

**Brief Issue Descriptions**  
for the  
**2018 Triennial Review**  
of the  
**San Francisco Bay Basin**  
**Water Quality Control Plan**  
**(Basin Plan)**

**April 2018**

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## 1 INTRODUCTION

The San Francisco Bay Regional Water Quality Control Board (Water Board) is conducting the 2018 triennial review of the water quality standards in its Water Quality Control Plan (Basin Plan, [http://www.waterboards.ca.gov/sanfranciscobay/basin\\_planning.shtml](http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml)). The last triennial review was completed in 2015. 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 2018 triennial review. The projects are presented in categories of project type: beneficial uses, water quality objectives, implementation plans, other plans and policies, and editorial updates. 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 Add Unnamed Water Bodies That Receive Discharges*

A small number of NPDES wastewater permits cover discharges to water bodies not named in the Basin Plan. Mostly, these are new discharge points subsequent to the water body Basin Plan update accomplished in 2010. As of 2018, there are currently approximately six additional water bodies that should be added to the Basin Plan because they receive an NPDES-permitted discharge, but the first step of this project would include a review of NPDES permits to determine if there are more. This candidate project would add the missing water bodies receiving discharges which are not currently named in the Basin Plan. This should be a straightforward project that could be combined with another Basin Plan amendment (e.g., updating cyanide dilution credits).

### *2.2 Addition of Sport Fishing Beneficial Use to Lakes*

This project entails adding Commercial and Sport Fishing (COMM) to certain lakes and reservoirs that are listed as impaired on the Clean Water Act 303(d) impaired waterbodies list due to mercury concentrations in sportfish or are potentially of concern where the COMM beneficial use is determined to apply. Many lakes and reservoirs in the region already have this beneficial use designation. The need for designating the COMM use for these waterbodies was identified as part of the ongoing work on the Statewide Mercury in Reservoirs TMDL. The COMM beneficial use is considered impaired when high contaminant concentrations make fish

unsafe for human consumption. Other waterbodies may also be reviewed for the COMM beneficial use as part of this project.

### ***2.3 Align Ocean Plan and Basin Plan for Recreational Contact Use***

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. Because the San Francisco Bay Region Basin Plan provides no specific details on where REC1 applies, by default it assigns REC1 to the entire Pacific Ocean, and therefore the Basin Plan's effluent limits (e.g., for bacteria) must apply to the entirety of the ocean out to the edge of State waters which is three nautical miles away from shore. This may be considered an overly broad application of the REC1 use that provides no water quality benefit in State waters and unnecessarily complicates permitting 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.

### ***2.4 Stream and Wetland Systems Protection Policy***

This project has been on hold pending State Board dredge and fill policy revisions. The project is currently envisioned as a Basin Plan amendment that would protect stream and wetland systems, which include stream channels, wetlands, floodplains, and riparian areas. The amendment is expected to help protect and restore the physical characteristics of these systems, including their connectivity and natural hydrologic regimes, in order to protect beneficial uses. The proposed stream protection amendment would designate two new beneficial uses of streams and wetlands: water quality enhancement and flood peak attenuation/flood water storage. These beneficial uses explicitly recognize that physical characteristics of water bodies contribute to better water quality, and need to be protected in the Board's permitting programs in order to achieve the Board's mission of protecting all beneficial uses of the Region's water bodies. The proposed amendment would also include additions to the implementation plan chapter. Elements of projects described in project 3.5 could be incorporated into this project.

### ***2.5 Modification of 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.

## ***2.6 Designate Tribal Tradition and Culture, Tribal Subsistence Fishing, and Subsistence Fishing Beneficial Uses in the San Francisco Bay Region***

In 2017, the State Water Resources Control 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 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.

## **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 we are considering updating.

### ***3.1 Review and Refine Dissolved Oxygen Objectives for San Francisco Bay***

This project was identified as a high priority project during the 2015 Triennial Review, and the first phase of the project, adoption of site-specific dissolved oxygen objectives for Suisun Marsh is near completion with the Board's adoption of these objectives at the April 2018 Board meeting.

The Basin Plan includes a minimum water quality objective of 5.0 mg/L for dissolved oxygen in all tidal waters downstream of the Carquinez Bridge and 7.0 mg/L upstream of the Carquinez Bridge and also includes a requirement that the median dissolved oxygen concentration for any

three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation. These objectives were adopted in the 1975 Basin Plan and are generally being attained in most of the Bay's subtidal waters. Concerns exist about the applicability of these objectives to certain habitats in the Bay (e.g., marsh tidal sloughs and managed ponds) where the objectives may not be attainable or applicable.

Updating the dissolved oxygen objectives is especially important in view of the dramatic increase in opportunities for restoration of unique habitats around the Bay margins. These unique habitats include extensive tidal wetlands and slough networks as well as pans and other ponded areas. However, dissolved oxygen concentrations in shallow water habitats such as tidal wetlands and slough networks vary much more compared to the main water mass of San Francisco Bay and frequently exhibit concentrations less than 5.0 mg/L and certainly less than 7.0 mg/L. Because restoration efforts of habitats around Bay margins cannot consistently demonstrate compliance with permit conditions derived from the Basin Plan's dissolved oxygen objective of 5.0 mg/L, it is appropriate to explore the possibility of refining the existing objectives by providing more specifics about allowable exceedances both temporal and spatial or possibly, developing site-specific dissolved oxygen objectives in tidal wetlands, slough channels, managed ponds, shallow subtidal habitats, or other shoreline habitats.

The approach taken to develop site-specific objectives for Suisun Marsh is expected to be applicable to other shallow-water habitats around the Bay.

### *3.2 Update the Basin Plan's Toxicity Testing Requirements*

The State Water Board is developing 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. This toxicity amendment has been delayed by legal challenges, but it is scheduled to be considered for adoption by the State Board at the end of 2018 and scheduled to go into effect in 2019. The toxicity amendment would update procedures for assessing the potential for chemicals to cause toxicity to aquatic life in surface waters.

Currently, there are inconsistencies between different State and Regional Water Boards' toxicity testing requirements that result in uneven protections for aquatic life and an unequal playing field for waste dischargers. By adopting numeric toxicity objectives, the State Water Board would establish a clear, consistent definition of toxicity. By contrast, existing narrative toxicity objectives can be subject to a range of interpretations.

The State Water Board toxicity amendment would require a new statistical approach, endorsed by U.S. EPA, to be applied consistently throughout California. The new approach, called the Test of Significant Toxicity (TST), incorporates the latest statistical approach and benefits from extensive peer review. This amendment would supersede aspects of the Basin Plan's current toxicity policy, so the Water Board would likely need to edit the Basin Plan sections on toxicity (3.3.18 and 4.5.5.3) to conform to the policy. In addition, the policy allows for some Regional Water Board implementation discretion which could result in possible Basin Plan revisions or additions.

### ***3.3 Revise Pentachlorophenol (PCP) Water Quality Objectives for Salmonids***

PCP criteria were included in the California Toxics Rule (CTR) of 2000. Subsequently, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service issued a Biological Opinion concluding that the U.S. EPA's CTR water quality criteria for PCP are not protective of the early life stages of salmonids under conditions of low dissolved oxygen and high temperatures. As a result, the U.S. EPA calculated criteria that are protective. The U.S. EPA has asked the State and this Water Board as part of the last triennial review to identify where these aquatic conditions occur and to adopt the revised (lower) PCP water quality criteria.

This project, which has been a candidate in past triennial reviews, would develop a basin plan amendment to adopt the proposed more restrictive objectives for PCP and create a plan to implement the objectives where applicable to protect the early life stages of salmonids that may be present under conditions of low dissolved oxygen and high temperatures in the San Francisco Bay Region. Information is not available at this time to indicate where aquatic conditions occur in the Region that might pose a risk to salmonids.

### ***3.4 Develop Numeric Nutrient Endpoints (NNEs) in Freshwater Streams and Estuaries***

The State Water Board is engaged in two separate efforts to develop a statewide NNE policy: one NNE effort for California estuaries, and a second effort for wadeable streams throughout the State.

A Technical Advisory Group has been established by the State Water Board to support application of the NNE framework to all California estuaries. The State Water Board has contracted with the Southern California Coastal Water Research Project to develop an estuarine classification system, review candidate nutrient-related indicators for all estuaries, explore revision of dissolved oxygen objectives, and review studies supporting a numeric endpoint for macroalgae on estuarine tidal flats.

The State Water Board is also developing a freshwater nutrient policy for wadeable streams that includes narrative nutrient objectives along with numeric guidance to translate the narrative objectives into numeric water quality endpoints as well as an implementation plan to define how nutrient objectives will be used in regulatory programs such as 303(d) listing, NPDES compliance, 401 certification, etc. The NNE framework will be used to establish numeric endpoints based on the response (e.g., algal biomass, dissolved oxygen, etc.) of a water body to excessive nutrient concentrations.

This candidate Basin Planning project consists of Water Board staff's active participation in both efforts and the estimated PYs are limited to that effort. As each nears completion, Staff will evaluate the applicability to the Region's water bodies and the need for changes to the Basin Plan's narrative nutrient objective (section 3.3.3) and its implementation.

### ***3.5 Review and Implement Biological Assessment Tools***

Biological assessments can be used to provide direct measures of the cumulative response of the biological community to all sources of stress and clarify Regional Board jurisdictional boundaries. They measure the condition of the aquatic resource to be protected by assessing the

benthic macroinvertebrate community and can be used to identify the extent of Regional Board jurisdiction when paired with physical habitat assessments, coupled with an understanding of natural form and process. Biological indicators directly assess if beneficial uses such as warm or cold freshwater habitat are supported.

The current narrative objective for population and community ecology (Basin Plan section 3.3.8) can serve as the objective to pair with a Bay-Specific or state-wide biological indicator. The State Water Board has been developing a statewide implementation plan to utilize bioassessment data in wadeable streams and rivers. The biological integrity project was merged with the project to develop nutrient criteria for streams in 2016. Regional Board staff would continue to participate in this State Board project and depending on the ultimate result of this statewide policy, we would consider the need for amendments to the Basin Plan.

Preventing the degradation of biological integrity is an important component of the statewide effort and is also important to our Region. Recent analyses at the state and regional levels show that stream physical habitat conditions substantially influence bioassessment scores calculated with the statewide California Stream Condition Index (CSCI). One element of this project could include establishing condition assessments using CSCI data for engineered or modified channels as a tool to use in Clean Water Act section 401 certifications.

Lastly, to meet Antidegradation Policy goals and the California Wetlands Conservation Policy goal of a long-term net gain in wetland acres and values, bioassessment data in perennial and non-perennial streams and rivers, coupled with an understanding of natural form and process, can be used to clarify the extent of Regional Board authority. Specifically, CSCI scores, when paired with measured physical habitat assessment data, can be used to identify areas adjacent or otherwise connected to streams and rivers that affect the status of beneficial uses and water quality. By knowing what areas adjacent or connected to streams and rivers affect beneficial uses and water quality in streams and rivers, Water Board staff reviewing 401 certifications, and project proponents preparing applications for certification, will have a helpful tool to identify jurisdictional boundaries and to consider project designs that meet policy goals. Reference to these bioassessment tools could be incorporated into Chapter 4 Implementation Plan.

### *3.6 Incorporate Recreational Water Quality Objectives (RWQC) for Bacteria*

In 2012, U.S. EPA issued new recreational water quality criteria (RWQC) recommendations for protecting human health in all coastal and non-coastal waters designated for primary contact recreation use. The 2012 RWQC recommends the use of two bacteria indicators of fecal contamination, *E. coli* (fresh water only) and enterococci (marine and fresh water). The U.S. EPA also introduced a new concept, Statistical Threshold Value (STV), as a clarification and replacement for the term 'single sample maximum'. The new U.S. EPA criteria no longer recommend different pathogen indicator values for beaches based on intensity of use.

The State Water Board will soon be adopting the new RWQC into the Ocean Plan and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California. Once that occurs, the total and fecal coliform indicators currently in the Basin Plan will no longer apply for the protection of contact recreation. The State Water Board's program implementing the new criteria currently contains other elements such as a reference beach/natural source exclusion process and exemptions to the new criteria under conditions of



high flow. Upon the anticipated upcoming State Water Board's adoption of the new criteria and other associated policies, the Water Board will likely need to make corresponding changes to our Basin Plan to be consistent with the State Board action.

### ***3.7 Review Un-ionized Ammonia Water Quality Objective for San Francisco Bay and freshwaters***

This candidate project will 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 for un-ionized ammonia as well as U.S. EPA 2013 recommended criteria freshwater.

### ***3.8 Lake Merced Dissolved Oxygen and pH Objectives***

Lake Merced is a small, eutrophic (nutrient-enriched) urban lake in San Francisco that is currently listed as impaired by low dissolved oxygen and high pH. Daly City is developing a capital project to address storm-related flooding that currently occurs in the Vista Grande Drainage Basin. The project would capture existing stormwater and authorized non-stormwater runoff that is currently conveyed to the Pacific Ocean, and use the water to augment water levels in Lake Merced. Some stakeholders expect that the augmentation of the water levels will support lake fisheries. The increased water levels and other associated lake management efforts (e.g., routing water into a treatment wetland prior to discharge into Lake Merced) may offer some water quality improvements but not enough to remedy the impairments based on existing water quality objectives. This Basin Planning project would explore water quality standards actions (Chapter 3) for dissolved oxygen and pH, and it would also memorialize Lake Merced water quality management efforts in Chapter 4 of the Basin Plan. This project was identified as a high priority project in 2015 but has been delayed.

### ***3.9 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 in Basin Plan Chapter 3 or in effect under the federal California Toxics Rule (2000) that are not as protective as the USEPA 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.

For example, USEPA promulgated new and revised human health water quality criteria in 2015 (Federal Register 80(124):36986-36989). This ruling established new water quality criteria for seven pollutants that are not in the California Toxics Rule (Arsenic, Chloroform, 3-Methyl-4Chlorophenol, 1,1,1-Trichloroethane, 1,2,4-Trichlorobenzene, Selenium, and Zinc). The 2015 ruling contains revised water quality criteria that are more stringent than the California Toxics Rule for 64 pollutants. In addition the 2015 ruling contains revised water quality criteria that are less stringent than the California Toxics Rule 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 the 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 Board because the criteria should apply statewide rather than to a single region.

### *3.10 Temperature Limits to Protect Salmonids*

This candidate project would involve reviewing the latest scientific information applicable to Bay Area streams to set an appropriate temperature thresholds and acceptable range of temperatures to protect salmonids. 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.

National Marine Fisheries Service (NMFS) has developed a technique to model, using digital elevation and climate data, the reach-scale stream attributes (gradient, stream size, and valley constraint) that influence availability of the fine-scale habitat features (e.g., pools, spawning gravel, and large wood) preferred by salmonids. This “Intrinsic Potential” model may be useful in this candidate project to help identify stream reaches that have good potential to serve as habitat for salmonids and to which temperature objectives should apply.

### *3.11 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, collate 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 State Water Board is preparing a manual with procedures to guide the development of regional flow criteria. This guidance is intended to be applicable statewide, but allows for regional application, and incorporates existing information, studies, and data.

Flow criteria could address minimum low flows during particular 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.

### ***3.12 Incorporate Statewide Mercury Objectives into the Basin Plan***

In 2017, the State Water Resources Control 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***) 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. The mercury water quality objectives established through resolution No. 2017-0027 do not supersede any site-specific numeric mercury water quality objectives established in the Basin Plan except for the freshwater mercury water quality objective for chronic effects to aquatic life (0.025 µg/L) (Table 3-4 and corresponding note). This candidate project is to amend the Basin Plan to incorporate these new objectives and make necessary clarifications as to their applicability for various waterbodies throughout the Region.

### ***3.13 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. California adopted these standards. When these objectives were originally included in the Basin Plan, the administrative record provided some background information about their implementation. 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.”

## 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. This chapter 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 *Environmental Screening Levels (ESLs) for Groundwater Cleanups*

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 particular 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.

### 4.2 *Using Wastewater to Create, Restore, and Enhance Wetlands*

The receiving waters downstream of many Bay Area wastewater treatment plants include recently restored wetlands or areas that will be restored to wetland habitat in coming years. In many circumstances, using the treated wastewater as a source of freshwater for restored wetlands could provide an environmental benefit by increasing the amount of freshwater and brackish wetlands available to birds and wildlife dependent on such habitats. Using treated wastewater in this fashion as a source of freshwater was identified as an important climate change response strategy in the Baylands Ecosystem Habitat Goals 2015 Science Update to "restore estuary-watershed connections that nourish the Baylands with sediment and freshwater" (see also the Project below on Climate Change and Water Resources Policy).

This Basin Planning project would entail several elements. First, the project would explore updating Regional Board Resolution No. 94-086 "Policy on the Use of Wastewater to Create, Restore, and/or Enhance Wetlands." The current Resolution 94-086 policy is now over 20 years old. Much has been learned about wetland restoration over the intervening years and the hydrology and topography of the San Francisco Bay has been changing as vast areas of former salt evaporating ponds are being restored to marsh under the San Francisco Bay Salt Pond Restoration Project.

The project would also clarify permitting requirements for wastewater discharges into wetlands, develop near-shore permitting strategies for discharges to wetlands and sloughs. This project would also evaluate and provide guidance about what level of treatment is appropriate for effluent discharged into wetland habitats, including consideration of contaminants of emerging concern (e.g., flame retardants, personal care products, microbeads and nano particles).

Establishing NPDES permits for discharging wastewater in wetlands is complicated by a variety of regulatory issues; this project would explore those regulatory issues and identify policy options. This project would also potentially evaluate issues associated with discharge prohibition exemptions in the Basin Plan and could address Beneficial Use designation associated with creation of new wetlands. This is an ongoing project that Water Board staff are actively working on.

### *4.3 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. 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 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 relatively straightforward project could be combined with the project to add to the Basin Plan unnamed waterbodies receiving NPDES discharges.

### *4.4 Revise Instantaneous Chlorine Limit*

The effluent limit for residual chlorine (free chlorine plus chloramines) is an instantaneous limit of 0.0 mg/L. This effluent is problematic because it is very difficult to remove trace amounts of chlorine. Failure to remove all traces of chlorine can lead to effluent limit violations, sometimes in circumstances where the amount of chlorine is very small and not a threat to water quality. POTWs that use chlorine for disinfection use sodium bisulfite (SBS) to remove the chlorine. To avoid violations, operators routinely overdose the effluent with SBS, costing agencies millions of dollars per year in aggregate, and exerting oxygen demand in the receiving water, with no water quality benefit. This candidate project would explore options to address chlorine residual limits. Some initial scoping work has been accomplished on this project.

## **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 Priority Ranking for TMDL Development*

The Water Board is working on a range of TMDL projects throughout the region. TMDLs often include water quality standards issues, and most will be adopted as Basin Plan amendments. For these reasons, we include our TMDL priorities in the Triennial Review.

The current list of impaired waters for the San Francisco Bay Region is available on the [State Water Board's website](#). We present here, for stakeholder review and comment, the list of TMDLs that are of higher priority for development and completion as Basin Plan amendments over the next three years:

- Petaluma River Bacteria TMDL
- San Gregorio Creek Sediment TMDL
- Stevens Creek Toxicity TMDL
- San Francisco Bay Beaches TMDL (additional beach listings)
- Pescadero Marsh Dissolved Oxygen TMDL
- Pillar Point Harbor Bacteria TMDL
- Statewide Mercury Control Program in Reservoirs

### *5.2 Climate Change and Water Resources Policy*

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 water quality.

This candidate project is to 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, and desiccation of first-order streams.

The second project element – already underway – is to examine a series of policies concerning activities critical to addressing the impacts of climate change and promoting resilience of Bay ecosystems and shoreline areas. Staff efforts to date have focused on three policy areas. We are reviewing how existing policies regulating wetland fill, ecosystem restoration and flood protection can best incorporate consideration of sea level rise. We are reviewing the need for a new policy to facilitate the use of highly treated wastewater and stormwater as a source of freshwater to nourish tidal marshes (see project description in section 4.2). We are also reviewing sediment management policies to 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 identifying other potential needed changes to the Basin Plan to address

all program needs or additional policy development to advance use of natural infrastructure and living shoreline solutions as shoreline adaptation solutions.

## 6 EDITORIAL REVISIONS, MINOR CLARIFICATIONS or CORRECTIONS

This category of project involves making editorial non-regulatory changes 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 changes would usually be non-regulatory. That is, they would not impose new requirements on permittees, but rather clarify existing regulatory requirements or program descriptions. As an example, Chapter 7 was created (as a non-regulatory amendment) in the Basin Plan to include Water Quality Attainment Strategies, such as Total Maximum Daily Loads (TMDLs). Chapters 4 and 7 need to be aligned to account for already adopted TMDLs and future TMDL Basin Plan amendments.

### 6.1 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 attributable 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. Because improving this language would require only minor clarifying changes, this project could be accomplished as part of another Basin Planning project.

The project will also revise the objective to state also 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.

### 6.2 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 recent Triennial Reviews. Some of these could be included as additional components for another Basin Planning project. Potential changes include but are not limited to:

- Updating Section 4-8 (Stormwater Discharges) to incorporate by reference the limitations on point source storm water 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, & edited to be more timeless.
- Update and/or remove text from Section 4.11, which provides non-regulatory narrative about special circumstances related to specific POTWs. Much of the text is out of date and not necessary.
- Explain difference between threshold and limit in Table 3-6.

- Discuss requirements of Groundwater Management Act in chapter 4
- Discuss direct and indirect potable use programs in chapter 4.
- Include a mention of 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 Basin Plan.
- Update the Figure 4-4 noting dredge material disposal and beneficial reuse sites.

For more information about any of these candidate basin planning projects or the triennial review process itself, please contact:

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