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Central Valley Regional Water Quality Control Board

The 2021 Joint Triennial Review of the Water Quality Control Plans for the Sacramento River and San Joaquin River Basins and the Tulare Lake Basin

To meet requirements of section 303(c) of the federal Clean Water Act and Water Code section 13240, the Central Valley Regional Water Quality Control Board (Central Valley Water Board or Board) reviews the water quality standards contained in the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins and in the Water Quality Control Plan for the Tulare Lake Basin (Basin Plans) every three years. The process of soliciting information pertinent to this review and the review itself is referred to as the “Triennial Review.”

The Basin Plans are the foundation for the Central Valley Water Board's water quality regulatory programs. The Basin Plans designate beneficial uses for both surface and ground water bodies in the Central Valley, establish water quality objectives to protect those beneficial uses, contain implementation plans that describe the actions necessary to achieve water quality objectives, and describe the surveillance and monitoring activities needed to determine regulatory compliance and assess the health of the Basins' water resources. Please note that while Board uses information provided in the Triennial Review to prioritize basin planning activities, the triennial review process does not itself amend the Basin Plans.

The Triennial Review consists of:

- The Board's solicitation of public comments on water quality issues in the Central Valley that may need to be addressed through basin plan amendments, and;
- The preparation of a prioritized work plan for each Basin Plan which describes the actions the Board may take over the next three years to investigate and respond to these issues.

The Board's solicitation process includes providing an opportunity for interested persons to provide written comments to the Board. After the Board receives public input, the Board develops and adopts a prioritized work plan that is used to direct basin planning efforts over the next three years. Though the list of issues raised through the public solicitation process typically far exceeds available resources, the Triennial Review helps the Board identify areas where the Board may pursue additional resources to address areas where existing resources are not sufficient. Implementation of the work plan depends upon the Board's program priorities, resources, and other mandates and commitments.

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Attachment 1 summarizes the status of the high-priority issues that were identified in the last Triennial Review, which was adopted in 2018.

One of the primary goals of the federal Clean Water Act is that water bodies that fall under federal jurisdiction should have sufficient water quality to provide for the protection and propagation of fish, shellfish, and wildlife, and to provide for recreation in and on the water. Pursuant to section 131.20 of Title 40 of the Code of Federal Regulations, water bodies that do not meet this goal must be evaluated as part of a periodic review process to determine whether those uses are attainable. Therefore, for any water body which is not designated with these uses, the Board invites new information that indicates whether or not these uses are attainable.

Since the reviews of both Basin Plans are occurring concurrently, the public may provide comments on either Basin Plan. Written comments for either Basin Plan will be accepted at the Rancho Cordova office and through email. Staff will compile comments for the appropriate Basin Plan. In the comments, please provide a detailed description of the issue, a brief statement of reasons for the addition or deletion of an issue, and identify the appropriate prioritization criteria, identified in the [2018 Triennial Review Workplan](#) (https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/oldtriennialreviews/2018_tr_ssj_workplan_final.pdf) and in Table 1 in Attachment 1. Attachment 2 contains an outline of the information submittal.

Written comments should be submitted by **10 May 2021** either by mail or by email to:

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More information on the Triennial Review process, including the 2018 Work Plan, can be accessed at the [Central Valley Water Board's webpage on Triennial Reviews](#). (http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/triennialreviews.shtml)

ATTACHMENT 1 – Status of Priority Projects from 2018 Triennial Review

The following is the status of the priority issues from the 2018 Triennial review (Resolution R5-2018-0079). The following projects were prioritized and allocated resources through the 2018 Triennial Review process and the Central Valley Regional Water Quality Control Board's (Central Valley Water Board's) Portfolio Management Process. Only those projects that have been allocated resources from the Central Valley Water Board are listed below. The full list of projects evaluated through the 2018 Triennial Review process can be found in the [Central Valley Water Board's 2018 Triennial Review Work Plan](https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/oldtriennialreviews/2018_tr_ssj_workplan_final.pdf) (https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/oldtriennialreviews/2018_tr_ssj_workplan_final.pdf).

To efficiently use Board resources, staff prioritized the 27 proposed projects identified as part of the Triennial Review. This would ensure that staff time is spent on those issues and projects most important to the Board and to the public. The final project prioritization criteria, identified in Section II of the 2018 Triennial Review Workplan, and in Table 1 below, were used to evaluate the projects. Board staff applied the prioritization criteria to the list of projects following the 4 October 2018 workshop. There were five categories identified that projects were grouped into once ranked using the prioritization criteria in the 2018 Triennial Review that are listed in Table 2 below. The process resulted in seven projects categorized as an Existing Commitment; one project as Special Status; eleven projects in Rank 3; four projects in Rank 4; and five projects in Rank 5. Table 3 summarizes Board staff's recommended prioritization and ranking.

Only those projects that received priority rankings of 1 (projects that the Central Valley Water Board has already made a legally-enforceable regulatory commitment to enforcing), 2 (projects that have a special status and are a Central Valley Water Board high-priority), or 3 (projects that meet three or more of the prioritization criteria included in the 2018 Triennial Review Workplan) were prioritized sufficiently to be allocated resources by the Central Valley Water Board. All of the Priority 1 and 2 ranked projects, but not all of the Priority Rank 3 projects, were allocated resources by the Central Valley Water Board. The prioritization process for evaluating the considered projects is included in the 2018 Triennial Review Workplan.

Table 1: Final Prioritization Criteria from the 2018 Triennial Review

Criteria	Definition
Project Addresses Tribal Interests or Specifically Addresses the Human Right to Water	While all Basin Planning Projects must be consistent with the Human Right to Water, certain projects specifically address this need in disadvantaged communities or in tribal communities.
Projects that represent an Efficient Use of Board or Public Resources	Projects with resource commitments from other agencies and/or stakeholders or that build upon existing studies or research represent an efficient use of Board or Public resources. Factors to be considered include cost effectiveness, environmental benefit, and correction of Basin Plan provisions, especially where addressing unnecessary public
Projects to Address Impediments to Water Recycling/Efficient Use/Integrated Water Management	These projects modify Basin Plan provisions that may interfere with statewide goals of promoting water recycling, efficient water use, and integrated water management. Such projects may also further SGMA implementation goals.
Projects that Complement Prior Work	Certain projects may compliment the regulatory intent or directives in separate Board-issued Orders or Basin Plan Amendments
Projects of Special Stakeholder Interest	Projects of special importance due to their value to stakeholders, including federal agencies (including USEPA), State Agencies, Local agencies, or NGOs.
Projects that address a 303(d) listed water quality impairment	Projects that would result in a delisting from the Clean Water Act Section 303(d) list of impaired water bodies for one or more pollutants.
Project supports the Board's efforts on climate change	Projects that implement climate change adaptation priorities, including actions taken to build resilience and to adjust to the impacts of climate change on society and the environment.

There were five categories identified that projects were grouped into once ranked using the above criteria in the 2018 Triennial Review. Table 2 summarizes these categories and Table 3 shows the rankings per project.

Table 2: Ranking Categories

Category	Definition
Rank1: Existing Commitments	Projects that the Board has made a legally-enforceable regulatory commitment to completing
Rank 2: Special Status	Projects are a Board high-priority
Rank 3	Projects that meet 3 or more of the prioritization criteria
Rank 4	Projects that meet at least 2 of the prioritization criteria
Rank 5	Projects that meet 1 of the prioritization criteria

Table 3: Ranks for Projects

Project Number and Name	Rank
Project 1: Support for Basin Planning and Implementation Activities Related to the Proposed Salt and Nutrient Control Programs	Rank 2: Special Status
Project 2: Tribal Beneficial Uses	Rank 3: Meets ≥ 3 Criteria
Project 3: Guidance for Seasonal Beneficial Uses and Diurnal Variations	Rank 5: Meets 1 Criterion
Project 4: MUN in Oil Production Zones	Rank 3: Meets ≥ 3 Criteria
Project 5: Basin Plan Amendment Work Plans under Irrigated Lands General Waste Discharger Requirements	Rank 4: Meets 2 Criteria
Project 6: Individual Beneficial Use Evaluation for West Squaw Creek	Rank 5: Meets 1 Criterion
Project 7: Individual Beneficial Use Evaluation for Grassland Water Supply Channels	Rank 5: Meets 1 Criterion
Project 8: Individual Beneficial Use Evaluation for Groundwater Beneath Sulphur Bank Mine in Lake County	Rank 5: Meets 1 Criterion
Project 9: Appropriate Beneficial Use Designation in Agriculturally-dominated Water Bodies and Agriculture Conveyance Facilities	Rank 3: Meets ≥ 3 Criteria
Project 10: Evaluation of Effluent-dominated and Individual Water Bodies	Rank 4: Meets 2 Criteria

Project 11: Temperature Criteria and Objectives	Rank 3: Meets ≥ 3 Criteria
Project 12: Dissolved Oxygen Objectives	Rank 1: Existing Commitments
Project 13: Ammonia Water Quality Objectives	Rank 3: Meets ≥ 3 Criteria
Project 14: Review of Proposed USEPA Water Quality Criteria and 304(a) Criteria	Rank 5: Meets 1 Criterion
Project 15: Re-evaluation of the Prospective Incorporation by Reference of the Maximum Contaminant Levels	Rank 4: Meets 2 Criteria
Project 16: Delta Nutrient Research Plan	Rank 1: Existing Commitments
Project 17: Fungicides and Herbicides	Rank 1: Existing Commitments
Project 18: Comprehensive Pesticides Control Program	Rank 3: Meets ≥ 3 Criteria
Project 19: Pyrethroid Research Plan	Rank 1: Existing Commitments
Project 20: Sacramento and San Joaquin Rivers Organochlorine Pesticides Re-evaluation	Rank 1: Existing Commitments
Project 21: Statewide Mercury Control Program for Reservoirs	Rank 3: Meets ≥ 3 Criteria
Project 22: Central Valley Rivers Mercury Control Program	Rank 3: Meets ≥ 3 Criteria
Project 23: Delta Methylmercury Control Program	Rank 1: Existing Commitments
Project 24: Watershed-based Plan Implementation and Update for Battle Creek	Rank 3: Meets ≥ 3 Criteria
Project 25: Reassessment of Beneficial Uses and Water Quality Objectives in Specific Reaches of the Pit River	Rank 3: Meets ≥ 3 Criteria
Project 26: Implementation of the Clear Lake Nutrient Control Program	Rank 1: Existing Commitments
Project 27: Development of Procedures to Define and Determine Naturally-occurring Background Conditions	Rank 3: Meets ≥ 3 Criteria

It is the Central Valley Water Board's understanding that there is a potential for resource support from stakeholders for Projects 2 and 25. However, there are no current agreements in place for funding.

The Rank 1, 2, and 3 projects are listed below in the order they were evaluated within the 2018 Triennial Review Workplan. Projects in Ranks 4 and 5 are not included in the below list.

Project 1: Salt and Nitrate Management for Surface and Ground Waters

Priority Rank in 2018 Triennial Review: Rank 2

Description: Salts and nitrates have been accumulating in groundwater and soils, and salts have been accumulating in surface waters—a situation that continues to worsen. Communities rely on these waters for agriculture, industry, and drinking water supplies, and overall quality of life. To improve water quality and preserve the quality of life in the Central Valley, new and improved agricultural, industrial, and municipal water system management practices are needed to reduce salt and nitrate discharges and to protect and provide safe drinking water.

Status: During this Triennial Review period the Salt and Nitrate Control Program (SNCP) amendments became effective after State Board approval in October 2019 (State Water Resources Control Board Resolution No. 2019-0057) and Office of Administrative Law (OAL) approval in January 2020. During this time, staff continued their regular internal cross-program meetings to develop the foundational components for a successful implementation of the SNCP. Staff continued to participate in ongoing CV-SALTS Executive Committee Meetings, stakeholder outreach efforts, and meetings associated with the Early Implementation Management Zone and Prioritization and Optimization (P&O) Study work plan grants. Board staff drafted revisions to the SNCP, vetted the new language with CV-SALTS stakeholders, and the Central Valley Water Board adopted [Board Resolution No. R5-2020-0057](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf) (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2020-0057_res.pdf) with revised Basin Plan Amendment language for revisions to the Salt and Nitrate Control Program.

Due to COVID-19 restrictions, the mailout of the Priority 1 Nitrate NTCs were extended for 60 days, moving the release date from late March to late May 2020 and the Salt NTCs were released in early January 2021.

Project 2: Tribal Beneficial Uses

Priority Rank in 2018 Triennial Review: Rank 3

Description: Beneficial use definitions relating to California Native American tribes were established by the State Water Board in 2017 through Resolution 2017-0027 which adopted Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE)—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions. The new beneficial use definitions are Tribal Tradition and Culture (CUL), and Tribal Subsistence Fishing (T-SUB). In addition, the State Water Board also defined a beneficial use for Subsistence Fishing (SUB). The SUB, T-SUB and Commercial and Sportfishing (COMM) beneficial uses relate to the risks to human health from the consumption of noncommercial fish or shellfish. In addition, the definition for CUL also includes consumption of aquatic resources to support cultural, spiritual, ceremonial and traditional rights.

Status: During this Triennial Review period, Central Valley Water Board staff attended multiple meetings with the US EPA Region 9's Regional Tribal Operations Committee (RTOC), created the Tribal Beneficial Uses Working Group, a subcommittee of the Regional and State Water Board Basin Planning Roundtable, with the purpose of facilitating information exchange on TBUs across agencies. Board staff acted as the Chair for the Working Group's first year before a rotating chair was adopted. Board staff began the development of a process for designating waterbodies in the Central Valley for TBU.

Project 4: MUN in Oil Production Zones

Priority Rank in 2018 Triennial Review: Rank 3

Description: Waste Discharge Requirements General Order R5-2017-0036 provides coverage for discharge of oil field produced wastewater to ponds where the first encountered groundwater is of such poor quality that it cannot support beneficial uses designated in the Basin Plan, or there is no first encountered groundwater. The order applies to discharges to pond(s) that began prior to 26 November 2014. Dischargers must demonstrate that the groundwater beneath the discharge is of poor quality as defined in the Basin Plan. The discharger must also demonstrate that its discharges will not migrate from the areas where the beneficial uses will be de-designated into areas of higher quality groundwater. Applications for over 40 facilities have been submitted for coverage under this General Order. Dischargers in close proximity to each other and with similar hydrogeological conditions are encouraged to participate in a regional or group effort to provide technical information necessary that demonstrates coverage under the General Order is appropriate and to obtain Basin Plan amendments.

Status: During this Triennial Review period, staff developed a Project Charter for one oil field site that has been identified for Basin Plan Amendments in association with this project. Staff have also completed a Tribal Consultation, a CEQA Summary Information Document, a CEQA Scoping Meeting Notification, and conducted the CEQA Scoping meeting on 30 November 2020.

Project 9: Appropriate Beneficial Use Designation in Agriculturally-dominated Water Bodies and Agriculture Conveyance Facilities

Priority Rank in 2018 Triennial Review: Rank 3

Description: In agricultural environments, a complex network of modified, natural and constructed channels conveys irrigation supplies to farms and exports agricultural drainage water to natural streams. Many of these waterways lack habitat and physical flow characteristics to sustain the full range of aquatic life and other beneficial uses.

In Resolution R5-2017-0088, the Central Valley Water Board adopted a process for evaluating the MUN beneficial use in these agriculturally-dominated waterbodies. This project would evaluate the existing ecologic functionality of these waterbodies and would assess aquatic life beneficial use protections and designations within these waterbodies. On 11 August 2017, the Board adopted Resolution R5-2017-0088, to develop a region wide MUN evaluation process in Ag dominated surface water bodies. A State Board hearing to consider approval of the Basin Plan Amendment was held on 10 July 2018. State Board members deferred their decision on the amendments to a future date.

Status: Board staff continue to work with State Board staff to address questions and concerns that

were raised during the 10 July 2018 State Water Board hearing.

Project 11: Temperature Criteria and Objectives

Priority Rank in 2018 Triennial Review: Rank 3

Description: The Basin Plans identify water bodies that require aquatic life protection by designating the following beneficial uses: warm freshwater habitat (WARM), cold freshwater habitat (COLD), fish migration (MIGR) and fish spawning (SPWN). The Basin Plans include water quality objectives for dissolved oxygen and temperature that provide protections for these aquatic life beneficial uses. Stakeholders have indicated that water quality objectives for dissolved oxygen and temperature may need to be re-evaluated to provide appropriate protection of the aquatic life beneficial uses.

The Sacramento River and San Joaquin River Basin Plan has specific numeric temperature objectives for the Sacramento River, Lake Siskiyou and Deer Creek, source to Cosumnes River. Both Basin Plans also have narrative temperature objectives that specify protection of beneficial uses.

In previous Triennial Reviews, the California Department of Fish and Wildlife requested that temperature objectives be established to provide protection of spring-run Chinook salmon and steelhead in the Sacramento River Basin and fallrun Chinook salmon in the San Joaquin River Basin. USEPA Region 10, which has jurisdiction over the Northwestern United States, issued regional guidance for developing numeric temperature standards for the Pacific Northwest to protect cold water (salmonid) beneficial uses. While USEPA Region 9, which has jurisdiction over California, has not adopted similar guidance, it is supportive of the scientific approach used in the USEPA Region 10 guidance for development of numeric temperature standards to protect salmonid beneficial uses in the Central Valley. The Department of Fish and Wildlife also supports the use of the USEPA Region 10 guidance to develop numeric temperature objectives. However, there are also comments that the USEPA Region 10 guidance is inappropriate for use in the Central Valley and requests to develop temperature objectives that are specific to the various Central Valley water ways.

Commenters from previous Triennial Reviews note that some of the Basin Plans' named water bodies are long and have different characteristics from one end to the other. In many of these cases, these long water body reaches are designated both WARM and COLD, and thus protection of aquatic life is based on the COLD criteria, which is generally more stringent. However, this may not be adequately protective of either the warm or cold-water ecosystems. Suggestions include subdividing these reaches to appropriate sizes and designating appropriate beneficial uses for each sub reach, or developing water quality objectives that take into consideration the species that may be present at any particular place or time and, thus, provide seasonality to the water quality objectives.

Status: The 2018 Triennial Review identified Temperature Criteria and Objectives as a priority project to develop regionally applicable temperature criteria for the Central Valley. The report completed in FY18/19 that assessed the EPA Region 10 temperature criteria applicability for the Central Valley recommended the development of regionally based criteria. Central Valley Water Board staff are coordinating with Division of Water Rights on next steps to identify studies and secure funding needed to develop a long-term approach to address unresolved temperature criteria questions and uncertainties. Central Valley Water Board staff participated in a three-part discussion with Water Rights staff and various stakeholders, including state and federal agencies

and academic researchers, on temperature studies. Water Rights and Central Valley Water Board staff continue to collaborate on next steps to develop studies and secure funding.

Project 12: Dissolved Oxygen Objectives

Priority Rank in 2018 Triennial Review: Rank 1

Description: The Basin Plans identify water bodies that require aquatic life protection by designating the following beneficial uses: warm freshwater habitat (WARM), cold freshwater habitat (COLD), fish migration (MIGR) and fish spawning (SPWN). The Basin Plans include water quality objectives for dissolved oxygen and temperature that provide protections for these aquatic life beneficial uses. Stakeholders have indicated that water quality objectives for dissolved oxygen and temperature may need to be re-evaluated to provide appropriate protection of the aquatic life beneficial uses.

The basin plans include: (1) general dissolved oxygen objectives that apply to all water bodies designated as supporting WARM, COLD and SPWN; and (2) site-specific objectives for certain water bodies that are typically higher than the general objectives. Both general and site-specific objectives are applied as minimum levels that are to be equaled or exceeded at all times. These objectives have existed in the Basin Plan since its original adoption in 1975. In 1986, the USEPA developed ambient water quality criteria for dissolved oxygen. The recommended national criteria have not been evaluated for use in the Central Valley.

Status: In June of 2020 the Department of Water Resources (DWR) submitted a draft report detailing the effects of the South Delta Temporary Barriers Project's effects on dissolved oxygen in Old and Middle Rivers to meet a requirement of their 401 Water Quality Certification. Board staff reviewed DWR's draft report and have been meeting with DWR to discuss the findings from that study.

Project 13: Ammonia Water Quality Objectives

Priority Rank in 2018 Triennial Review: Rank 3

Description: The Porter-Cologne Water Quality Control Act requires the Water Boards to develop water quality objectives for the reasonable protection of beneficial uses in surface water and a program of implementation for achieving water quality objectives. Federal regulations require States to adopt narrative or numeric water quality criteria to protect designated beneficial uses. (40 CFR § 131.11(a)(1).) Federal regulations require that states consider establishing water quality criteria based on criteria that United States Environmental Protection Agency (USEPA) publishes under Clean Water Act section 304(a) (40 CFR § 131.11 and 131.20).

Ammonia is a critical pollutant that is discharged to surface water due to its potential adverse impact on aquatic life, causing lower reproduction and growth, or death to the aquatic organisms at concentrations of concern. The Central Valley Water Board has adopted numeric criteria for unionized ammonia (NH₃) for the Tulare Lake Basin that generally protects beneficial uses but has not adopted numeric ammonia criteria into water quality standards for the Sacramento and San Joaquin River Basins of the Central Valley. The Central Valley Water Board has adopted narrative water quality criteria for toxicity that prohibit the discharge of substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. To interpret these narrative criteria, the Central Valley Water Board relies on recommendations from federal

and state agencies as well as peer-reviewed scientific studies. Currently, the Central Valley Water Board uses water quality criteria based on criteria that USEPA publishes under Clean Water Act section 304(a), which is the National Recommended Water Quality Criteria developed in 1999 for ammonia.

In 2013 the USEPA updated the 1999 ammonia criteria for the protection of aquatic life from the toxic effects of ammonia in freshwater. The 2013 ammonia criteria vary based on pH and temperature and reflect the latest scientific knowledge on the toxicity of ammonia to freshwater aquatic life, including new data on sensitive freshwater mussels and gill-breathing snails. Therefore, the 2013 freshwater acute and chronic aquatic life criteria for ammonia is more protective for the aquatic community than the 1999 ammonia criteria.

USEPA recommended a single national acute and a single national chronic criterion be applied to all waters rather than different criteria based on the presence or absence of mussels.

However, these freshwater mussel species included in the 2013 ammonia criteria are different than the freshwater mussel species in the Central Valley Region. The water quality standards regulation at 40 CFR § 131.11(b)(1)(ii) provides states with the opportunity to adopt water quality criteria that are "...modified to reflect site-specific conditions." As with any criteria, site-specific criteria must be based on a sound scientific rationale in order to protect the designated use and are subject to review and approval or disapproval by USEPA. The 2013 ammonia criteria provide recalculation procedures for site-specific criteria derivation. In the case of ammonia, where a state can demonstrate that mussels are not present on a site-specific basis, the recalculation procedure may be used to remove the mussel species from the national criteria dataset to better represent the species present at the site.

Status: Staff worked with the Central Valley Clean Water Association to review a study conducted by CVCWA.

Project 16: Delta Nutrient Research Plan

Priority Rank in 2018 Triennial Review: Rank 1

Description: Nitrogen and phosphorus contribute to water quality problems in the freshwater Sacramento-San Joaquin Delta. These problems include harmful algal blooms (HABs) and associated toxins and nuisance compounds, excess aquatic plant growth, low abundance of phytoplankton species that support the food web, and low dissolved oxygen in some waterways.

More information is needed about the roles of nutrients and other factors in driving these conditions and variations in the drivers across the Delta. The goal of the Delta Nutrient Research Plan is to develop and implement a study plan to determine whether numeric water quality objectives for nutrients are needed to protect water quality in the Delta.

In addition to developing partnerships and securing funding, near-term priorities for Delta Nutrient Research Plan implementation are: completing existing and contracted work; supporting the 2014 Delta Strategic Plan; prioritizing new projects for HAB monitoring and special studies; integrating efforts with the Delta Regional Monitoring Program; initiating review of nutrient thresholds and policies and developing initial nutrient mass balance framework; and developing a Science Action Plan to systematically fill research gaps through enhanced collaboration and funding opportunities.

Status: The Delta Nutrient Research Plan (approved by the Central Valley Water Board in August 2018) identifies information gaps for assessing needs and developing water quality objectives for nutrients in the Delta. Efforts are now focused on filling the information gaps through special studies, monitoring, data evaluation, and modeling.

- Board staff are part of a team that have been monitoring harmful algal blooms (HABs) and cyanotoxins in water and benthic organisms (clams, crayfish, and smaller sediment-dwelling animals) in the Delta.
- Board staff provided support for the cyanobacteria experiments to test a cyanobacteria mitigation method in Discovery Bay.
- Board staff began preparation of mass load estimates of phosphorous and nitrogen in the Delta.
- Central Valley Water Board funded a study through the San Francisco Estuary Institute (SFEI) to develop computer models for nutrient transport and transformations, phytoplankton growth, hydrodynamics, and other processes in the Delta and Suisun Bay.

Project 17: Fungicides and Herbicides

Priority Rank in 2018 Triennial Review: Rank 1

Description: The patterns of species and total abundance of phytoplankton (free-floating algae, bacteria, and cyanobacteria) in the Delta have changed over the last several decades. Changes in algal quality and quantity or “bottom up” effects are factors believed to contribute to the decline in some native fish species. Also, since the early 2000s, there has been an increase in detections of fungicides and herbicides in Delta waters. Little is known about the potential toxicities of these compounds to multiple species of algae and whether the chemicals are contributing to shifts in the quantity and quality of the lower food web.

A priority project in the 2014 Delta Strategic Work Plan is conducting a toxicological assessment of some current-use fungicides and herbicides using Delta algal species. This project also supports the Delta Nutrient Research Plan by helping to identify factors affecting phytoplankton growth and species’ abundances. The Central Valley Water Board has contracted with UC Davis to develop toxicity reference values for current use fungicides and herbicides found in the Delta on resident algal species. This work involves phytoplankton LC50 determination following four-day growth tests with up to four herbicides and fungicides commonly detected in Delta waters. The toxicity thresholds will be compared to existing monitoring data to evaluate potential impacts of these active ingredients on Delta phytoplankton. Additionally, UC Davis will perform cyanobacteria competition testing in the presence and absence of specific herbicides and fungicides to determine whether the presence of these active ingredients has any impact on competition.

Status: Based on the final project report, results of the study were sufficient for Water Board staff to identify certain chemicals as having likely low risk of causing algal toxicity in the Delta as individual pollutants. However, additional testing would likely be required to confirm the results and improve quality control.

Project 18: Comprehensive Pesticides Control Program

Priority Rank in 2018 Triennial Review: Rank 3

Description: Pesticides, when used properly, protect people and their environment from pests (animal, plant, or microbial) that threaten human health and human activities. However, pesticide residues that escape their intended use area may enter waters of the state and cause beneficial use impairments, particularly aquatic life impacts. Various pesticides have been detected at toxic levels in the Central Valley water bodies. The Basin Plans contain requirements relevant to pesticides, including narrative and numeric water quality objectives to protect beneficial uses. However, there are currently very few numeric water quality objectives for pesticides.

The Central Valley Water Board has identified many Central Valley waterways as impaired due to ambient pesticide levels on the Clean Water Act section 303(d) list. The Clean Water Act requires the development of Total Maximum Daily Load (TMDL) allocations or alternative control program to address impairments.

The Basin Plan currently has provisions that are applicable to all pesticides, as well as provisions for the specific control programs. These provisions should be reviewed and modified as necessary to provide a comprehensive regulatory approach to pesticide discharges in the Region.

Status: Minimal progress was made on development of the Comprehensive Pesticide Control Program due resource limitations and focus of TMDL resources on implementing the Control Program for Pyrethroids.

The Board reviewed the Diazinon and Chlorpyrifos Control Programs in December 2020. Future Board review of the control programs for Diazinon and Chlorpyrifos are not planned, since the existing control programs are expected to result in attainment of the water quality objectives for these pesticides, and since nearly all uses of chlorpyrifos have been cancelled in California, effective December 2020.

Project 19: Pyrethroid Research Plan

Priority Rank in 2018 Triennial Review: Rank 1

Description: On 8 June 2017, the Board adopted [Resolution No. R5-2017-0057](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2017-0057_res.pdf) (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2017-0057_res.pdf), a Basin Plan Amendment (BPA) which established a Control Program for Pyrethroid Pesticide Discharges throughout the Sacramento and San Joaquin River Basins, as well as Total Maximum Daily Loads (TMDLs) for pyrethroid pesticides in certain impaired water bodies. The State Water Board approved the BPA on 10 July 2018. The Office of Administrative Law (OAL) approved the BPA on 19 February 2019. On 22 April 2019, USEPA approved the BPA. The BPA, including the TMDLs, are now fully approved and effective.

The Pyrethroid Control Program requires that the Board work with stakeholders and other agencies to develop a Pyrethroid Research Plan to address a number of topics where additional data and information could help inform potential revisions to the pyrethroid control program.

Status: Due to resource limitations, and the workload associated with implementing the Pyrethroid Control Program, the Pyrethroid Research Plan has been delayed. A Pyrethroid Research Plan, incorporating input from stakeholders and other agencies, is scheduled to be completed in 2021.

Project 20: Sacramento and San Joaquin Rivers Organochlorine Pesticides Re-Evaluation

Priority Rank in 2018 Triennial Review: Rank 1

Description: Organochlorine (OC) pesticides have been detected in the water column, sediment and biota collected from water bodies throughout the Sacramento and San Joaquin River Basins at high enough concentrations to include these water bodies on the Clean Water Act section 303(d) list of impaired water bodies, even though nearly OC pesticides have been banned for use in the United States for decades.

Stakeholders are concerned that the water quality objective fluctuates with the accuracy of analytical methods and would prefer numeric water quality objectives that are protective of beneficial uses. Since the adoption of the water quality objective, the USEPA has developed water quality criteria for water column concentrations of organochlorine pesticides that are protective of human health and aquatic life and in 2000 promulgated the criteria in the California Toxics Rule (CTR). At this time, the detection limits for analytical methods approved by the USEPA are higher than the CTR criteria for the organochlorine pesticides. Staff started working on a control program for organochlorine (OC) pesticides in 21 impaired reaches of water bodies within the Central Valley. However, these listings are due to widespread legacy uses of the pesticides and the concentrations of concern are widespread in soils throughout the areas of use and in sediments and biota of downstream waters. Limiting erosion is the action that was identified to further reduce concentrations which is a requirement of existing regulatory programs.

Status: Concentrations are gradually declining over time due to practices to reduce erosion and natural attenuation. Due to resource limitations and lack of additional implementation actions identified, minimal progress was made on this project since the last triennial review.

Project 21: Statewide Mercury Control Program for Reservoirs

Priority Rank in 2018 Triennial Review: Rank 3

Description: Elevated mercury levels in soil, water, and fish can be expected in areas where mercury was mined (Coast Range), where mercury was used to extract gold (Sierra Nevada and Cascade Range), and in downstream water bodies where the mercury is methylated (Delta, rivers, and reservoirs). In addition, elevated mercury levels in some waters are due to modern point and non-point sources as well as atmospheric deposition. Mercury is a problem because it accumulates in aquatic organisms to levels that pose a threat to predator species and human health due to fish consumption.

Statewide, there are about 130 reservoirs with fish tissue mercury concentrations that exceed water quality objectives. To address the mercury problem in these reservoirs, the State Water Resources Control Board has undertaken development of a statewide program ("Statewide Mercury Control Program for Reservoirs") with the goal of reducing mercury levels in fish through a multifaceted approach; (1) reduce loading of mercury to the reservoirs; (2) and develop and test management practices in the reservoirs to reduce methylmercury production and subsequent bioaccumulation.

This multiyear project has been led by technical staff from the Central Valley Water Board, the San Francisco Bay Water Board, and the State Water Board. A draft staff report and

implementation provisions have been submitted to external scientific peer review and are posted on the [Statewide Mercury Control Program for Reservoirs website](https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs) (https://www.waterboards.ca.gov/water_issues/programs/mercury/reservoirs). Over the past few years, Board staff have been meeting with many reservoir owners and operators to discuss development of coordinated reservoir water chemistry and fisheries management pilot tests. Board staff have begun evaluating alternatives to the typical TMDL approach to addressing impaired waters.

Status: Board staff attended meetings and conferences with reservoir owners, operators, stakeholders, researchers, and State Water Board.

Project 22: Central Valley Rivers Mercury Control Program

Priority Rank in 2018 Triennial Review: Rank 3

Description: Elevated mercury levels can be expected in areas where mercury was mined (Coast Range), where mercury was used to extract gold (Sierra Nevada and Cascade Range), and in downstream water bodies where the mercury is methylated (Delta, rivers and reservoirs). In addition, elevated mercury levels in some waters are due to modern point and non-point sources as well as atmospheric deposition. Mercury is a problem because it accumulates in aquatic organisms to levels that pose a threat to predator species and human health due to fish consumption. Because of elevated mercury levels in fish tissue, numerous water bodies, including the Delta, Delta tributaries, and numerous reservoirs and streams have been included on the Clean Water Act Section 303(d) list of impaired water bodies. Health advisories have been issued for many water bodies in the Central Valley due to the mercury levels in fish. Recent studies may result in health advisories being issued for additional water bodies as well as more water bodies being added to the Clean Water Act 303(d) list for mercury impairments.

The Central Valley Water Board adopted several Basin Plan Amendments that include fish tissue objectives, implementation programs, and TMDL allocations for controlling mercury and methylmercury in Clear Lake, Cache Creek and tributaries, and the Delta.

The Delta Mercury Control Program in [Resolution No. R5-2010-0043](https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2010-0043_res.pdf) (https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2010-0043_res.pdf) identified methylmercury allocations for tributary inputs to the Delta and Yolo Bypass and specifically notes control programs are needed for additional rivers.

Status: In an effort to focus limited staff resources on the Delta Methylmercury TMDL (Rank 1, see below), minimal work has been completed on this project.

Project 23: Delta Methylmercury Control Program

Priority Rank in 2018 Triennial Review: Rank 1

Description: Elevated mercury levels can be expected in areas where mercury was mined (Coast Range), where mercury was used to extract gold (Sierra Nevada and Cascade Range), and in downstream water bodies where the mercury is methylated (Delta, rivers and reservoirs). In addition, elevated mercury levels in some waters are due to modern point and non-point sources as well as atmospheric deposition. Mercury is a problem because it accumulates in aquatic organisms to levels that pose a threat to predator species and human health due to fish

consumption. Because of elevated mercury levels in fish tissue, numerous water bodies, including the Delta, its tributaries, and numerous reservoirs and streams have been included on the Clean Water Act Section 303(d) list of impaired water bodies. Health advisories have been issued for the Delta due to the mercury levels in fish. Recent studies may result in health advisories being issued for additional water bodies as well as more water bodies being added to the Clean Water Act 303(d) list for mercury impairments.

In the past, the Central Valley Water Board adopted Basin Plan Amendments that included fish tissue objectives, implementation programs, and Total Maximum Daily Load (TMDL) allocations for controlling mercury and methylmercury in Clear Lake, Cache Creek and its tributaries, and the Delta.

The Delta Mercury Control Program (DMCP) and associated Methylmercury TMDLs requires entities responsible for discharging methylmercury (MeHg) in the Delta to conduct source control studies and evaluate and develop MeHg management methods. The DMCP requires the studies to be reviewed by an independent scientific peer review panel (Review Panel). Seven control study reports investigating MeHg management in municipal wastewater and urban stormwater runoff discharges have been completed and evaluated by the Review Panel. The Review Panel's report assessing the seven control study reports on municipal wastewater and urban stormwater runoff discharges can be reviewed in the [Delta Mercury Control Program Phase 1 Methylmercury Control Studies Independent Scientific Review](https://www.deltacouncil.ca.gov/pdf/science-program/2019-08-22-delta-methylmercuryreview-part-1.pdf) (<https://www.deltacouncil.ca.gov/pdf/science-program/2019-08-22-delta-methylmercuryreview-part-1.pdf>).

Status: Board staff reviewed the control studies and the report by the Review Panel. Board staff met with dischargers to discuss the control study reports and participated in a meeting for control study participants to summarize control study findings. Board staff initiated the California Environmental Quality Act (CEQA) process by mailing AB 52 letters to applicable tribes on the Native American Heritage Commission List in December 2019. No consultation requests were received during the consultation period. Board staff continued the CEQA process by planning CEQA scoping meetings in 2021. A second Review Panel has been convened to review two delayed control studies. Board staff are using information from these studies and recommendations from the Review Panel to consider revisions to the DMCP.

Project 24: Watershed-based Plan Implementation and Update for Battle Creek

Priority Rank in 2018 Triennial Review: Rank 3

Description: Battle Creek is one of the northernmost major tributaries to the Sacramento River and is considered a high priority stream because it contains critical cold-water habitat for endangered Spring Run Chinook salmon, supports important populations of Chinook salmon and Central Valley steelhead, contains numerous fish hatcheries, and is the location of an ongoing salmonid habitat restoration project that is receiving substantial funding from local, state, and federal agencies, as well as private entities. There is concern of excessive sedimentation endangering the aquatic habitat beneficial uses. Staff from the Forest Activities Program are working with stakeholders to design a Watershed-Based Plan (WBP) which will coordinate watershed restoration efforts and disseminate information relevant to all stakeholders in the watershed.

Status: Board staff participated in the development of the WBP through multiple activities including participation in Greater Battle Creek Working Group meetings, organization of the WBP Technical Advisory Committee, and coordination with watershed stakeholders. Board staff

conducted three site inspections to assess BMP effectiveness and implementation associated with the Hazard Tree removal project.

In process of identifying funding to implement the WBP. Staff continue to oversee a contract with 34 North for hosting Battle Creek watershed data on the Sac River Watershed portal.

Project 25: Pit River (Reassess Beneficial Uses and Water Quality Objectives in Specific Reaches)

Priority Rank in 2018 Triennial Review: Rank 3

Description: The Basin Plan identifies beneficial uses for the South and North Forks of the Pit River, the Pit River from the confluence of the forks to the mouth of Hat Creek, and the Pit River from the mouth of Hat Creek to Shasta Lake. The Pit River is over 200 miles long and varies in elevation from about 4,300 feet above mean sea level at the confluence of the forks to about 1,000 feet above mean sea level at Lake Shasta.

Commenters have requested that the Central Valley Water Board re-evaluate existing beneficial uses in these reaches of the Pit River, consider designating reaches of the Pit River as supporting Tribal Cultural (CUL) and Tribal Subsistence Fishing (T-SUB) beneficial uses, and divide the Pit River into additional reaches to provide more appropriate protection of the beneficial uses. Commenters have also requested that the Central Valley Water Board re-evaluate water quality objectives, including pH and temperature, for the protection of aquatic life and to reflect the environmental conditions in the Pit River. Several stakeholders have conducted assessments of the Pit River and have indicated an interest in conducting additional assessments that could lead to basin plan amendments to address beneficial uses and water quality objectives in the Pit River.

Status: Board staff attended meetings with Modoc Resource Conservation District (MRCD) representatives and members of the Pit River Tribe to discuss the Pit River reassessment project and tour the upper Pit River watershed. These discussions culminated in an agreement with MRCD to collate all existing temperature-related water quality data and to work with Board staff to determine if additional field surveys are needed to fill data gaps. Additionally, Board staff organized and participated in a meeting between members of the MRCD and the Pit River Tribe in January 2020. During that meeting Board staff provided a brief presentation on the history of the temperature criteria ascribed to the Pit River. The MRCD and Pit River Tribe agreed to continue discussions on this topic and Board staff agreed to facilitate these discussions if requested.

Project 26: Implementation of the Clear Lake Nutrient Control Program

Priority Rank in 2018 Triennial Review: Rank 1

Description: In 2007, the Central Valley Water Board adopted a basin plan amendment to establish a TMDL control program to reduce phosphorus contributions to Clear Lake and decrease the incidence of nuisance algal blooms in Clear Lake. The Basin Plan states that compliance with load and waste load allocations for phosphorus in Clear Lake was required by 19 June 2017. Many implementation actions have been completed and are in progress. However, more data and information is needed to assess whether responsible parties are meeting their respective allocation. As a result, Central Valley Water Board staff are working with the responsible parties and stakeholders to obtain load assessments and determine next steps for the

TMDL and Control Program.

Status: Board staff worked with TMDL identified responsible parties to obtain information regarding compliance with phosphorus load allocations. There have been delays in this process due to restrictions caused by COVID-19. Board staff are currently summarizing the information received from these parties into a Technical Memo that will evaluate whether the TMDL load allocations have been met and recommend next steps.

Board staff have continued to participate in the Blue-Ribbon Committee for the Rehabilitation of Clear Lake. Meeting details are publicly noticed by the California Natural Resources Agency. More information regarding the Committee can be found on the [Natural Resources Agency's Blue-Ribbon Committee website](https://resources.ca.gov/Initiatives/BlueRibbon-Committee-for-the-Rehabilitation-of-Clear-Lake) (<https://resources.ca.gov/Initiatives/BlueRibbon-Committee-for-the-Rehabilitation-of-Clear-Lake>).

Board staff developed a joint brochure with agencies, organizations, and Tribes in Lake County focused on educating residents about nutrient management and steps they can take to reduce nutrient impacts/erosion into Clear Lake. More information about the Clear Lake Nutrient Control Program can be found on the [Clear Lake Nutrient TMDL webpage](https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/clear_lake_nutrients/index.html) (https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/clear_lake_nutrients/index.html).

ATTACHMENT 2 – Information for Commenting on 2021 Triennial Review

Any information submitted to the Central Valley Water Board in connection with the Board's Triennial Review is considered public and may be posted on the Board's website.

Comments should include the following information, as appropriate:

1. **Submitting Organization:** Provide the name of the organization, entity or person submitting the data, information, documents or evidence for consideration.
2. **Contact Person:** Provide the name, address, phone number(s), and e-mail address for the contact person that can answer questions about the information provided. (The Board discourages the submittal of home addresses and home telephone numbers, as this information will be considered public once submitted to the Board. To the extent that home addresses or home phone numbers are submitted, the Board will only use the information for the purposes of communicating with the person submitting the information.)
3. **Affected Waterbody(ies) and Watershed(s):** Identify the specific waterbody(ies) and watershed(s) affected by the data, information or evidence.
4. **Affected section of the Basin Plan:**
 - a. **Affected Beneficial Use:** If applicable, identify the beneficial use(s) listed in the Basin Plan that is addressed by the data, information or evidence. Alternatively, if the information relates to a beneficial use not currently designated in the Basin Plan, identify the waterbody(ies) to which the beneficial use(s) should apply.
 - b. **Affected Water Quality Objective:** If applicable, identify the water quality objective for which the data, information, or evidence is being submitted. If the data, information, or evidence relates to more than one water quality objective, please list all water quality objectives to which the information pertains.
 - c. **Affected Implementation Program:** If applicable, identify the existing implementation program that needs modification or a description of a new implementation program that should be developed. Implementation programs include any necessary monitoring and surveillance to determine the effectiveness of the implementation program.
5. **Concise Summary of Suggested Revisions:** Describe the suggested basin plan amendments based upon the data, information or evidence submitted.
6. **Supporting Data, Information or Evidence:** For each comment, list any existing documents, data, information, and/or specific evidence (with references to particular pages as appropriate) that the Central Valley Water Board should consider and provide copies of the documents, data, information, and/or evidence referenced (electronically, where possible).
7. **Concise Summary of Data, Information or Evidence:** Describe in one or two sentences the essence of the data, information, or evidence submitted to support the suggested revisions to the Basin Plan.
8. **Stakeholder Support for Suggested Revisions to the Basin Plan:** If applicable, please explain any widespread stakeholder support for the suggested revisions. Also, if available, please list supportive stakeholder(s) with phone or email contact(s).

9. Financial Support for Suggested Revisions to the Basin Plan: If applicable, please describe any substantial resources that have been invested in developing technical information to support the requested revisions. Also, if applicable, please describe any substantial resources that may be available to augment the Central Valley Water Board resources that will be required to develop the requested revisions.
10. Any additional information that the Central Valley Water Board should consider.