

State of California
California Regional Water Quality Control Board
Santa Ana Region

Amendment to the Water Quality Control Plan for the Santa Ana River Basin to Revise
the Schedule for Attaining the Fecal Coliform Total Maximum Daily Loads for the
Shellfish Harvesting Beneficial Use in Newport Bay

Final Staff Report

June 3, 2022

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Executive Summary

This amendment to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) proposes to revise the schedule for attaining the Fecal Coliform Total Maximum Daily Loads (TMDLs) for the Shellfish Harvesting (SHEL) beneficial use in Newport Bay, update the TMDL implementation plan schedule in Table 6-1g, and provide non-substantive editorial changes to Basin Plan Chapter 6, Section 3.a. Fecal Coliform TMDLs. Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) staff proposes to extend the TMDLs attainment date for meeting the SHEL fecal coliform water quality objectives (WQOs) from December 31, 2022. to December 31, 2030.

Introduction

The Basin Plan specifies the following WQOs for pathogen indicator bacteria to protect the SHEL beneficial use as:

SHEL: fecal coliform: median concentration not more than 14 most probable number per 100 milliliters (MPN/100 mL) and not more than 10% of samples exceed 43 MPN/100 mL.

No changes to these objectives are proposed. However, as a part of this Basin Plan amendment, extension of the TMDLs' attainment date for meeting the SHEL fecal coliform WQOs is recommended. In addition, several editorial changes to the current Basin Plan language are proposed for the Fecal Coliform TMDLs to provide more clarity (e.g., changing TMDL to TMDLs since two water bodies are addressed (both Upper and Lower Newport Bay); TMDL "compliance" to TMDL attainment; "amended" TMDLs to revised TMDLs). The TMDL implementation schedule in Table 6-1g of the Basin Plan has also been updated.

The Fecal Coliform TMDLs established for Newport Bay in 1999 include wasteload and load allocations and an implementation plan intended to assure that the SHEL WQOs for fecal coliform identified above would be achieved. Currently, the attainment date for the Fecal Coliform TMDLs for meeting the SHEL WQOs is December 31, 2022, revised from December 30, 2019, per Resolution No. R8-2017-0019 adopted by the Santa Ana Water Board on June 16, 2017. At that time, Santa Ana Water Board staff anticipated that an additional three years would be needed to perform the necessary studies to determine whether the current WQOs for bacteria in shellfish, which are water column- based, actually correlate with indicator bacteria and pathogens in shellfish tissue. Due to the complexity and estimated cost, the study has been divided into phases to accommodate the level of funding available for this type of work. As a result, only Phase I of the study was able to be completed, and that study only focused on dry season conditions, not wet season conditions. Therefore, extending the attainment date is proposed in order to conduct the other phase (wet season) of this study to determine whether the TMDLs need to be revised, or whether new WQOs need to be developed, both of which will require additional time.

The current SHEL WQOs are based on commercial shellfish harvesting regulations, under the authority of the Public Health Service Act (42 U.S.C. § 201 et seq.) and the Federal Food Drug and Cosmetic Act (21 U.S.C. 301 et seq.), to ensure food safety in interstate commerce. Santa Ana Water Board staff relied on these regulations to develop the WQOs for SHEL for the 1995 Basin

Plan. However, in later years, staff investigated the source of and rationale behind the SHEL WQOs and determined that further studies were needed to verify whether these WQOs were appropriate for recreational shellfish harvesting in Newport Bay.

The shellfish harvesting regulations staff relied upon for the 1999 Fecal Coliform TMDLs were originally developed in 1925 (as the National Shellfish Sanitation Program) to identify potential direct sewage contamination of commercial shellfish beds. The National Shellfish Sanitation Program implied at that time that both the activities of commercial shellfish aquaculture operations and public recreational shoreline shellfish harvesting are the same shellfish harvesting beneficial use, even though they are physically different activities and should be regulated separately (California Ocean Plan § I.A.). Recreational shellfish harvesting is not regulated under federal law, and neither the Federal Food Drug and Cosmetic Act nor the Clean Water Act directly refer to recreational harvesting of shellfish for personal consumption as a regulated activity.

Recreational shellfish harvesting occurs on the shoreline and is limited to manual collection by permitted individuals under the regulations of the California Fish and Game Code. The California Shellfish Protection Act of 1993 (Water Code, §§ 14950-14958) only refers to commercial shellfish harvesting as a beneficial use and does not refer to recreational shellfish harvesting.

To determine the appropriate SHEL WQOs that should be applied to recreational shellfish harvesting in Newport Bay, Santa Ana Water Board staff believes that an eight- year extension of the attainment date for the SHEL beneficial use, until December 31, 2030, is appropriate for the reasons provided below.

Discussion

The Santa Ana Water Board is a key participant in a stakeholder effort to investigate bacteria levels and sources in Newport Bay and to implement control measures by the Orange County TMDL Funding Partners (consisting of the County of Orange, Orange County Flood Control District, the Cities of Tustin, Irvine, Laguna Hills, Laguna Woods, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach, Irvine Ranch Water District, and The Irvine Company) to improve Newport Bay's water quality.

In 2019, Santa Ana Water Board staff and Orange County TMDL Funding Partners coordinated with the Southern California Coastal Water Research Project (SCCWRP) to conduct a [study](#) that examined the applicability of the current fecal coliform WQOs for SHEL during the dry season by deploying Pacific oysters at twelve (12) sites within Newport Bay over a six-week period from August to September 2019. After the oysters were harvested at different time periods, the shellfish tissue was measured for fecal indicator bacteria and viral pathogens. Because there currently are no standardized analytical methods for measuring *Enterococcus* in shellfish tissue, fecal indicator bacteria were analyzed and included *E. coli*, fecal coliform, and male-specific coliphages (MSC), a potential proxy for the presence of viral pathogens and sewage contamination in shellfish. Digestive glands from the oysters were prepared and analyzed for enumeration of norovirus (NoV) GI and GII, human adenovirus (HAdV), and HF 183 human marker. The study did not find a correlation between fecal coliform levels in the water, upon which the current SHEL WQOs are based, and the presence of pathogen (NoV GI or GII and HAdV) and human molecular markers (MSC and HF 183) in oyster tissues. A second dry season study may be performed if the wet season study provides evidence that a second dry weather study can provide important data.

Since no correlation was found between the SHEL WQOs in Newport Bay and the presence of pathogens and human molecular markers in the deployed oysters during the dry season, Santa Ana Water Board staff, Orange County TMDL Funding partners, and SCCWRP will be conducting a second study that examines the WQOs for SHEL during the wet season. The timeframe for this study is anticipated to begin during the upcoming 2022-2023 wet season and could continue for two to potentially six years before SCCWRP finalizes the results and technical report. The reason for the timeframe is because of the uncertainty in the timing and amount of potential Santa Ana Water Board funding that may be available to supplement the wet season study, which is also being supported by additional funding by the Orange County TMDL Funding Partners, and the necessity for multiple measurable rain events. Since rain events are unpredictable, and the need for multiple rain events is necessary for the study to be scientifically defensible, the sampling portion of the study alone could take more than one or two years to complete before any analysis of the data could be completed.

Note that the dry season SHEL study began with preparatory work that started in May 2019, followed by sampling later that year, but the results were not finalized until November 2021 because of the time needed to process samples, analyze data, and write and revise the final report. The dry season SHEL study was only phase one of a larger study that requires additional time and funds to complete.

The results from both the dry and wet season SHEL studies will assist in determining the scientific validity of the current SHEL WQOs. As noted earlier, the dry season SHEL study did not find a correlation between the WQOs for SHEL and the presence of pathogens and human molecular markers in the deployed oysters. If the wet season SHEL study results in a similar conclusion, site-specific objectives (SSOs) would likely need to be developed to replace the current SHEL WQOs in the Basin Plan, which would no longer be scientifically supported. Developing and adopting SSOs for pathogen indicator bacteria in Newport Bay to replace the current SHEL WQOs in the Basin Plan is a lengthy process that could take at least four to five years to complete. The SSOs will be designed to incorporate the best available scientific information on appropriate WQOs for pathogen indicator bacteria concentrations in shellfish tissue in Newport Bay. A plan and schedule to implement these objectives to prevent pathogen contamination of shellfish will also be developed as part of the SSO process and incorporated into revised bacteria/pathogen TMDLs for Newport Bay.

Although comprehensive control measures have not been planned to specifically address potential bacteriological impacts on SHEL, the Santa Ana Water Board did adopt, on December 6, 2019, Time Schedule Order (TSO) [R8-2019-0050](#) so the Orange County TMDL Funding Partners TSO recipients (County, Orange County Flood Control, and Cities) could assist in achieving compliance with the wasteload allocations for fecal coliform in the Orange County Municipal Separate Storm Sewer System (MS4) Permit for the protection of the water contact recreation (REC-1) beneficial use. The TSO requires the identification and investigation of bacteria sources to Newport Bay and development of a Pollution Prevention Plan to install, implement, and maintain Best Management Practices (BMPs) and control measures to address these sources. Additionally, the TSO includes completed structural BMP projects for the Hoag Drain and Arches diversion project, Newport Bay bilge pump installation project, and Newport Dunes diversion revision project. The TSO recipients also completed an engineering evaluation and analysis for additional BMPs at various locations,

such as East Costa Mesa Channel and Santa Isabel Channel. Based on the results of the ongoing bacteriological source investigation study initiated in March 2022, this evaluation and analysis will inform the Pollution Prevention Plan. Implementation of these BMPs should result in reductions of indicator bacteria to protect both REC-1 and SHEL beneficial uses.

Santa Ana Water Board staff participated in four professionally facilitated meetings, conducted by Participation by Design, with the Orange County TMDL Funding Partners and Orange County Coastkeeper to discuss the Basin Plan amendment for the extension of the attainment date for the SHEL beneficial use. These meetings were virtually held on August 16, 2021, September 9, 2021, September 29, 2021, and October 20, 2021. A possible eight-year extension was first discussed at the initial meeting in August as a compromise between the ten-year timeframe that Santa Ana Water Board staff thought was needed and Orange County Coastkeeper's desire for a much shorter timeframe to complete the necessary shellfish studies and revise the Fecal Coliform TMDLs. Santa Ana Water Board staff and the Orange County TMDL Funding Partners were amenable to this timeframe. At the second meeting, Orange County Coastkeeper shared a preference for a five-to-six-year extension instead. Santa Ana Water Board staff explained that their preference was for a ten-year extension but that eight years may be sufficient to conduct the wet season SHEL study and develop SSOs for Newport Bay (if needed) and revise the Fecal Coliform TMDLs. At the third meeting, Orange County Coastkeeper stated they were amenable to a longer extension timeframe with a possible interim standard. Santa Ana Water Board staff stated they would discuss this internally and at the last meeting, Santa Ana Water Board staff stated the interim standard would require a lengthy justification, with peer-reviewed scientific studies, that was not possible before the current December 31, 2022 attainment deadline. The eight-year extension was the reasonable option between six and ten years.

Overall, an eight-year extension is reasonable based on the various steps needed to determine the appropriateness of the SHEL WQOs and modify them through a Basin Plan amendment. Facilitated discussions have been held with the Orange County TMDL Funding Partners, Orange County Coastkeeper, and Santa Ana Water Board staff to determine the length of time needed, what studies would assist in evaluating these WQOs, and the process and actions required to move forward with improving the water quality in Newport Bay.

This conclusion is further supported by the State Water Resources Control Board's (State Water Board) recent recognition of the need to develop new WQOs for the SHEL beneficial use on a statewide level. In Resolution No. 2022-0006, entitled, 'Adopt the Clean Water Act Section 303(d) List of Impaired Waters for the 2020-2022 California Integrated Report,' [see Finding 13] and as part of the 2019 review of the Water Quality Control Plan for Ocean Waters of California (Ocean Plan), the State Water Board gives high priority for consideration of revising the shellfish harvesting beneficial use to distinguish among recreational, commercial, or tribal types of harvesting; and for revising the shellfish harvesting WQO in the Ocean Plan. The WQO referred to in the Ocean Plan is for total coliform as the pathogenic indicator bacteria of which fecal coliform is a type of total coliform. The resolution goes on to state that 'Should the beneficial uses or the water quality objective be revised in the future, previously assessed data will be reassessed with the new water quality objective in a subsequent listing cycle. The State Water Board expects that any Ocean waterbody segment listed as impaired by indicator bacteria for the protection of shellfish harvesting would not be scheduled for TMDL development until after the State Water Board completes the planning project. In addition, the State Water Board encourages the Regional

Water Boards to use their discretion where appropriate in establishing permitting, monitoring, and other data collection requirements.’ The resolution supports the Santa Ana Water Board’s determination that further study of the shellfish harvesting water quality objective is needed, especially as several of the coastal regions adopted the Ocean Plan objectives into their regional Basin Plans.

California Environmental Quality Act (CEQA) Requirements

The California Natural Resources Agency has certified the basin planning process of the State Water Resources Control Board (State Water Board) and Regional Water Quality Control Boards (Regional Water Boards) as a “certified regulatory program” that is exempt from CEQA, as long as the procedures identified in the program are followed. (Pub. Res. Code § 21080.5; Cal. Code Regs., tit. 14, § 15251(g); Cal. Code Regs., tit. 23, §§ 3720-3781.)

The Santa Ana Water Board adopted the Substitute Environmental Document (SED) for the Fecal Coliform TMDLs under Resolution No. R8-1999-0010 and for the revised attainment schedule for the Fecal Coliform TMDLs under Resolution No. R8-2017-0019. None of the revisions to the attainment schedule for the Fecal Coliform TMDLs for the SHEL beneficial use will result in any new significant environmental effects not disclosed in the prior SEDs. Further, there are no changes in circumstances or new information that would otherwise warrant any subsequent or supplemental environmental review under Public Resources Code section 21166 or CEQA Guidelines sections 15162 or 15163.

An extension of the attainment schedule for the SHEL beneficial use will not necessitate new or revised control actions that might have an adverse impact on the environment. Control actions, as noted above, are already in place and planned to address the established Fecal Coliform TMDLs. The Santa Ana Water Board has, therefore, determined that the prior SEDs adequately address the potential environmental impacts of the revised attainment schedule for the Fecal Coliform TMDLs for the SHEL beneficial use, as revised, and no further environmental review is necessary.

Office of Administrative Law Review

The Office of Administrative Law (OAL) is responsible for reviewing regulations proposed by state agencies to ensure that they are clear, necessary, legally valid, and available to the public. (Gov. Code, § 11340 et seq.) OAL is also responsible for transmitting these regulations to the Secretary of State and for publishing regulations in the California Code of Regulations. Following State Water Board approval of this Basin Plan amendment, any regulatory portions of the amendment must be approved by OAL. (Gov. Code, § 11353.) The State Water Board must include in its submittal to OAL a summary of the necessity for the regulatory provision. (Gov. Code, § 11353(b).) The extension of the attainment schedule for the SHEL beneficial use is necessary to provide sufficient time to conduct the wet season SHEL study with SCCWRP, develop new TMDLs for the SHEL beneficial use in Newport Bay, and/or develop SSOs for the SHEL beneficial use in Newport Bay.

Scientific Peer Review

The scientific basis of any Basin Plan amendment must undergo external scientific peer review before adoption by the State or Regional Water Boards. The scientific basis is the foundation of a rule that it is premised upon, or derived upon, empirical data or other scientific findings, conclusions, or assumptions establishing a regulatory level, standard, or other requirement for the protection of public health or the environment. (Health & Safety Code, § 57004.) The revisions proposed to the attainment schedule for the Fecal Coliform TMDLs do not change their underlying scientific basis. The amendment, therefore, does not include any new scientific elements requiring independent, external scientific peer review.

Recommendation

Due to the time needed to conduct the wet season SHEL study with SCCWRP, develop new TMDLs for the SHEL beneficial use in Newport Bay, and/or develop SSOs for the SHEL beneficial use in Newport Bay, extending the attainment schedule for the Fecal Coliform TMDLs for the SHEL beneficial use is appropriate. Santa Ana Water Board staff believes that an eight-year extension, until December 31, 2030, should provide sufficient time to complete these projects.

Staff recommends the Santa Ana Water Board adopt Resolution No. R8-2022-0017 as presented.

References

Santa Ana Regional Water Quality Control Board. 2019. Water Quality Control Plan for the Santa Ana River Basin.

Santa Ana Regional Water Quality Control Board. 2019. Time Schedule Order Number [R8-2019-0050](#) for the County of Orange, the Orange County Flood Control District, and the Cities of Tustin, Irvine, Laguna Hills, Laguna Woods, Costa Mesa, Santa Ana, Orange, Lake Forest, and Newport Beach to comply with the Requirements Prescribed in Order Number R8-2010-0062 (NPDES Permit Number CAS618030).

State Water Resources Control Board. 2019. Water Quality Control Plan for Ocean Waters of California.

Zimmer-Faust A, Griffith J, Freshwater J, Peng J, Goong S, Weisberg S. 2022. Relationships between indicators and pathogens in shellfish and water in Newport Bay, CA. Final Report prepared by the Southern California Coastal Water Research Project, State Water Resources Control Board Agreement Number 18-025-180. [SCCWRP Technical Report 1193](#)