

Santa Ana Regional Water Quality Control Board

Triennial Review Medium-Priority List Project Descriptions Fiscal Years 2024-2027

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INTRODUCTION

The [Santa Ana Region](#) encompasses parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County. The [Water Quality Control Plan for the Santa Ana River Basin](#) (Basin Plan) contains the basis for the Santa Ana Region’s regulatory programs. Additionally, the Basin Plan prescribes water quality standards for surface and ground water in the region. Water quality standards as used in the federal Clean Water Act (CWA), includes both the beneficial uses of specific waterbodies and the levels of water quality that must be met and maintained to protect those uses. The Basin Plan includes an implementation plan describing the actions by the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board), and others that are necessary to achieve and maintain the water quality standards and protect designated beneficial uses.

The Porter-Cologne Water Quality Control Act (California Water Code section 13240) and the CWA both mandate the periodic review of basin plans and the water quality standards contained therein. Section 303(c)(1) of the CWA requires that a state review its water quality standards and, as appropriate, modify and adopt standards at least once every three years, hence the term “triennial review.” The purpose of the review is to identify necessary updates and revisions to water quality standards and other regulatory elements of the Basin Plan. Updates and revisions may be necessary due to changes in law, regulation, or policies, new/revised water quality criteria, updated science, or physical changes in the region, to name a few. The triennial review assists in identifying potential priority issues to address through subsequent Basin Plan amendment projects. These Basin Plan amendment projects are referred to as the Triennial Review High-Priority List.

Santa Ana Water Board staff have developed a secondary list of medium-priority projects that are unlikely to be completed during this triennial review period due to the complexity of the issues, agency priorities, and availability of staff resources. However, Santa Ana Water Board staff will monitor and work with interested parties on these projects as necessary and as resources allow. This document contains the descriptions of issues for the Triennial Review Medium-Priority List.

TRIENNIAL REVIEW MEDIUM-PRIORITY LIST PROJECT DESCRIPTIONS

Project 1: Consider/Develop a Selenium Site-Specific Objective for Freshwater within the Newport Bay Watershed

San Diego Creek Reach 1 is the largest tributary to upper Newport Bay. In 2002, United States Environmental Protection Agency (USEPA) established technical total maximum daily loads (TMDLs) for selenium for the San Diego Creek and Newport Bay Watershed as part of the technical TMDLs for Toxic Pollutants. On August 4, 2017, the Santa Ana Regional Water Quality Board (Santa Ana Water Board) adopted TMDLs for selenium in freshwater for the Newport Bay Watershed (which includes San Diego Creek and other freshwater tributaries to Newport Bay). The California Toxic Rule (CTR) establishes criteria for the protection of aquatic life from selenium for freshwater and enclosed bays and estuaries based on water column criteria. The listing for the San Diego Creek Reach 1 was based on water column data. However, since the primary route for selenium bioaccumulation is through diet, the impairment assessment was completed using the numeric targets selected from guidelines developed for freshwater fish tissue and bird egg tissue. The water column concentrations are currently based on the 2002 CTR criteria for selenium (5 µg/L chronic criterion; the 2017 TMDLs were developed as only dry weather TMDLs as that is when the greatest exposure to fish and wildlife occurs).

In the 2010 and 2024 303(d) lists, San Diego Creek Reach 1 was listed again as impaired for selenium. In addition, Peters Canyon Wash, a tributary to San Diego Creek Reach 1, was also listed as impaired for selenium. The 2017 TMDLs for Selenium in Freshwater for the Newport Bay Watershed includes San Diego Creek Reach 1 and Peters Canyon Wash and tributaries there to, the Santa Ana Delhi Subwatershed, and the Big Canyon Wash subwatershed.

The USEPA has been developing revised criteria for selenium for the CTR; the proposed rule included fish tissue-based criteria as well as default water column criteria. The proposed revised selenium CTR criteria also included guidance for developing site specific objectives for selenium. However, as of the date of this document, revised CTR criteria for selenium have not yet been promulgated by USEPA. Depending on when the final selenium criteria are promulgated, development of site-specific objectives may or may not be necessary.

Selenium is a naturally occurring element that may bioaccumulate through the food web to levels that can cause adverse effects on higher-level aquatic life and wildlife, including fish and birds that prey on fish and invertebrates. The beneficial uses most at risk from selenium bioaccumulation are warm freshwater habitats, estuarine habitats, marine habitats, preservation of biological habitats of special significance, wildlife habitats, rare, threatened, or endangered species, spawning, reproduction, and development. Selenium toxicity transfers especially to fish and bird eggs, which

subsequently impacts reproduction. Egg laying fish and aquatic-dependent bird species that live, forage, and nest in San Diego Creek and other freshwater streams in the area, such as Big Canyon Wash and Peters Canyon Wash, are the most susceptible to the adverse effects of selenium.

Delays in USEPA's revision of the CTR criteria for selenium, and other Santa Ana Water Board priorities in the Newport Bay watershed (e.g., Fecal Coliform TMDL) may prevent this project from being completed during the triennial review period. Promulgation of USEPA's revised selenium criteria may negate the need for site-specific objectives for selenium. Santa Ana Water Board staff will continue to monitor USEPA's progress for selenium and will work collaboratively with the Orange County TMDL Funding Partners and other interested parties to assess data collected that has been collected during implementation of the 2017 Selenium TMDLs.

Project 2: Review the Total Maximum Daily Load for Sediment in the Newport Bay/San Diego Creek Watershed

Upper Newport Bay was included in the CWA 303(d) list as impaired by sediment in 1986, and both reaches of San Diego Creek were listed impaired for sediment in 1996. The Santa Ana Water Board adopted a Sediment TMDL for the Newport Bay Watershed in 1998.

The overall goal of the Sediment TMDL is to extend the interval between dredging events in the Upper Newport Bay to once every twenty to thirty years. The Sediment TMDL includes three targets:

- 1) Limiting sediment loads to Newport Bay to 62,500 tons/year on a 10-year annual average basis,
- 2) Requiring that two existing in-bay sediment trapping basins be maintained at an elevation of -7 feet of mean sea level or deeper, and
- 3) Limiting sediment-driven habitat change in Upper Newport Bay to less than one percent.

The 2022 Sediment TMDL compliance annual report shows that the TMDL numeric target for loading is currently being attained. The 10-year average annual load is currently 15,297 tons. It is anticipated that sediment loading will continue to remain below the TMDL target due to urbanization of former agricultural areas, stabilization of eroding channels, periodic removal of sediment in San Diego Creek and its tributaries, and periodic removal of sediment from sedimentation basins in the foothills of the watershed (Foothill Retarding Basins).

The TMDL target for in-bay basin depths is also being achieved. From 2006 to 2010, nearly two million cubic yards of sediments from the Upper Newport Bay were dredged, which lowered the in-bay basin depths to an average of nearly -22 feet mean sea level.

Preliminary modeling projections¹ indicate that sediment accumulation in the basins is not likely to reach -7 feet mean sea level, the TMDL sediment threshold, for 22 years in the Basin Unit I/III and 88 years in the Basin Unit II.

Achieving the third TMDL target (regarding habitat change) has shown mixed results. The habitat surveys and vegetation monitoring indicate a loss and gain of salt marsh over the past 10 years, with losses occurring along the lower edges and gains occurring in mudflat areas. Pickleweed and cordgrass have shown declines over time, which has impacted the federally endangered light-footed Ridgway's rail (the Ridgway's rail nests in coastal salt marshes where dense stands of cordgrass are present). Although the overall goal of the Sediment TMDL has been achieved, the Sediment TMDL may need to be modified to further limit sediment-driven habitat change in the salt marsh. In addition, the TMDL require that the San Diego Creek in-channel basins and Foothill Retarding Basins be maintained with at least 50 percent available capacity. The 2022 TMDL Basin Capacity Report determined that Basin 3 in the San Diego Creek has slightly less than the required capacity and will require sediment removal.

Recent modeling funded by the National Administrative and Atmospheric Administration (NOAA) and conducted by the University of California, Irvine ([UCI's SedRise Project](#)), indicates that a sediment deficient could occur in Upper Newport Bay sometime in the future as a result of sea level rise that may require allowing more sediment to enter the Upper Bay to allow salt marsh habitat to move upland. This potential scenario should be considered in revising the Sediment TMDL.

It is unlikely that a Basin Plan amendment to revise the Sediment TDML will be completed during this triennial review period due to other regional priorities and lack of staff resources to revise the TMDL. Santa Ana Water Board staff will continue to work with the Orange County TMDL Funding Partners and other interested parties to continue to meet the first two sediment targets: limiting sediment loads to Upper Newport Bay and maintain the required depth in the in-Bay sediment basins.

[Project 3: Review and Revise the Nutrient Objective for San Diego Creek](#)

The numeric water quality objective for nitrogen (as total inorganic nitrogen or TIN) in San Diego Creek Reach 2 (5 milligram per liter (mg/L)) was established in 1975 and in 1983 for Reach 1 (13 mg TIN/L). These objectives were frequently exceeded in the 1980s, resulting in significant algal blooms in both fresh and saltwater, and both San Diego Creek and Upper Newport Bay were listed on the CWA 303(d) list as impaired for nutrients. To address the impairment, in 1998, Nutrient TMDLs were developed that required a 50 percent reduction in nutrient loading (nitrogen and phosphorus) to Newport Bay to reduce algal biomass.

¹ "Bathymetric Monitoring" Marine Taxonomic Services, 2020

Compared with the pre-TMDLs annual Total Nitrogen loads (1,087,000 pounds), significant reductions have been achieved. These reduced concentrations have greatly reduced nutrient loading and significantly reduced excessive algal blooms in Newport Bay. As a result of improved water quality, in 2015, a revised regional monitoring program was approved. The revision included reducing the number of monitoring stations as well as the frequency of monitoring and reporting. The most recent annual report for 2021-2022 shows that the TMDLs numeric targets are being met except for the annual urban total phosphorus waste load allocation.

The State Water Resources Control Board (State Water Board) is considering statewide water quality objectives and regulatory control options for nutrients, other biostimulatory substances, and cyanotoxins. Santa Ana Water Board staff will consider the State Water Board's guidance as it is developed. If adopted by the State Water Board, Santa Ana Water Board staff will consider proposing new nitrogen objectives for San Diego Creek (the primary source of nutrients to Newport Bay). Because State Water Board guidance has not yet been adopted, this issue will likely not be addressed during this triennial review period. During the current triennial review period, Santa Ana Water Board staff will work with the interested parties, participate in the biostimulatory working group, and review annual reports to continue to implement the TMDLs.

[Project 4: Review of Use Attainability Analyses for Waters De-Designated for the Water Contact and Non-Water Contact Beneficial Uses](#)

Santa Ana Water Board staff conducted Use Attainability Analyses (UAAs) for several waterbodies in the Santa Ana Region pursuant to federal regulation 40 CFR § 131.10(g) and USEPA guidance. The UAAs determined that the water contact recreation (REC1) use and non-contact water recreation (REC2) for one reach was not attained for the following regional waters:

- Santa Ana Delhi Channel (Reaches 1, 2, and the Tidal Prism),
- Greenville-Banning Channel Reach 1 and the Tidal Prism. For Reach 1 of the Greenville-Banning Channel the beneficial use REC2 was also de-designated
- Temescal Creek Reaches 1a and 1b, and
- Cucamonga Creek Reach 1

USEPA's regulations at 40 CFR § 131.20(a) require that every three years a state (in this case, the Santa Ana Water Board) must re-examine any waterbody segment with water quality standards that do not include the uses specified in CWA section 101(a)(2) (i.e., fish and wildlife and recreational uses). If new information indicates that the uses are attainable, then the Santa Ana Water Board must revise its standards accordingly through a Basin Plan amendment process.

In April 2024 Santa Ana Water Board staff submitted a report on the status of the Region's de-designated waters to USEPA, thus satisfying the requirements of 40 CFR §

131.20(a). USEPA is reviewing the report. During this triennial review period, Santa Ana Water Board staff will complete another review of the de-designated water segments.

Project 5: Develop a Plan to Review Salinity Objectives in Chapter 4 of the Basin Plan

During the 2010 Integrated Report cycle, stakeholders indicated an interest in reviewing the appropriateness of the surface water Total Dissolved Solids (TDS) and other mineral objectives for Chino Creek Reach 1B. In the 2016 Integrated Report, it was stated that although there were exceedances of the TDS objective in Chino Creek Reach 1B, none of the exceedances would cause an impairment to any of the beneficial uses assigned to Chino Creek Reach 1B (REC1, REC2, WARM, WILD, and RARE). State Water Board staff agreed, and Chino Creek Reach 1B was not listed on the 303(d) list for TDS. Additionally, the 2016 Integrated Report pointed out that the objectives for Chino Creek Reach 1B, which include TDS, Hardness, Sodium, Chlorides, Total Inorganic Nitrogen, Sulfate, and Chemical Oxygen Demand were based on historical values. These anti-degradation objectives were intended to be protective of the groundwater aquifers underlying this water and other regional surface waters.

Considering that the salinity objectives were based on anti-degradation levels to protect groundwater it is appropriate to reevaluate the objectives. Due to other priorities, availability of resources, and the project complexities, it is unlikely that a determination of the appropriateness of the salinity objectives can be completed within this triennial review period. However, Santa Ana Water Board staff will continue to work with the Basin Monitoring Task Force and other interested parties to assess additional available monitoring data to determine if it is appropriate to revise the surface water salinity objectives. A related salinity objective issue is included as part of the Triennial Review High-Priority List (Issue No. 6) to clarify monitoring procedures for salinity objectives for certain regional surface waters, including Chino Creek.

Project 6: Consider/Revise Total Dissolved Solids Objectives for Rattlesnake, Syphon, and Sand Canyon Reservoirs Based on Storage of Recycled Water

The Irvine Ranch Water District (IRWD) has requested that Santa Ana Water Board staff consider revising the TDS water quality objective for Rattlesnake, Sand Canyon, and Syphon Reservoirs located in Orange County, which are owned and operated by IRWD. The Rattlesnake, Sand Canyon, and Syphon Reservoirs are currently utilized for the storage of recycled water produced at the Michelson Water Recycling Plant. The current TDS water quality objective in the Basin Plan for all three reservoirs is 720 mg/L. IRWD staff anticipate that the projected increase in water conservation requirements for residences will lead to increases in TDS in the Michelson Plant effluent (which is sent directly to the reservoirs) by 2030. It is likely that the TDS objective of 720 mg/L will be exceeded in the reservoirs. IRWD requests that Santa Ana Water Board staff review the reservoir objectives during the triennial review to determine the most appropriate TDS effluent limit and possibly a TDS water quality objective that could be established while protecting the beneficial uses of the reservoirs.

IRWD will have to provide pertinent studies and justification for a proposed revised objective to support revision of the current TDS objective. During this triennial review period, Santa Ana Water Board staff will coordinate with IRWD to determine what technical and environmental documents are necessary to justify revising the TDS objective and developing a Basin Plan amendment to adopt the revised objective.

Project 7: Consider Revision of the Fecal Indicator Bacteria Objective for the Middle Santa Ana River Total Maximum Daily Loads by Developing a Site-Specific Objective

The Middle Santa Ana River (MSAR) Watershed TMDL Task Force has funded studies, reviewed recent research, and has considered the efforts of other Regional Boards and the State Water Board regarding the relationship between fecal indicator bacteria concentrations in waters of the state, and apparent risk levels involved with water contact recreation in those water bodies. The MSAR TMDL Task Force suggests that the current TMDLs objective does not assess risk accurately, and a site-specific objective might be better at assessing risk for the REC1 beneficial use and protecting public health. During the 2024-2027 Triennial Review period, the MSAR Task Force and Santa Ana Water Board staff will continue to review data related to fecal indicator bacteria and consider the development of site-specific objectives for this TMDLs.

Project 8: Consider Adopting Clean Water Act Section 304(a) Recommended Criteria

Section 304(a)(1) of the CWA requires the USEPA to develop national criteria for water quality that accurately reflects the latest scientific knowledge. These criteria are based on data and scientific judgments on pollutant concentrations and environmental or human health effects. Criteria are developed for the protection of aquatic life as well as for human health. During a state's triennial review of water quality standards, CWA section 303(c)(2)(B) requires states to adopt criteria for all toxic pollutants for which USEPA has published criteria under section 304(a), and the discharge or presence of which in the affected waters could reasonably be expected to interfere with those designated uses adopted by the State, as necessary to support such designated uses. Currently, the State Water Board has not adopted for statewide use these criteria.

The USEPA has published Clean Water Act section 304(a) recommended criteria. During the triennial review period, Santa Ana Water Board staff will consider adopting certain aquatic life and human health criteria, including:

- Aquatic Life: acrolein, ammonia, cadmium, carbaryl, copper, diazinon, nonylphenol, selenium freshwater², tributyltin, and:
- Human Health: Human Health Criteria Updates for 94 pollutants.

Of particular importance to the Santa Ana Water Board is USEPA's 2013 Aquatic Life Ambient Water Quality Criteria for Ammonia in Freshwater. The Santa Ana Water Board

² The USEPA has been developing revised criteria for selenium for the CTR.

has adopted two freshwater nutrient TMDLs. Additionally, many effluent dominated waters (i.e., Santa Ana River Reaches, 2, 3, and 4), storm water runoff, and runoff from dairies have the potential to increase ammonia concentrations in surface waters. The Basin Plan's current freshwater ammonia objective includes specified ranges in pH and temperature³ to protect sensitive aquatic species. Therefore, the current ammonia objective does not accurately determine ammonia concentrations in waters with pH and/or temperatures that lie outside the ranges specified in the objective. This limits the Santa Ana Water Board's ability to assess waters under CWA section 303(d) for impairment due to ammonia.

The adoption of Ammonia Criteria may require surveying the regional freshwaters to determine presence or absence of the sensitive aquatic species that the criteria was designed to protect. Due to agency priorities, the complexity of the matter, and limited staff capacity, it will be challenging to initiate work on Ammonia Criteria or other CWA section 304(a) criteria. The adoption of such criteria may be more efficiently accomplished by the State Water Board when the criteria are of statewide importance. Santa Ana Water Board staff will consider recommending the addition of approved statewide criteria as appropriate to the Basin Plan. Where appropriate, Santa Ana Water Board staff will incorporate Clean Water Act section 304(a) recommended criteria into TMDLs and permits.

Project 9: Consider Adding to and Revising Waters in Tables 3-1 and 4-1 and Designate Appropriate Beneficial Uses

During the triennial review period, Santa Ana Water Board staff will consider adding and revising regional waters and designating appropriate beneficial uses and water quality objectives, which include the following:

- a. List the Rhine Channel separately from Lower Newport Bay. The Rhine Channel historically included shipyards, a canning factory, a metal plating facility, as well as other industrial uses, which were not present (or of limited presence) in the rest of lower Newport Bay. As a result, the Rhine Channel has been significantly impacted by pollutants such as chromium, mercury, and other metals as well as legacy pesticides and has been classified as a Toxic Hotspot by the state. The rest of Lower Newport Bay. Rhine Channel is listed separately from the remainder of lower Newport Bay has not been found to be impaired for chromium or mercury. Listing Rhine Channel as distinct from lower Newport Bay would provide clarity in defining potential remediation efforts and the standards that apply to Rhine Channel. The designated beneficial uses would be the same as currently designated in Table 3-1 of the Basin Plan for Lower Newport Bay.

³ Calculated numerical unionized ammonia (UIA-N) objectives as well as corresponding total ammonia nitrogen concentration for various pH and temperature conditions are shown in Tables 4-2 and 4-3 of the Basin Plan.

- b. Consider changing the San Diego Creek Reach designations. The existing reach designations divide San Diego Creek into two reaches: an approximately eight-mile reach (Reach 1) extending from Newport Bay to Jeffrey Road, and a six-mile reach (Reach 2) continuing from Jeffrey Road to Laguna Woods. Due to extensive land use and other changes in the watershed, these reach designations are no longer representative of hydrogeological conditions along the San Diego Creek. Redefining the reaches to better match the local hydrogeology will allow a more effective application of water quality standards. The beneficial uses designated would likely include those currently listed in Table 3-1 of the Basin Plan for this waterbody.
- c. Add reach designations to Peters Canyon Wash. Peters Canyon Wash is not divided into reaches although the character of the wash changes significantly where it intersects the area of shallow groundwater in the lower portion of the Tustin Plain. Dividing the Peters Canyon Wash into two reaches based on the location where groundwater begins to exert a significant impact on hydrology and water chemistry will facilitate the implementation of targeted water quality standards. The designated beneficial uses would likely be similar to those currently listed in Table 3-1 of the Basin Plan for this water body.
- d. Consider adding to Table 3-1 of the Basin Plan waters tributary to Anaheim Bay and Huntington Beach Wetlands: Bolsa Chica, Westminster, East Garden Grove Wintersburg, Huntington Beach, Talbert, and Anaheim Barber Channels. Santa Ana Water Board staff's preliminary recommendation is to designate these waters with the following beneficial uses existing or potential Water Contact Recreation, Non-contact Water Recreation, Wildlife Habitat, Warm Freshwater Habitat, Estuarine Habitat, and Rare Threatened or Endangered Species.