[8] The term bioavailability is the measure of whether a substance in the environment is available to affect living organisms like fish (USEPA 2018).

listing factor was applied (Listing Policy sections 3.11 or 4.11) and a default pH value was used to apply the 2018 Criteria as described below.

### 3.1.1 Insufficient Total Hardness and DOC Data

Ideally, site-specific measurements of total hardness and DOC should be used to apply the 2018 Criteria in USEPA's Aluminum Criteria calculator, when available. When there were insufficient total hardness or DOC data to input into the calculator used for the 2018 Criteria, total hardness and DOC default values provided by USEPA were used. As discussed in USEPA's Draft Technical Support Document: Implementing the 2018 Recommended Aquatic Life Water Quality Criteria for Aluminum, when site-specific total hardness and DOC data are not available, USEPA provided default values for total hardness and DOC based on USEPA's Level III Ecoregions (Table 3-1: Total Hardness, DOC, and pH Default Values for each Level III Ecoregion). The default values provided by USEPA to use in the calculator are in the following document - Draft Technical Support Document: Recommended Estimates for Missing Water Quality Parameters for Application in EPA's Biotic Ligand Model (https://archive.epa.gov/epa/sites/production/files/2016-02/documents/draft-tsd-recommended-blm-parameters.pdf).

### 3.1.2 Insufficient pH Data

Similar to total hardness and DOC, site-specific measurements of pH should be used to assess aluminum data, when available. However, in the absence of pH data or an established default value, the calculator upon which the 2018 Criteria are based cannot be used in accordance with (de)listing factors 3.1 or 4.1. As a result, if pH data were not available, the aluminum data for a waterbody segment were assessed in accordance with the situation-specific weight of evidence factor per section 3.11 or 4.11 of the Listing Policy using the exceedance frequency for toxicants in Table 3.1 or Table 4.1 of the Listing Policy. Additionally, a default pH value per Level III Ecoregion developed by the State Water Board was used to calculate the 2018 Criteria (Table 3-1). This default pH value was developed by assigning a Level III Ecoregion to each station with pH data and an approved QAPP. The pH data were then converted to the hydrogen ion (H+) concentrations before the median value was calculated for each Level III Ecoregion. The median value was used as the default value in the 2018 Criteria to reduce the effect of outliers and skewed data.

In October of 2022 USEPA provided default pH values based on Level III Ecoregions; however, these default values were not used for 2026 California Integrated Report Assessments. Starting with the 2028 California Integrated Report, any new aluminum data will be assessed using the most up to date default values developed by USEPA. This will allow for a consistent assessment approach for aluminum data across California.

**Table 3-1: Total Hardness, DOC, and pH Default Values for each Level III Ecoregion**

| Ecoregion Number | Ecoregion Name | Total Hardness (mg/L as CaCO3) | DOC (mg/L) | pH |
|---|---|---|---|---|
| 1 | Coast Range | 34.12 | 0.7 | 8 |
| 4 | Cascades | 28.39 | 0.3 | 8.1 |
| 5 | Sierra Nevada | 40.02 | 0.5 | 7.7 |
| 6 | Central California Foothills and Coastal Mountains | 203.4 | 0.8 | 7.4 |
| 7 | Central California Valley | 118.1 | 1.1 | 7.6 |
| 8 | Southern California Mountains | 260 | 0.7 | 8.2 |
| 9 | Eastern Cascades Slopes and Foothills | 36.08 | 0.5 | 8 |
| 13 | Central Basin and Range | 173.1 | 0.7 | 7.9 |
| 14 | Mojave Basin and Range | 283.2 | 0.8 | 7.6 |
| 78 | Klamath Mountains and California High North Coast Ranges | 40.61 | 0.6 | 7.8 |
| 80 | Northern Basin and Range | 98.62 | 1 | 7.9 |
| 81 | Sonoran Basin and Range | 258.4 | 1 | 7.9 |
| 85 | Southern California/Northern Baja Coast | 203.4 | 0.8 | 7.8 |

### 3.1.3 Use of Total Recoverable Fraction Aluminum Data

The USEPA developed the 2018 Criteria using aluminum data from laboratory tests expressed in the total recoverable fraction or total fraction. Dissolved, colloidal, precipitated, and particulate forms of aluminum that are found in total fraction aluminum data are all bioavailable and toxic to aquatic organisms, which supports the criteria as total fraction aluminum. Therefore, total fraction aluminum data were used to make Decisions.

Because total fraction aluminum data were used to make Decisions, readily available dissolved aluminum data were evaluated for the 2026 California Integrated Report but not used to make Decisions. The use of dissolved fraction data when compared to the

2018 Criteria may underestimate aquatic life toxicity since dissolved fraction data do not reflect the full spectrum of forms of aluminum that results in aquatic toxicity. By way of illustration, the USEPA determined that dissolved fraction aluminum data are not appropriate for comparison to the 2021 Federal Aluminum Aquatic Life Criteria Applicable to Oregon ("2021 Oregon Criteria") USEPA established for Oregon, which is identical to the 2018 Criteria in all matters except for allowing Oregon the option to use a bioavailable analytical method for characterizing aluminum concentration in ambient waters explaining:

> Methods to determine dissolved concentrations of aluminum, therefore, may underestimate the toxicity of the aluminum in a sample if the particulate forms including aluminum hydroxide precipitates that contribute to toxicity are not measured. In conclusion, dissolved aluminum measurements are not appropriate for comparison to the aluminum criteria that EPA is promulgating for Oregon.

(86 Fed. Reg. 14834, 14836, col. 3 (March 19, 2021) (promulgating Federal Aluminum Aquatic Life Criteria Applicable to Oregon) (available at https://www.govinfo.gov/content/pkg/FR-2021-03-19/pdf/2021-05428.pdf).)

Although total fraction aluminum data represents the full spectrum of aquatic toxicity and were used to make Decisions, use of the total fraction may overestimate the biological available aluminum that is toxic to aquatic life when the most common laboratory methods are used (He and Ziemkiewics 2016; Ryan et al. 2019). The 2018 Criteria state that methods 200.7 and 200.8 are currently the only two approved methods for measuring aluminum in natural waters. In establishing the 2021 Oregon Criteria, the USEPA acknowledges that the steps used to analyze total fraction aluminum data, which dissolved aluminosilicates through the use of a strong acid (pH<2) digestion step to prepare the sample for measurement, may overestimate the biologically available fraction that is toxic to aquatic life (86 Fed. Reg. at 14840, col. 3.). Alternative laboratory sample process steps using a higher pH to more accurately extract and measure bioavailable aluminum are being developed. These extraction steps may be able optional steps within the scope of the current USEPA-approved methods, or an alternative test procedure may be needed. Such extraction steps are described by Rodriguez et al. (2019) in *Determination of Bioavailable Aluminum in Natural Waters in the Presence of Suspended Solids*; however, the alternative process is still being researched and developed and is not yet approved by the USEPA or considered for use in California. If data measured using alternative extraction steps to better measure bioavailable aluminum become available, the data would still be assessed using the 2018 Criteria. With regard to the development of the 2021 Oregon Criteria, the USEPA explains:

> It is not necessary to apply a conversion or translation factor to compare field measurements using a bioavailable method against the promulgated aluminum total recoverable criteria. This is because both bioavailable and total recoverable analytical methods quantify the toxic fraction of aluminum equivalently in laboratory test waters given that standard toxicity test waters do not include suspended solids or clays per test protocols. For National Pollutant Discharge

Elimination System compliance monitoring and reporting, total recoverable measurements for metals are required.

(86 Fed. Reg. at 14840, col. 3.)

Currently, the USEPA does not have a timeline for consideration of an analytical method that uses a less aggressive acid digestion step such as the one described in Rodriguez et al. (2019). As a result, the State Water Board is conducting additional research to consider and potentially scale a bioavailable-focused analytical method to ensure that the extraction steps accurately capture bioavailable aluminum, and that any laboratory conducting the test could achieve similar results. Once a bioavailable-focused analytical method becomes available, and new data gathered per the bioavailable method are available, existing aluminum aquatic life integrated report decisions will be reassessed using the new data. Decisions would be revised if appropriate according to section 3.1 of the Listing Policy: Numeric Water Quality Objectives and Criteria for Toxicants in Water.

### 3.1.4 Aluminum Reassessment

In accordance with State Water Board Resolution No. 2022-0006, which adopted the 303(d) list for the 2020-2022 California Integrated Report, aluminum data from waterbody segments with the WARM and COLD beneficial use in Regional Water Boards that are on-cycle for the 2026 California Integrated Report (North Coast, Lahontan, and Colorado River Basin) were reassessed using the 2018 Criteria. However, only the Lahontan Regional Water Board had aluminum data from waterbody segments with the WARM and COLD beneficial use. All existing aluminum data were reassessed using the 2018 Criteria. In some instances, LOEs from previous listing cycles were retired. For more information on retiring lines of evidence, see section 2.3.2 and Appendix J: List of Retired Lines of Evidence.

## 3.2 CTR Hardness-Dependent Metals – Water Matrix

Data for cadmium, copper, chromium III, lead, nickel, silver, and zinc were compared to CTR hardness-dependent criteria (freshwater only). Data were used to assess the Warm Freshwater Habitat (“WARM”) and Cold Freshwater Habitat (“COLD”) beneficial uses using the CTR criteria as directed by section 3.1 or 4.1 of the Listing Policy.

The cadmium, copper, chromium III, lead, nickel, silver, and zinc freshwater CTR criteria are mathematical equations that require a water effects ratio (“WER”) and hardness concentration to calculate the criteria (40 CFR § 131.38(b)(2)). By incorporating a WER and hardness concentration the CTR criteria account for the effect of water hardness on metal toxicity (i.e., as hardness concentration increases, metal toxicity decreases). The following methodology was used to calculate CTR hardness dependent criteria:

- Measured hardness data were available: In accordance with the CTR, if measured hardness data are less than or equal to 400 mg/L calcium carbonate,

the measured hardness value was used to calculate the criteria. Where the measured hardness concentration exceeded 400 mg/L calcium carbonate, a value of 400 mg/L was used.

- Measured hardness data were unavailable: Where measured hardness data were unavailable, a hardness default value of 100 mg/L hardness calcium carbonate was used to calculate criteria.
- WER study results: In accordance with the CTR, a default WER of 1.0 is used if no WER has been determined for the waterbody segment.

The CTR also provides conversion factors for metals that can be used to convert total recoverable samples to the dissolved fraction, thus allowing for the comparison of data reported as total fraction to the appropriate dissolved criteria. The total recoverable fraction of a metal refers to the concentration of an analyte measured in an unfiltered water sample, while the dissolved metal concentration is determined by filtering the sample, leaving out particulate matter.

Calculated hardness-dependent criteria and the conversion of total recoverable data to the dissolved fraction were completed by an assessment data processing tool and are not displayed in LOEs or the raw data files attached to Waterbody Fact Sheets. The assessment data processing tool is an internal tool used to develop the California Integrated Report. It performs steps to group data for a specific waterbody-pollutant combination, performs data transformations (e.g., averaging periods, unit conversions); counts exceedances and samples when comparing data to water quality objectives, criteria, or evaluation guidelines; and populates LOEs.

Please contact wqassessment@waterboards.ca.gov to request outputs from the data processing tool for a waterbody segment for data assessed as part of the 2026 Integrated Report. Beginning with the 2028 California Integrated Report, the calculated criteria for assessed CTR hardness dependent metal samples will be made publicly available.

## 3.3 Iron – Water Matrix

Iron data in water were compared to the USEPA National Recommended Aquatic Life Criterion ("USEPA Criterion") for iron to assess the Warm Freshwater Habitat (“WARM”) and Cold Freshwater Habitat (“COLD”) beneficial uses, in accordance with the following narrative water quality objective for toxicity:

> All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Each Regional Water Board Basin Plan has a narrative water quality objective for toxicity similar to the above objective. The narrative water quality objective is evaluated by selecting an appropriate numeric evaluation guideline, in accordance with section 6.1.3 of the Listing Policy. The USEPA Criterion for iron is the appropriate numeric evaluation guideline to evaluate the narrative water quality objective. The USEPA

criterion (1,000 µg/L) is based on a 4-day average concentration to protect freshwater aquatic organisms from chronic exposure. Assessments were conducted using the total fraction.

It should be noted that while the USEPA's 1993 Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria (https://www.epa.gov/sites/default/files/2019-03/documents/metals-criteria-interpret-aqlife-memo.pdf) offers detailed guidance for other metals, it does not specifically address iron. Furthermore, the guidance memo lacks a conversion factor for translating total fraction iron data to the dissolved fraction. Therefore, the guidance is not applied to California Integrated Report assessments.

### 3.4 Mercury – Fish Tissue Matrix

Statewide numeric mercury water quality objectives for fish tissue were established in Part 2 of the ISWEBE Plan in 2017 (SWRCB 2017). Mercury concentrations in fish tissue were reported in terms of individual fish or multiple fish per composite sample. Annual composite averages were weighted when composites had an unequal number of fish or samples were a mix of composites and individuals. Fork lengths were used in place of total lengths when the total length was unknown. The total length of a fish was assumed to be at least as long as the fork length. In addition, data from fish with lengths smaller or larger than the California Department of Fish and Wildlife's fishing regulation legal size limits were not used to determine attainment with the Commercial and Sport Fishing beneficial use.

For comparison with the mercury objectives, mercury data were assessed as datasets. Each dataset grouped all fish tissue data collected in a waterbody segment for a calendar year by trophic level[9] ("TL") and an annual average value was calculated. Each annual average was considered one sample.

The mercury annual average value was then compared to the appropriate water quality objective applied to the beneficial use for a waterbody segment. Three mercury water quality objectives were used to evaluate applicable beneficial uses: the sport fish objective, the prey fish objective, and the California least tern objective. The water quality objectives were established to protect one or more beneficial uses and reflect the applicable consumption pattern (which includes consumption rate, fish size, and species) by individuals and wildlife. The sport fish objective applies to waters with the beneficial uses of Commercial and Sport Fishing ("COMM"), Wildlife Habitat ("WILD"), Marine Habitat ("MAR"), or Tribal Tradition and Culture ("CUL"). The prey fish objective applies to waters with the beneficial uses of WILD or MAR. The California least tern objective applies to waters with the beneficial uses of WILD, MAR, or Rare, Threatened, or Endangered Species ("RARE") and where the least tern or least tern habitat exists,

[9] Trophic level is a functional classification of taxa within a community that is based on feeding relationships (e.g., aquatic and terrestrial green plants make up the first trophic level and herbivores make up the second).

including but not limited to the waterbody segments identified in Attachment D of Part 2 of the ISWEBE (SWRCB 2017). Additional information on trophic levels and fish lengths is located in Tables C-1 and C-2 of Part 2 of the ISWEBE Plan (SWRCB 2017). See Table 3-2: Mercury Water Quality Objectives by Category, Beneficial Uses, and Fish Size.

**Table 3-2: Mercury Water Quality Objectives by Category, Beneficial Uses, and Fish Size**

| Mercury Objective Category | Beneficial Use | Fish Length (total length in mm) | Mercury Objective (mg/kg) |
|---|---|---|---|
| Sport Fish TL4 | COMM, WILD, MAR, CUL | 200-500 | 0.2 |
| Sport Fish TL3 | COMM, WILD, MAR, CUL | 150-500 | 0.2 |
| Prey Fish (any species) | WILD, MAR | 50-150 | 0.05 |
| California Least Tern | RARE, WILD, MAR where least tern habitat exists | <50 | 0.03 |

The water quality objectives are interpreted as an absolute value and are not assigned a designated number of significant figures.

For the sport fish water quality objective, data from TL3 and TL4 fish species were used for assessment of the COMM beneficial use. Assessment of data from TL4 fish were used to evaluate whether all species are supported with respect to the WILD and MAR beneficial uses. If data from just TL3 fish were used, protection of all species within the WILD and MAR beneficial uses is not ensured. Therefore, if data from TL3 fish were used, then the prey fish water quality objective was used instead of the sport fish water quality objective. If the waterbody segment is habitat for the California least tern, then the least tern water quality objective was used. However, if the data from TL3 fish indicate non-attainment of the sport fish water quality objective, there is sufficient evidence to indicate that the prey fish water quality objective (or the least tern objective, if applicable) is not attained. Exceedance of the prey fish water quality objective indicates impairment of the WILD and MAR beneficial uses. Non-exceeding TL3 fish provide insufficient information for the assessment of the WILD and MAR beneficial uses.

For the prey fish objective, data from any fish species and trophic level were used for assessment of the WILD or MAR beneficial use. The prey fish water quality objective applies during the breeding season, which is February 1 through July 31 unless site-specific information indicates another appropriate breeding period. For the purpose of

the 2026 California Integrated Report, data from all prey fish sample results collected throughout the year were compared to the prey fish objective.

The conditions for which a waterbody segment was placed on the 303(d) list based on tissue is described in sections 3.4 and 3.5 of the Listing Policy. Listing Policy section 3.11 (the situation specific weight of evidence listing factor) may be utilized to determine placement on the 303(d) list if information indicates non-attainment of standards. For a flow chart illustrating fish tissue mercury assessments for the 2026 California Integrated Report, see Appendix F: Generalized Flow Chart for Fish Tissue Mercury Assessments for the 2026 California Integrated Report.

## 3.5 Pesticides, Organic Chemicals, and Non-hardness Dependent Metals – Water Matrix

Data with pollutant concentrations for pesticides, other organic chemicals, and non-hardness dependent metals in water were assessed with applicable water quality objectives, criteria, and evaluation guidelines. Basin plan objectives, CTR criteria, USEPA National Recommended Water Quality Criteria ("NRWQC") and MCLs were prioritized for use in assessments. If basin plan objectives, CTR criteria, or NRWQC were not available, an evaluation guideline was selected from the USEPA Aquatic Life Benchmarks ("Aquatic Life Benchmarks"), USEPA Office of Pesticide Programs' Pesticide Ecotoxicity Database ("Ecotoxicity Database"), or other source. The evaluation guidelines from these sources meet the requirements of Listing Policy section 6.1.3. The following exemplifies how the narrative water quality objective language varies by basin plan:

> All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
>
> No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses.

Most assessments were a direct comparison of the data to a water quality objective, criterion, or evaluation guideline (e.g., toxaphene). However, some assessments required data manipulation, such as summation of parent compound, isomers, metabolites, or alky groups, before comparison with a water quality objective or evaluation guideline (e.g., summed pollutants). See Appendix K for a list of pollutants that were summed for comparison with a water quality objective or evaluation guideline. Additionally, some evaluation guideline sources provided multiple chronic criteria from which one evaluation guideline was selected for assessment. The following subsections provide information on data manipulation for specific pollutants and selection of evaluation guidelines.

### 3.5.1 Pesticides and Other Organic Chemicals

*USEPA Aquatic Life Benchmarks*

Aquatic Life Benchmarks are based on toxicity values from scientific studies reviewed by the USEPA and a risk assessment process for pesticides. The Aquatic Life Benchmarks are estimates of pesticide concentrations below which there are not expected to be a risk of concern to aquatic life. Chronic and acute Aquatic Life Benchmarks were available for nonvascular and vascular plants, invertebrates, and fish. For each pesticide, the lowest (i.e., most stringent) Aquatic Life Benchmark was selected as an evaluation guideline in accordance with Listing Policy section 6.1.3.

*USEPA Ecotoxicity Database*

The Ecotoxicity Database stores toxicity studies for individual chemicals. An evaluation guideline selected from the Ecotoxicity Database may be based on a single study or on multiple studies combined as a geomean or maximum acceptable toxicant concentration. The lowest (i.e., most stringent) studies that met the following parameters was selected as evaluation guidelines:

- The study was classified as a core study
- The study was conducted on freshwater
- The chemical used in the study was greater than 80% pure
- The endpoint in the study was linked to survival, growth, or reproduction
- The species studied was in a family that resides in North America
- The acceptable standard or equivalent method was used
- The toxicity values were calculated or were calculable (e.g., LC50)

*Pyrethroids*

Water matrix pyrethroid data for bifenthrin, cyfluthrin, cypermethrin, lambda cyhalothrin, esfenvalerate, and permethrin were compared to numeric pyrethroid chronic concentration goals from the Central Valley Water Quality Control Plan, as amended by Resolution R5-2017-0057, to assess the Warm Freshwater Habitat (“WARM”) and Cold Freshwater Habitat (“COLD”) beneficial uses. The numeric pyrethroid chronic concentration goals are used as evaluation guidelines consistent with Listing Policy section 6.1.3.

The pyrethroid evaluation guidelines were originally presented in a series of six updated water quality criteria reports released in 2015 that used the University of California Davis Methodology for Derivation of Pesticide Water Quality Criteria for the Protection of Aquatic Life (Tenbrook et al., 2010) to develop freshwater chronic criteria for the protection of aquatic life for each pyrethroid pesticide (bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin). The University of Davis Methodology (“UCDM”) is used to develop freshwater aquatic life criteria based on smaller datasets than what is allowed by the USEPA criteria methodology (USEPA 1985). In the Sacramento River Basin and the San Joaquin River Basin Water Quality

Control Plans, the 4-day average 5th percentile chronic criteria are used for aquatic life chronic concentration goals and a calculation to assess the additive effects of the pyrethroid pesticides for six pyrethroid pesticides (bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin). (Sacramento River Basin and San Joaquin River Basin Water Quality Control Plan, Chapter 4, pg. 4-54.)

The calculation sums individually measured pyrethroid concentration-to-chronic-concentration-goal ratios and using one concentration goal unit ("CGU") according to the following equation:

$$CGU_{chronic} = \frac{C_1}{CCG_1} + \frac{C_2}{CCG_2} + \frac{C_n}{CCG_n}$$

Where,

$C_1$ = Concentration of pyrethroid 1
$CCG_1$ = Chronic Concentration Goal of pyrethroid 1
$C_2$ = Concentration of pyrethroid 2
$CCG_2$ = Chronic Concentration Goal of pyrethroid 2

For integrated report pyrethroid assessments, if the freely dissolved fraction for one of the six pyrethroids was available, that fraction was preferentially used to assess COLD and WARM beneficial use attainment. The six water quality criteria reports which informed the numeric pyrethroid chronic concentration goals outlined in the Sacramento River Basin and San Joaquin River Basin Water Quality Control Plans indicate that freely dissolved fraction is the best indicator of toxicity and is recommended for assessment. However, if the freely dissolved fraction was not available or could not be calculated for the integrated report assessments, the total fraction was used. The use of total fraction is supported by the Water Quality Reports which state that whole water fraction, or total fraction, samples also may be used.

### *Polychlorinated Biphenyls ("PCBs")*

PCBs are assessed as either congeners or Aroclors. The PCB congener name (e.g.,PCB 101) is based on the number of chlorines and position of the chlorines on the biphenyl rings. There are 209 PCB congeners. Aroclor is a trademark name (e.g., Aroclor 1254) for a mixture of PCBs. The first two digits of the Aroclor name generally signify the number of carbon atoms on the biphenyl rings and the second two digits are the percent chlorine by mass. Water matrix PCBs data were compared with the CTR chronic criterion. Following CTR guidance, the seven PCB Aroclors were summed for aquatic life and either all congeners or all Aroclors were summed for human health.

### *Pentachlorophenol*

CTR guidance was followed to derive aquatic life criteria dependent on pH for the organochlorine pentachlorophenol.

### 3.5.2 Pesticide Reassessments - USEPA Aquatic Life Benchmarks

Pesticide data in the water matrix were assessed to determine attainment of aquatic life beneficial uses (e.g., WARM, COLD) and the narrative toxicity water quality objective. The narrative toxicity water quality objective in most basin plans states that waters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. In accordance with Listing Policy section 6.1.3, the narrative toxicity objective was evaluated using a numeric evaluation guideline.

In previous integrated reports, water matrix pesticide data were generally assessed using evaluation guidelines selected from the USEPA Ecotoxicity Database. For the 2026 California Integrated Report, data from previous cycles were reassessed and new data were assessed using the USEPA Aquatic Life Benchmarks (https://www.epa.gov/pesticide-science-and-assessing-pesticide-risks/aquatic-life-benchmarks-and-ecological-risk). While the USEPA Ecotoxicity Database is a comprehensive database of toxicity studies, the Aquatic Life Benchmarks were selected by USEPA from toxicity studies and provide concentrations under which there are unlikely to be effects to aquatic life.

Data quality was considered during the reassessment of data from previous cycles and the assessment of new data. For example, data were excluded and not used when data sets lacked a QAPP or equivalent documentation and the data were submitted after the requirement for a QAPP took effect. Also, data were excluded and not used when data sets lacked a required quantitation element such as the reporting limit.

Previous-cycle decisions that grouped data from multiple pesticides into one decision were retired. Multiple-pesticide decisions were split apart by individual pesticide and new decisions were developed.

Multiple new listings and delistings resulted from the use of Aquatic Life Benchmarks, the exclusion of low quality data, and the addition of new data from the 2026 cycle data query. For a summary of new listing or delisting decisions by Regional Water Board, reference Table 3.3: Number of “Delist, and “List” Decisions After Pesticide Reassessments. For more information on retired LOEs, see section 2.3.2 and Appendix J: List of Retired Lines of Evidence.

**Table 3-3: Number of “Delist,” and “List” Decisions After Pesticide Reassessments**

| Regional Water Board | Number of “Delist” Decisions | Number of New “List” Decisions | Number of Total “List” Decisions |
|---|---|---|---|
| North Coast | 0 | 0 | 0 |

| | | | |
|---|---|---|---|
| Central Valley | 6 | 23 | 34 |
| Lahontan | 0 | 0 | 0 |
| Colorado River Basin | 0 | 21 | 32 |

### 3.5.3 Non-hardness Dependent Metals

Non-hardness dependent metals were assessed as dissolved fraction or total fraction according to the CTR criterion and guidance for the specific metal. Data were assessed if the fraction received could be converted to the same fraction as the criterion. For example, total fraction data were converted to dissolved fraction for comparison with dissolved criteria using the conversion factors in the CTR.

## 3.6 Pesticides, Organic Chemicals, and Metals – Sediment Matrix

The narrative water quality objective is evaluated by selecting an appropriate numeric evaluation guideline, in accordance with section 6.1.3 of the Listing Policy. Narrative water quality objectives may be general or may reference a specific pollutant, and each Regional Water Board has slightly different objective language. For example, the following are two narrative objectives from basin plans:

> All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.
>
> No individual chemical or combination of chemicals shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in hazardous chemical concentrations found in bottom sediments or aquatic life.

Most assessments were a direct comparison of the data result with an evaluation guideline (e.g., cadmium), while some assessments required data manipulation before comparison to the evaluation guideline (e.g., summed pollutants, organic carbon normalization). See Appendix K for an explanation of pollutants that are summed for comparison with an evaluation guideline. The following subsections provide information on data manipulation for specific pollutant types.

### 3.6.1 Pesticides and Organic Chemicals – Organic Carbon Normalization and Toxic Units

*Organic Carbon Normalization*

The toxicity of some pesticides in sediment is dependent on the amount of organic carbon within the sediment. If the evaluation guideline selected for assessment was based on organic carbon normalization, the pesticide data were also organic carbon-normalized (using the organic carbon content from the same sample) for comparison of the data with the evaluation guideline. Data for the following pesticides (when measured

in sediment samples) were organic carbon-normalized: pyrethroids, fipronil, fipronil metabolites, and the organophosphates chlorpyrifos, diazinon, and methyl parathion.

These pesticide evaluation guidelines are based on the geomean of multiple LC50 values normalized for the organic carbon content of the soil. The LC50 is the Lethal Concentration 50 (or median lethal concentration) and is the concentration of a pollutant at which 50 percent of test organisms die over the duration of a test period. The geomean is the preferred statistic to calculate a criterion since the distribution of toxicity test results is generally not normally distributed and is more likely to follow a lognormal distribution (USEPA 1985). This methodology is applied statewide with the exception of assessments conducted for waterbody segments within the Central Valley Region, which use one-tenth of the LC50 in accordance with the Central Valley Water Quality Control Plan (2018).

#### *Toxic Units*

Calculations of additive toxicity, or toxic units, were used to assess impairment based on the cumulative impact of individual organophosphate and pyrethroids pesticides. The evaluation guideline for the protection of aquatic life is one toxic unit equivalent (Amweg et al. 2006 for pyrethroid pesticides and Bailey et al. 1997 for organophosphate pesticides). A toxic unit equivalent is equal to the sum of all individual pyrethroids concentrations from a single sample, each having their reported concentration divided by their respective evaluation guideline prior to being summed. If this calculation, completed by an assessment data processing tool, results in a value greater than one, the sample is counted as an exceedance of the water quality objective.

### 3.6.2 Metals

Most metals in sediment were a direct comparison of the data result to the numeric objective, criterion or evaluation guideline and required no data manipulation.

## 3.7 Pesticides, Organic Chemicals, and Metals – Tissue Matrix

Pesticides, other organic chemicals, and metals (except mercury) in fish and shellfish tissue were assessed based on a modified version of the Fish Contaminant Goals (“FCG”) developed by OEHHA (OEHHA 2008) in accordance with a narrative water quality objective. The narrative water quality objective is evaluated by selecting an appropriate numeric evaluation guideline, in accordance with section 6.1.3 of the Listing Policy. Narrative water quality objectives may be general, or reference aquatic life and each Regional Water Board basin plan has slightly different objective language. The following are examples of narrative objective language:

> There shall be no bioaccumulation of pesticide concentrations in bottom sediments or aquatic life that cause nuisance or adversely affect beneficial uses.

All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Most assessments were a direct comparison of the data result with an evaluation guideline (e.g., cadmium), while some assessments required data manipulation before comparison with the evaluation guideline (e.g., summed pollutants). The following subsections provide information on data manipulation for specific pollutant types.

The FCGs developed by OEHHA are for carcinogens, non-carcinogens, and a non-carcinogenic nutrient and includes the following equations:

Carcinogen:

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

Non-carcinogen:

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

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 = $1.0 \times 10^{-6}$
CSF = cancer slope factor
BW = Body Weight of consumer (70 kg)
CR = consumption rate as daily amount of fish or shellfish consumed
CRF = cooking reduction factor (OEHHA uses 0.7, State Board will use 1)
ED/AT= exposure duration/averaging time (30 yr exposure/70 yr lifetime)

The **consumption rate of 32 grams/day was used for fish tissue modified FCGs, which is consistent with OEHHA's consumption rate. The consumption rate of 21 grams/day was used for shellfish tissue modified FCGs, which is from the California Lakes Study (OEHHA 1999) and reflects the lower consumption of shellfish compared with fish. Additionally, the** FCGs were modified by replacing the

0.7 cooking reduction factor with a value of 1.0. A cooking reduction factor is a numeric value that approximates the amount of contaminant removed from tissue by cooking. A cooking reduction factor of 1.0 implies there is no reduction in contaminant concentration from cooking. USEPA guidance recommends conservative assumptions be used where actual exposure data are unknown, such as the cooking and preparation methods (USEPA 2000).

Tissue sample fractions were reported as either "whole organism" or "fish fillet." The modified OEHHA FCGs were used for assessment (with the exception of mercury) of both whole organism and fish fillet data.

A list of pollutants summed prior to comparison with an evaluation guideline is provided in Appendix K.

### 3.7.1 Polycyclic Aromatic Hydrocarbons ("PAHs")

Polycyclic aromatic hydrocarbons ("PAHs") in fish and shellfish tissue were assessed for human health by comparing a potency-weighted total concentration of PAHs with the evaluation guideline for benzo(a)pyrene. An evaluation guideline is not available for other individual PAHs. As a result, the individual PAHs are assigned a value, or toxicity equivalency factor ("TEF") based on the toxicity of the PAH relative to benzo(a)pyrene. The potency-weighted concentration was calculated for each PAH by multiplying the concentration of the PAH by a 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 threshold for benzo(a)pyrene

## 3.8 Aquatic Toxicity

Aquatic toxicity tests are conducted in a laboratory by exposing test organisms (e.g., vertebrate, invertebrate, or plant/algae species) to water or sediment samples collected in the field and to control samples. Organism responses (e.g., mortality, growth, reproduction) in both the test/sampled water and the control water are measured and results are evaluated to determine if there is a statistically significant difference.

Assessments were conducted in accordance with section 3.6 of the Listing Policy, which states that, "A water segment shall be placed on the section 303(d) list if the water segment exhibits statistically significant water or sediment toxicity using the binomial distribution as described in section 3.1 [of the Listing Policy]." Data were compared to the statewide numeric water quality toxicity objectives in the State Policy for Water Quality Control: Toxicity Provisions ("Toxicity Provisions"), which includes the test of significant toxicity ("TST") to identify statistically significant toxicity, or narrative toxicity water quality objectives in Regional Water Board basin plans using significant effects categories.

### 3.8.1 Toxicity Assessment Methods

For toxicity assessments, one sample is defined as being of the same matrix (i.e., water or sediment) from the same station on the same day. Each sample tested that has at least one species and response (either sub-lethal or lethal) that was determined to be significantly toxic compared to the control by the TST, traditional t-test, or other statistical approach would be considered to have a toxic effect and thereby an exceedance. Each sample with an exceedance is counted only once even if more than one species for that sample shows a significant difference from the control. LOEs were written at the monitoring station, parent project, matrix, water quality objective (numeric or narrative), and beneficial use level. LOEs were written for the following beneficial uses: warm freshwater habitat ("WARM"), cold freshwater habitat ("COLD"), estuarine habitat ("EST"), and marine habitat ("MAR"). Waterbody segments were placed on the 303(d) list based on toxicity consistent with section 3.6 of the Listing Policy.

Toxicity data were assessed based on the format of the data using either the significant effects categories or the TST statistical approach. The TST and significant effect categories are detailed in the subsections below.

#### *Test of Significant Toxicity*

The numeric aquatic toxicity water quality objectives in the Toxicity Provisions require the use of the TST. The TST assessment approach includes a null hypothesis stating that the sample is "toxic," and an alternative hypothesis stating that the sample is "not toxic." The null hypothesis was tested using the Welch's t-test and resulted in a "pass" or "fail." Attainment of the objective is demonstrated by conducting aquatic toxicity testing, analyzing the data using the Welch's t-test, and rejecting the null hypothesis leading to a "pass" or non-toxic sample. Acceptance of the null hypothesis leads to a "fail" or toxic sample and is an exceedance. For chronic toxicity, acceptance of the null hypothesis and an exceedance occurs when the ambient water is toxic because the response (e.g., survival, reproduction, growth) of the test organisms in the ambient water sample is less than or equal to 75 percent of the test organisms' response in the control water sample. For acute toxicity, acceptance of the null hypothesis and an exceedance occurs when the ambient water is toxic because the response (e.g., survival) of the test organisms in the ambient water sample is less than or equal to 80 percent of the test organisms' response in the control water sample. Both chronic and acute tests were assessed towards a single toxicity exceedance for the integrated report.

The TST approach was only used for toxicity data expressed as TST results from aquatic toxicity testing using the species, toxicity test methods, regulatory management decision, beta error, and alpha error listed in Table 3-4: Toxicity Test Methods, Regulatory Management Decision (RMD), β Error, and α Error, below.

## Table 3-4: Toxicity Test Methods, Regulatory Management Decision (RMD), β Error, and α Error

| U.S. EPA Toxicity Test Method | Tier | RMD (b) | β Error | α Error |
|---|---|---|---|---|
| **Chronic Freshwater Methods** | | | | |
| *Ceriodaphnia dubia* (water flea)<br>Survival and reproduction | I | 0.75 | 0.05 | 0.20 |
| *Pimephales promelas* (fathead minnow)<br>Survival and growth | I | 0.75 | 0.05 | 0.25 |
| *Selenastrum capricornutum* (green alga)<br>Growth | I | 0.75 | 0.05 | 0.25 |
| **Chronic West Coast Marine Methods** | | | | |
| *Atherinops affinis* (topsmelt)<br>Survival and growth | I | 0.75 | 0.05 | 0.25 |
| *Dendraster excentricus* (sand dollar);<br>*Strongylocentrotus purpuratus* (purple urchin)<br>Fertilization | I | 0.75 | 0.05 | 0.05 |
| *Dendraster excentricus* (sand dollar);<br>*Strongylocentrotus purpuratus* (purple urchin)<br>Larval development | I | 0.75 | 0.05 | 0.05 |
| *Haliotis rufescens* (red abalone)<br>Larval development | I | 0.75 | 0.05 | 0.05 |
| *Mytilus sp*. (mussels);<br>*Crassostrea gigas* (oyster)<br>Larval development | I | 0.75 | 0.05 | 0.05 |
| *Macrocystis pyrifera* (giant kelp)<br>Germination and germ-tube length | I | 0.75 | 0.05 | 0.05 |
| **Chronic East Coast Marine Methods** | | | | |
| *Menidia beryllina* (inland silverside)<br>Survival and growth | II | 0.75 | 0.05 | 0.25 |
| *Americamysis bahia* (mysid)<br>Survival and growth | II | 0.75 | 0.05 | 0.15 |
| **Acute Freshwater Methods** | | | | |
| *Ceriodaphnia dubia* (water flea);<br>Survival | I | 0.80 | 0.05 | 0.10 |
| *Daphnia magna* (water flea);<br>*Daphnia pulex* (water flea);<br>Survival | I | 0.80 | 0.05 | 0.10 |
| *Hyalella azteca* (amphipod)<br>Survival | I | 0.80 | 0.05 | 0.10 |
| *Pimephales promelas* (fathead minnow);<br>Survival | I | 0.80 | 0.05 | 0.10 |
| *Oncorhynchus mykiss* (rainbow trout);<br>*Salvelinus fontinalis* (brook trout)<br>Survival | I | 0.80 | 0.05 | 0.10 |
| **Acute Marine Methods** | | | | |
| *Atherinops affinis* (topsmelt)<br>Survival | I | 0.80 | 0.05 | 0.10 |
| *Americamysis bahia* (mysid)<br>Survival | II | 0.80 | 0.05 | 0.10 |

| | | | | |
|---|---|---|---|---|
| *Menidia berylina* (inland silverside) Survival | II | 0.80 | 0.05 | 0.10 |

### *Significant Effect Categories*

Aquatic toxicity data that were not expressed as TST results or did not use the test methods listed in Table 3-4 were assessed to determine if the sample exhibited statistically significant toxicity compared to the laboratory control. Results were group into significant effect categories to determine statistical significance in accordance with section 3.6 of the Listing Policy and attainment of the following narrative toxicity water quality objective:

> All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Each Regional Water Board Basin Plan has a narrative water quality objective for toxicity similar to the above.

Acute and chronic aquatic toxicity data results were grouped into one of four categories based on the occurrence of a significant effect between the test and the control organisms, and the percent of the effect. The four significant effect categories are shown in Table 3-3: Aquatic Toxicity Significant Effect Categories.

Samples with a significant effect category of “SG”, “NSL”, or “NSG” were not considered exceedances. Samples with a significant effect category of “Significant, Less Similarity” or “SL” were considered an exceedance. Toxicity of any one or more test species of a sample, as noted by application of the SL to the data, is an exceedance. The SL category is applied when:

- There is a statistically significant difference between the response of the organism in the sample matrix and the control organism.
- There is less similarity between the organism in the sample matrix and the control organism, as determined by the percent effect of the sample. The percent effect evaluation guideline is set at 20 percent for both chronic and acute toxicity for data associated with the Water Board SWAMP program. Some non-SWAMP data were evaluated using other percent effect evaluation guidelines.

**Table 3-5: Aquatic Toxicity Significant Effect Categories**

| Category | Definition | Explanation |
|---|---|---|
| “Not Significant, Greater Similarity” (NSG) | The test result is not statistically significant and shows a greater similarity to the control (i.e., the percent effect is below a 20% threshold). | The result indicates that the sample is not toxic. These data can be used with confidence. |

| | | |
|---|---|---|
| “Not Significant, Less Similarity” (NSL) | The test result is not statistically significant but shows less similarity to the control (i.e., the percent effect is equal to or greater than a 20% threshold). | The result indicates that the sample may or may not be toxic, and that further investigation is necessary. |
| “Significant, Greater Similarity” (SG) | The test result is statistically significant but shows greater similarity to the control (i.e., the percent effect is below a 20% threshold). | The result indicates that the sample may or may not be toxic, and that further investigation is necessary. |
| “Significant, Less Similarity” (SL) | The test result is statistically significant and shows less similarity to the control (i.e., the percent effect is equal to or greater than a 20% threshold). | The result indicates that the sample is toxic. These data can be used with confidence. |

## 3.9 Biological Assessments and Benthic Community Effects

**For the 2026 California Integrated Report, the health of the benthic community was assessed by evaluating California Stream Condition Index (“CSCI”) data as described below. Waterbody segments that are not located in the Central Valley floor were placed into subcategory 5-bio as impaired for benthic community effects when two conditions were met: (1) data and information demonstrated degraded benthic communities as compared to reference sites; and (2) the same waterbody segment was impaired by at least one pollutant for a designated aquatic life beneficial use. More information on subcategory 5-bio and its definition can be found in section 3.9.3: Assessment Approach.**

**The goal of the CWA is "to restore and maintain the chemical, physical, and *biological integrity* of the Nation's waters.” (33 U.S.C § 1251(a) (italics added).)** Biological assessments, or bioassessments, are an effective tool for evaluating ecosystem health because biological assemblages (e.g., macroinvertebrates, fish, etc.) integrate relevant chemical, physical, and biological factors in the environment. Bioassessment of natural communities directly assesses the status of a waterbody segment relative to the primary goal of measuring the biological integrity of waters within the state. **Benthic macroinvertebrates include aquatic insect larvae, crustaceans, mollusks, and worms that live at the bottom of rivers and streams. Because they are ubiquitous, relatively stationary, and diverse, assessing types and numbers provides a range of responses to environmental pressures.**

~~**The goal of the CWA is "to restore and maintain the chemical, physical, and *biological integrity* of the Nation's waters.” (33 U.S.C § 1251(a) (italics added).)Further,** USEPA has stated, “biological assessments should be fully integrated in state and tribal water quality programs and used together with whole effluent and

ambient toxicity testing, and with chemical-specific analyses, to assess attainment of designated aquatic life uses in WQS (USEPA 1991b). Each of these methods can be used to provide a valid assessment of aquatic life use impairment. Biological assessments complement chemical-specific, physical, and whole effluent toxicity measures of stress and exposure by directly assessing the response of the community in the field (USEPA 1991a)" (USEPA 2011).

Section 3.9 of the Listing Policy provides that "a water segment shall be placed on the section 303(d) list if the water segment exhibits significant degradation in biological populations and/or communities as compared to reference site(s) and is associated with water or sediment concentrations of pollutants including but not limited to chemical concentrations, temperature, dissolved oxygen, and trash."

~~**Benthic macroinvertebrates include aquatic insect larvae, crustaceans, mollusks, and worms that live at the bottom of rivers and streams. Because they are ubiquitous, relatively stationary, and diverse, assessing types and numbers provides a range of responses to environmental pressures.**~~

~~**Section 3.9 of the Listing Policy requires that "the analysis should rely on measurements from at least two stations." The waterbody segment was considered to exhibit significant degradation in a receiving water where CSCI scores show degradation at one or more stations during one sampling season or at one station over multiple sampling seasons. This requirement ensures the assessment is based on temporally and spatially representative data.**~~

### 3.9.1 Use of CSCI Scores

The ~~**California Stream Condition Index ("**~~CSCI~~**")**~~ is **an index** used to "score" biological condition of benthic macroinvertebrates at sampled sites. The CSCI is a tool which translates species taxa data about benthic macroinvertebrates found living in a stream into an overall measure of stream health (Mazor et al. 2016). The CSCI score indicates whether, and to what degree, the ecology of a stream is altered from a healthy state as indicated by the aquatic insect larvae and other macroinvertebrates living in, on, or near the bottom, or benthic zone, of a wadable stream or river.

The CSCI score is calculated by comparing the expected condition (i.e., the reference site) with actual, observed results. CSCI scores range from 0 (highly degraded) to greater than 1 (equivalent to reference condition). See Table 3-5: CSCI Score Ranges and Biological Conditions.

**Table 3-6: CSCI Score Ranges and Biological Conditions**

| CSCI Score Range | Condition |
|---|---|
| ≥ 0.92 | Likely intact |
| 0.80 - 0.91 | Possibly altered |

| | |
|---|---|
| 0.63 - 0.79 | Likely altered |
| ≤ 0.62 | Very likely altered |

*Adapted from Mazor et al. 2016*

More specifically, the CSCI score is a measure of how well a site's observed condition matches its predicted, or expected, healthy (i.e., reference) condition. Expected values for a set of ecological measures are predicted using statistical models developed from reference sites, which are healthy stream reaches that set a benchmark of ecological conditions when human disturbance in the upstream watershed is absent or minimal. Predictions are based on natural environmental variables (i.e., site elevation, catchment or watershed size, climate and geology) resulting in a site-specific prediction for each site; greater deviations from this expectation indicate a greater likelihood of degradation relative to reference conditions.

The CSCI is made up of two types of indices: (1) observed ("O") to expected ("E") (the "O/E index"), which measures taxonomic completeness which is the proportion of expected native macroinvertebrate species that are observed at a site, and (2) multi-metric index ("MMI") that measures macroinvertebrate ecological structure (e.g., diversity) and function (e.g., nutrient cycling).

The O/E index is created through predictive modeling where taxa that are expected at a monitoring and assessment site are predicted by modeling relationships between macroinvertebrate taxonomic composition and natural environmental variables at reference sites. Benthic community condition at a site is then measured as the number of expected benthic macroinvertebrate taxa (i.e., "E") compared to the number that are actually observed (i.e., "O"), and degradation is measured as the loss of expected native taxa.

The MMI combines six measures of the benthic macroinvertebrates assemblage, or "metrics," into a single measure of biological condition. Each of the metrics represent different aspects of assemblage composition, or the various species living within the benthic aquatic ecosystem. They were chosen based on their ability to differentiate between reference and high activity/disturbance sites and by their lack of bias among Perennial Streams Assessment regions (i.e., the metrics performed consistently across different ecoregions in California). Finally, all of the six metrics are "decreasers" as their values all decrease as human disturbance increases. That is, higher values indicate better conditions for all six metrics. A brief description of the six MMI metrics and their relevance to biological conditions are listed below:

1. **Percent Clinger Taxa** - percent of species present that are clingers. Clingers are a category of benthic macroinvertebrates based on their 'clinging' behavior and broadly include several different types of aquatic species such as stoneflies, dragonflies, and others. They typically require fast-flowing water and coarse streambed material to cling to, so they are very sensitive to hydromodification and altered sediment regimes.

2. **Percent Coleoptera Taxa** - percent of species present that are Coleoptera (i.e., beetles). Beetles are a diverse group of insects that includes both sensitive and pollution-tolerant species. More species (especially sensitive species, like riffle beetles) tend to be found in streams with better water quality.

3. **Taxonomic Richness** - or species richness, is the total count of different species present and represents aquatic biodiversity. Biodiversity is critical to maintaining stability in aquatic ecosystems, including the various ecosystem services provided (e.g., clean water, food, recreation, climate change resilience).

4. **Percent EPT Taxa** - percent of species present that are mayflies (Ephemeroptera), stoneflies (Plecoptera), or caddisflies (Trichoptera). EPT are sensitive to environmental stress/disturbance and are used as bioindicators of condition. Most EPT species breath through sensitive gills that can absorb contaminants. High percentage of EPT indicates low environmental stress/disturbance and vice versa.

5. **Shredder Taxa Richness** - count, or number, of different shredder species present. 'Shredders' are a category of aquatic macroinvertebrate functional feeding groups (e.g., shredders, collectors, grazers, and predators). Shredders are responsible for processing leaf litter and help to make dissolved organic matter available, which is a primary food source for aquatic food webs. They require intact riparian corridors to provide their food.

6. **Percent Intolerant Individuals** - percent of individuals with high pollution-sensitivity ratings. Many benthic macroinvertebrate species have been assigned pollution-sensitivity ratings based on studies of their life-histories, observations at polluted and clean sites, and lab-based experiments.

### 3.9.2 Selection of the 0.79 ~~Evaluation Guideline~~ CSCI as a Reference Threshold

The CSCI score of 0.79 was used as ~~an evaluation guideline~~ a reference threshold for beneficial use attainment and was selected in conformance with sections 3.9 and 6.1.5.8 of the Listing Policy. Section 3.9 allows the use of a reference site or sites to compare degradation in biological populations and/or communities. Section 6.1.5.8 requires a method of selecting reference sites and applying them to develop an Index of Biological Integrity ("IBI"), which has been done and validated by the CSCI threshold study authored by Mazor et al. (2016).

The CSCI score of 0.79 is described in Mazor et al. (2016), which was independently peer-reviewed. The 0.79 score is based on the selection of the 10th percentile of the distribution of benthic macroinvertebrate community composition scores from 473 references sites across California.

Reference sites were located in healthy stream reaches that set a benchmark of ecological conditions as human disturbance in the stream watershed was absent or

minimal. These reference sites were calibrated to have a mean value of 1. Based on an average of the 473 calibrated reference sites, 0.79 represents the 10th percentile of reference waterbody segment scores. In other words, ~~use of the 0.79~~ **a CSCI** score **below 0.79** reflects the bottom 10 percent (most degraded) of the aggregated reference waterbody conditions. Waterbody segments with CSCI scores below 0.79 indicate the waterbody segment's condition is either likely altered or very likely altered and, therefore, the benthic macroinvertebrate community that is part of several aquatic life beneficial uses is not being supported. In addition, analysis of statewide CSCI scores identified sites below the 10th percentile threshold of 0.79 as being in poor condition (Rehn 2016).

The CSCI relies on quantile regressions to evaluate biological responses to stress gradients. Most biological response measures, including the CSCI, show wedge-shaped relationships with stress gradients. At high levels of a stressor (e.g., high chloride concentration), CSCI scores are low. At low levels of a stressor, CSCI scores may be high, but can be low due to unidentified factors (e.g., presence of an unmeasured contaminant, or habitat degradation). In these situations, traditional linear regression underestimates the strength of the relationship between biological responses and stressors because it only attempts to predict the average response value. In contrast, quantile regression can focus on the "top" of the wedge by predicting a high-value quantile (e.g., the 90th percentile) which better estimates biological responses in most of the population to stressors.

The Listing Policy FED supports the use of the CSCI score **as a reference threshold**, as stated in the recommended approach for determining degradation of biological populations or communities. The CSCI score ~~are~~ **is** based on a modeled extrapolation of expected biology at a site based on reference conditions that are minimally impacted by anthropogenic activities. The recommended approach in FED Issue 5G Degradation of Biological Populations or Communities, Bioassessment Guidelines of the Functional Equivalent Document states:

> A reference condition, an empirical model of expectations that may include knowledge of historical conditions, or a model extrapolated from ecological principles can be derived from reference sites. A reference site may be natural, minimally impaired (somewhat natural), or best available (altered system). Actual sites that represent best attainable conditions of a water body should be used. (SWRCB 2004.)

***Application of the 0.79 CSCI Reference Threshold in Intermittent and Other Non-Perennial Streams***

**The CSCI and the 10th percentile reference threshold score of 0.79 were used to assess benthic community data for intermittent streams across the state that naturally flow for at least one month in most years and cease flowing for at least one week in most years.**

**In southern California, extensive data indicate the statewide 10th percentile reference condition (i.e., 0.79) accurately includes both perennial and intermittent stream types (Loflen 2020; Mazor et al. 2014). Southern California is defined here as roughly Ventura County south to the U.S.-Mexico border.**

**For some northern California streams in xeric areas (within the Chaparral, Central Valley, and northern portion of the Desert/Modoc ecoregions), recent CSCI data analyses indicate that the 0.79 reference threshold may not reflect the observed 10th percentile reference condition. However, more data and review are needed before there is sufficient evidence to support the use of a different CSCI score as a reference condition for intermittent streams. For intermittent streams in the xeric parts of northern California, two recent SCCWRP technical reports and internal Water Board staff data analyses indicate that the 0.79 reference threshold misidentifies some healthy intermittent streams as degraded (Brown and Mazor 2025; Mazor et al. 2025a). However, the sample sizes are too small to confidently draw conclusions (there was only one intermittent site in the combined area of the North Coast and the Central Coast Regional Water Boards). The studies' authors noted that the 10th percentile reference condition for intermittent streams is likely to change as new data become available. Additionally, it is unknown whether several sites are perennial or intermittent, and the geographic boundaries of the arid ecoregions used in the SCCWRP technical reports need to be clarified. In recognition of the gaps in current northern California intermittent stream analyses, the 10th percentile reference threshold score of 0.79 was used for the 2026 Integrated Report for all northern California intermittent streams. Should a new reference threshold for northern California intermittent streams in xeric ecoregions be further developed and peer reviewed, CSCI data for those streams will be reassessed using the new reference thresholds in a subsequent integrated report.**

**The CSCI and the 10th percentile reference threshold score of 0.79 were not used to assess benthic community data from ephemeral streams. Ephemeral streams flow after storm events and sit above the water table. Because ephemeral streams typically do not support aquatic life, these streams are not assessed using traditional bioassessment tools, such as the CSCI or the ASCI (Mazor et al., 2025).**

***The CSCI Does Not Apply to Constructed Channels.***

**The CSCI and its 10th percentile reference threshold were not applied in constructed channels. Constructed channels are defined for these purposes as channels that have been anthropogenically excavated from uplands where no historic channel naturally existed. "A Technical Foundation for Biointegrity and Eutrophication Indicators and Thresholds for Modified Channels, Intermittent Streams, and Streams on the Central Valley Floor" clarifies constructed channels' defining features on pages 77-80. Constructed channels should not be assessed using the CSCI. Constructed channels "lack traditional watersheds [and] have been excavated from uplands where no historic channels previously existed...Because the CSCI requires watershed delineations in order to establish**

appropriate biological expectations, the standard approach for calculating the CSCI does not apply" (Mazor et al. 2025a). This contrasts with other modified non-constructed channels where water historically ran through a natural path integrated with a watershed, and then the channel was altered and/or hardened. Water never naturally collected in constructed channels before being engineered.

***Applying the 0.79 CSCI Reference Threshold in Modified Non-Constructed Channels***

The CSCI and its 10th percentile reference threshold were applied in modified non-constructed channels or streams. A modified non-constructed channel is defined for these purposes as a natural stream where channel morphology has undergone one or more deliberate modifications, such as hardening, straightening, or lining with resistant material. Reference-based bioassessment indices accurately identify degraded biology in modified non-constructed channels. A 2025 SCCWRP technical report concluded that reference-based thresholds are well-suited for assessment applications for modified non-constructed channels (Mazor et al. 2025a).

***Applying the 0.79 CSCI Reference Threshold to Streams on the Central Valley Floor***

The CSCI data for streams located on the Central Valley floor were assessed using the 10th percentile reference threshold of 0.79. However, waterbodies with degraded biology and an associated pollutant were placed in condition category 3, indicating that beneficial uses may be potentially threatened, instead of Category 5-bio.

The Central Valley floor is defined as the Central California Valley Ecoregional Level 3 boundary updated in 2010, released by USEPA in 2016, (https://dmap-prod-oms-edc.s3.us-east-1.amazonaws.com/ORD/Ecoregions/ca/ca_eco_l3.zip), and attributed to Griffith et al. 2016 (https://pubs.usgs.gov/publication/ofr20161021).

The placement of Central Valley floor waterbodies with degraded biology and an associated pollutant in condition category 3 is due to the uncertainty in whether statewide minimally disturbed reference conditions appropriately reflect minimally disturbed reference conditions in Central Valley floor streams given that there is only one reference site located on the Central Valley floor. State Water Board staff conducted an environmental contrast analysis to quantify the similarity between sample sites in each Californian ecoregion and the statewide reference sites. Staff analyzed the similarity based on the following 11 environmental setting factors: latitude, longitude, elevation, watershed area, elevation range, sample point precipitation, catchment precipitation, air temperature, bulk soil density, soil erodibility factor, and phosphorus-bearing geology.

**Staff found that CSCI scores in at least 75 percent of the analyzed sites on the Central Valley floor are not impacted by differences in the environmental setting factors and use of the statewide 0.79 reference threshold is likely appropriate. Staff also found more dissimilarity between the environmental setting factors of approximately 25 percent of analyzed sites in the Central Valley floor and statewide reference sites, indicating that these sites may differ enough from statewide reference conditions to warrant further consideration. Some evidence points to this dissimilarity being driven by the large watershed catchment sizes typical of Central Valley streams compared to other streams across the state. However, additional data and analysis are needed to determine whether it is appropriate to list a waterbody in the Central Valley floor as impaired based on the 0.79 statewide reference threshold. Once this additional analysis is complete, staff will reconsider the appropriate category for Central Valley floor sites with degraded biology and an associated pollutant.**

### 3.9.3 Benthic Community Effects Assessment Approach

Under Listing Policy section 3.9, a waterbody segment shall be placed on the 303(d) list if the waterbody exhibits significant degradation in biological populations and the degradation is associated with water or sediment concentrations of pollutants in accordance with one or more other listing factors, such as exceedances of chemical concentrations, temperature, dissolved oxygen, trash, or other pollutants using sections 3.1, 3.2, 3.6, 3.7, 6.1.5.9, or other applicable sections (e.g., toxicity under section 3.6). Additionally, if the waterbody exhibits significant degradation in biological populations related to sedimentation, the waterbody shall be placed on the 303(d) list for population or community degradation if the waterbody also meets the thresholds for listing due to excessive sedimentation.

**A waterbody segment not located in the Central Valley floor was placed on the 303(d) list for benthic community effects when data and information demonstrate degraded biology as compared to reference sites and when the waterbody segment is impaired for at least one pollutant for a designated aquatic life beneficial use. Degraded biology, or benthic community degradation, is demonstrated when at least two CSCI scores are below the tenth percentile reference threshold (i.e., 0.79) in a waterbody segment with at least two CSCI sample scores. Then, pollutant association is presumed when there is a pollutant impairment of an aquatic life beneficial use for the same waterbody segment. For bioassessment, measurements at one stream reach may be sufficient to warrant listing provided that the impairment is associated with a pollutant(s) as described in this section. Therefore, two degraded scores are needed to list, but they may be from the same sampling location. This approach is consistent with Listing Policy section 3.9, which states, "The analysis should rely on measurements from at least two stations," and "Bioassessment data used for listing decisions shall be consistent with section 6.1.5.8." Listing Policy Section 6.1.5.8 requires the assessment of biological community or population data, such as CSCI scores, to determine whether biological populations or communities are significantly degraded as compared to reference sites.**

**Regional Water Boards may apply an additional optional analysis in future listing cycles to rebut the presumption that the pollutant is associated with or potentially responsible for the degraded biology. For example, additional analysis may consider the spatial and temporal relationship between the pollutant data and the biology data to determine if the pollutant is likely not contributing to degraded biology. Additionally, Regional Water Boards may apply different tools available to demonstrate that a pollutant is not likely a cause for the degraded biology, such as USEPA stressor modules or the Causal Analysis/Diagnosis Decision Information System. Note that these tools are also useful to show that a pollutant has characteristics that are likely to negatively impact biology. Additionally, analyses should be scientifically defensible and reproducible. Regional Water Boards may apply this additional optional analysis during the decision-making phase of integrated report development. The additional analysis may be applied to waterbody segments that are already identified as impaired for BCEs. If the additional optional analysis is applied to waterbody segments that are already identified as impaired on the 303(d) list, and the analysis shows that the previously associated pollutant is not likely a cause of the degraded biology, that waterbody segment may be placed in condition category 3.**

**Members of the public are welcome to submit additional information to help inform the optional analysis to rebut the presumption that the pollutant is associated with or potentially responsible for the degraded biology. Additional information may be considered the next time the applicable Regional Water Board is on cycle. Information can be shared with the appropriate Regional Water Board staff, the wqassessment@waterboards.ca.gov email address at the State Board, or during the public review and comment period.**

For the 2024 California Integrated Report, the State Water Board placed 44 waterbodies in Category 3 for benthic community effects when data and information demonstrated that the benthic macroinvertebrate community (a biological community) was degraded, and the waterbody was listed on the 303(d) list with at least one pollutant impairment of an aquatic life beneficial use. This was an interim approach that was applied in order to provide time for the State Water Board to develop a methodology for determining if a degraded benthic community is associated with a pollutant. As stated in the Final Staff Report for the 2024 California Integrated Report:

> Determining whether the degradation of biological populations is "associated" with listed pollutants involves some judgment, because not all listed pollutants are necessarily a potential cause of the degraded biological population.
>
> Section 3.9 of the Listing Policy does not explain how to determine if the degraded biology is associated with the pollutant impairment. In previous integrated report cycles, a new waterbody-pollutant combination was placed on the 303(d) list when the waterbody exhibited significant degraded biology and there was at least one pollutant impairment of an aquatic life beneficial use, without always evaluating whether the pollutant

could be a potential cause of the degraded biology. Because some discretion is used to apply section 3.9, there is a need to clarify the appropriate approach for associating pollutant impairments with degraded biological populations under section 3.9, including the evaluation of whether the pollutant impairment may be a potential cause of the degraded biology, possibly with the consideration of site-specific data and information. Doing so will help ensure section 3.9 is applied uniformly.

The USEPA disapproved California's omission of the 44 waterbody-pollutant combinations from Category 5, finding the State Water Board's decision to not list 44 waterbodies for benthic community effects inconsistent with California's water quality standards, as indicated in their letter titled Partial Approval and Partial Disapproval of California's 2024 List of Impaired Waters (https://www.epa.gov/system/files/documents/2024-12/ca-2024-303d-list-epa-partial-approval-disapproval-2024-12-12.pdf). The USEPA asserted that the lack of an assessment methodology to associate degraded biology to a pollutant impairment is not by itself a basis to decline to evaluate available data or information. As a result, the USEPA concluded that placement of the 44 waterbodies in Category 5 for benthic community effects is appropriate. Additionally, the USEPA provided a public comment period from December 13, 2024, to January 15, 2025, on the addition of these 44 waterbody-pollutant combinations to the 2024 303(d) List. **However, following the comment period, the USEPA has neither affirmed nor revised the overlistings for the 44 waterbodies. The State Water Board considers USEPA's Partial Approval and Partial Disapproval of California's 2024 List of Impaired Waters to be the most recent formal action taken on the 2024 California Integrated Report.**

~~**The**~~**Additionally, USEPA stated in its 2024 partial disapproval letter that "[s]tates should include impaired and threatened waters in Category 5 when a water is shown to be impaired or threatened by biological assessments used to evaluate aquatic life uses or narrative or numeric criteria adopted to protect those uses, even if the specific pollutant is not known." However, the** 44 waterbody-pollutant combinations identified ~~**were placed in Category 5 for benthic community effects, consistent with the**~~ **in** USEPA's Partial Approval and Partial Disapproval of California's 2024 List of Impaired Waters~~**. Placement of these**~~ **were not placed in condition category 5 for biology alone. The** waterbody-pollutant combinations ~~**in Category 5 was required to conform with USEPA's letter.**~~**in USEPA's letter had at least one pollutant impairment, with some minor exceptions that were revised in the 2026 California Integrated Report.**

**In order to be consistent with the Listing Policy, the 44 waterbody-pollutant combinations identified in USEPA's Partial Disapproval Letter were reviewed to ensure that there was at least one pollutant impairment and benthic community impairments were based on at least two samples with CSCI scores below the 10th percentile reference threshold of 0.79 to list, and were not located on the Central Valley floor. Changes to decisions are identified in the Summary of Response to Comments Appendix A: Comprehensive List of Revised CalWQA Decisions. If there were no changes made to decisions, waterbody-pollutant combinations**

**were placed in Category 5-bio for benthic community effects, which is consistent with the USEPA's Partial Approval and Partial Disapproval of California's 2024 List of Impaired Waters.**

For the 2026 California Integrated Report, waterbodies **not located on the Central Valley floor** for which new benthic community data ~~**was**~~**were** received during the solicitation period for the 2026 cycle were placed into ~~**Category 5a**~~ **a new condition subcategory called 5-bio** for benthic community effects**,** when **the two conditions described previously were met.**

**Condition subcategory 5-bio is defined as follows:**

> ***Degraded*** *biological* ***populations and*** *communities****, and the waterbody indicate that at least one aquatic life beneficial use*** *is* ~~***impaired***~~ ***not supported. This impairment determination must be supported*** *by at least one pollutant* ***impairment*** *for an aquatic life beneficial use* ~~***This approach was applied to be consistent with the USEPA's action during 2024 Integrated Report approval process.***~~ ***on the same waterbody segment. A Total Maximum Daily Load for the associated pollutant(s) may be used to further assess the association between the associated pollutant(s) and the degraded biological populations and communities and, as appropriate, help to restore the degraded biological populations and communities. A Total Maximum Daily Load for the degraded biological populations and communities is not appropriate because Total Maximum Daily Loads are intended for pollutants.***

~~**When there was data and/or information to demonstrate that the benthic community was degraded but there was not at least one pollutant impairment of an associated aquatic life beneficial use, the waterbody-pollutant combination was placed into Category 3 because the data and/or information indicated beneficial uses may be potentially threatened.**~~

~~**All waterbody-pollutant combinations placed in Category 5 for benthic community effects were assigned a priority level low for TMDL development. It is not expected that a TMDL or other action to address the impairment will be developed to address the degraded biology alone. However, a TMDL or**~~ **This new subcategory is intended to clearly describe that TMDLs addressing benthic community effects impairments are to be developed for the causal pollutant(s) and that determining the cause(s) is part of the process when developing the associated pollutant TMDL. It also provides that a TMDL cannot be written for benthic community effects for waterbodies placed into subcategory 5-bio because a benthic community effect is an indicator of impairment, not the cause (i.e., a pollutant).**

**The aquatic life beneficial use support determination in the first sentence of the above definition applies specifically to the COLD and WARM beneficial uses when assessing data and information using the CSCI for the 2026 California**

**Integrated Report. Both the WARM and COLD beneficial uses specifically identify invertebrates. The aquatic life beneficial use support determination identified in the second sentence for associated pollutants may apply to the COLD and WARM beneficial uses as well as additional aquatic life beneficial uses, including but not limited to: SAL, EST, BIOL, RARE, MIGR, and SPWN. While most pollutants are assessed to determine if the COLD or WARM uses are attained, there are instances where other aquatic life beneficial uses are more sensitive than COLD or WARM uses and more stringent objectives, criteria, or evaluation guidelines are used to assess pollutant data. For more information on beneficial uses and definitions, please see section 2.3.1.**

**The definition for 5-bio provides that in order for a waterbody segment to be placed in 5-bio there needs to be at least one pollutant impairment for an aquatic life beneficial use on the same waterbody segment. It's important to note that for some waterbody segments,** other ~~**action may be developed**~~ **factors in addition** to ~~**address the**~~ pollutant impairment~~**s that**~~ may ~~**be contributing**~~ **contribute** to degraded biology**, such as the effects of pollution**. ~~**During a TMDL or other regulatory action, there is a deeper causal assessment of the impairment that could inform benthic community effects categorization in a future integrated report cycle.**~~

~~**If a pollutant impairment is addressed and the waterbody is no longer listed as impaired by the pollutant, but the benthic community has not improved, the waterbody-pollutant combination will be placed Category 3, indicating that beneficial uses may be potentially threatened.**~~ If it can be demonstrated that pollution (e.g., lack of flow) is the **sole** cause of the degraded benthic community, the waterbody **segment** may be placed in Category 4c, indicating that non-attainment of any applicable water quality standard is the result of pollution. **While an impairment may be caused by a combination of both pollutant and pollution factors, a waterbody can only be placed into Category 4c when no known pollutant impairments exist.** No regulatory action is required for waterbodies placed in Category 4c.

**However, when there were data and/or information to demonstrate that the benthic community was degraded but there was not at least one pollutant impairment associated with degraded biology, the waterbody-pollutant combination was placed into Category 3 because the data and/or information indicated aquatic life beneficial use may be potentially threatened. Similarly, if a pollutant impairment is addressed and the waterbody segment is no longer listed as impaired by the pollutant, but the benthic community has not improved and there are no other associated pollutant impairments, the waterbody segment will be placed Category 3, indicating that beneficial uses may be potentially threatened.** (See Staff Report Section 2.5: Integrated Report Condition Categories for more information.)

The State Water Board encourages the Regional Water Boards to use their discretion where appropriate in establishing permitting, monitoring, and other data collection requirements for benthic community effects impairments.

**Waterbodies placed in subcategory 5-bio were assigned a "N/A" for "Not Applicable" in the TMDL development priority field in the Proposed Final 2026 Integrated Report Staff Report, Appendix P: Waterbodies in Subcategory 5-bio for Benthic Community Effects. State Water Board staff intends to make future upgrades to the CalWQA Database so that CalWQA will have the ability to show "N/A" in the TMDL development priority field when appropriate. However, due to technical limitations of the federal database ATTAINS, once the California 2026 303(d) List is submitted to ATTAINS, waterbodies placed in subcategory 5-bio will be assigned a low priority for development of a pollutant TMDL by default. A Regional Water Board may assign a higher TMDL development priority for the associated pollutant(s) at its discretion. This approach aligns with USEPA's Memorandum: Guidance for the 2004 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d) and 305(b) of the Clean Water Act; TMDL–01-03 (https://www.epa.gov/sites/default/files/2015-10/documents/2003_07_23_tmdl_tmdl0103_2004rpt_guidance.pdf). In Section II.A. of the USEPA Memorandum, USEPA affirms that "... in order to refine their classifications, States may choose to establish new or additional subcategories."**

**Currently, tools used to assess data and display waterbody-pollutant combinations in Waterbody Fact Sheets (Appendix B) do not have the capability to display a new Category 5-bio, nor have the capability to display categorization at the waterbody-pollutant level because categorization is displayed at the waterbody level. Additionally, Waterbody Fact Sheets display a default TMDL requirements status of 5A for any waterbody-pollutant combinations placed in condition category 5. As an interim solution, waterbody-pollutant combinations placed in Category 5-bio are identified in Appendix P: Waterbodies in Subcategory 5-bio for Benthic Community Effects of the Proposed Final Staff Report for the 2026 California Integrated Report. Staff will work to update tools to reflect the new condition subcategory 5-bio in a future Integrated Report cycle. Waterbody-pollutant combinations can be placed in subcategory 5-bio when we submit the 2026 Integrated Report to USEPA via ATTAINS.**

### 3.10 Bacteria and REC-1 Beneficial Use

Bacteria (total coliform, fecal coliform, *Escherichia coli* or "*E. coli,"* enterococci) data from waterbody segments involving body contact recreational activities with water (i.e., REC-1) were assessed in accordance with the statewide numeric bacteria water quality objectives or site-specific water quality objectives, as applicable. Statewide bacteria objectives apply to inland surface waters, enclosed bays, estuaries with the REC-1 beneficial use, and for ocean waters with the REC-1 and SHELL beneficial uses. The REC-1 bacteria water quality objectives applicable to inland surface waters, enclosed bays and estuaries are described in Part 3 of the ISWEBE Plan (SWRCB 2019a) and the REC-1 and SHELL bacteria water quality objectives for ocean waters are described in the Ocean Plan (SWRCB 2019c).

For all waters covered under the ISWEBE Plan, different bacteria water quality objectives apply depending on the salinity of the water. Saline waters are defined as

waters where the salinity is greater than one part per thousand ("ppt") more than five percent of the time, whereas freshwaters include all waters where the salinity is equal to or less than one part per thousand 95 percent or more of the time. The *E. coli* bacteria objectives apply to freshwater, and the enterococci bacteria objectives apply to inland saline waters, estuaries, and enclosed bays. Enterococci and fecal coliform are the indicators for the REC-1 beneficial use in ocean waters. See Table 3-6: Summary of Water Quality Thresholds used for Bacteria and REC-1, below.

Statewide bacteria objectives for REC-1 waters include two numeric values for each objective, one based on a six-week or 30-day geometric mean ("geomean") and another based on a statistical threshold value ("STV") or single sample maximum ("SSM") calculated on a monthly basis. The *E.coli* bacteria objective includes a six-week rolling geomean not to exceed 100 colony forming units ("cfu") per 100 milliliters ("mL"), calculated weekly, and a STV of 320 cfu per 100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner. The enterococci bacteria objective includes a six-week, rolling geomean of 30 cfu per 100 mL calculated weekly, and a STV of 110 cfu per 100 mL not to be exceeded by more than 10 percent of samples in a calendar month. The fecal coliform bacteria objective includes a 30-day geomean not to exceed 200 per 100 mL, calculated based on the five most recent samples from each site, and an SSM not to exceed 400 per 100 mL.

The geomean was applied only if a statistically sufficient number of samples were available (generally not less than five samples collected over the specified averaging period) and attainment of the bacteria objective was determined per Listing Policy sections 3.3 and 4.3. In waterbody segments where a statistically sufficient number of geomean samples were not available, then attainment of the bacteria objective was determined based only on the STV or SSM per the situation-specific weight of evidence approach outlined in sections 3.11 and 4.11 of the Listing Policy. Beach notification information, if available, was also used in the situation-specific weight of evidence evaluations.

**Table 3-7: Summary of Water Quality Objectives Used for Bacteria and REC-1**

| Beneficial Use | Waterbody Segment Type | Numeric Water Quality Objective | Reference |
|---|---|---|---|
| **REC-1** | Inland saline surface waters, enclosed bays and estuaries (salinity > 1 ppt > 5% of the time) | Enterococci (Geomean preferred, STV) | ISWEBE Plan |
| **REC-1** | Inland fresh surface waters | *E. coli* (Geomean preferred, STV) | ISWEBE Plan |

| | | | |
|---|---|---|---|
| | (salinity ≤ 1 ppt ≥ 95% of the time) | | |
| **REC-1** | Ocean waters | Fecal coliform (Geomean, SSM) Enterococci (Geomean preferred, STV) | Ocean Plan |

For waterbody segments covered under the ISWEBE Plan's bacteria water quality objectives, new fecal coliform data were not considered a valid indicator for assessing support of the REC-1 beneficial use, and fecal coliform LOEs from prior listing cycles were retired and not used to make Decisions. However, fecal coliform data may be used when a site-specific water quality objective for fecal coliform applies to a waterbody-segment.

The 2019 Amendment to the Ocean Plan removed the REC-1 threshold for total coliform. As a result, no new total coliform data were assessed for REC-1 in ocean waters. All past REC-1 LOEs based solely on total coliform were retired. Decisions were based on the updated water quality objective for enterococci and the water quality objective for fecal coliform.

Indicator bacteria populations may fluctuate substantially on a daily, seasonal, or yearly basis. Lacking constant inputs, bacteria do not persist in the environment for a long period and effects are of relatively short duration. **A study by KP Flint found that bacteria can survive in autoclaved river water for up to 260 days and fewer days for untreated river water.** As a result, the historical levels of indicator bacteria in the waterbody may be a poor indicator of current risks to human health, particularly when more recent data are available to sufficiently assess the water quality standard. Additionally, water quality conditions may have changed as a result of management actions implemented to address bacteria sources, land use changes, hydrology changes, or other factors. Unrepresentative data may result in incorrectly placing or not placing a waterbody segment on the 303(d) list. This could result in the unnecessary expenditure of public resources or missing a problem completely. **This assessment methodology is in accordance with section 6.1.5.3 of the Listing Policy, that data should be representative of the critical timing that the pollutant is expected to impact the waterbody segment.** Therefore, historical indicator bacteria data collected prior to 2010 were not used to assess water quality standards attainment so long as more recent data were available sufficient to make a Decision.

Additionally, historical LOEs may have used *E. coli* as a proxy for fecal coliform in ocean waters. All past *E. coli* LOEs were retired and not used in the 2026 California Integrated Report for ocean waters so long as enterococci or fecal coliform data collected since 2010 were available in the waterbody segment to determine standard attainment.

Bacteria data from the Pacific Ocean in the Beach Program's BeachWatch database with results of zero were excluded and not used to determine standards attainment. The zero result may have been an actual result of zero bacteria or may have been used to indicate a non-detect level of bacteria; however, metadata or other information were not provided to make that determination. According to section 6.1.5.5 (Quantitation of Chemical Concentrations) of the Listing Policy, which applies to non-detects, data results that are less than or equal to the quantitation limit when the quantitation limit is greater than the water quality standard shall not be used in the analysis. See section 2.2.2 for additional detail on how data were screened during the quality review. Furthermore, during the evaluation of data for the 2024 California Integrated Report, data reporting inconsistencies and the use of non-Environmental Laboratory Accreditation Program ("ELAP") accredited testing methods among BeachWatch data collectors were discovered. The State Water Board is preparing a Quality Assurance Program Plan for the Beach Program which will establish program-wide quality assurance policies and procedures for monitoring activities. Several phases are complete, and several are ongoing. All local agencies that collect ocean bacteria data using federal and state funding have revised or are revising their more detailed quality assurance project plans, which document the monitoring activities within their respective jurisdictions, to conform with the quality assurance policies and procedures in the Quality Assurance Program Plan.

## 3.11 Bacteria and SHELL Beneficial Use

Bacteria data from waterbody segments with the Shellfish Harvesting ("SHELL") beneficial use were assessed in accordance with the statewide bacteria objectives or SSOs, as applicable. The statewide bacteria objectives apply to waters of the Pacific Ocean. As described in the Ocean Plan, ocean waters are the territorial marine waters of the state as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons (SWRCB 2019c). Total coliform is the indicator used for the bacteria objectives to assess the SHELL beneficial use in the Ocean Plan.

The statewide bacteria objectives for SHELL waterbody segments are in two parts, a 30-day median total coliform density ("median") not to exceed 70 per 100mL, and an objective that states that not more than 10 percent of the samples in a 30-day period shall exceed 230 per 100 mL. Both the median and 10 percent exceedance rate objectives were used to assess water quality standards attainment. Assessment of samples were conducted using the binomial tables in Listing Policy sections 3.2 and 4.2. Additionally, historical total coliform data collected prior to 2010 were not used to assess water quality standards attainment so long as more recent data were available and sufficient to make a total coliform Decision.

During the 2019 review of the Ocean Plan, the State Water Board expressed the need to consider revising, as a high priority planning project, the total coliform water quality objectives associated with the protection of the SHELL beneficial use for ocean waters in California, citing public comments that the objectives are unattainable (SWRCB 2019b). Stakeholders and staff at the San Diego Regional Water Board have also

expressed concerns regarding the unattainability of the water quality objectives, as research has shown a high incidence of exceedances of the objectives in coastal waters throughout California that are considered reference with little to no anthropogenic bacteria sources, including at State Water Quality Protected Areas (2020-2022 California Integrated Report Final Staff Report, Figure 6-1). Additionally, comments received during the 2020-2022 California Integrated Report public comment period noted that the current beneficial use designation for SHELL may not be an appropriate indicator for recreational harvesting of shellfish as the use does not take into account the human health risks from viral pathogens in the water. Thus, the State Water Board prioritized, as a high priority, a future project to consider revising the SHELL beneficial use to distinguish between recreational, commercial, or tribal types of harvesting, and to consider revising the bacterial objectives applied to areas where shellfish are harvested. Should the total coliform objectives be revised in the future, previously assessed data will be reassessed and compared to the new objectives in a subsequent listing cycle. (SWRCB 2022, finding 13.)

**As stated in State Water Board Resolution No. 2024-007 (https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024_integrated_report/rs2024-0007.pdf),** which is the adopting resolution of the 2024 California Integrated Report, the State Water Board expects that any ocean waterbody segment listed as impaired by indicator bacteria for the protection of ~~**shellfish harvesting**~~ **SHELL beneficial use** would not be scheduled for TMDL development until after the State Water Board completes the high priority planning project. Thus, ~~**CalWQA Decisions**~~ **decisions** that indicate that a waterbody segment is listed as impaired on the 303(d) list were also marked as priority level low for TMDL development. In addition, the State Water Board encourages the Regional Water Boards to use their discretion where appropriate in establishing permitting, monitoring, and other data collection requirements. (*Ibid*.)

## 3.12 Cyanotoxins

For the 2026 California Integrated Report, microcystins, anatoxin, cylindrospermopsin, and saxitoxin data were assessed. All are types of cyanotoxins and are often associated with harmful algal blooms. Cyanotoxin data were compared to OEHHA Cyanotoxin Action Levels (OEHHA 2012), California Cyanobacteria and Harmful Algal Bloom Network ("CCHAB") Trigger Levels (California Water Quality Monitoring Council, 2016), USEPA Drinking Water Health Advisories for Microcystins (USEPA 2015a) and Cylindrospermopsin (USEPA 2015b), and the Oregon Health Authority's ("OHA") public health advisory guidelines (OHA 2019). These evaluation guidelines were used to assess attainment of the REC-1, MUN, and WILD beneficial uses in accordance with the following narrative water quality objective for toxicity:

> All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

Each Regional Water Board basin plan has a narrative water quality objective for toxicity similar to the above. The narrative water quality objective is evaluated by selecting an appropriate numeric evaluation guideline, in accordance with section 6.1.3 of the Listing Policy. Waterbody segments were assessed in accordance with section 3.1 of the Listing Policy: Numeric Water Quality Objectives and Criteria for Toxicants in Water. See the following subsections and Table 3-7: Summary of Evaluation Guidelines used for Cyanotoxins for additional information on the evaluation guidelines used to assess attainment of the beneficial uses.

### *Evaluating the REC-1 Beneficial Use*

The CCHAB Network Trigger Levels are divided into three risk-based tiers: caution (Tier 1), warning (Tier 2), and danger (Tier 3). Swimming is prohibited at the warning level. For anatoxin and cylindrospermopsin, the CCHAB warning levels were used as evaluation guidelines to determine impairment. As an additional level of review, anatoxin and cylindrospermopsin data were also compared to the CCHAB caution levels. Waterbody segments where the cyanotoxin levels exceeded the caution levels but were below the warning levels were further evaluated to determine if additional data or information for the waterbody segment were available that would warrant a “List” Decision, per section 3.11 of the Listing Policy. Waterbody segments where anatoxin and cylindrospermopsin levels were below the CCHAB caution levels were not determined to be impaired. Saxitoxin data were not evaluated for REC-1 beneficial use attainment due to the lack of an applicable evaluation guideline; however, saxitoxin data were evaluated for MUN beneficial use attainment as described below.

### *Evaluating the MUN Beneficial Use*

To evaluate attainment of the MUN beneficial use, the USEPA 10-day Drinking Water Health Advisory for Infants and Young Children thresholds were utilized as evaluation guidelines for microcystins and cylindrospermopsin data. The OHA Drinking Water Guidance Value for children 5 and under were used as evaluation guidelines for anatoxin and saxitoxin. The USEPA has not released drinking water thresholds for anatoxin or saxitoxin; therefore, OHA’s anatoxin and saxitoxin thresholds were chosen for the MUN use because they meet the requirements of Listing Policy section 6.1.3 as an evaluation guideline and OHA followed the USEPA methodology to derive the thresholds.

### *Evaluating the WILD Beneficial Use*

Use of waters by dogs was evaluated using the WILD beneficial use designation using the OEHHA subchronic water intake action level for dogs as the evaluation guideline for microcystin data. While the WILD beneficial use definition does not explicitly include domestic animals, it is the beneficial use which most closely corresponds to the use of surface waters by dogs. The WILD beneficial use reflects the goal of achieving and protecting resources, habitat, and water quality to support the use of water by terrestrial animals, which include dogs. Given the increase in the occurrence of dog deaths from impacts of cyanotoxins throughout the state, evaluating the suitability of waters that are,

and may be, used by dogs is even more important. Until such time as a beneficial use classification is established that more closely encompasses the use of surface waters by dogs, evaluation of attainment of that use will correspond with the WILD beneficial use designation for purposes of developing the 303(d) list.

**Table 1-8: Summary of Evaluation Guidelines ~~u~~Used for Cyanotoxins**

| Beneficial Use | Microcystin (µg/L) | Anatoxin (µg/L) | Cylindro-spermopsin (µg/L) | Saxitoxin (µg/L) |
|---|---|---|---|---|
| **REC-1 Evaluation Guideline** | 6 CCHAB Network Warning Trigger Level | 20 CCHAB Network Warning Trigger Level | 4 CCHAB Network Warning Trigger Level | N/A |
| **REC-1 Weight of Evidence or Watch List Evaluation** | 0.8 CCHAB Network Caution Trigger Level | Detection CCHAB Network Caution Trigger Level | 1 CCHAB Network Caution Trigger Level | N/A |
| **WILD Evaluation Guideline** | 2 OEHHA Action Level Dog Subchronic Water Intake | N/A | N/A | N/A |
| **MUN Evaluation Guideline** | 0.3 USEPA 10-day Health Advisory (infants and young children) | 0.7 Oregon Health Authority Drinking Water Guidance Value (children 5 and younger) | 0.7 USEPA 10-day Health Advisory (infants and young children) | 0.3 Oregon Health Authority Drinking Water Guidance Value (children 5 and younger) |

## 3.13 Sediment Quality Objectives

Statewide sediment quality objectives ("SQOs") were adopted by the State Water Board under Resolutions No. 2018-0028 and 2011-0017 as part of a comprehensive program to protect beneficial uses and benthic communities from direct exposure to pollutants in sediment. To date, data that can be compared to SQOs have not been assessed in the California Integrated Report. To be comparable to the SQOs, data for each sampled

station location must include concurrent measurements of sediment chemistry, toxicity, and benthic community condition (often referred to as “triad” or multiple line of evidence monitoring). Multiple lines of data collected by the San Diego Regional Water Board Harbor Monitoring Program, SCCWRP’s Southern California Bight Regional Monitoring Program, historical site investigations, and past cleanup orders were not available via CEDEN. Those datasets available via CEDEN were missing toxicity or taxonomy data, calculated station assessment scores, or station locations. Entities that collected the data did not express an interest in voluntarily uploading missing data to CEDEN and there were some limitations uploading calculated SQO scores to CEDEN. Therefore, the data were evaluated but not considered readily available for California Integrated Report purposes.

Effort was made to remedy the data discrepancies so the data could be included in the 2024 and 2026 California Integrated Report; however, some datasets were inconsistent, unavailable, or inadequate for assessment this listing cycle. Additionally, CEDEN’s capability to accept station assessment scores has been added.

In the effort to evaluate the data sets and to assess for SQOs, the data sets necessary to conduct SQO assessments were identified. The Santa Ana and San Diego Regional Water Boards are actively assembling data and resolving data discrepancies. The efforts will provide an evaluation of the station data submitted, including quality assurance checks on the raw data and station assessment scores generated, and if applicable and appropriate, resolve data discrepancies, and map the results. Further, coordination with data providers is actively occurring to resolve data inconsistencies. Results will also be screened to identify sites where cleanup actions have occurred to ensure data are appropriately assessed. These efforts will allow for assessments to be conducted in the 2028 California Integrated Report by consistently comparing data to the SQOs for the Santa Ana and San Diego Regions.

## 3.14 Assessing Fish Tissue Data for Waters Not Designated with the Commercial and Sport Fishing Beneficial Use

In some instances, fish tissue data such as mercury and PCBs were assessed for waterbody segments not designated with the Commercial and Sport Fishing (“COMM”) beneficial use in the applicable Regional Water Board Basin Plans. The COMM beneficial use is defined as “the commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.” Data were assessed because evidence supports the conclusion that the beneficial use is occurring. Where pollutant levels exceed water quality objectives for human consumption and there is evidence that the use is occurring, the waterbody segment was placed on the 303(d) list. Where there is no evidence that the use is occurring, data were evaluated but not used to determine beneficial use support. Instead, waterbody segments were placed in category 3 when there were exceedances indicating that the beneficial use may potentially be threatened.

### 3.14.1 Assessment Methodology

Several listing or delisting factors were used to assess fish tissue depending on whether COMM is designated, whether fish consumption is occurring, and whether there are health advisories in place. The following sections describe each assessment approach. Waterbody Fact Sheets for on-cycle regions include the appropriate listing or delisting factor and document any available evidence that the use is occurring.

*Listing Policy Section 3.1 or 3.5 COMM Beneficial Use is Designated*

If the waterbody segment is designated with the COMM beneficial use, the data were assessed using Listing Policy sections 3.1 or 3.5. In some cases, a waterbody segment may not be explicitly designated with the COMM beneficial use; however, the COMM beneficial use may be designated through the tributary rule.

*Listing Policy Section 3.4 Health Advisories*

Listing Policy section 3.4 Health Advisories provides, "A water segment shall be placed on the section 303(d) list if a health advisory against the consumption of edible resident organisms, or a shellfish harvesting ban has been issued by the Office of Environmental Health Hazard Assessment ("OEHHA"), or Department of Health Services and there is a designated or existing fish consumption beneficial use for the segment. In addition, water segment-specific data must be available indicating the evaluation guideline for tissue is exceeded."

If a health advisory exists, the Waterbody Fact Sheet includes specific information about that health advisory specific to the waterbody under evaluation. For example, statewide advisories exist for mercury and PCBs for many fish species in all lakes, reservoirs, rivers, streams and coastal lagoons, and some ocean waters. There are also some waterbody segment-specific health advisories that are based on other pollutants, such as selenium.

Waterbody Fact Sheets include evidence that supports the conclusion that people are consuming fish from the waterbody segment. For the purposes of the integrated report, a presumption is made that if people are fishing, people are also consuming fish. Therefore, evidence that fishing is occurring is sufficient as long as that evidence does not indicate that fishing is limited to catch-and-release. There are many ways to show that fishing is occurring for consumption, the following are a few examples:

- If the waterbody segment was sampled for the SWAMP Bioaccumulation Monitoring Program surveys, which were specifically targeted to waters used for fishing intended for consumption as part of the Safe to Eat Program.
- If the waterbody segment was sampled by another monitoring effort for the purpose of evaluating risks to human from consumption.
- If a fishing derby (that does not solely consist of catch-and-release) takes place in the waterbody segment or other information about local knowledge shows fishing takes place.

- If the waterbody segment is on the California Department of Fish and Wildlife's fish planting schedule or map for the purpose of recreational fishers for consumption and not catch and release sport.
- If a use survey provides evidence of fishing for consumption.

### *Listing Policy Section 3.11 Situation Specific Weight of the Evidence*

The situation specific weight of evidence listing factor described in section 3.11 of the Listing Policy is applied where the COMM beneficial use is not designated, there is no fish consumption advisory in place, there is sufficient information to demonstrate the use is occurring or may occur, or the water quality standard is not attained per antidegradation considerations. When using listing factor 3.11, the waterbody segment would be listed as impaired if fish tissue pollutant levels exceed objectives or evaluation guidelines per the binomial distribution described in Listing Policy section 3.1 for toxicants in water.

The USEPA's regulations implementing the 303(d) listing requirements specify that the term "water quality standard applicable to such waters" to be evaluated for purposes of the 303(d) list "refer[s] to those water quality standards established under section 303 of the Act, including numeric criteria, narrative criteria, waterbody segment uses, and antidegradation requirements." (40 C.F.R § 130.7(b)(3).) As a result, the water quality standards that section 130.7(b)(3) authorizes states to evaluate for the list are not limited to designated beneficial uses but include all waterbody segment uses, as well as water quality objectives and antidegradation requirements. The Water Boards have discretion under section 303(d) and the Listing Policy to evaluate data and information for all waterbody segment uses. (40 C.F.R. § 130.7(b)(3).) Additionally, developing the list shall include antidegradation considerations, including the protection of existing beneficial uses that are not designated. (Ibid.; Listing Policy, p. 1.)

To show that there is sufficient information to demonstrate the use is occurring, Waterbody Fact Sheets include evidence that fishing is occurring for consumption, as described above. Additionally, Waterbody Fact Sheets include justification required by the Listing Policy, as follows:

1. Data or information including current conditions supporting the Decision
2. Description of how the data or information affords a substantial basis in fact from which the decision can be reasonably inferred
3. Demonstration that the weight of evidence of the data and information indicate that the water quality standards is not attained
4. Demonstration that the approach used is scientifically defensible and reproducible

### *Category 3 Placements*

For waterbody segments where COMM is not designated, there is no fish consumption advisory in place, there is insufficient information to demonstrate the use is occurring or may occur, but there are exceedances indicating that the beneficial use may potentially be threatened, the data were evaluated and the waterbody segment placed into

category 3. Category 3 is the “watch list” that indicates the beneficial use may be potentially threatened.

***Data Not Used***

Although all available data were evaluated, it may be appropriate to not use some fish tissue data to determine beneficial use attainment. The following is an example of one such instance where data would not be used:

- COMM is not designated,
- there is no fish consumption advisory in place,
- there is insufficient information to demonstrate the use is occurring or may occur, and
- there’s ~~an~~a valid rulemaking that de-designates the Water Contact Recreation (“REC-1”) beneficial use for the waterbody segment and the only fish tissue data were collected in a manner that would involve water contact consistent with the REC-1 use.

### 3.14.2 Removal of Water Matrix LOEs

LOEs for fish tissue data from waters in the Central Valley and Colorado River Basin regions that were incorrectly labelled as water matrix data were removed and not used to determine if the COMM beneficial use was attained. However, the water matrix data were retained and assessed for attainment of the municipal and domestic supply (“MUN”) beneficial use as, appropriate.

### 3.14.3 Addressing Impairments and COMM Designations

The State Water Board expects that TMDLs or other future actions to address waters on the 303(d) list where the COMM beneficial use is occurring, but not designated, will be undertaken concurrently with or following the designation of the beneficial use in the water quality control plan. In addition, the State Water Board encourages the Regional Water Boards to use their discretion where appropriate in establishing permitting, monitoring, and other data collection requirements for the protection of an existing COMM beneficial use.

The assessment of fish tissue data for the purpose of the integrated report should not be construed as establishing a beneficial use. Establishing a beneficial use (like COMM) is appropriate when the beneficial use is occurring and the water quality is sufficient to protect the beneficial use and has been sufficient to protect the beneficial use since 1975. Some waterbody segments may not have sufficient water quality to protect consumption of some species, such as species that bioaccumulate mercury.

# 4 Previous Cycle Assessment Error Remedies

## 4.1 Data Entry Discrepancy in the 2024 California Integrated Report

Data entry adjustments were made for nine waterbody-pollutant combinations to remedy data entry discrepancies made in CalWQA during the development of the 2024 California Integrated Report. These discrepancies were realized when the 2024 California Integrated Report was submitted to the USEPA through ATTAINS. The nine waterbody-pollutant combinations, listed below in Table 4-1 below**,** were inadvertently placed into Category 4b when the appropriate placement is Category 5 with the indication that the impairment is being addressed by an advance~~d~~ restoration plan. The USEPA reviewed the appropriateness of these category placements and indicated in their letter titled Partial Approval and Partial Disapproval of California's 2024 List of Impaired Waters (https://www.epa.gov/system/files/documents/2024-12/ca-2024-303d-list-epa-partial-approval-disapproval-2024-12-12.pdf) that the most appropriate classification for these nine waterbody-pollutant combinations is category 5, as advance~~d~~ restoration plans, rather than 4b plans, are in place for the nine waterbody-pollutant combinations. These adjustments did not alter or affect the decisions and category classifications in the 2024 California Integrated Report adopted by the State Water Board through Resolution No. 2024-0007. However, CalWQA was updated to reflect the accurate waterbody segment category placement in the 2026 California Integrated Report.

**Table 4-1: Nine Waterbody-Pollutant Combinations with a Data Entry Discrepancy in California's ATTAINS Submittal for the 2024 California Integrated Report**

| Waterbody Segment Name | Waterbody ID | Pollutant Name | Decision ID |
|---|---|---|---|
| San Diego Bay | CAB910100001999021013242 2 | Polychlorinated Biphenyls (PCBs) | 148117 |
| Fitzgerald Marine Reserve at Moss Beach | CAC202210002019010402625 9 | Pathogens | 149885 |
| San Diego Bay Shoreline, at Harbor Island (East Basin) | CAB908210002002123011292 6 | Copper | 148114 |
| San Gregorio Creek (San Mateo County) | CAR202300141998092914433 5 | Sediment | 151338 |

| | | | |
|---|---|---|---|
| San Diego Bay Shoreline, Downtown Anchorage | CAB908210001999021009181 6 | Toxicity | 145493 |
| San Diego Bay Shoreline, Downtown Anchorage | CAB908210001999021009181 6 | Benthic Macroinvertebrates Bioassessments | 145492 |
| San Diego Bay Shoreline, near Chollas Creek | CAB908220001999021010283 1 | Benthic Macroinvertebrates Bioassessments | 148115 |
| San Diego Bay Shoreline, near Chollas Creek | CAB908220001999021010283 1 | Toxicity | 148116 |
| San Vicente Creek | CAR20221012200109051211 28 | Pathogens | 148715 |

## 4.2 Controllable Factors Water Quality Objectives

Water quality objectives are the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or to prevent nuisance within a specific area. (Wat. Code, 13050, subd. (h).) Water quality objectives can be narrative (e.g., waters shall not contain toxic chemicals that impair beneficial uses) or numeric (e.g., the maximum pollutant concentration levels permitted in a waterbody segment). Some water quality objectives contained in water quality control plans also include narrative provisions that state that exceedances shall not be a result of controllable water quality factors or waste discharges (here on out referred to as controllable water quality objectives or controllable factors). The definition of a controllable factor can vary across basin plans. Generally, however, a controllable factor is one that can be influenced or controlled with one or more reasonable management actions or be readily manageable. Examples of controllable water quality objectives include:

- The pH of inland surface waters shall not be raised above 8.5 or depressed below 6.5 as a result of controllable water quality factors.
- At no time shall these WARM-designated waters be raised above 80 °F as a result of waste discharges.

Historically, the source of an exceedance was not identified before determining beneficial use attainment even if the water quality objective included an explicit provision associated with a controllable factor. However, the historical practices are not consistent with the plain meaning of the objectives.

During the development of the 2026 California Integrated Report, all Decisions from previous integrated reports for Regional Water Boards that were on-cycle were reviewed. Decisions were supplemented with evidence that exceedances were due to one or more controllable factors or waste discharges, where data and information were available. If there were appropriate exceedances in accordance with Listing Policy sections 3.1 and 3.2, and the exceedances were due to one or more controllable factors or waste discharges the waterbody-pollutant combination was listed as impaired.

If there was no evidence that an exceedance was due to a controllable source or waste discharge, the waterbody-pollutant combinations were placed in Category 3 indicating that there is insufficient data and/or information to make a beneficial use support determination, but data and/or information indicates beneficial uses may be potentially threatened. Affected Decisions were identified in the Central Valley and Colorado River Basin Water Boards. Ninety Decisions (eighty-five for pesticides, four for temperature, and one for mercury) in the Central Valley were supplemented with evidence that exceedances were due to controllable factors. In the Colorado River Basin, seven turbidity listings were revised to evaluate the narrative objective for turbidity instead of the controllable factors narrative objective for aesthetic qualities, and three temperature decisions were placed into Category 3 due to insufficient data and/or information. Integrated report assessments for all other Regional Water Boards will be re-evaluated the next time that Regional Water Board is on-cycle and assessing data. If data and information can be added to the record on a future integrated report to indicate that the exceedances are due to a controllable factor, that Decision may be revised to demonstrate that the waterbody-pollutant combination is impaired.

## 4.3 Pyrethroids in Sediment Organic Carbon Normalization Error

During the 2020-2022 California Integrated Report, a miscalculation of the organic carbon normalization equations was discovered for two pyrethroids (permethrin and cypermethrin) in the sediment matrix. Since then, data for a third pyrethroid pesticide (deltamethrin) also was determined to have been affected by the organic carbon normalization error. This error affected previous listing cycle CalWQA Decisions in the North Coast, Central Coast, Central Valley, Colorado River, and San Diego Regional Water Boards. Affected CalWQA Decisions for the Central Coast, Central Valley, and San Diego Regional Water Boards were corrected during the 2024 California Integrated Report. For the 2026 California Integrated Report, CalWQA Decisions for the North Coast and Colorado River Water Boards affected by the miscalculation were corrected. Table 4-2, below, provides a summary of the number of CalWQA Decisions corrected during the 2026 California Integrated Report for each waterbody-pollutant combination by Regional Water Board. For the majority of the CalWQA Decisions, the listing status of the waterbody segment for pyrethroids remained unchanged. However, due to sample exceedances of the aquatic life water matrix evaluation guideline, ten of the 45 CalWQA Decisions in the Colorado River Region were listed on the 303(d) list for the 2026 California Integrated Report. See section 3.6 for more information on the assessment methodology for pyrethroids in sediment.

**Table 4-2: Number of CalWQA Decisions Affected by Pyrethroid Pesticide Miscalculated Organic Carbon Normalization Error**

| Decision Pollutant | North Coast Region | Colorado River Region |
|---|---|---|
| Pyrethroids | 8 | 12 |
| Permethrin | 7 | 9 |
| Cypermethrin | 7 | 12 |
| Deltamethrin | 7 | 12 |
| Total | 29 | 45 |

## 4.4 Interpretation of Listing Policy Section 6.1.4 for QAPP Requirements

In accordance with section 6.1.4 of the Listing Policy, data supported by a QAPP, QAPP-equivalent documentation, or from major monitoring programs in California are considered of adequate quality and acceptable for use **by itself** in developing the 303(d) list. ~~**Regarding data from major monitoring programs, s**~~**S**ection 6.1.4 states **in relevant part**:

> **Even though all data and information must be considered, the quality of the data used in the development of the section 303(d) list shall be of sufficient high quality to make determinations of water quality standards attainment. Data supported by a Quality Assurance Project Plan (QAPP) pursuant to the requirements of 40 CFR 31.45 are acceptable for use in developing the section 303(d) list.**
>
> The data from major monitoring programs in California and published U.S. Geological Survey (USGS) reports are considered of adequate quality. The major programs include SWAMP, the Southern California Bight Projects of the Southern California Coastal Water Research Project, U.S. EPA's Environmental Monitoring and Assessment Program, the Regional Monitoring Program of the San Francisco Estuary Institute, and the [Bay Protection and Toxic Cleanup Program].
>
> **Data without rigorous quality control can be used in combination with high quality data and information. If the data collection and analysis is not supported by a QAPP (or equivalent) or if it is not possible to tell if the data collection and analysis were supported by a QAPP (or equivalent), then the data and information should not be used by itself to support listing or**

**delisting of a water segment. All data of whatever quality can be used as part of a weight of evidence determination (sections 3.11 or 4.11).**

~~This text~~ **The list of "major monitoring programs"** has historically been construed as a non-exclusive list of the major monitoring programs from which data would be considered of adequate quality. Therefore, data from other major monitoring programs in California, in addition to those identified under section 6.1.4, historically were considered of adequate quality~~.~~ **to be used by itself to support listing or delisting of a water segment.** The 2024 303(d) List contains Decisions that rely on data submitted by approximately seven data providers for which staff had not verified whether the data were supported by a QAPP.

In approving the 2024 303(d) List by Resolution No. 2024-0007 (https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2024_integrated_report/rs2024-0007.pdf), the State Water Board directed staff to verify the existence of QAPPs acceptable for use (i.e., satisfy the minimum elements set forth in section 6.1.4) to support new 2024 303(d) List Decisions for data submitted by monitoring programs not explicitly identified in section 6.1.4 by September 2024, and update Waterbody Fact Sheets with the documentation in a future listing cycle. If any such data set is not verified as being supported by a QAPP, the Decision will be revised as needed no later than the 2028 listing cycle to ensure that such data set is not used by itself to support a Decision.

As of September 2024, staff have verified the existence of QA Documents for the identified data providers (ten individual data sets) that were identified as major monitoring programs and did not have QAPPs associated with the data. The QA documentation for six of the ten data sets meets the requirements of section 6.1.4 of the Listing Policy. The remaining four are under review to determine compliance with these requirements. A status update of the QAPP verification process for the 2024 California Integrated Report is outlined in the following memo: 2024 Integrated Report – 2024 Cycle Resolution – Item 12 (https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/docs/2024-misassigned-qapps-memo.pdf).

For the 2026 303(d) List, the above-quoted excerpt from section 6.1.4 is interpreted as setting forth ~~the~~ **an** exclusive list of "major monitoring programs" for which data submitted by those programs ~~will~~ **are automatically considered to** be ~~deemed~~ of adequate quality~~, departing from the historical interpretation of~~ **because State Water Board staff are already aware** that ~~provision~~ **they are supported by adequate QAPPs.** That means that all data submitted by a monitoring program that is not explicitly listed in Listing Policy section 6.1.4 must be supported by a QAPP for that data by itself to support a Decision for a water segment. Moreover, beginning with the 2026 303(d) List, ~~even though data used from~~ **staff will continue to confirm that** the listed major monitoring programs are ~~considered to be of adequate quality,~~ **supported by** QAPPs~~to support the data were verified~~. This shift in ~~interpretation and~~ implementation furthers ongoing efforts to continuously improve the data quality of

the integrated report. A list of the datasets and associated QAPPs from the 2026 data solicitation is available in Appendix H: References Report.

## 4.5 Mapping Corrections in the Central Coast Region

The Central Coast Regional Water Quality Control Board was “off-cycle” for the 2026 California Integrated Report. No new data were assessed for the Central Coast Region. However, mapping changes, both spatial and name changes/corrections, beneficial use corrections, and station association corrections were made.

See Table 4-3: Mapping Corrections Resulting in a Decision Change for a summary of the “List” and “Delist” Decision changes.

### 4.5.1 Mapping Changes

Please see Appendix G: Miscellaneous Changes Report for a summary of the mapping changes made during the 2026 cycle.

### 4.5.2 Beneficial Use Corrections

There were several waterbody segments that were incorrectly assigned beneficial uses. These uses were corrected, and the LOEs associated with those incorrectly assigned beneficial uses were retired.

- Arroyo De La Cruz Lagoon
  - The Agricultural Supply (“AGR”), MUN, and WARM beneficial uses were incorrectly assigned to this waterbody segment. The beneficial uses were unassigned, LOEs retired, and Decisions remade.
  - No “List” or “Delist” Decisions resulted from these changes.
- Waddell Creek Lagoon
  - The AGR, MUN, and WARM beneficial uses were incorrectly assigned to this waterbody segment. The beneficial uses were unassigned, LOEs retired, and Decisions remade.
  - These changes resulted in “Delist” Decisions for arsenic, chloride, and sodium.
- Los Osos Creek Estuary
  - The AGR and MUN beneficial uses were incorrectly assigned to this waterbody segment. The beneficial uses were unassigned, LOEs retired, and Decisions remade.
  - No “List” or “Delist” Decisions resulted from these changes.

### 4.5.3 Station Association Correction

For Salsipuedes Creek (Santa Cruz County), staff corrected 167 LOEs that were originally identified as monitoring station 305COR but should have been identified as 305SAL. Data collected by the Cooperative Monitoring Program at the monitoring

station formerly named 305COR were collected from a location that is approximately 1,500 meters upstream. To correct this issue, the Cooperative Monitoring Program requested a monitoring station code change in CEDEN for these data, which resulted in the need to revise the LOEs. These corrections did not result in any Decision changes.

For other station corrections that resulted in Decision changes, please see Table 4-3.

**Table 4-3: Mapping Corrections Resulting in a Decision Change**

| Waterbody Segment Name | Pollutant Name | Reason for Correction | Status |
|---|---|---|---|
| Pacific Ocean Shoreline at Refugio Beach (Santa Barbara County) | Enterococcus | Station WP0000183 was erroneously associated with Pacific Ocean at Arroyo Quemada Beach (Santa Barbara County) during the 2020-2022 cycle. This station should have been associated with Pacific Ocean at Refugio Beach (Santa Barbara County). This 2026 Decision correctly associated site WP0000183 with Pacific Ocean at Refugio Beach (Santa Barbara County). This resulted in a "List" Decision for Pacific Ocean at Refugio Beach (Santa Barbara County) and a "Delist" Decision for Pacific Ocean at Arroyo Quemada Beach (Santa Barbara County). | "List" |
| Pacific Ocean Shoreline at Arroyo Quemada Beach (Santa Barbara County) | Enterococcus | Site WP0000183 was removed from Pacific Ocean at Arroyo Quemada Beach and correctly associated with Pacific Ocean at Refugio Beach (Santa Barbara County). With the removal of station WP0000183, this waterbody segment resulted as a "Delist" Decision as there were no data to indicate there was an impairment. | "Delist" |
| Pacific Ocean Shoreline at East Beach (mouth of Sycamore Creek, Santa Barbara County) | Total Coliform | Total coliform is no longer being used to evaluate attainment of the REC-1 beneficial use in ocean waters. The Decision for the SHELL beneficial use~~.~~ remained "Delist." | "Delist" |

| | | | |
|---|---|---|---|
| Pacific Ocean Shoreline at Gaviota Beach (mouth of Canada de la Gaviota Creek, Santa Barbara County) | Total Coliform | Total coliform is no longer being used to evaluate attainment of the REC-1 beneficial use in ocean waters. The Decision for the SHELL beneficial use ~~remains.~~ remained "Delist." | "Delist" |
| Waddell Creek Lagoon | Arsenic | The LOE with the MUN beneficial use was removed from this waterbody segment as the MUN beneficial use designation for this waterbody segment was assigned in error and has been corrected. | "Delist" |
| Waddell Creek Lagoon | Chloride | LOEs with the AGR use were removed from this waterbody segment as the AGR beneficial use designation for this waterbody segment was in error and has been corrected. | "Delist" |
| Waddell Creek Lagoon | Sodium | LOEs with the AGR beneficial use were removed from this waterbody segment as the AGR beneficial use designation for this waterbody segment was in error and has been corrected. | "Delist" |

# 5 North Coast Regional Water Board

The North Coast Regional Water Quality Control Board was "on-cycle" for the 2026 California Integrated Report. Data were assessed from a total of 173 waterbody segments, containing 4,83~~3~~2 waterbody-pollutant combinations. Based on these assessments ~~77~~ 71 waterbody-pollutant combinations are to be added to the 303(d) list ~~and~~ 13 9 waterbody-pollutant combinations are to be removed from the 303(d) list. Selected assessments specific to the North Coast Regional Water Board are described in the following subsections.

## 5.1 Mapping of Ocean Waterbody Segments

For the 2026 California Integrated Report, 12 new ocean waterbody segments were mapped for the North Coast Region. Prior to this cycle, no ocean waterbody segments for the North Coast Region had been mapped. In some instances, data collected from the Pacific Ocean were associated with a beach or reach of coastline (e.g., indicator bacteria at a specific beach). In some instances, ocean data submitted were unable to

be assessed properly. With the addition of these waterbody segments, the Water Boards evaluated available ocean data for the entirety of the Pacific Ocean off the North Coast Region's coast within the state's 3-mile jurisdictional boundary.

The ocean waterbody segments were delineated by pulling the boundary extents from the North Coast Region's hydrologic units, as defined in the 2018 Water Quality Control Plan for the North Coast Region (https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/190204/Final%20Basin%20Plan_20180620_lmb.pdf), into California's three-mile state territorial waters.

The beneficial uses for each waterbody segment were determined using Table 2-1: Beneficial Uses of Waters of the North Coast Region for ocean waters in the 2018 Water Quality Control Plan for the North Coast Region. The full list of ocean waterbody segments and their Waterbody IDs can be seen below in Table 6-1.

State Water Board staff queried CEDEN to determine if any readily available data and information were available for the newly mapped ocean waterbody segments for the 2026 California Integrated Report. Fish tissue data collected from the Pacific Ocean Smith River HU were evaluated but it did not meet the necessary data quality criteria per the Listing Policy to be assessed at this time.

Ocean acidification data were available for assessment, as detailed below in section 6.2 Ocean Acidification Assessments.

**Table 5-1: Newly Mapped Ocean Waterbody Segments in the North Coast Region**

| Waterbody Segment Name | Waterbody ID |
|---|---|
| Pacific Ocean Winchuck River HU | CAO1031100020240808036613 |
| Pacific Ocean Smith River HU | CAO103110002024073004O982 |
| Pacific Ocean Klamath River HU | CAO10511080202407300376 33 |
| Pacific Ocean Redwood Creek HU | CAO1071002020240730039449 |
| Pacific Ocean Trinidad HU | CAO1091003020240730047886 |
| Pacific Ocean Mad River HU | CAO109100102024073003 7184 |
| Pacific Ocean Eureka Plain HU | CAO1106000020240726051322 |
| Pacific Ocean Eel River HU | CAO1111103020240730038176 |
| Pacific Ocean Cape Mendocino HU | CAO1123008020240725054507 |

| | |
|---|---|
| Pacific Ocean Mendocino Coast HU | CAO1131102020240730055069 |
| Pacific Ocean Russian River HU | CAO1139000020240730040561 |
| Pacific Ocean Bodega HU | CAO1139000020240725055568 |

## 5.2 Ocean Acidification Assessments

For the 2026 California Integrated Report, data from ocean waters within the boundaries of the North Coast Regional Water Board were evaluated to determine if waterbody segments were impaired due to ocean acidification ("OA"). The OA data were assessed using the situation-specific weight of evidence listing factor in section 3.11 of the Listing Policy to determine support of the Marine Habitat beneficial use. Beneficial use attainment was assessed instead of objective attainment because there is no current applicable objective in the Ocean Plan for aragonite saturation data. The Ocean Plan water quality objective specifies that marine communities shall not be degraded by discharges. While anthropogenic discharges of nutrients to California's ocean waters and carbon air emissions are likely causes of OA, dischargers have not been definitely determined to be causing or contributing to OA.

Ultimately, the requisite conditions under section 3.11 of the Listing Policy could not all be satisfied to support "List" Decisions as there were no biological information available to definitively ascertain whether severe dissolution of shelled species occurred (see section 5.2.3, below). Assessment of the chemistry data available indicated the data and/or information were insufficient to make a beneficial use support determination based on the evaluation guideline noted below in section 5.2.1.

### 5.2.1 Evaluation Guideline

Aragonite saturation state is an indicator for OA impairment as it measures acidity-related impacts on marine life. In Bednaršek 2014, it is noted that "ocean acidification results in the lowering of aragonite saturation levels in the surface layers, and several incubation studies have shown that rates of calcification in these organisms decrease as a result" (Bednaršek 2014). When rates of calcification decrease, there is reduced growth of shell species (pteropods), shell dissolution and thinning, and an increase in pteropod deaths. Thus, the aragonite saturation state of a waterbody segment can be used as an indicator for marine habitat impacts due to OA.

Aragonite saturation state is not measured by a unit, but rather represented by the metric, "omega aragonite," notated as $\Omega_{ar}$. The mean omega aragonite saturation state is calculated as the product of the concentrations of dissolved calcium and carbonate ions in ocean water divided by their product at equilibrium (equation below) (Zeebe, 2003).

$$\Omega_{ar} = ( [Ca2+] \times [CO3\ 2-] ) / [CaCO3]$$

A mean omega aragonite saturation state threshold of 1.4 was used to evaluate data based off research from SCCWRP, including a paper by Nina Bednaršek in 2019 (Bednaršek 2019) and a study from Oregon State University (McLaughlin, 2015). A threshold below 1.4 in a waterbody segment would indicate potential impairment due to OA.

In Bednaršek 2019, thresholds between 0.9 and 1.5 were found to indicate severe to mild shell dissolution of pteropods, with potential impairment indicated at approximately 1.2 ± 0.1 (for an overall threshold of 1.3) or below. Severe shell dissolution of pteropods indicates an impairment to the overall marine habitat. Continued studies at various stages within the pteropod life cycle have demonstrated dissolution at 1.0, 1.2, 1.25, and 1.5. Waterbody segments with aragonite saturation state levels <1.0 are considered undersaturated and may have severe dissolution (Mekkes, 2021). In future listing cycles, defining evaluation guidelines for likely impairment versus potential impairment with the varying aragonite saturation states will be considered.

An additional study conducted by Oregon State University concluded that the “maximum uncertainty of ±0.2 in the calculation of mean omega aragonite saturation state is required to adequately link changes in ocean chemistry to changes in ecosystem function” (McLaughlin 2015). Thus, the mean omega aragonite saturation state of 1.4, (1.2 ± 0.2) is considered to be a more accurate reflection of potential OA impairment.

Data collected from a depth range of 0-200 m were used to evaluate aragonite saturation state data per analyses conducted by SCCWRP and the National Oceanic and Atmospheric Administration (“NOAA”) (Bednaršek 2014).

### 5.2.2 Data Assessed

Only data within the territorial marine waters of the state as defined by law (i.e., three nautical miles off the continental and island coastlines) were assessed. (Govt. Code, § 170.)

No new ocean acidification data or information were received during the data solicitation period for the 2026 California Integrated Report. Water Boards staff consulted with researchers at NOAA and SCCWRP to acquire mean omega aragonite saturation state data with varying geographic locations along California’s coastline. This includes data from the West Coast Ocean Acidification NOAA Cruises from 2011, 2013, and 2021.

Data were evaluated using the following steps:

1. Continuous mean omega aragonite saturation state data from the same day at each station were averaged to a single sample point.
2. Samples from the same station within 7-days were averaged per section 6.1.5.6 of the Listing Policy.
3. Exceedances of a waterbody segment were noted if averaged samples were less than or equal to the mean omega aragonite saturation state threshold of 1.4.

4. Mean omega aragonite saturation state samples and exceedances were evaluated using the Binomial Table for Conventional Pollutants in Listing Policy section 3.2.
5. Within CalWQA, the pollutant name for the mean omega aragonite saturation state calculation was identified as “Omega Aragonite.”

As a result of this data assessment, two waterbody segments were placed in Category 2, Pacific Ocean Cape Mendocino HU and Pacific Ocean Smith River HU, due to an insufficient number of samples to make an assessment.

### 5.2.3 Data Gaps and Future Assessments

Before determining an ocean waterbody segment as impaired for OA using aragonite saturation state as an evaluation guideline using section 3.11 of the Listing Policy, further research is needed to increase confidence that the data assessed reflects waterbody segment conditions. Throughout 2023 and 2024, Water Boards staff coordinated with SCCWRP, NOAA, as well as an interstate workgroup known as the Ocean Acidification and Hypoxia Technical Workgroup (https://www.oregon.gov/deq/wq/Documents/ir2024oahWGoverview.pdf) to evaluate appropriate biological indicators for aragonite saturation state, surface water depths for assessment, and various strategies for OA assessment.

While many assessment methodology process questions were evaluated by the interstate workgroup, biological data to determine habitat compression, loss, and dissolution rates of pteropods in California ocean waters were not available for assessment. If biological data become available in the future, the data may be used for assessments if provided in accordance with the submission guidelines in the data solicitation notice and meet all quality assurance requirements in the Listing Policy. Additional metrics and data sources are being considered for OA assessments in future listing cycles that will utilize biological data. These include model outputs from SCCWRP using the Regional Ocean Modeling System + Biogeochemical Elemental Cycling (“ROMS-BEC”) model, which may be used once the peer review and validation process has been completed. An Independent Review Panel (https://www.nwri-usa.org/socal-coastal-model-review) for the ROMS-BEC model was established in 2023 to evaluate the validity and uncertainty of the model associated with addressing management questions. The final report from this panel was published in October 2024. Additional efforts are currently underway to validate the data used in the model for quality assurance purposes as well. The ROMS-BEC model output results are expected to improve the understanding of waterbody segment conditions estimating acidity, hypoxia, and habitat compression. Additional ROMS-BEC model outputs may also illustrate the pre-industrial baseline for aragonite saturation state to compare against modern levels.

## 5.3 Russian River Bacteria Data Reassessment

Consistent with State Water Board Resolution No. 2020-0039, adopting resolution for the 2018 California Integrated Report, bacteria data collected from 12 subwatersheds of

the Russian River watershed were reassessed. During the development of the 2018 California Integrated Report concerns were raised with some assessments. Therefore, the bacteria assessments for the Russian River waterbody segments remained as adopted in the 2014/2016 California Integrated Report to provide adequate time for the data to be reassessed. All bacteria data from previous integrated reports, or new data submitted prior to the data solicitation cutoff date for the 2026 California Integrated Report were assessed consistent with the methodology outlined in section 3.10 Bacteria and REC-1 beneficial use.

In accordance with section 6.1.5.3 of the Listing Policy, data should be representative of the critical timing that the pollutant is expected to impact the waterbody. Lacking constant inputs, indicator bacteria do not persist in the environment for a long period and effects are of relatively short duration. Because recent bacteria data are a better indicator of current risks to human health, data collected on or after October 21, 2012 (i.e., data collected less than 10 years from the 2026 data solicitation cutoff date), were compared with the ISWEBE Plan bacteria water quality objectives. For previously assessed waterbody segments without data collected after October 21, 2012, data collected before that date were used to compare to the water quality objectives. As the ten-year assessment window shifts with each California Integrated Report cycle, waterbody segments may be put on the 303(d) list in a future assessment.

For the 2026 California Integrated Report, the REC-1 beneficial use was assessed by analyzing Enterococcus samples collected from saline sampling stations at the mouth of the Russian River and *E. coli* samples collected from freshwater sampling stations in the remainder of the Russian River watershed.

Table 5-2 summarizes the outcomes of reassessments for indicator bacteria in the Russian River hydrologic unit. Table 5-2 also details the changes in the extents of the waterbody segments from the 2014/2016 California Integrated Report to the 2026 California Integrated Report.

**Table 5-2: Russian River Hydrologic Unit Reassessment and Segment Extent Changes**

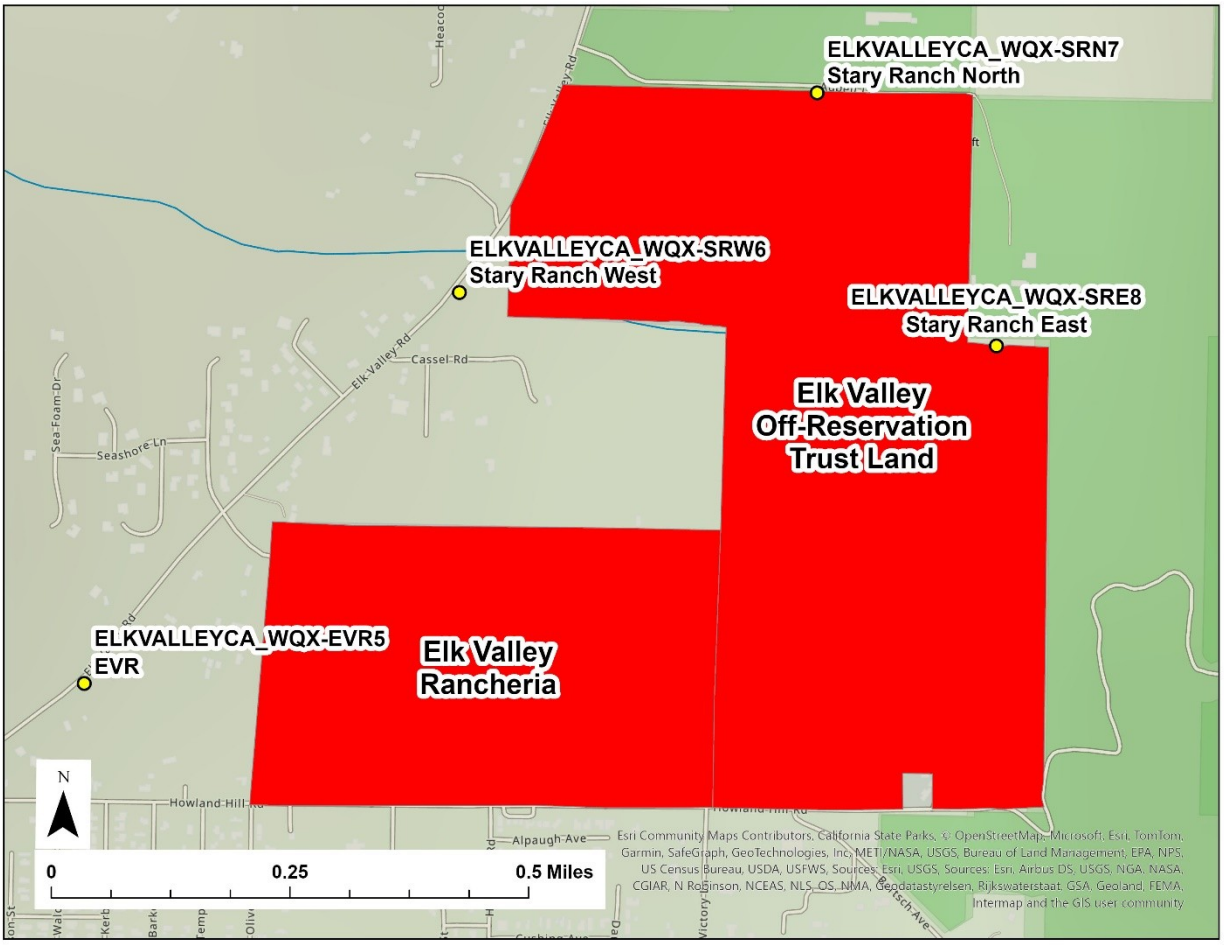
| Waterbody Name | 2014/2016 Decision | 2014/2016 Waterbody Segment Extent | 2026 Decision | 2026 Waterbody Segment Extent |
|---|---|---|---|---|
| Russian River HU, Lower Russian River HA, Guerneville HSA | "List" | (1) the mainstem Russian River at Healdsburg Memorial Beach from the railroad bridge to the Highway 101 bridge, (2) the mainstem Russian River from Fife Creek to Dutch Bill Creek, and (3) the mainstem of Dutch Bill Creek. | "List" | Mainstem Russian River from 200 meters upstream of Monte Rio Beach to 200 meters downstream of Monte Rio Beach |
| Russian River HU, Lower Russian River HA, Guerneville HSA, Green Valley Creek watershed | "List" | Entire waterbody segment | "List" | Mainstem Green Valley Creek |
| Russian River HU, Middle Russian River HA, Geyserville HSA | "List" | Stream 1 on Fitch Mountain | "Do Not List" | Not Applicable |
| Russian River HU, Middle Russian River HA, Laguna HSA, mainstem Laguna de Santa Rosa | "List" | Entire waterbody segment | "List" | Entire waterbody segment |

| Waterbody Name | 2014/2016 Decision | 2014/2016 Waterbody Segment Extent | 2026 Decision | 2026 Waterbody Segment Extent |
|---|---|---|---|---|
| Russian River HU, Middle Russian River HA, Laguna HSA, tributaries to the Laguna de Santa Rosa (except Santa Rosa Creek and its tributaries) | "List" | Entire waterbody segment | "Do Not List" | Not Applicable |
| Russian River HU, Middle Russian River HA, Santa Rosa HSA, mainstem Santa Rosa Creek | "List" | Entire waterbody segment | "List" | Entire waterbody segment |
| Russian River HU, Middle Russian River HA, Santa Rosa HSA, tributaries to Santa Rosa Creek | "List" | Entire waterbody segment | "Do Not List" | Not Applicable |
| Russian River HU, Middle Russian River HA, Warm Springs HSA | "Do Not List" | Not Applicable | "List" | Foss Creek |

## 5.4 Smith River Hydrologic Unit~~, Elk River Watershed Update~~ Updates

Data were submitted for the Smith River HU, Elk Creek Watershed that were attributed to four sampling stations: "EVR," "Stary Ranch West," "Stary Ranch North," and "Story Ranch East." (See Figure 5-1 below for a map of the sampling stations in the Smith River HU, Elk Creek Watershed.) These sampling stations are located along the perimeter of Elk Valley Rancheria and the Elk Valley Off-Reservation Land Trust and are not within receiving waterbody segments. Data that are not collected from receiving waters are not used to determine beneficial use support. Therefore, these data were removed, which comprised of all the data for Smith River HU, Elk Creek Watershed. Without data to assess, data in LOEs created for the 2018 and 2026 California Integrated Report were removed and the Decisions retired. The station information for these four sampling stations have been updated so they will not generate LOEs in future listing cycles.

**Figure 5-1: Smith River Hydrologic Unit, Elk Creek Watershed Sampling Stations**




**Errors were found for the Smith River HU during the review of data after the public comment period. The draft 2026 303(d) List proposed several waterbodies within the Smith River HU as impaired for diuron, temperature, and dissolved oxygen. During further evaluation, it was determined that some samples for diuron exceeded holding times, were of inadequate quality, and therefore were excluded from the assessment. Listing Policy section 6.1.4 states that "even though all data and information must be considered, the quality of the data used in the development of the section 303(d) list shall be of sufficient high quality to make determinations of water quality standards attainment." Diuron data collected from waterbodies in the Smith River HU on 1/25/2020 and 1/26/2020 did not meet quality assurance requirements because sample blanks were contaminated and analysis holding times exceeded the maximum limit. As a result, the data were unreliable and were rejected.**

**Additionally, the temperature and dissolved oxygen assessments were erroneously based on water quality objectives that support salmonid spawning where salmonids do not spawn in the areas the samples were collected. The samples were reassessed usingwater quality objectives that support juvenile and adult salmonid migration. Based on the outcomes of the reassessments, the**

**decisions were corrected from "List" on the 303(d) list to "Do Not List." The following provides additional details.**

- ***Smith River HU, Morrison Creek (Decision ID 158044.)*** **Samples collected on 1/25/2020 at Smith River HU, Morrison Creek sampling locations at (1) Morrison Creek at S Fred Haight Rd and (2) Morrison Creek upstream Highway 101 were excluded due to data quality issues described above. For the COLD beneficial use, LOE IDs 324740 and 324721 were revised. For the MUN beneficial use, LOE IDs 324729 and 324742 were revised. Decision ID 158044 was changed from "List" to "Do Not List."**
- ***Smith River HU, Ritmer Creek (Decision ID 158355.)*** **Samples collected on 1/25/2020 and 1/26/2020 at Smith River HU, Ritmer Creek sampling locations at (1) Ritmer Creek at Ocean View Drive and (2) Ritmer Creek downstream Highway 101 were excluded due to data quality issues described above. For the COLD beneficial use, LOE IDs 324731 and 324732 were revised. For the MUN beneficial use, LOE IDs 324739 and 324718 were revised. Decision ID 158355 was changed from "List" to "Do Not List."**
- ***Smith River HU, Rowdy Creek (Decision ID 157884.)*** **Samples collected on 1/25/2020 at Smith River HU, Rowdy Creek sampling locations at (1) Rowdy Creek at Highway 101 and (2) Rowdy Creek at South Fred Haight Drive were excluded due to data quality issues described above. For the COLD beneficial use, LOE IDs 324720 and 324722 were revised. For the MUN beneficial use, LOE IDs 324723 and 324734 were revised. Decision ID 157884 remains "Do Not List."**
- ***Smith River HU, Smith River watershed (Decision ID 157059.)*** **This decision was based on two samples collected on 1/25/2020 at Smith River HU, Smith River watershed sampling locations at (1) Mello Creek at Fred Haight Drive and (2) Mello Creek upstream Rose Lane. Both were excluded due to data quality issues described above. Due to no data, LOE IDs 324717 and 324746 for the COLD beneficial use and LOE IDs 324719 and 324737 for the MUN beneficial use were removed. Since they were the only data points, the decision was also removed.**
- ***Smith River HU, Smith River Estuary*** **(Decision ID 157079) LOE ID 329292 assessed for the lethal temperature at 20°C for the fish spawning and reproduction ("SPWN") beneficial use. However, the sampling location (41.91353, -124.1713) is not located where salmonids would spawn due to brackish water and an unsuitable substrate. The data were reassessed using the lethal temperature threshold of 24°C for juvenile and adult fish migration, resulting in the COLD beneficial use being fully supported. Decision ID 157079 was revised from "List" to "Do Not List."**

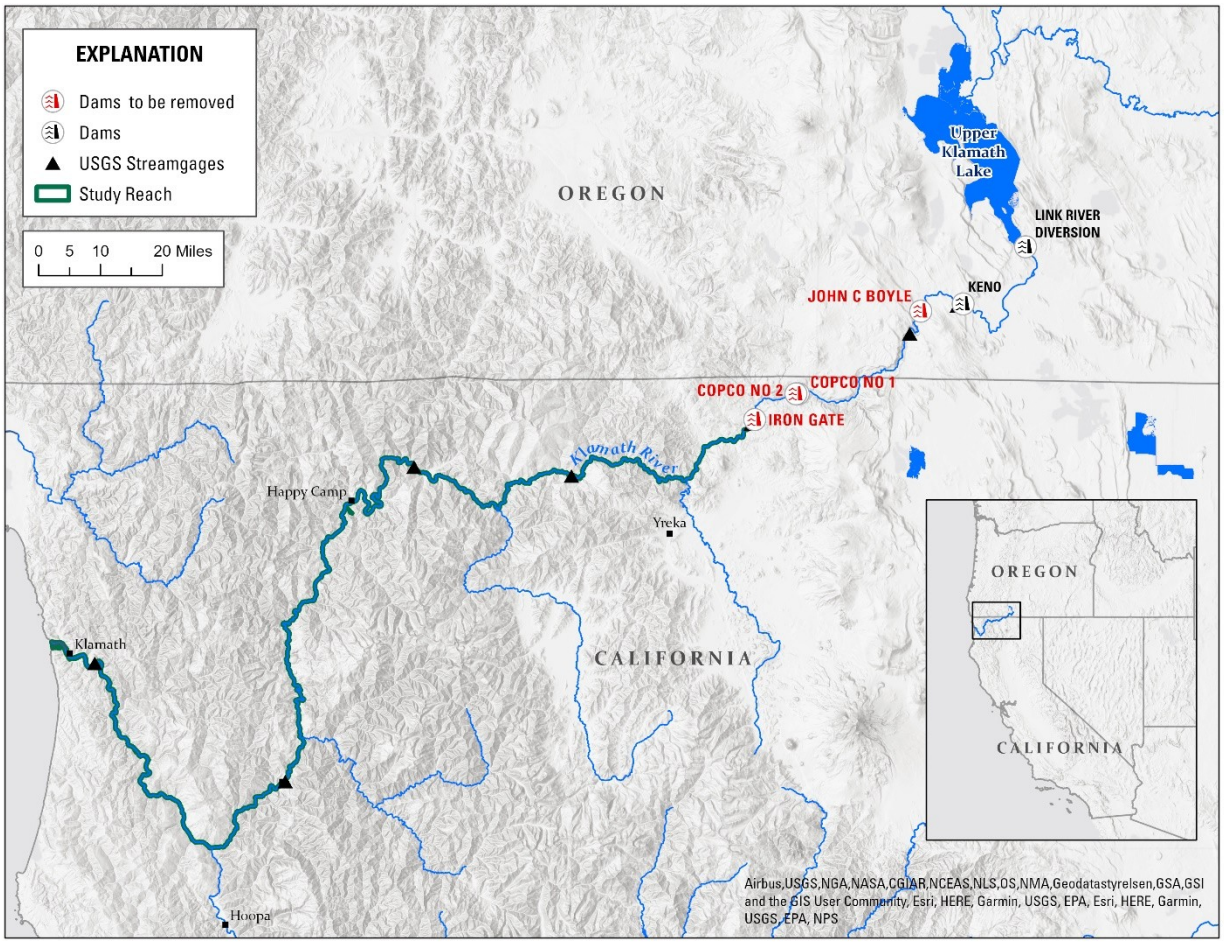
- ***Smith River HU, Tillas Slough*** **(Decision ID 156786) LOEs were assessed for dissolved oxygen for the SPWN beneficial use (9 mg/L). However, the sampling locations (41.93313, -124.19067 and 41.93211, -124.18725) are not located where salmonids would spawn due to brackish water and an unsuitable substrate. The data were reassessed using the water quality objective for the COLD beneficial use (6 mg/L). LOE IDs 318659 and 318661 were revised. LOE ID 101090 from the 2018 California Integrated Report was replaced with LOE ID 357945. LOE 101296 was retired because it contained duplicate data as LOE ID 101261. Decision ID 156786 was revised from "List" to "Do Not List."**

## 5.5 Klamath River Dam Removal Update

Four dams on the Klamath River were removed during 2023 and 2024, as shown below in Figure 5-2. JC Boyle dam is in Oregon and Iron Gate, Copco 1, and Copco 2 dams are in California. The dam removals have had and will continue to have a significant impact on Klamath River hydrology and water quality, temporarily and on a long-term basis.

Data evaluated for the 2026 Integrated Report were collected prior to the data solicitation cut-off date of October 21, 2022. The goal of assessing data is to determine if water quality standards are attained or not attained in the water segment under consideration. Data and information should be as representative as possible of true conditions of the water body. All data from the Klamath River mainstem and reservoirs applicable to all pollutants were evaluated but not assessed for the 2026 California Integrated Report because pre-dam removal data do not reflect current water quality conditions. Data collected and submitted after the drawdowns and dam removals will be assessed in a future California Integrated Report. This approach is consistent with section 6.1.5.3 of the Listing Policy, which states that "[i]f the implementation of a management practice(s) has resulted in a change in the waterbody segment, only recently collected data [since the implementation of the management measure(s)] should be considered." The Klamath River waterbody segments will be remapped in a future listing cycle to reflect the removal of the dams.

**Figure 5~~-1:~~-2: Map of Removed Dams on the Mainstem Klamath River**




*Map created by Whitney Seymour, Geographer at the USGS California Water Science Center*

While data for the Klamath River mainstem and reservoirs were not assessed for all pollutants, data for tributaries to the mainstem Klamath River were assessed, resulting in a “List” Decision for turbidity impacts to the Municipal and Domestic Supply beneficial use in Bogus Creek, which is in the Klamath River HU, Middle HA, Iron Gate Dam to Scott River waterbody segment. In addition, there are four Decisions that appear as new “List” Decisions; however, these Decisions are consistent with the 2018 California Integrated Report with the exception of the pollutant names being updated. See Table 5-3 below for Decisions with new pollutant names.

**Table 5-3: Klamath River Hydrologic Unit Decisions with New Pollutant Names**

| Waterbody Segment Name | 2018 Pollutant Name | 2026 Pollutant Name |
|---|---|---|
| Klamath River HU, Middle HA, Oregon to Iron Gate | Cyanobacteria hepatotoxic microcystins | Microcystins |
| Klamath River HU, Middle HA, Iron Gate Dam to Scott River | Cyanobacteria hepatotoxic microcystins | Microcystins |
| Klamath River HU, Middle HA and Lower HA, Scott River to Trinity River | Cyanobacteria hepatotoxic microcystins | Microcystins |
| Klamath River HU, Lower HA, Klamath Glen HSA | Sedimentation/Siltation | Sediment |

## 5.6 North Coast Ocean Beaches Trash Assessment

For the 2026 California Integrated Report, trash data submitted by the Stanford Environmental Law Clinic from Clam Beach (near Strawberry Creek) and Eureka Plain HU, Humboldt Bay, North Jetty were evaluated to determine if the waterbody segments were impaired for the non-contact recreation ("REC-2") beneficial use described in the North Coast Region Basin Plan. Section 2 of the North Coast Region Basin Plan defines the REC-2 beneficial use as "Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities." For Clam Beach (near Strawberry Creek), the REC-2 beneficial use was evaluated using the California Ocean Plan narrative objective. For Eureka Plain HU, Humboldt Bay, North Jetty, the REC-2 beneficial use was evaluated using a North Coast Region Basin Plan narrative objective for floating materials. Section II of the Ocean Plan contains a narrative trash water quality objective that states, "Trash shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance." Chapter 3 of the North Coast Region Basin Plan contains a narrative objective for floating materials that states, "Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses."

The data submitted by the Stanford Environmental Law Clinic were not suitable for assessing beneficial use attainment due to inadequate data quality and lack of spatial detail to discern the area that was surveyed. Section 2.2.2 Data and Information Quality Review and section 6.1.4 of the Listing Policy outline the integrated report data quality assessment process. The trash data were collected during volunteer clean-up days by

individual groups and were reported two ways: 1) individual trash count by type, and 2) trash weight collected. Each group reported an individual geographic coordinate set along with collection data. Group trash data were then tallied using a singular geographic coordinate set for each beach. Because the distances cleaned were estimated by the individual groups and multiple individual groups were collecting data on the same day, the amount of trash (count or weight) per area is uncertain. Additionally, assessing trash by weight is problematic as trash like bottles can trap water and/or sand thus skewing the trash results to estimate more trash than present on the beach.

The QAPP equivalent document submitted with these data indicated that each data collection group was sent out with data cards on which volunteers recorded trash collection data, that the data cards were not checked for accuracy, and that the submitted data were viewed as estimates of trash.

Despite not using these data to make a beneficial use support determination, the presence of trash on these coastlines indicates that the REC-2 beneficial use may be potentially threatened. Accordingly, the trash Decisions for these waterbody-pollutant combinations state that beneficial uses are potentially threatened. As a result, Clam Beach (near Strawberry Creek) and Eureka Plain HU, Humboldt Bay, North Jetty were placed in Category 3.

## 5.7 North Coast Region 303(d) "List" and "Delist" Decisions

There are ~~77~~ 71 new "List" Decisions for waterbody-pollutant combinations in the North Coast Region and ~~13~~ 9 new "Delist" Decisions for waterbody-pollutant combinations. If approved by the USEPA as recommended, the North Coast Region's 303(d) list would be revised to have a total of 27~~8~~ ~~1~~ waterbody-pollutant combinations on the 303(d) list. Tables 5-4 and 5-5 below summarize new "List" and "Delist" Decisions by pollutant category for the 2026 California Integrated Report. A list of individual Decisions can be found in Appendix A: 2026 303(d) List of Impaired Waters.

**Table 5-4: Summary of North Coast Regional Water Board Waterbody-Pollutant Combination "List" Decisions by Pollutant Category**

| Pollutant Category | Number of New "List" Decisions[10] | Number of New "List" Decisions Changed from Previous Listing Cycle[11] | Total |
|---|---|---|---|
| Metals | 1 | 6 | 7 |
| Nutrients (including dissolved oxygen) | ~~1~~ 2 | 6 | ~~7~~ 8 |
| Other Cause | ~~10~~ 9 | ~~20~~ 15 | ~~30~~ 24 |
| Pathogens/Bacteria | 0 | ~~3~~ 4 | ~~3~~ 4 |
| Pesticides | ~~5~~ 2 | ~~0~~ 1 | ~~5~~ 3 |
| Salinity/Total Dissolved Solids/Chlorides/Sulfates | 1 | 13 | 14 |
| Sediment | 8 | 2 | 10 |
| Toxic Inorganics | 1 | 0 | 1 |
| **Totals** | ~~27~~ 23 | ~~50~~ 47 | ~~77~~ 71 |

[10] "List" Decisions based on new assessments.

[11] Updated Decisions include Decisions that were previously assessed as "Do not list" or "Delist" and updated to "List."

**Table 5-5: Summary of North Coast Regional Water Board Waterbody-Pollutant Combination "Delist" Decisions by Pollutant Category**

| Pollutant Category | "Delist" Decisions Due to Change in Water Quality | "Delist" Decisions Due to Other Changes[12] | Total |
|---|---|---|---|
| Pathogens/Bacteria | 0 | ~~13~~ 9 | ~~13~~ 9 |
| **Totals** | **0** | ~~13~~ 9 | ~~13~~ 9 |

## 5.8 North Coast Region Prioritization of TMDLs and Other Efforts to Address Impaired Waters

Efforts to address impaired waterbodies identified on the CWA section 303(d) list can include TMDLs, individual permits, or other programs of implementation, which are sometimes known as TMDL alternative projects. The prioritization of TMDLs and other efforts to address impaired waters in the North Coast Region is based on the factors required by section 5 of the Listing Policy and consideration of several other factors, outlined in section 2.6: TMDLs and Other Efforts to Address Impaired Waters. Information outlining how impaired waterbodies may be addressed through individual permits is outlined in section 1.1: The 303(d) List of Impaired Waters.

The following TMDLs were marked as Priority Level High per the CalWQA TMDL Prioritization effort described in Section 2.7. A waterbody segment is assigned a priority level (high, medium, low) when it is placed in Category 5 (i.e., the water quality standard is not attained for at least one waterbody-pollutant combination and a TMDL is required.) High priority TMDL projects are listed in Table 5-6: High Priority North Coast TMDLs. The prospective TMDL completion date is defined as the date the Regional Water Board adopts the TMDL.

**Table 5-6: North Coast Regional Water Board High Priority TMDLs**

| Project | Prospective Completion Date |
|---|---|
| Action Plan for the Russian River Watershed and the Russian River Pathogen TMDL | 2025-2026 |
| Laguna de Santa Rosa Watershed Sediment, Phosphorus, Nitrogen, and Temperature TMDLs | 2025-2026 |

[12] "Delist" Decisions based on change in water quality standards, change in assessment method, corrections, or other miscellaneous changes.

### 5.8.1 Impairments Expected to Be Addressed by 4b Demonstrations

The Coastal Pathogen Project (https://www.waterboards.ca.gov/northcoast/water_issues/programs/tmdls/coastal_pathogen/) is being developed as a Category 4b project in the North Coast Region. REC-1 and SHELL beneficial uses are impaired by pathogens in coastal waterbody segments. The North Coast Regional Water Board is planning to address these impairments through regulatory programs that ensure standards will be attained in a reasonable period of time. The North Coast Regional Water Board is planning to submit evidence to the USEPA demonstrating the waterbody-pollutant combinations meet Category 4b conditions after the 2026 California Integrated Report is submitted to USEPA.

# 6 Central Valley Regional Water Board

Water quality data from portions of the Central Valley region are assessed each listing cycle in successive order, regardless as to whether the region is “on cycle” or “off cycle”. The Central Valley Regional Water Board was “off-cycle” for the 2026 California Integrated Report, yet assessments were conducted for all waterbody segments within the San Joaquin River watershed, rather than other “off-cycle” assessments that focused on a specific waterbody segment or a specific dataset. The San Joaquin River watershed includes the mainstem of the San Joaquin River upstream of the legal boundary of the Sacramento-San Joaquin Delta and all surface waters tributary to the mainstem. The other watersheds in the Central Valley Region will be assessed in subsequent listing cycles through a rotating basin approach. The Sacramento-San Joaquin River Delta (“Delta”) and the Tulare Lake Basin will be assessed for the 2028 California Integrated Report, the Sacramento River watershed will be assessed for the 2030 California Integrated Report.

For the 2026 California Integrated Report, data were assessed from a total of ~~437~~ 441 waterbody segments, containing ~~4,750~~ 4,748 waterbody-pollutant combinations. Based on these assessments, ~~149~~ 109 waterbody-pollutant combinations are to be added to the 303(d) list and ~~75~~ 95 waterbody-pollutant combinations are to be removed from the 303(d) list. Selected assessments specific to the Central Valley Regional Water Board are described in the following subsections.

## 6.1 Sacramento-San Joaquin River Delta Remapping

Sacramento~~–~~-San Joaquin River Delta (“Delta”) waterbody segments were remapped and reassessed for the 2026 California Integrated Report in two phases to best reflect the water quality conditions within the Delta.

The first phase of the Delta remapping occurred during the development of the 2024 California Integrated Report. Waterbody segments that extend from outside the Delta to inside its boundary were reviewed and updated. Seven waterbody segments were each split into two WBIDs at the Delta boundary, which resulted in 14 revised waterbody segments. These splits reflected the spatial and temporal nature of the waterbody

segments and the site-specific objectives. The remapping process included a review and reassociation of monitoring stations, movement of over 1,000 revised LOEs to an updated waterbody segment, and updated CalWQA Decisions. Decisions on the original seven waterbody segments were retired.

The second phase of the Delta remapping occurred during the development of the 2026 California Integrated Report. Seven Delta subareas were removed and LOEs were added to a specific waterbody segment within the Delta. This allows the Central Valley Regional Water Board to more accurately assess waterbody segments. This part of the reassessment included extracting data, by location, from LOEs within the Delta subareas and developing new LOEs for the corresponding waterbody segment. ~~To reflect the importance of the Delta subareas, individual waterbody segments were renamed to include the Delta subarea in the waterbody segment name (e.g.~~The process included a review and reassociation of monitoring stations, development of over 500 revised LOEs, and updated CalWQA Decisions. **There were** 284 ~~D~~decisions on the original Delta subarea segments **that** were retired. Most of the ~~D~~decisions stayed the same; however, there were nine new "List" Decisions and four new "Delist" Decisions. **Data for these decisions are only considered new as they are associated with a newly mapped waterbody segment since the data were assessed during previous integrated reports on the now retired Delta Subarea waterbody segments.**

**To reflect the importance of the Delta Subareas, 29 Delta waterbody segments were renamed to include the Delta subarea (e.g., Discovery Bay (in Delta Waterways, central portion)). A complete list of segment names changes is listed in Appendix G: Miscellaneous Mapping Changes Report.**

## 6.2 Orestimba Creek Remapping

Two segments of Orestimba Creek were merged to improve the assessment of data for the Orestimba Creek valley floor waterbody segment. This type of assessment more accurately reflects its water quality by combining the LOEs between the Delta Mendota Canal and the San Joaquin River.

WBID CAR5422003219990126113826 (Orestimba Creek (above Kilburn Road)) and WBID CAR5355000020021209154446 (Orestimba Creek (below Kilburn Road)) were retired and merged to become WBID CAR5355000020240312037489 (Orestimba Creek, east of the Delta Mendota Canal (Stanislaus County)). WBID CAR5422003020230419038158 was also renamed to Orestimba Creek, west of the Delta Mendota Canal (Stanislaus County) to standardize the naming convention for Orestimba Creek. Of the original 215 Decisions for the two waterbody segments, 136 Decisions were revised as part of the remapping effort. 79 Decisions were retired, 18 Decisions remained as "List" or "Do not Delist", 113 Decisions remained as "Do not List" and 5 Decisions remained as "Delist~~".~~**."**

## 6.3 Modified and Constructed Waters

Data received during the 2026 California Integrated Report data solicitation period from 28 waterbody segments in Central Valley Region were evaluated but not used to determine standards attainment as an interim approach. These data are from waterbody segments for which no determination has been made regarding the jurisdictional status as waters of the United States ("WOTUS") under the CWA. Examples of such waterbody segments include constructed drains, canals, or other waterbody segments that were modified or constructed with the primary purpose of conveying agricultural flows. As the integrated report is authorized under the CWA and is therefore limited to WOTUS, and as the jurisdictional status of these waterbody segments is uncertain, data were not used.

This interim approach only applies to the 28 waterbody segments identified in Appendix M: List of Modified and Constructed Waters in the Central Valley Region. Central Valley Regional Water Board staff indicated that evidence will show that these waterbody segments ~~are not likely WOTUS~~**may not meet the federal WOTUS definition solely for the purposes of the integrated report** and staff is currently gathering the evidence. It is expected that Central Valley Water Board staff will supplement the record with justification that ~~waterbodies are clearly~~**it is absolutely clear the waterbody segments** not WOTUS during the development of 2028 California Integrated Report. If the evidence is unclear or ambiguous, data for the ~~waterbodies~~**waterbody segments** will be assessed and revisions made to Decisions in the 2028 California Integrated Report. For all other waterbody segments, the State Water Board defers to the federal agencies to determine whether a waterbody **segment** is a federal jurisdictional water. Unless relevant information makes it absolutely clear the waterbody is not a WOTUS, the waterbody will not be included on the proposed final 303(d) list. However, if the information is unclear or ambiguous, the waterbody will remain on the proposed final 303(d) list. Relevant information may include a jurisdictional determination made by the U.S. Army Corps of Engineers or the USEPA.

## 6.4 Central Valley Region Data Reassessments

The following describes data reassessments conducted in response to comments received during the 2020-2022 California Integrated Report. For additional documentation of data reassessments, please reference the Summary of Comments and Responses for the 2020-2022 California Integrated Report[13] for Clean Water Act 303(d) list and 305(b) report. In some instances, LOEs from previous listing cycles were retired. For more information, see section 2.3.2 and Appendix J: List of Retired Lines of Evidence.

13 https://www.waterboards.ca.gov/water_issues/programs/tmdl/2020_2022state_ir_reports_revised_final/2020-2022-ir-final-revised-summary-of-responses-and-comments.pdf

### 6.4.1 Chloride Objectives

During the 2020-2022 California Integrated Report, a commenter identified an error with the application of the chloride water quality objective in the Delta. Historically, the Secondary Maximum Contaminant Levels ("SMCLs") were used to assess "MUN" in the legal Delta. In the 2020-2022 California Integrated Report it was determined that the only points where chloride objectives should be evaluated are at the two compliance points identified in the Bay-Delta Water Quality Control Plan ("Bay-Delta Plan"). In the 2020-2022 California Integrated Report Response to Comments, the State Water Board committed to revising assessments that incorrectly applied the SMCLs for the protection of MUN in the Delta in a future cycle.

During the development of the 2026 California Integrated Report, chloride data in the Delta were reassessed using the chloride objective in the Bay-Delta Plan to protect the MUN beneficial use. The chloride objective only applies at the following specific compliance points within the Delta:

- Contra Costa Canal at Pumping Plant #1
- San Joaquin River at Antioch Water Works Intake
- West Canal at the mouth of Clifton Court Forebay
- Delta-Mendota Canal at Tracy Pumping Plant
- Barker Slough at North Bay Aqueduct Intake
- Cache Slough at City of Vallejo Intake

Since no data were collected within the standardized mapping distance of 250 meters of the compliance points, past LOEs with data collected farther than 250 meters from the compliance points were removed and 32 decisions, were retired. The reassessments did not result in any new "List" or "Delist" Decisions. Moving forward, new chloride data collected from the Bay-Delta will be assessed based on the objectives in the Bay-Delta Plan.

### 6.4.2 Westside San Joaquin Coalition Pesticide Data Reassessments

Data from the Westside San Joaquin Water Quality Coalition from years 2004-2009 were submitted for the 2012 California Integrated Report. Data associated with these CalWQA Decisions were re-assessed using aquatic life benchmarks for the 2020-2022 California Integrated Report. During the development of the 2024 California Integrated Report, multiple issues were found with the re-assessed data:

- The range of dates for the replacement LOEs are larger than the original LOEs which resulted in duplicative assessments.
- The data used a reference code in CalWQA that does not correspond to the data being reassessed.
- There is no data reference in CalWQA corresponding to the reassessed data. The data were erroneously assessed during the 2024 California Integrated Report and were removed from the 2026 California Integrated Report.

- The data used in the reassessments came from a different source than the data on file.

These issues were corrected in the 2026 California Integrated Report by retiring the erroneous LOEs and replacing them with new, corrected LOEs from re-reassessing the correct data. Additionally, the erroneous LOEs were removed from each decision, and this corrected all the previously identified issues. The reassessments did not result in any new "List" or "Delist" Decisions.

### 6.4.3 Assessment of Salinity in the Lower San Joaquin River According to New Water Quality Objectives

On June 9, 2017, the Central Valley Regional Water Board adopted Resolution R5-2017-0062 amending the Central Valley Regional Water Quality Control Basin Plan to add specific conductivity ("SC") water quality objectives in the San Joaquin River between the mouth of the Merced River and the Airport Way Bridge near Vernalis. The amendment was approved in December 2018 by the USEPA. The amendment sets an SC water quality objective of 1,550 micro-Siemens per centimeter (µS/cm) except during extended dry periods when the water quality objective will be 2,470 µS/cm. Compliance with these water quality objectives is to be determined at two locations: Crows Landing for the segment "San Joaquin River (Merced River to Tuolumne River)" and Maze Road for the segment "San Joaquin River (Tuolumne River to Stanislaus River)."

Prior to the data solicitation cut-off date for the 2026 California Integrated Report, additional salinity data for the waterbody segments San Joaquin River (Merced River to Tuolumne River) and San Joaquin River (Tuolumne River to Stanislaus River) were uploaded in CEDEN. New data were assessed and older data previously submitted were reassessed using these water quality objectives.

### 6.4.4 Reassessment of Secondary Maximum Contaminant Levels

The Central Valley Salinity Alternatives for Long-Term Sustainably Basin Plan Amendment ("CV-SALTS Amendment") (R5-2020-0057) revised the chemical constituents water quality objective and included direction for the application of SMCLs to protect the MUN beneficial use. During the 2020-2022 California Integrated Report, the State Water Board committed to reassessing data according to these revised water quality objectives. During the 2024 California Integrated Report, **existing, previously assessed** data from waterbody segments in the Sacramento River Basin were reassessed. ~~**Data**~~ **Existing and previously assessed data** from the San Joaquin River ~~**Basin**~~ **and Tulare Basins** were reassessed in the 2026 California Integrated Report. ~~**Data**~~ **Existing and previously assessed data** for the Sacramento-San Joaquin River Delta ~~**and the Tulare Lake Basin**~~ will be reassessed in the 2028 California Integrated Report.

Annual averages were utilized for assessment of all SMCLs constituents to determine support for the MUN beneficial use.

The following constituents from Table 64449-A were assessed to determine support of the MUN beneficial use:

- Copper
- Iron
- Manganese
- Methyl-tert-butyl-ether (“MTBE”)
- Silver
- Thiobencarb
- Zinc

Per the CV-SALTS Amendment, only samples that were passed through a 1.5- micron filter were used to determine MUN beneficial use support. The CV-SALTS Amendment does not allow for the use of whole water concentrations (total) to assess data using these SMCLs. Water quality data utilizing filtration described in the CV-SALTS Amendment is not yet commonly available. In the absence of such data, dissolved concentrations were used in place of filtered samples for assessment of metals under the SMCLs.

The SMCLs constituents and associated numeric thresholds from Table 64449-B are presented in Table 6-1.

**Table 6-1: Secondary Maximum Contaminant Levels 'Consumer Acceptance Contaminant Level Ranges’ (Title 22, California Code of Regulations; Table 64449 B)**

| Constituent, Units | Maximum Contaminant Level Ranges | | |
|---|---|---|---|
| | Recommended | Upper | Short Term |
| Total Dissolved Solids, mg/L | 500 | 100 | 1,500 |
| Specific Conductance, µS/cm | 900 | 1,600 | 2,200 |
| Chloride, mg/L | 250 | 500 | 600 |
| Sulfate, mg/L | 250 | 500 | 600 |

Concentrations of total dissolved solids, specific conductivity, chloride, and sulfate above the upper level of the SMCLs range in Table 64449-B were counted as exceedances. Concentrations below the recommended level of the SMCLs range were not counted as exceedances. For concentrations between the recommended and upper

levels, a demonstration that it is not reasonable or feasible to achieve the lower (i.e., recommended) level is needed to determine the appropriate threshold and identify if there are any exceedances. Without a demonstration of achievability, the level to use as the objective for integrated report purposes is uncertain. Therefore, in such circumstances, concentrations between the recommended and upper levels were not counted as exceedances but were considered as evidence to place a waterbody segment in Category 3, indicating there is insufficient data and/or information to make a beneficial use support determination but data and/or information indicates beneficial uses may be potentially threatened. For the 2026 California Integrated Report, data were reassessed for waterbody segments in the Joaquin River Basin and Tulare Lake Basin as described above.

**Additionally, a subset of previously assessed data were reassessed incorrectly during the 2024 California Integrated Report due to an unrecognized character in the data files. These data were reviewed and the error was corrected. Decision recommendations were updated accordingly, and proposed "List" Decisions affected by this error have been revised from "List" to "Do Not List." For the final CalWQA Decisions related to this issue, please see Response to Comments Appendix A: Comprehensive List of Revised CalWQA Decisions.**

## 6.5 Central Valley Region 303(d) "List" and "Delist" Decisions

There are ~~149~~ 109 new "List" Decisions for waterbody-pollutant combinations in the Central Valley Region and ~~75~~ 95 "Delist" Decisions for waterbody-pollutant combinations. If approved by the USEPA as recommended, the Central Valley Region's 303(d) list would be revised to have a total of ~~1,320~~ 1,260 waterbody-pollutant combinations on the 303(d) list. Tables 6-2 and 6-3 below summarize new "List" and "Delist" Decisions by pollutant category for the 2026 California Integrated Report. A list of individual Decisions can be found in Appendix A: 2026 303(d) List of Impaired Waters.

**Table 6-2: Summary of Central Valley Regional Water Board Waterbody-Pollutant Combination "List" Decisions by Pollutant Category**

| Pollutant Category | Number of New "List" Decisions[14] | Number of New "List" Decisions Changed from Previous Listing Cycle[15] | Total |
|---|---|---|---|
| Metals | ~~4~~ 3 | ~~29~~ 13 | ~~33~~ 16 |

[14] "List" Decisions based on new assessments.

[15] Updated Decisions include Decisions that were previously assessed as "Do not list" or "Delist" and updated to "List."

| | | | |
|---|---|---|---|
| Nutrients (including dissolved oxygen) | 2 | 4 | 6 |
| Other Cause | ~~15~~ 11 | ~~7~~ 5 | ~~22~~ 16 |
| Pathogens/Bacteria | 0 | 1 | 1 |
| Pesticides | 21 | 40 | 61 |
| Salinity/Total Dissolved Solids/Chlorides/Sulfates | ~~3~~ 2 | ~~17~~ 1 | ~~20~~ 3 |
| Total Toxics | 2 | 0 | 2 |
| Toxic Organics | 1 | 3 | 4 |
| **Totals** | ~~48~~ 42 | ~~101~~ 67 | ~~140~~ 109 |

**Table 6-3: Summary of Central Valley Regional Water Board Waterbody-Pollutant Combination "Delist" Decisions by Pollutant Category**

| Pollutant Category | "Delist" Decisions Due to Change in Water Quality | "Delist" Decisions Due to Other Changes[16] | Total |
|---|---|---|---|
| Metals | ~~3~~ 4 | 3 | ~~6~~ 7 |
| Nutrients (including dissolved oxygen) | 1 | 0 | 1 |
| Other Cause | 3 | ~~0~~ 14 | ~~3~~ 17 |
| Pathogens/Bacteria | 1 | 1 | 2 |
| Pesticides | 3 | 30 | 33 |
| Salinity/Total Dissolved Solids/Chlorides/Sulfates | 0 | ~~27~~ 32 | ~~27~~ 32 |
| Total Toxics | 0 | 2 | 2 |
| Toxic Organics | 0 | 1 | 1 |

[16] "Delist" Decisions based on change in water quality standards, change in assessment method, corrections, or other miscellaneous changes.

| | | | |
|---|---|---|---|
| **Totals** | ~~11~~ 12 | ~~64~~ 83 | ~~75~~ 95 |

## 6.6 Central Valley Prioritization of TMDLs and Other Efforts to Address Impaired Waters

Efforts to address impaired waterbodies identified on the CWA section 303(d) list can include TMDLs, individual permits, or other programs of implementation, which are sometimes known as TMDL alternative projects. The prioritization of TMDLs and other efforts to address impaired waters in the North Coast Region is based on the factors required by section 5 of the Listing Policy and consideration of several other factors, outlined in section 2.6: TMDLs and Other Efforts to Address Impaired Waters. Information outlining how impaired waterbodies may be addressed through individual permits is outlined in section 1.1: The 303(d) List of Impaired Waters.

TMDL prioritization is influenced by the Triennial Review of the two regional basin plans. The Triennial Review consists of solicitation for comments on water quality issues in the Central Valley Region that may need to be addressed through basin plan amendments and preparing a work plan for each basin plan which describes the actions the Central Valley Regional Water Board may take over the next three years to investigate and respond to the issues. Additionally, input from the Central Valley Regional Water Board and the regional executive management team are incorporated into work planning through the portfolio management process. Priorities are established through the content of the Triennial Review, annual consultations with program managers, and direction from the Central Valley Regional Water Board during yearly presentations by the Executive Officer. Finally, the TMDL prioritization is influenced by other work going on within the region. Regulatory programs such as the ILRP address water quality impairments throughout the region. Programs that can ensure that water quality standards will be met in a reasonable amount of time obviate the need for the development of a TMDL.

Within the integrated report, the Central Valley Regional Water Board identified all Category 5 listings as a low priority for TMDL development. Instead of prioritizing the development of a new TMDL, the Central Valley Regional Water Board is instead prioritizing revisions to the existing Sacramento-San Joaquin Delta Methylmercury TMDL. All waterbody segments covered under the existing Sacramento-San Joaquin Delta Methylmercury TMDL are in Category 4a. For more information, see the Sacramento-San Joaquin Delta Methylmercury TMDL's web page (https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/).

A low priority designation does not indicate a low priority of importance for the waterbody-pollutant impairment. The Central Valley Regional Water Board utilizes the approach described in section 2.7 to prioritize TMDL development. As impairments are identified as a higher priority through this process, the listing priority within the integrated report will be updated.

# 7 Lahontan Regional Water Board

The Lahontan Regional Water Quality Control Board is “on-cycle” for the 2026 California Integrated Report. Data was assessed from a total of ~~236~~ 241 waterbody segments, containing ~~3,104~~ 3,114 waterbody-pollutant combinations. Based on these assessments ~~151~~ 141 waterbody-pollutant combinations are to be added to the 303(d) list and ~~35~~ 39 waterbody-pollutant combinations are to be removed from the 303(d) list. Selected assessments specific to the Lahontan Regional Water Board are described in the following subsections.

## 7.1 Indicator Bacteria Assessments Using Revised Bacteria Objectives

In 2023 the Lahontan Regional Water Board adopted a Basin Plan Amendment (https://www.waterboards.ca.gov/lahontan/water_issues/programs/basin_plan/bacteria_water_quality_objectives_amendment.html) (Resolution No. R6T-2023-0025) removing the fecal coliform water quality objective from the Water Quality Control Plan for the Lahontan Region (“Lahontan Basin Plan”). The Amendment was adopted by the State Water Board in 2024 (Resolution No. 2024-003) and ~~is expected to be~~ was approved by USEPA in May 2025. Therefore, the fecal coliform lines of evidence utilized in past indicator bacteria Decisions were not included in the 2026 California Integrated Report. 2026 California Integrated Report indicator bacteria Decisions were made using the statewide *E. coli* water quality objective. Consistent with the direction provided in the statewide *E. coli* water quality objective, geometric means were only generated if there were 5 or more samples collected within a 6-week period. If less than 5 samples were collected within a 6-week period, attainment of the *E. coli* objective was assessed based solely on attainment of the objective’s statistical threshold value. See Section 3.9 for Bacteria and REC-1 Beneficial Use for an in-depth description of the statewide bacteria numeric water quality objectives.

In 32 cases where waterbody segments were previously listed based on the fecal coliform water quality objective, the *E. coli* water quality objective was consistently attained, so waterbody-pollutant combination Decisions were updated to “Delist” for indictor bacteria. In one case (Indian Creek), the listing for fecal indicator bacteria was based solely on fecal coliform data and *E. coli* data was not available, so the waterbody-pollutant combination Decision was updated to “Delist” based on the original (fecal coliform-based) listing being flawed. The waterbody-pollutant combination of indicator bacteria in Indian Creek was placed in category 3. As discussed in Section 2.5 Integrated Report Condition Categories, category 3 is defined as “Insufficient data and/or information to make a beneficial use support determination but data and/or information indicates beneficial uses may be potentially threatened.”

## 7.2 Dissolved Oxygen Using Percent Saturation

Dissolved oxygen (“DO”) water quality objectives in the Lahontan Basin Plan state that minimum DO concentrations shall not be less than specific numeric values and also state that minimum DO concentrations shall not be less than 80 percent of saturation.

Attainment of the 80 percent saturation threshold was assessed by comparing minimum DO concentrations to fully saturated DO concentrations. Fully saturated DO concentrations were calculated using accompanying temperature data and elevation of the sample site, utilizing the equations from Benson and Krause (1984). If minimum concentrations were less than 80 percent of the fully saturated DO concentrations, then the water quality objective was not met. This approach resulted in a more thorough assessment of beneficial use attainment of the 80 precent saturation threshold, compared to previous cycles. In previous cycles, attainment of the 80 percent saturation threshold was only assessed when DO data were reported in the form of percent saturation. The more thorough assessment of DO data in the 2026 California Integrated Report resulted in several new DO "List" Decisions.

## 7.3 90th Percentile Site Specific Objectives

Many of the site-specific objectives in the Lahontan Region contain a maximum annual average concentration as well as maximum 90th percentile concentration. The 90th percentile concentrations were assessed only when there were 10 or more samples available, consistent with the Lahontan Basin Plan, which defines the 90th percentile as a value which only 10% of the data exceeds.

## 7.4 Haiwee Reservoir Copper

Haiwee Reservoir has been listed on the 303(d) list for copper since 1994 as a result of fish tissue concentrations and observed fish kills in 1991 and 1994. The data assessment for the 2026 California Integrated Report (Decision ID 161558) utilized recently collected dissolved copper concentration data (consistent with CTR criteria) which showed no exceedances of the CTR criteria. Therefore, the Decision for copper in Haiwee Reservoir is "Delist" from the 303(d) list in the 2026 California Integrated Report.

## 7.5 Crowley Lake Mercury

The Crowley Lake "List" Decision for mercury for the COMM beneficial use in 2018 was based on a situation-specific weight of the evidence approach (Listing Policy section 3.11) because of the limited data available. Since the 2018 California Integrated Report, the Lahontan Regional Water Board supported collection and analysis of additional fish tissue samples. The results of the analysis of these samples confirmed the concentrations of mercury in fish tissue from Crowley Lake are above the objective for COMM, as documented in the "Do Not Delist" Decision for mercury in Crowley Lake.

## 7.6 Tahoe Keys Sailing Lagoon

In 2022, the Tahoe Keys Sailing Lagoon was filled in and restored to wetlands as part of the Upper Truckee River Marsh Restoration (https://tahoe.ca.gov/upper-truckee-marsh/) project. Therefore, all the past decisions and lines of evidence for this waterbody segment, including one 303(d) listing for pH, were retired from the 2026 California Integrated Report. LOEs retired during the listing cycle for the 2026 California Integrated

Report are available in Appendix J: List of Retired Lines of Evidence. Additionally, see Section 2.3.2 for Lines of Evidence for additional explanation on retired LOEs.

## 7.7 Lahontan Regional Water Board 303(d) "List" and "Delist" Decisions

There are ~~151~~ 141 new "List" Decisions for waterbody-pollutant combinations in the Lahontan Region and ~~35~~ 39 "Delist" Decisions for waterbody-pollutant combinations. If approved by the USEPA as recommended, the Lahontan Region's 303(d) list would be revised to have a total of ~~372~~ 358 waterbody-pollutant combinations on the 303(d) list. Tables 8-1 and 8-2 below summarize new "List" and "Delist" Decisions by pollutant category for the 2026 California Integrated Report. A list of individual Decisions can be found in Appendix A: 2026 303(d) List of Impaired Waters.

Tables 7-1 and 7-2 below reference a Pollutant Category labeled "Toxicant Pollutants," which includes pollutants assessed using Tables 3.1 and 4.1 of the Listing Policy, such as aromatic hydrocarbons, solvents, and other organic and inorganic toxins. Additionally, the Pollutant Category labeled as "Conventional Pollutants," refers to pollutants assessed using Tables 3.2 and 4.2 of the Listing Policy, including chloride, sulfates, and electrical conductivity.

**Table 7-1: Summary of Lahontan Regional Water Board Waterbody-Pollutant Combination "List" Decisions by Pollutant Category**

| Pollutant Category | Number of New "List" Decisions[17] | Number of New "List" Decisions Changed from Previous Listing Cycle[18] | Total |
|---|---|---|---|
| Metals | 3 | 11 | 14 |
| Nutrients (including dissolved oxygen) | 37 | 31 | 68 |
| Salinity/Total Dissolved Solids/Chlorides/Sulfates | 12 | 16 | 28 |
| Other Cause | ~~3~~ 0 | ~~16~~ 9 | ~~19~~ 9 |
| Total Toxics | 1 | 0 | 1 |

[17] "List" Decisions based on new assessments.

[18] Updated Decisions include Decisions that were previously assessed as "Do not list" or "Delist" and updated to "List."

| | | | |
|---|---|---|---|
| Toxic Organics | 1 | 1 | 2 |
| Toxic Inorganics | 1 | 7 | 8 |
| Sediment | 6 | 5 | 11 |
| **Totals** | ~~64~~ 61 | ~~87~~ 80 | ~~151~~ 141 |

**Table 7-2: Summary of Lahontan Regional Water Board Waterbody-Pollutant Combination "Delist" Decisions by Pollutant Category**

| Pollutant Category | "Delist" Decisions Due to Change in Water Quality | "Delist" Decisions Due to Other Changes[19] | Total |
|---|---|---|---|
| Metals | 1 | 0 | 1 |
| Nutrients | 1 | 2 | 3 |
| Pathogens/Bacteria | 0 | ~~31~~ 35 | ~~31~~ 35 |
| **Totals** | **2** | ~~32~~ 37 | ~~35~~ 39 |

## 7.8 Lahontan Prioritization of TMDLs and Other Efforts to Address Impaired Waters

Efforts to address impaired waterbodies identified on the CWA section 303(d) list can include TMDLs, individual permits, or other programs of implementation, which are sometimes known as TMDL alternative projects. The prioritization of TMDLs and other efforts to address impaired waters in the ~~North Coast~~ Lahontan Region is based on the factors required by section 5 of the Listing Policy and consideration of several other factors, outlined in section 2.6: TMDLs and Other Efforts to Address Impaired Waters. Information outlining how impaired waterbodies may be addressed through individual permits is outlined in section 1.1: The 303(d) List of Impaired Waters.

The Lahontan Regional Water Board determined if a waterbody in Category 5 would be a high priority for TMDL development by considering the severity of the pollution, the beneficial uses, staff resources, and the other factors listed in the Prioritization Framework (see Section 2.6 and 2.7).

The Lahontan Regional Water Board assigned high priority for the development of TMDLs to mercury impairments in Mammoth Creek, Mill City Tributary, and Hot Creek

[19] "Delist" Decisions based on change in water quality standards, change in assessment method, corrections, or other miscellaneous changes.

due to, among other factors, their potential threat to human health and the potential for restoration in the watershed. The Lahontan Regional Water Board assigned medium priority for the development of TMDLs for other mercury impairments, as well as indicator bacteria impairments, in consideration of, among other factors, their potential threat to human health, and the relative uncertainty in terms of restoration potential.

Another group of impairments, those for boron, nitrogen, phosphorous, sulfates, total dissolved solids, and turbidity in the East Fork Carson River, were listed as medium priority. There is public interest in addressing the East Fork Carson River impairments. These impairments are likely to be addressed, and water quality objectives attained, through the development and implementation of a plan similar to the West Fork Carson River Vision Plan (an Advance Restoration Plan), or possibly TMDL(s).

A project to review the status, and possibly update, the Indian Creek Reservoir TMDL for phosphorus has also been identified as a priority under the Clean Water Act Section 303(d) Vision. However, these impairments are not identified as a priority for TMDL development, since they are already addressed by an existing TMDL.

### 7.8.1 Impairments Being Addressed by 5r Determinations

Two ~~advance restoration plans (“~~ARPs~~”)~~ were recently completed by the Lahontan Regional Water Board and accepted by USEPA. These ARPs and are now being implemented and are recognized in the 2026 California Integrated Report: the Bishop Creek Bacteria Vision Plan, and the West Fork Carson River Vision Plan.

The Bishop Creek Vision Plan (https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/bishopcreek.html) was completed by the Lahontan Regional Water Board and accepted by USEPA in 2022. The Bishop Creek Vision Plan identifies a suite of implementation actions and approaches which will be implemented to reduce indicator bacteria concentrations, with the goal of attaining the indicator bacteria objective in Bishop Creek by 2032.

The West Fork Carson River Vision Plan (https://www.waterboards.ca.gov/lahontan/water_issues/programs/tmdl/west_fork_carson_river.html) (“Vision Plan”) was completed by the Lahontan Regional Water Board and accepted by USEPA in 2023. The Vision Plan describes present and future actions that will be taken to restore and protect water quality in the West Fork Carson River (“WFCR”). The Vision Plan has a goal of resolving impairments from nutrients, turbidity, salts, iron and sulfate in the WFCR by 2033.

Impairments for waterbody-pollutant combinations addressed under these ARPs remain 303(d) listed, but the impairments are listed as “associated with a USEPA accepted Advance Restoration Plan” and are included in Category 5r in the 2026 California Integrated Report. These impairments are listed as a low priority for TMDL development, since the Lahontan Regional Water Board expects the implementation of the actions identified in these ARPs to resolve the impairments within a reasonable timeframe.

### 7.8.2 Waterbodies and/or Pollutants Not Prioritized for TMDL Development

In addition to the impairments covered by ARPs and existing TMDLs described above, there are multiple other impairments in the Lahontan Region that are assigned a low priority for TMDL development in the 2026 California Integrated Report. Many of these impairments are a result of non-attainment of site-specific water quality objectives for total dissolved solids, chloride and other naturally occurring elements for which the water quality objectives in the Lahontan Region Basin Plan are well below (in some cases orders of magnitude below) drinking water, aquatic life, agricultural, or other beneficial use protection-based criteria. Since these impairments may not, in many cases, represent a likely threat to beneficial uses, it is likely the most appropriate manner to resolve the issue would be through amending water quality objectives, consistent with the state's Water Quality Control Policy for Addressing Impaired Waters (SWRCB 2005b).

# 8 Colorado River Basin Regional Water Board

The Colorado River Basin Regional Water Quality Control Board is "on-cycle" for the 2026 California Integrated Report. Staff assessed data from a total of 58 waterbody segments, containing 2,839 waterbody-pollutant combinations. Based on these assessments ~~47~~ 46 waterbody-pollutant combinations are recommended to be added to the 303(d) list and 5 waterbody-pollutant combinations are to be removed from the 303(d) list. Assessments specific to the Colorado River Basin Regional Water Board are described in the following subsections.

## 8.1 Category 3 Placements Due to Controllable Factors Objectives

Some water quality objectives contained in water quality control plans also include narrative provisions that state that exceedances shall not be a result of controllable water quality factors or waste discharges (here on out referred to as controllable water quality objectives or controllable factors). (See Staff Report section 4.2.) The water quality objective for temperature in the Water Quality Control Plan for the Colorado River Basin Region states:

> The natural receiving water temperature of surface waters shall not be altered *by discharges of wastewater* unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses [emphasis added].

It is uncertain whether the measured exceedances of the evaluation guideline used to evaluate the narrative temperature objective were due to discharges of wastewater. Therefore, the following three waterbody-pollutant combinations were placed in category 3 indicating there is insufficient data and/or information to make a beneficial use support determination, but data and/or information indicates beneficial uses may be potentially threatened.

- Colorado River and Associated Lakes and Reservoirs (Lake Havasu Dam to Imperial Dam)
- Havasu, Lake
- Whitewater River

If data and information can be added to the record on a future integrated report to indicate that the exceedances are due to a controllable factor, that Decision may be revised to demonstrate that the waterbody-pollutant combination is impaired.

## 8.2 Colorado River Basin Regional Water Board 303(d) "List" and "Delist" Decisions

There are 47 new "List" Decisions for waterbody-pollutant combinations in the Colorado River Basin Region and 5 "Delist" Decisions for waterbody-pollutant combinations. If approved by the USEPA as recommended, the Colorado River Basin Region's 303(d) list would be revised to have a total of 152 waterbody-pollutant combinations on the 303(d) list. Tables 8-1 and 8-2 below summarize new "List" and "Delist" Decisions by pollutant category for the 2026 California Integrated Report. A list of individual Decisions can be found in Appendix A: 2026 303(d) List of Impaired Waters.

**Table 8-1: Summary of Colorado River Basin Regional Water Board Waterbody-Pollutant Combination "List" Decisions by Pollutant Category**

| Pollutant Category | Number of New "List" Decisions[20] | Number of New "List" Decisions Changed from Previous Listing Cycle[21] | Total |
|---|---|---|---|
| Metals | 8 | 2 | 10 |
| Nutrients (including dissolved oxygen) | 3 | 1 | 4 |
| Other Cause | 1 | 0 | 1 |
| Pesticides | 4 | ~~24~~ 23 | ~~28~~ 27 |
| Total Toxics | 3 | 0 | 3 |

[20] "List" Decisions based on new assessments.

[21] Updated Decisions include Decisions that were previously assessed as "Do not list" or "Delist" and updated to "List."

| | | | |
|---|---|---|---|
| Salinity/Total Dissolved Solids/Chlorides/Sulfates | 0 | 1 | 1 |
| **Totals** | **19** | **~~28~~ 27** | **~~47~~ 46** |

**Table 8-2: Summary Colorado River Basin Regional Water Board Waterbody-Pollutant Combination "Delist" Decisions by Pollutant Category**

| Pollutant Category | "Delist" Decisions Due to Change in Water Quality | "Delist" Decisions Due to Other Changes[22] | Total |
|---|---|---|---|
| Pesticides | 0 | 4 | 4 |
| Toxic Organics | 1 | 0 | 1 |
| **Totals** | **1** | **4** | **5** |

## 8.3 Colorado River Basin Prioritization of TMDLs and Other Efforts to Address Impaired Waters

Efforts to address impaired waterbodies identified on the CWA section 303(d) list can include TMDLs, individual permits, or other programs of implementation, which are sometimes known as TMDL alternative projects. The prioritization of TMDLs and other efforts to address impaired waters in the North Coast Region is based on the factors required by section 5 of the Listing Policy and consideration of several other factors, outlined in section 2.6: TMDLs and Other Efforts to Address Impaired Waters. Information outlining how impaired waterbodies may be addressed through individual permits is outlined in section 1.1: The 303(d) List of Impaired Waters.

The following TMDLs were marked as high priority by considering the severity of the pollution, the beneficial uses, and the other factors listed in the Prioritization Framework (see Section 2.6 and 2.7). High Priority TMDL projects are listed in Table 8-3: High Priority Colorado River Basin TMDLs and Other Efforts to Address Impaired Waters. In addition to the development of new TMDLs, existing TMDLs are sometimes reconsidered to incorporate new information relevant to addressing the targeted impairments.

[22] "Delist" Decisions based on change in water quality standards, change in assessment method, corrections, or other miscellaneous changes.

**Table 8-~~2~~3: Colorado River Basin Regional Water Board High Priority TMDLs**

| Project |
|---|
| Imperial Valley Pyrethroid Pesticides TMDL |
| New River Ammonia and Toxicity TMDL |
| Coachella Valley Stormwater Channel Ammonia, Dissolved Oxygen, and Toxicity TMDL |
| Alamo River Chloride, Indicator Bacteria, and Toxicity TMDL |

# 9 San Diego Regional Water Board

The San Diego Regional Water Quality Control Board was “off-cycle” for the 2026 California Integrated Report. “Off-cycle” work included selenium reassessments, mapping adjustments, and updating TMDL information in several CalWQA Decisions. Assessments specific to the San Diego Regional Water Board are described in the following subsections.

## 9.1 Selenium Reassessments

The County of San Diego corrected and resubmitted selenium data to CEDEN for Keys Creek, Escondido Creek, Los Coches Creek, lower Sweetwater River, and upper San Marcos Creek. The San Diego Regional Water Board reassessed the selenium data and a summary of the Decisions are as follows:

- Keys Creek (Decision ID 158371) revised from “Do Not Delist” to “Delist”
- Escondido Creek (Decision ID 158370) remains “Do Not Delist”
- Los Coches Creek (Decision ID 158372) remains “Do Not Delist”
- Sweetwater River, Lower (below Sweetwater Reservoir) (Decision ID 158373) remains a “Delist”
- San Marcos Creek, Upper (above San Marcos Lake) (Decision ID 158396) revised from “Do Not Delist” to “Delist”

## 9.2 Mapping Adjustments

Felicita Creek mapping was adjusted due to informal comments received from the Environmental Health Coalition. The waterbody segment now includes both branches of Felicita Creek that flow through Felicita Park and has been extended downstream to where it enters Lake Hodges. This mapping change did not result in any listing or delisting changes.

Cameo Cove, a portion of the Pacific Ocean shoreline, was inadvertently excluded from assessment mapping historically when the entire hydrologic shoreline ("Pacific Ocean

Shoreline, San Joaquin Hills HSA") was split into specific shoreline reaches. This shoreline segment was added to the map and now appears as “Pacific Ocean Shoreline, San Joaquin HSA, at Cameo Cove.” In the 2006 California Integrated Report, the entire hydrologic shoreline "Pacific Ocean Shoreline, San Joaquin Hills HSA" was listed for indicator bacteria and shoreline portions were incorrectly omitted in subsequent integrated reports. A new indicator bacteria CalWQA Decision (Decision ID 155003) was created to include the missing listing decision.

## 9.3 Decision Updates

Two bacteria CalWQA Decisions were updated to include the TMDL information that was missing from CalWQA Decisions generated during previous listing cycles. The decisions remain “List,” as no new data were assessed.

The indicator bacteria CalWQA Decisions for the following waterbody segments now include the missing TMDL titled “Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek),” which was approved by USEPA on June 22, 2011.

- Tecolote Creek, South Fork (Decision ID 155017)
- Pacific Ocean Shoreline, San Diego HSA, at Newport Ave (Decision ID 155018)

Additionally, the indicator bacteria CalWQA Decision for “Pacific Ocean Shoreline, San Joaquin HSA, at Cameo Cove” (Decision ID 155003) includes the TMDL titled “Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).”

One CalWQA Decision for Rainbow Creek (Decision ID 164236) was revised to include TMDL information that was missing from CalWQA Decisions generated during previous listing cycles. The decision remains a “List,” as no new data were assessed. The Rainbow Creek nitrate/nitrite CalWQA Decision now includes the missing TMDL titled “Rainbow Creek Nitrogen and Phosphorus TMDLs,” which was approved by USEPA on March 22, 2006.

One historical pre-2006 CalWQA decision (2018 Decision ID 77421), which lacks supporting data, was retired for “trace elements” in the Tijuana River. It was removed due to confusion it would cause for permittees required to monitor for 303(d) listed pollutants, and more importantly, much more informative pollutant-specific data appears in other decisions for the Tijuana River since that historical 2006 California Integrated Report, including for pollutants considered to be “trace elements.”

## 9.4 San Diego Regional Water Board 303(d) “List” and “Delist” Decisions

There ~~is 1 new “List” Decision for a waterbody-pollutant combination in the San Diego Region and~~ are 2 “Delist” Decisions for ~~waterbody-pollutant combinations.~~ Keys Creek and San Marcos Creek, Upper (above San Marcos Lake). If approved by the USEPA as recommended, the San Diego Region’s 303(d) list would be revised

to have a total of ~~838~~ 837 waterbody-pollutant combinations on the 303(d) list. Table~~s~~ 9-1 ~~and 9-2~~ below ~~summarize new "List" and~~ summarizes the "Delist" Decisions by pollutant category for the 2026 California Integrated Report. A list of individual Decisions can be found in Appendix A: 2026 303(d) List of Impaired Waters.

~~Table 9-2: Summary of San Diego Regional Water Board Waterbody-Pollutant Combination "List" Decisions by Pollutant Category~~

| ~~Pollutant Category~~ | ~~Number of New "List" Decisions[23]~~ | ~~Number of New "List" Decisions Changed from Previous Listing Cycle[24]~~ | ~~Total~~ |
|---|---|---|---|
| ~~Nutrients (including dissolved oxygen)~~ | ~~1~~ | ~~0~~ | ~~1~~ |
| ~~Totals~~ | ~~1~~ | ~~0~~ | ~~1~~ |

~~Table 9-2~~Table 9-1: Summary of San Diego Regional Water Board Waterbody-Pollutant Combination "Delist" Decisions by Pollutant Category

| Pollutant Category | "Delist" Decisions Due to Change in Water Quality | "Delist" Decisions Due to Other Changes[25] | Total |
|---|---|---|---|
| Metals | 2 | 0 | 2 |
| **Totals** | **2** | **0** | **2** |

# 10 California's 2026 303(d) List

A tally of new "List" and "Delist" Decisions, as well as the total number of impaired waterbody segments, for the 303(d) list portion of the 2026 California Integrated Report is shown in Table 10-1, below. The second column lists the number of waterbody-pollutant combinations currently listed as impaired on the 2024 303(d) List. The two

~~[23] "List" Decisions based on new assessments.~~

~~[24] Updated Decisions include Decisions that were previously assessed as "Do not list" or "Delist" and updated to "List."~~

[25] "Delist" Decisions based on change in water quality standards, change in assessment method, corrections, or other miscellaneous changes.

subsequent columns contain a count of new “List” Decisions and new “Delist” Decisions. The last column includes the total number of listings for 2026 that would result if all Decisions are adopted. A comprehensive list can be found in Appendix A: 2026 303(d) List of Impaired Waters.

**Table 10-1: New “List” and “Delist” Decisions for the 303(d) List Portion of the 2026 California Integrated Report**

| Region | 2024 303(d) Listings | New “List” Decisions | New “Delist” Decisions | Total 2026 303(d) Listings |
|---|---|---|---|---|
| North Coast | 217 | ~~77~~ 71 | ~~13~~ 9 | ~~281~~ ~~278~~ |
| San Francisco Bay | 476 | 0 | 0 | 476 |
| Central Coast | 1,200 | 1 | 6 | 1,195 |
| Los Angeles | 1,215 | 0 | 0 | 1,215 |
| Central Valley | 1,246 | ~~149~~ 109 | ~~75~~ 95 | ~~1,227~~ 1,260 |
| Lahontan | 256 | ~~151~~ 141 | ~~35~~ 39 | ~~353~~ 358 |
| Colorado River Basin | 110 | ~~47~~ 46 | 5 | ~~152~~ 151 |
| Santa Ana | 183 | 0 | 0 | 183 |
| San Diego | 839 | ~~1~~ 0 | 2 | ~~838~~ 837 |
| **TOTALS** | **5,742** | ~~426~~ 367 | ~~136~~ 150 | ~~6,032~~ 5,953 |

*Count of 2026 303(d) listings may not equal the addition of new listings and removal of delistings from the ~~2020-2022~~ 2024 303(d) List due to waterbody splits, merges, or other miscellaneous changes.*

# 11 California's 305(b) Integrated Report Condition Categories

For the 2026 California Integrated Report, a total of ~~950~~ 995 waterbody segments (containing ~~15,765~~ 15,828 waterbody-pollutant combinations) were assessed. See Tables 11-1 and Table 11-2, for a summary of the number of waterbodies both current and proposed in each of the five Integrated Report condition categories. Categories 1, 2, 3, and 4c are informational and do not require Water Boards approval. Waterbodies placed in those categories will be submitted as part of the 305(b) portion of the 2026 Integrated Report to the USEPA for their report to Congress. Categories 4a, 4b, and 5 are the 303(d) list.

**Table 11-1: Count of Waterbodies in California's 305(b) Integrated Report Condition Categories – Streams, Rivers, and Coastal Beaches**

| California's Integrated Report Condition Category | 2024 Streams, Rivers, and Coastal Beaches per Category | Proposed New Revisions | 2026 Sum of Current and Proposed New Revisions |
|---|---|---|---|
| **1** | 721 | ~~30~~ 34 | ~~751~~ 755 |
| **2** | 840 | ~~31~~ 30 | ~~871~~ 870 |
| **3** | 114 | ~~39~~44 | ~~153~~ 158 |
| **4A** | 216 | ~~6~~ 5 | ~~210~~ 211 |
| **4B** | 42 | ~~3~~ 6 | ~~39~~ 36 |
| **4C** | 2 | 0 | 2 |
| **5** | 1,046 | ~~26~~ 28 | ~~1,080~~ 1,074 |
| **TOTAL** | 2,981 | ~~129~~ 135 | 3,106 |

*Count of current and proposed categorization of streams, rivers, and other linear surface waterbodies statewide.*

**Table 11-2: Count of Waterbodies in California's 305(b) Integrated Report Condition Categories – Lakes, Reservoirs, Enclosed Bays, Estuaries, and Ocean Waters**

| California's Integrated Report Condition Category | 2024 Lakes, Reservoirs, Enclosed Bays, Estuaries, and Ocean Waters per Category | Proposed New Revisions | 2026 Sum of Current and Proposed New Revisions |
|---|---|---|---|
| **1** | 30 | 2 | 32 |
| **2** | 236 | 16 | 252 |
| **3** | 15 | ~~0~~ 1 | ~~15~~ 16 |
| **4A** | 26 | 1 | 27 |
| **4B** | 6 | -1 | 5 |
| **4C** | 1 | 0 | 1 |
| **5** | 327 | ~~3~~ 4 | ~~324~~ 323 |
| **TOTAL** | 641 | ~~15~~ 20 | 656 |

*Category assessments of lakes, reservoirs, and other non-linear surface waters statewide.*

# 12 References

*For a complete list of references (data, QAPPs, evaluation guidelines, etc.) used in all the Waterbody Fact Sheets, see Appendix H: Reference Reports.*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