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Issue Descriptions for the 2021 Triennial Review of the San Francisco Bay Basin Water Quality Control Plan

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1. Introduction

The San Francisco Bay Regional Water Quality Control Board (Water Board) is conducting the 2021 triennial review of the water quality standards in its Water Quality Control Plan (Basin Plan, http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml). The last triennial review was completed in 2018. The Water Board's triennial review will identify those issues that are considered a priority to address through Basin Plan amendment projects. Based on previous stakeholder comments, coordination with the statewide Basin Plan roundtable, and a review of regulatory program needs, Water Board staff has identified the following issues within the Basin Plan for consideration in the upcoming 2021 triennial review. The projects are presented in categories of project type: beneficial uses, water quality objectives, implementation plans, other plans and policies, and essential basin planning activities. Their order within these categories does not reflect their priority, which will be established through the triennial review public process. We prepared this list to inform the public and inspire interested parties to generate ideas to share with us to assist in our efforts to identify and prioritize Basin Plan amendment projects that will best address the water quality planning needs of our region.

2. Update Beneficial Uses

State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State. The beneficial uses described in Chapter 2 of the Basin Plan define the resources, services, and qualities of the State's aquatic systems. The Water Board is charged with protecting all these beneficial uses from pollution and nuisance that may occur as a result of waste discharges in the Region. Beneficial uses of surface water bodies (lakes, rivers, and wetlands) and groundwater aquifers presented here serve as a basis for establishing water quality objectives and discharge prohibitions to attain this goal.

2.1. Designate Tribal Tradition and Culture, Tribal Subsistence Fishing, and Subsistence Fishing Beneficial Uses in the San Francisco Bay Region

In 2017, the State Water Board adopted Resolution No. 2017-0027. The provisions for this resolution (Final Part 2 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California—Tribal and Subsistence Fishing Beneficial Uses and Mercury Provisions) defined three new beneficial uses: Tribal Tradition and Culture (CUL), Tribal Subsistence Fishing (T-SUB), and Subsistence Fishing (SUB). Resolution No. 2017-0027 established these three uses in the Statewide Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California, but it did not designate these uses for any specific waterbodies in California nor require that the uses be designated. Regional Water Boards are generally responsible for designating beneficial uses for specific waterbodies (where the use applies) within their respective regions, and this designation occurs through a basin planning process.

This candidate project is to amend the Basin Plan to designate these three uses for waterbodies in the San Francisco Bay Region. In executing this project, Water Board staff would work with local tribes as well as groups representing subsistence fishing communities to document the existence of these uses along with relevant spatial and temporal attributes. Upon reviewing the available documentation, Water Board staff would determine the appropriate geographic scope (e.g., specific waterbodies or regional designation) of the use designations for the Basin Plan amendment.

2.2. Modify Groundwater Sub-Basin Boundaries

This candidate project would involve revising the boundaries of two groundwater basins located in San Francisco and San Mateo counties to be consistent with the California Department of Water Resources Bulletin 118. DWR's Bulletin 118 defines the Westside Basin and the Islais Valley Basin each as one entire groundwater basin with no delineated sub-basins. This update can also provide an opportunity to make a small adjustment to the boundaries of the Niles Cone sub-basin in the Fremont area. The Basin Plan, Figure 2-10C and Table 2-2, may not conform to Bulletin 118 and should be reviewed and updated as necessary.

The Bulletin 118 boundaries are used as the basis for statewide water resource, planning, management, and funding decisions, as well as the California Statewide Groundwater Elevation Monitoring Program. DWR's draft Basin Boundary Regulations, published on July 17, 2015, state that, "revision of any basin boundaries or creation of new sub-basins approved by the Department shall be consistent with the State's interest in the sustainable management of groundwater as expressed in the Sustainable Groundwater Management Act (SGMA)." While elements of the Basin Plan are not required to be consistent with SGMA, maintaining consistency in statewide groundwater management will make planning efforts more effective and efficient.

3. Update Water Quality Objectives

The overarching purpose of water quality regulation is to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society and to accomplish this in an economically and socially sound manner. California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and to control activities that can adversely affect aquatic systems. The following candidate projects provide specific examples of water quality objectives that we are considering updating.

3.1. Clarify Implementation Requirements for Municipal Supply and Agricultural Supply Water Quality Objectives

The Basin Plan should be revised to update the primary and secondary maximum contaminant levels (MCLs) listed in Table 3-5 and clarify appropriate implementation measures for the secondary MCLs. Basin Plan section 3.3.22 prospectively establishes the primary and secondary MCLs specified in Title 22 of the California Code of Regulations as municipal supply water quality objectives. U.S. EPA developed the secondary MCLs as non-mandatory drinking water standards to guide public water systems in managing drinking water for aesthetic considerations, such as taste, color, and odor; concentrations above secondary MCLs do not necessarily present human health risks. When these objectives were originally included in the Basin Plan, the administrative record provided some background information about their implementation. Moreover, California regulations related to drinking water provide guidance on the appropriate averaging periods for determining compliance with MCLs. The MUN and AGR objectives were "meant to be applied at the tap because the level of water treatment or the quality/quantity of blending water could vary significantly. If necessary, exemptions from achieving these objectives could be granted if a consistent level of treatment or blending could be demonstrated."

The Basin Plan should also clarify appropriate implementation measures for the agricultural supply water quality objectives listed in Table 3-6. The Basin Plan does not currently explain how to implement “threshold values” versus “limits.”

3.2. Consider Incorporating Clean Water Act Section 304(a) Criteria into the Basin Plan

Federal regulations at 40 CFR 131.20(a) require states to review their water quality standards in comparison to Clean Water Act Section 304(a) criteria as new information becomes available. Water Quality objectives (WQOs) in Basin Plan Chapter 3 or in effect under the federal California Toxics Rule (2000) that are not as protective as the U.S. EPA nationally recommended criteria need to be updated. States should consider adopting new or revised 304(a) criteria as objectives as part of the Triennial Review process.

In 2015, U.S. EPA issued 304(a) recommendations for new and revised human heath water quality criteria for seven pollutants that are not in the California Toxics Rule (CTR, Arsenic, Chloroform, 3-Methyl-4-Chlorophenol, 1,1,1-Trichloroethane, 1,2,4-Trichlorobenzene, and Zinc). The 2015 ruling contains revised water quality criteria that are more stringent than the CTR for 64 pollutants and contains revised water quality criteria that are less stringent than the CTR for 19 pollutants.

This candidate project would update the Basin Plan to incorporate, as necessary, the revised 304(a) criteria. The Water Board has the authority to incorporate new or updated WQOs into its Basin Plan as needed to adequately protect beneficial uses. However, for pollutants that are part of the CTR, further action by U.S. EPA to de-promulgate the CTR criterion may be necessary in situations where the updated WQO is less stringent than the CTR criterion. Moreover, it is often the case that adopting any new or revised 304(a) criteria is more appropriately and efficiently accomplished by the State Water Board, because the criteria should apply statewide rather than to a single region.

3.3. Develop Flow Criteria for Selected Bay Area Streams and Rivers

The Basin Plan does not currently include narrative or numeric objectives for in-stream flow. There are some water bodies (e.g., creeks, streams, rivers) in the Region where anthropogenically-reduced flows may be harming beneficial uses related to aquatic life during at least a portion of the year.

For this project, flow criteria or objectives would be tributary- or watershed-specific. Water Board staff would determine which water bodies in the Region have beneficial uses at risk from reduced flows, collect available instream flow data, and investigate various modeling and monitoring approaches to ultimately identify high priority water bodies. Flow criteria developed elsewhere relied on multiple years of stream gage data, which are not available for most tributaries in the San Francisco Bay Area. Thus, our approach may require modeling the hydrograph for many catchments. We would seek to leverage limited available resources to conduct needed studies over large geographic areas while addressing multiple species, life stages, and fluvial processes.

The California Environmental Flows Workgroup’s Technical Team is currently developing the California Environmental Flows Framework (CEFF). The CEFF will define a framework for determining in-stream ecological flow criteria to protect aquatic life beneficial uses, recommend

guidelines for its implementation, and provide a coarse resolution set of ecological flow recommendations for all stream classes in California. This effort will support various regulatory and management agencies in developing and implementing local, regional, and statewide ecological flow criteria. The CEFF is a two-tiered framework that provides a set of coarse ecological flow criteria for all streams in California (Tier 1) and a technical guidance document for estimating refined ecological flow criteria at regional to site-specific scales (Tier 2). It is anticipated that the CEFF will serve as a foundation for efforts by the California Environmental Flows Workgroup to develop robust ecological flow regime recommendations statewide.

Flow criteria could address minimum low flows during critical time periods (e.g., summer), but can also incorporate ecological benefits of a complete flow regime, which includes the magnitude, variability, duration, and timing of flows. This project is highly complex and would require close coordination with the California Department of Fish and Wildlife as well as State Water Board's Division of Water Rights because of the nexus with water rights laws.

3.4. Nutrient Management Strategy and Dissolved Oxygen Objectives in San Francisco Bay

This candidate project would involve staff participation in the Nutrient Management Strategy (NMS) for San Francisco Bay and development of a Basin Plan amendment to memorialize key outcomes of the NMS. Water Board staff has been working with stakeholders and scientists including the San Francisco Estuary Institute (SFEI) and the Southern California Coastal Water Research Program (SCCWRP) to support regulatory management decisions through an improved understanding of the role nutrients play in water quality in the San Francisco Bay Estuary. The NMS Science Plan includes: a monitoring program to gather the observations necessary to support modeling of the Bay ecosystem's response to nutrients, a framework to assess the Bay's condition with respect to nutrients, and development of nutrient management strategies, particularly for NPDES municipal wastewater facilities.

The Basin Plan amendment would likely include: a description of the nutrient management strategy for NPDES wastewater facilities (possible nutrient load limitations) and a description of the SF Bay nutrient assessment framework and associated observation program developed through the NMS. Additionally, the candidate Basin Planning project would investigate whether site-specific dissolved oxygen objectives (SSOs) are needed for sloughs and possibly other margin habitats in South San Francisco Bay. If needed, these SSOs would likely be informed by a completed project that included dissolved oxygen SSOs for Suisun Marsh because the approach taken to develop site-specific objectives for Suisun Marsh is expected to be applicable to other shallow-water habitats around the Bay.

3.5. Review Un-ionized Ammonia Water Quality Objective for San Francisco Bay and Freshwaters

This candidate project would be to review and revise, as necessary, the un-ionized ammonia water quality objective for San Francisco Bay Region waterbodies and its associated implementation provisions. Specifically, the purpose of the project is to ensure that the Basin Plan's objective and implementation provisions (e.g., for NPDES permits) are consistent with the magnitude and averaging period of U.S. EPA's acute and chronic saltwater criteria (1989) for un-ionized ammonia as well as U.S. EPA's 2013 recommended freshwater criteria.

3.6. Temperature Limits to Protect Salmonids

This candidate project would involve reviewing the latest scientific information applicable to Bay Area streams to set appropriate temperature thresholds and an acceptable range of water temperatures to protect salmonids at various life stages. The material reviewed would include available information on the multiple stressors to steelhead in Bay Area creeks and whether local steelhead populations are adapted to local conditions. The goal would be to amend Chapter 3 (Water Quality Objectives) of the Basin Plan to incorporate the protective temperature thresholds along with explanatory guidance as to their applicability.

3.7. Clarify Turbidity Water Quality Objective

The Basin Plan's turbidity water quality objective is difficult to interpret:

> *Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.*

This language is often subject to misinterpretation when determining whether dredging operations are negatively impacting water quality in the Bay. The language can be improved for clarity as well as consistency with turbidity objectives found in the Basin Plans from other regions. The project will also revise the objective to state that waste discharges should not increase normal background light penetration or turbidity above 55 NTU in areas where natural turbidity is 50 NTU or less. Such revision would codify the conventional interpretation of this objective.

4. Update Implementation Plans

The Water Board's overall mission is to protect the beneficial uses supported by the quality of the Region's surface water and groundwater. Together, the beneficial uses described in detail in Chapter 2 define the resources, services, and qualities of aquatic ecosystems that are the ultimate goals of protecting and achieving water quality. The objectives presented in Chapter 3 present a framework for determining whether water quality is indeed supporting these beneficial uses. Chapter 4 of the Basin Plan (Implementation Plans) describes in detail the Water Board's regulatory programs and specific plans of action for meeting water quality objectives and protecting beneficial uses. The following are specific implementation plan sections we have identified as candidates for updating.

4.1. Dredge and Fill Policy Update

This candidate project would involve incorporating the "State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State" (Procedures) adopted by the State Water Board into Existing Basin Plan requirements for the placement of fill into waters of the State. Existing Basin Plan requirements apply in some circumstances where the new statewide policy does not (e.g., agricultural roads and stock ponds). Therefore, incorporation of the new Procedures will involve careful clarification of the applicable requirements for various fill activities.

4.2. Environmental Screening Levels (ESLs) for Groundwater Cleanups

Water Board staff would update the Basin Plan with a description of the tiered decision process used to determine relevant exposure pathways and appropriate site cleanup levels using environmental screening levels (ESLs). ESLs are conservative contaminant concentrations in a specific media (soil, soil gas, or groundwater) below which the contaminant can be assumed not to pose a significant, long-term (chronic) threat to human health and the environment. The decision process expands the existing protection of groundwater beneficial uses to include potential risk to human health from indoor air exposure and protection of aquatic receptors.

Accomplishing this project would both promote consistency and optimal resource allocation in groundwater cleanup projects, because ESLs are a powerful tool to focus regulatory attention on the most significant contaminant concerns during site assessment and cleanup. This update would not incorporate the current ESL criteria as fixed numbers but rather memorialize the approach for deriving and applying ESLs to cleanup sites. This project would document our current process for screening sites using a multiple pathway conceptual model, which includes groundwater and surface water interactions.

4.3. Regional Stream Protection Policy

The candidate project is a Basin Plan amendment that would emphasize the importance of protecting riparian corridors and ephemeral ponds in the region. The project would consist of two components. First, we would add information to Chapter 1 that presents current scientific understanding about how riparian corridors and ephemeral ponds play an important role in maintaining healthy aquatic ecosystems. Second, we would add language in Chapter 4 that includes clear definitions and delineation procedures for ephemeral streams and riparian corridors along with policy measures to promote their protection in a variety of permitting contexts.

4.4. Update Cyanide Dilution Credits

The project would be to update Table 4-6 to add cyanide dilution credits for shallow water dischargers and discharge locations not already in the table. This project may also involve simultaneously adding dilution credits for chronic toxicity. Some dischargers (e.g., Fairfield-Suisun and City of Palo Alto) discharge to waters not listed in the table. Therefore, with each permit reissuance, the Water Board must consider appropriate mixing zones and dilution credits for the discharges not listed in Table 4-6. Often, the same effluent is discharged to two or more receiving waters. In these cases, compliance with the effluent limitations is typically measured at just one location; however, different effluent limits may apply. Cyanide effluent limitations may differ for no reason other than that the mixing zones (or lack thereof) result in different dilution credits. As a result, the effective effluent limitations may be more stringent than the Water Board intended when it adopted Table 4-6. This project would ensure consistency and reduce the effort needed to resolve these challenges during permit preparation. This project could be combined with the project to add to the Basin Plan unnamed waterbodies receiving NPDES discharges.

5. Update Plans and Policies

In addition to the Basin Plan, many other plans and policies direct the Water Board's actions or clarify the Water Board's intent. Chapter 5 describes numerous State Water Board plans and

policies and Water Board policies. The following are specific examples of policies we are considering updating.

5.1. Climate Change and Wetland Policy Update

Climate scientists agree that the earth's climate is changing, and sea levels are rising as a result. As the earth's climate changes, California will likely experience rising sea levels, warmer temperatures, more extreme weather, including droughts, and changes in the seasonal patterns of rainfall and snowmelt runoff. California's changing climate can present challenges for every Water Board program, but the Basin Plan does not currently mention climate change or how climate change may affect the Water Board's mission to protect and restore water quality.

The first element of the candidate project would update the Basin Plan to reflect the relationship between climate change and water quality regulation and would consist of multiple elements. First, a narrative description would be added to Chapter 1 to explain how climate change could lead to physical and biological impacts like severe drought, inundation of low-lying areas from sea level rise, threats to wetlands and infrastructure, changes in aquatic species composition, impediments to drainage from low gradient streams, mobilization of contaminants from near-shore contaminated areas, and desiccation of first-order streams.

The second project element would review existing policies that could be used to promote resilience of Bay ecosystems and shoreline areas to sea level rise. Staff efforts to date have focused on three policy areas. We are reviewing: (1) how existing policies regulating wetland fill, wetlands conservation, and ecosystem restoration can best incorporate consideration of sea level rise; (2) the need for updating existing policies to facilitate the use of treated wastewater and stormwater as a source of freshwater to nourish tidal marshes (see candidate project description 4.2); and (3) how sediment management policies can optimize the beneficial reuse of dredged sediment to enhance flood control, support baylands restoration, and promote shoreline resilience.

The scope of the problem makes this project technically complex and challenging, but there is a growing body of information that can inform our policies at the regional level. Other phases of this project could explore other potential changes to the Basin Plan to address other program needs or additional policy development to advance use of natural infrastructure and living shoreline solutions as shoreline adaptation solutions.

6. Essential Basin Planning Activities

Approximately one-sixth of Basin Planning staff resources will likely be reserved for activities that are not discretionary. These essential, or non-discretionary activities, fall into three categories. First, we intend to dedicate a portion of Basin Planning staff resources to attend to projects promoting environmental justice. For example, Project 2.1 (Designate Tribal Tradition and Culture, Tribal Subsistence Fishing, and Subsistence Fishing Beneficial Uses in the San Francisco Bay Region) may be supported in this manner. Second, Basin Planning staff must participate in the Nutrient Management Strategy for San Francisco Bay as well as statewide regulatory program roundtables and workgroups associated with development of statewide policies (e.g., the Biostimulatory Substances Objective and Program to Implement Biological Integrity). Finally, the Planning Division has a responsibility to ensure that the Basin Plan is kept up-to-date and accurate.

This third category of essential activity (ensuring accuracy of the Basin Plan) involves making changes to the Basin Plan that clarify or update some of the program descriptions to be consistent with new laws, plans, and regulations or to correct minor errors. These changes are sometimes needed for clarity and to ensure that the public is informed about the latest requirements to protect water quality. These editorial changes will sometimes be non-regulatory. That is, they would not impose new requirements on permittees, but rather clarify existing regulatory requirements or program descriptions. Because we intend to allocate a portion of our staffing resources to making these editorial changes, the activities described below will not be ranked with the previously described projects. However, we invite public review and comment as well as additional editorial suggestions for the section below.

6.1. Editorial Revisions, Minor Clarifications, or Corrections

Possible Basin Plan editorial changes have been identified by Water Board staff and through suggestions submitted by the public during previous Triennial Reviews. Some of these could be included as additional components for another Basin Planning project. In addition to non-regulatory components from other candidate projects, potential changes include but are not limited to:

- Update Section 4-8 (Stormwater Discharges) to incorporate by reference the limitations on point source stormwater and nonpoint source discharges to provide special protections for marine aquatic life and natural water quality in Areas of Special Biological Significance (ASBS).
- Update Sections 4-8 and 4-14 on urban stormwater to remove outdated and confusing terminology. The two sections should be combined, streamlined, and edited to be consistent with current regulatory practices.
- Discuss requirements of the Sustainable Groundwater Management Act in chapter 4.
- Discuss direct and indirect potable use programs in chapter 4.
- Document the approved Salt and Nutrient Management Plans (SNMPs) for Sonoma Valley, Livermore-Amador Valley, and Santa Clara Valley. There may also soon be specific management actions developed to protect groundwater basins, such as in the nitrate areas of concern of the Livermore and Coyote valleys.
- Cleanup Chapters 5 and 6 in terms of citations to plans and policies as well as water quality monitoring information. Consider dropping Chapter 6 and moving essential material elsewhere in the Basin Plan.
- Update or delete Figure 4-4 noting dredge material disposal and beneficial reuse sites.
- Add to the Basin Plan several unnamed water bodies that receive permitted discharges. The Basin Plan names some of the water bodies in the San Francisco Bay Region and designates beneficial uses for these water bodies. However, a small number of NPDES wastewater permits cover discharges to water bodies not named in the Basin Plan. This should be a straightforward project that could feasibly be combined with another Basin Plan amendment.
- Incorporate statewide mercury objectives into the Basin Plan. In 2017, the State Water Board adopted Resolution No. 2017-0027, which established five new mercury water quality objectives for the protection of people and wildlife that consume fish and apply to all the inland surface waters, enclosed bays, and estuaries of the State that have the applicable beneficial uses. This effort involves making non-regulatory amendments to the

Basin Plan to incorporate these new objectives and make necessary clarifications as to their applicability for various waterbodies throughout the Region.

- Update the Basin Plan's toxicity testing requirements. In December 2020, the State Water Board approved an amendment to the Toxicity Control Provisions of the Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California. The new toxicity provisions supersede aspects of the Basin Plan's current toxicity policy, so the Basin Plan must be edited to conform to the policy.
- Align the Ocean Plan and Basin Plan for recreational contact use (REC1). The applicability of the water contact recreation (REC1) beneficial use in the Pacific Ocean is defined in the California Ocean Plan. The Ocean Plan restricts effluent limits intended to protect REC1 to a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour and areas designated with REC1 by a regional board. The Basin Plan provides no specific details on where REC1 applies, which leads to complications in writing NPDES permits for the San Francisco Public Utilities Commission's Oceanside outfall that discharges effluent well beyond three nautical miles. The project would clarify that the Basin Plan's application of REC1 to the Pacific Ocean would be equivalent to the Ocean Plan's distance and depth contour specification.

7. Projects Removed from Candidate Project List

Two candidate projects from the 2018 Triennial Review (*Revise Instantaneous Chlorine Effluent Limits* and *Incorporate Revised U.S. EPA Recreational Water Quality Criteria for Bacteria*) were removed because we completed them since the previous review. The project in Lake Merced (*Dissolved Oxygen and pH Objectives*) is not a candidate project for the 2021 review because we have already committed staff resources for its completion, so it is not necessary to rank it.

Five additional candidate projects from the 2018 Triennial Review do not appear on the candidate project list for the 2021 Triennial Review. Of these five, two projects (*Addition of Sport Fishing Beneficial Use to Lakes*, and *Revise Pentachlorophenol (PCP) Water Quality Objectives for Salmonids*) are not currently priorities for Water Board regulatory programs. For two additional projects (*Develop Numeric Nutrient Endpoints (NNEs) in Freshwater Streams and Estuaries*, and *Review and Implement Biological Assessment Tools*), there is ongoing staff work and use of Basin Planning resources (see Section 6), but there will not be a need for Basin Planning projects during the next three years for these projects. These may reappear as a candidate Basin Planning projects during the next Triennial Review. Finally, staff evaluated the project (*Review and Update of Policy 94-086 - Using Wastewater to Create, Restore, and Enhance Wetlands*) after the 2018 workshop and determined that no changes to the policy were necessary in order to permit foreseeable restoration projects.