

**STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF FEBRUARY 17-18, 2022

Prepared on January 28, 2022

ITEM NUMBER: 14

SUBJECT: Proposed Amendment to the Water Quality Control Plan for the Central Coastal Basin to Adopt Total Maximum Daily Loads for Turbidity in the Gabilan Creek Watershed, Monterey County, California

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ACTION: Adopt Resolution No. R3-2022-0002

SUMMARY

Staff recommends adoption of the Total Maximum Daily Loads (TMDLs) for turbidity in the Gabilan Creek watershed, located in Monterey County, and the associated implementation plan. Adoption of proposed Resolution No. R3-2022-0002 would result in the amendment of the Water Quality Control Plan for the Central Coastal Basin (Basin Plan) to incorporate these TMDLs and the implementation strategy to reduce turbidity in the Gabilan Creek watershed and restore beneficial uses including freshwater habitats, migration of aquatic organisms, and habitats used for spawning. The proposed Basin Plan amendment is Attachment A to the proposed Resolution (Attachment 1 to this staff report). The TMDL implementation strategy describes how Central Coast Regional Water Quality Control Board (Central Coast Water Board) regulatory mechanisms (e.g., permits and enforcement actions), and non-regulatory actions (e.g., implementation of nonpoint source plans, voluntary actions, and grant funded projects) will address erosion and sediment resuspension from various sources in order to attain water quality standards.¹

The Gabilan Creek watershed is on the federal Clean Water Act section 303(d) list of impaired waters (303(d) List) due to excessive turbidity. An impaired waterbody is one that does not meet water quality standards. Turbidity is an optical measure of water clarity, measured in nephelometric turbidity units (NTUs). Turbidity can be caused by suspended solids such as clay, silt, algae, and other microscopic organisms that reduce water clarity and can have detrimental impacts on aquatic ecosystems and drinking water. The primary cause of turbidity in the Gabilan Creek watershed is suspended sediments. This TMDL Project includes the following turbidity impaired waterbodies (see Figure 1): Gabilan Creek, Natividad Creek, Alisal Creek, Salinas Reclamation Canal,

¹ USEPA defines water quality standards as consisting of three elements: designated uses for each waterbody, criteria to protect those uses, and consideration of the anti-degradation requirements.

Tembladero Slough, Old Salinas River, Merritt Ditch, Espinosa Slough, Santa Rita Creek, and Alisal Slough.

The goal of this TMDL Project is to restore water quality in the Gabilan Creek watershed and, specifically, to achieve the turbidity water quality objectives for the designated beneficial uses of each waterbody (i.e., attain the water quality standards) and remove turbidity impaired waters from the 303(d) List.

DISCUSSION

Geographic Setting

The Gabilan Creek watershed is a 160 square mile watershed in northern portion of the Salinas River watershed (see Figure 1). Gabilan Creek is the major stream in the watershed that flows out of the Gabilan Mountains into an alluvial coastal valley. Gabilan Creek is the first of a series of interconnected waterbodies including the Salinas Reclamation Canal, Tembladero Slough, and Old Salinas River that outlets through the Moss Landing Harbor into Monterey Bay. These waters flow from undeveloped lands in the mountains through the City of Salinas and intensively farmed irrigated agricultural lands in the valley before reaching Pacific Ocean. The TMDL Project is divided into three distinct geographic areas: the upper watershed (headwaters), the lower watershed (developed areas), and tidal brackish waters of the Old Salinas River and lower Tembladero Sough.

TMDLs

TMDLs, also referred to as loading capacities, are the amount of a pollutant that surface waterbodies can sustain without exceeding water quality objectives. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. Turbidity TMDLs for the Gabilan Creek watershed are equal to the interim and final turbidity numeric targets described below.

Numeric Targets

This TMDL Project establishes numeric targets as shown in Table 1 below for turbidity and the restoration of biological conditions in Gabilan Creek watershed. Table 1 is a condensed version of the waterbody specific numeric targets contained in Table 2 of the Basin Plan amendment (Attachment A to the proposed Resolution). Numeric targets define the physical, chemical, and biological conditions necessary to confirm attainment of applicable water quality standards. The TMDL Project sets seasonal interim and final turbidity numeric targets for the three different geographic areas in the Gabilan Creek watershed.

Turbidity Numeric Targets

The turbidity numeric targets interpret the Basin Plan narrative water quality objectives for turbidity. The narrative water quality objective states the following: *Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.* The

Basin Plan also establishes numeric water quality objectives that sets limits on increases in natural turbidity conditions attributable to controllable water quality factors.

The turbidity numeric targets are set at levels protective of beneficial uses. Interim numeric targets are based on levels that are attained in the watershed and in other agricultural watersheds in the Central Coast Region. Final numeric targets represent natural conditions. Turbidity numeric targets vary depending on location, with natural conditions expected to reflect higher quality waters in the less-disturbed upper Gabilan Creek (headwaters) than in the lower Gabilan Creek watershed, which is predominately characterized by slow moving waters in an alluvial plain.

Upper Gabilan Creek Watershed (headwaters above Old Stage Road): There is no evidence that the upper Gabilan Creek watershed (headwaters) is impaired. Therefore, interim numeric targets will not be established (see Table 1; note the interim targets shown as “n/a”). The goal is to maintain existing water quality and continue to meet the final turbidity numeric targets for waterbodies in the upper Gabilan Creek watershed.

The final numeric targets for the upper Gabilan Creek watershed will be determined by comparing the seasonal 75th percentile value of turbidity samples collected from upper Gabilan Creek to the appropriate seasonal final numeric targets in Table 1.

Lower Gabilan Creek Watershed (below Old Stage Road and above brackish waters): Both interim and final numeric targets are established for waterbodies in the lower Gabilan Creek watershed. These interim and final numeric targets will be determined by comparing the seasonal median of samples (50th percentile) collected from a waterbody to the appropriate seasonal interim and final numeric targets.

- The first seasonal interim numeric targets are equal to the 25th percentile of monitoring data from each waterbody. For example, these numeric targets for Alisal Slough are equal to the 25th percentile of the data from Alisal Slough and turbidity must improve so that 50% of the samples meet these targets (see range of values in Table 1 for “Interim Target-1” and waterbodies in the Lower Gabilan Creek watershed).
- The second seasonal interim numeric targets (see “Interim Target-2” in Table 1) are equal to the 25th percentile of seasonal data from Cooperative Monitoring Program sites located in other agricultural watersheds in the Central Coast Region. Turbidity must improve so that 50% of the samples meet these targets.
- Final numeric targets represent natural condition and are equal to median turbidity levels from reference sites with similar hydrogeomorphic characteristics (geology, land use, topography, hydrology) to waterbodies in the lower Gabilan Creek watershed.

Lower Gabilan Creek Watershed (within brackish waters): Interim turbidity numeric targets are established using the same methods described above but for tidally influenced brackish waters near the coast: Old Salinas River and the lower Tembladero Slough. Final numeric targets were not developed for these waterbodies because monitoring data from brackish water reference sites in the region was insufficient to determine reference conditions (see Table 1; note the final targets shown as “n/a”).

Table 1. Turbidity numeric targets (in NTU) for the Gabilan Creek watershed. Dry Season is May through September and Wet Season is October through April.

Watershed Area	Interim Target -1 Dry Season	Interim Target -1 Wet Season	Interim Target-2 Dry Season	Interim Target -2 Wet Season	Final Target Dry Season	Final Target Wet Season	Final Target Year-Round
Upper Gabilan Creek watershed, headwaters above Old Stage Road	n/a	n/a	n/a	n/a	2.2	3.3	2.5
Lower Gabilan Creek Watershed*	12-57**	27-124**	12	21	6	11	8
Tidally influenced (brackish) reaches of Tembladero Slough and Old Salinas River	29-59**	36-49**	29	36	n/a	n/a	n/a

*All waterbodies between Old Stage Road and the tidally influenced brackish reaches of Tembladero Slough and Old Salinas River.

** Each waterbody has a unique seasonal “Interim Target-1” (the 25th percentile of the turbidity data for that waterbody). The range of numeric targets for the waterbodies are shown. The specific targets for each waterbody’s unique Interim Target-1 are listed in Table 2 of the Basin Plan amendment (see Attachment A to the Resolution).

Biological Numeric Targets

Because turbidity pollution severely impacts instream plant, algae, and benthic invertebrate (e.g., aquatic insects) communities, which are the foundations of aquatic ecosystems, this TMDL Project also establishes biological condition numeric targets. The biological condition numeric targets for attaining water quality objectives for freshwater aquatic habitats include the following:

1. Biological condition numeric targets based on bioassessment monitoring of benthic macroinvertebrate populations representing the number of different taxa (e.g., genera or genus and species) observed at a monitoring site. The numeric target is for 24 or more different taxa present.
2. Biological condition numeric targets based on the California Rapid Assessment Method (CRAM) for holistically mapping and assessing wetland conditions and stressors. The CRAM Biotic Structure Score represents relative level of habitat diversity, biological integrity, food web support, etc., and includes the plants, and

algae directly impacted by turbidity. The numeric target is a CRAM Biotic Structure Score greater than 75.

Data Sources

To develop this TMDL Project, staff used various types of data including the following: water quality, land use, hydrologic, climatic, soils, ecological, demographic, groundwater, and other environmental data from public agencies and scientific sources.

Source Analysis

Several methods were used to identify sources of turbidity in the watershed including GIS analysis, watershed sediment studies, modeling, field observations, and discussions with stakeholders. Some of the sources identified in the TMDL Project are stream and channel bank erosion, resuspension of bed sediments, urban stormwater runoff, industrial and construction stormwater, grazing, agricultural stormwater and irrigation runoff, and pumping. The source analysis is contained within the TMDL technical report (Attachment 2, see section 7).

Allocations

To address turbidity impairments in the Gabilan Creek watershed, turbidity TMDLs are allocated to point and nonpoint sources of discharge. Point source discharges, such as urban stormwater, are regulated with National Pollutant Discharge Elimination System (NPDES) permits and are assigned waste load allocations. Nonpoint source (NPS) discharges, such as irrigated agricultural discharges or grazing, are assigned load allocations.

For this TMDL Project, waste load allocations and load allocations are both equal to the interim and final turbidity TMDLs, which are in turn equal to the turbidity numeric targets.

Implementation Plan

The TMDL project technical report (Attachment 2, see section 9) and the Basin Plan amendment (Attachment A to the Resolution) include an implementation plan that identifies the regulatory and non-regulatory mechanisms that responsible parties will use to meet their TMDL allocations. Sources, allocation types, and the associated implementation mechanisms described in the implementation plan are summarized in Table .

Table 2. Table of sources, allocation types, and TMDL implementation mechanisms.

Turbidity Source	Type of Allocation	TMDL Implementation Mechanism(s)
Urban stormwater runoff	Waste Load Allocation	Municipal Stormwater Permits
Construction and industrial stormwater runoff	Waste Load Allocation	Construction and Industrial Stormwater Permits
Highway stormwater runoff	Waste Load Allocation	Stormwater Permits for Highways
Discharges with low threat to water quality	Waste Load Allocation	Low Threat NPDES General Permits
Irrigated agriculture	Load Allocation	Agricultural Order
Undeveloped areas and woodlands	Load Allocation	NPS Program
Grazing	Load Allocation	NPS Program
Wetlands (degraded streams and channels)	Load Allocation	Regional Stormwater Management Plan
Rural roads stormwater runoff	Load Allocation	Prohibition of Discharge and NPS Program
Channel maintenance	Load Allocation	Prohibition of Discharge, CWA section 401 certifications, and Waste Discharge Requirements
Pumping (pump stations and agricultural drainage pumps)	Load Allocation	Agricultural Order, Prohibition of Discharge, and NPS Program
Nurseries and greenhouses	Load Allocation	Agricultural Order and Cannabis General Order

TMDL Attainment Schedule and Milestones

Waterbodies in the lower Gabilan Creek watershed are highly impaired for turbidity and this TMDL Project establishes an attainment schedule over 20 years to achieve the final turbidity targets, TMDLs, and allocations. The TMDL attainment schedule is as follows:

- 1) First Interim TMDL Milestone: This allocation is equal to the Interim Target – 1 and must be achieved **seven years** after OAL approval.
- 2) Second Interim TMDL Milestone: This allocation is equal to the Interim Target – 2 and must be achieved **fifteen years** after OAL approval.
- 3) Final TMDL Attainment Date: This allocation is equal to the Final Turbidity Target and must be achieved **twenty years** after OAL approval.

The biological condition numeric targets will be evaluated when determinations are made whether waterbodies are achieving turbidity TMDL allocations and may be considered proxies for turbidity TMDL allocations (e.g., if biological numeric targets are

achieved, it could be determined that the turbidity allocations are attained, despite the possibility of turbidity concentrations exceeding the turbidity numeric targets).

Climate Change

The Central Coast Region faces the threat and the effects of climate change for the foreseeable and distant future. To proactively prepare and respond, the Central Coast Water Board has launched the Central Coast Water Board's Climate Action Initiative, which identifies how the Board's work relates to climate change and prioritizes actions that improve water supply resiliency through water conservation and wastewater reuse and recycling; mitigate for and adapt to sea level rise and increased flooding; improve energy efficiency; and reduce greenhouse gas production. The Climate Action Initiative is consistent with the Governor's Executive Order B-30-15 and the State Water Resources Control Board's Climate Change Resolution No. 2017-0012.

This TMDL Project incorporates riparian restoration, stormwater management, and a NPS program for the operation of agricultural drainage and flood control pump stations among other implementation strategies to protect water quality from sources of erosion, sedimentation, and turbidity. Restoring riparian habitat and implementing improved stormwater and pump station management practices not only protects waterbodies from these pollutants in runoff but also provides for adaptation and mitigation strategies addressing climate change induced sources of turbidity (e.g., changes in storm frequency and intensity) that will result in reduced suspended particles.

Human Right to Water

Water Code section 106.3, subdivision (a) states, "It is...[a] policy of the [State of California] that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." On January 26, 2017, the Central Coast Water Board adopted Resolution No. R3-2017-0004,² which affirms the realization of the human right to water and the protection of human health as the Central Coast Water Board's top priorities.

This TMDL Project addresses the human right to water by identifying sources of turbidity and establishing a TMDL implementation plan and schedule to attain water quality standards and improve water quality in the Gabilan Creek watershed. Waterbodies in this watershed are designated for aquatic life, recreation, and municipal and domestic water supply uses. Although the water quality standards and the TMDL allocations established in this Project are primarily focused on the protection of aquatic life, they also protect human health through the protection and restoration of basic watershed functions necessary for supporting multiple beneficial uses.

Environmental Justice

Environmental Justice principles call for the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, in the development, adoption, implementation, and enforcement of all environmental laws, regulations, and

² https://www.waterboards.ca.gov/centralcoast/board_decisions/adopted_orders/2017/2017-0004_hrtw_fnl.pdf

policies that affect every community's natural resources and the places people live, work, play, and learn. The Central Coast Water Board implements regulatory activities and water quality projects in a manner that ensures the fair treatment of all people, including Underrepresented Communities. Underrepresented Communities include but are not limited to Disadvantaged Communities (DACs), Severely Disadvantaged Communities (SDACs), Economically Distressed Areas (EDAs), Tribes, Environmentally Disadvantaged Communities (EnvDACs), and members of Fringe Communities.³ Furthermore, the Central Coast Water Board is committed to providing all stakeholders the opportunity to participate in the public process and provide meaningful input to decisions that affect their communities. Central Coast Water Board staff conduct focused outreach to ensure all interested parties are notified of opportunities to participate in the planning and implementation of this TMDL Project.

Several DACs and SDACs are located within the Gabilan Creek watershed. In addition to the water quality and beneficial use protection and restoration benefits, staff recognizes that the cost of implementation could be a burden to these communities. By identifying DACs and SDACs in the project area, staff and stakeholders will be able to increase outreach and work towards identifying grant funds to reduce the implementation costs (see section 1.9 of the TMDL technical report (Attachment 2)). Figure 5 of the TMDL technical report provides a map showing the location of DACs and SDACs in the Gabilan Creek watershed.

To engage Tribes in the TMDL Project planning process, staff contacted the California Native American Heritage Commission for list of tribes with traditional lands or cultural places in Monterey County. Representatives of these tribes were individually notified at the start of the public process for the turbidity TMDL Project. In addition to individually contacting tribal representatives, staff notified representatives of organizations that assist DACs and SDACs in the Gabilan Creek watershed about the turbidity TMDL Project.

California Environmental Quality Act (CEQA)

The CEQA Checklist and Analysis Report (Attachment 3 to this staff report) provides the environmental analysis required by Public Resources Code section 21159. Analysis

³ Disadvantaged Community: a community with an annual median household income that is less than 80% of the statewide annual median household income (Public Resources Code section 80002(e)); Severely Disadvantaged Community: a community with a median household income of less than 60% of the statewide average. (Public Resources Code section 80002(n)); Economically Distressed Area: a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less with an annual median household income that is less than 85% of the statewide median household income and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2% higher than the statewide average, or (3) low population density. (Water Code section 79702(k)); Tribes: federally recognized Indian Tribes and California State Indian Tribes listed on the Native American Heritage Commission's California Tribal Consultation List; EnvDACs: CalEPA designates the top 25 percent scoring census tracts as DACs. Census tracts that score the highest five percent of pollution burden scores but do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data are also designated as DACs (refer to the CalEnviroScreen 3.0 Mapping Tool or Results Excel Sheet); Fringe Community: communities that do not meet the established DAC, SDAC, and EDA definitions but can show that they score in the top 25 percent of either the Pollution Burden or Population Characteristics score using the CalEnviroScreen 3.0.

pursuant to the CEQA Environmental Checklist suggests the TMDL Project implementation would have no potentially significant impacts on the environment. The draft CEQA Checklist and Analysis Report posted for public comment on October 18, 2021 identified potentially significant environmental impacts from the conversion of Prime Farmland to non-agricultural uses and cumulative impacts (see sections 2A and 21B in Attachment 3). Further analysis of the TMDL Project led to the finding that the potentially significant impacts identified in the draft CEQA Checklist and Analysis Report were not supported by substantial evidence in the record and thus were speculative. Updates to the CEQA Checklist and Analysis Report are highlighted with underline and strikeout text (see Attachment 3).

Scientific Peer Review

Independent scientific peer review was conducted for this TMDL Project. Three scientific experts were selected by the University of California to review the TMDL technical report for scientific adequacy; these researchers collectively have substantial research experience in freshwater ecology, watershed sciences and modeling, and hydrogeomorphology. The reviews supported the scientific assumptions and conclusions of this TMDL Project. Staff incorporated the reviewers' suggestions and insights to improve this TMDL Project's technical approach and implementation strategy in several areas, as described in more detail in Attachment 5 to this staff report.

PUBLIC OUTREACH AND INVOLVEMENT

Public outreach and public involvement are a part of the TMDL development process. Our public engagement process included a CEQA scoping meeting, progress reports, scheduled public meetings, and solicitation of public feedback via our stakeholder email subscription list consisting of over 250 stakeholders. These stakeholders represented a wide range of interests, including agricultural interests, local residents, public agencies, environmental groups, local businesses, researchers, local resource professionals, disadvantaged community advocates and service providers, tribes, and others. Further detail about our public outreach and involvement activities are documented in Attachment 2 to this staff report.

Public Comments

On October 18, 2021, staff distributed notice of an opportunity to provide public comment on this proposed Basin Plan amendment (Attachment 6) and the TMDL Project's draft CEQA Checklist and Analysis Report. The 45-day written comment period ended on December 3, 2021.

Staff received three comment letters from:

1. Elizabeth Krafft, Deputy General Manager, Monterey County Water Resources Agency, in an email attachment received December 3, 2021.
2. Kay Mercer, Environmental Scientist, Provost & Pritchard Consulting Group, in an email attachment received December 3, 2021.
3. Shaila Chowdhury, Chief Environmental Engineer, California Department of Transportation, Division of Environmental Analysis, in an email attachment received December 3, 2021.

Written public comments and staff responses are provided in Attachment 7 to this staff report.

During the public comment period, staff held a public outreach meeting on November 17, 2021. In addition, staff held meetings with the individual stakeholder groups listed below to review the key components of the TMDL Project, listen to feedback, and to answer questions.

- The City of Salinas
- Monterey County Department of Public Works
- Central Coast Water Quality Preservation Inc.
- Monterey County Water Resources Agency
- Central Coast Wetland Group
- Monterey Bay National Marine Sanctuary
- California Coastkeeper Alliance

CONCLUSION

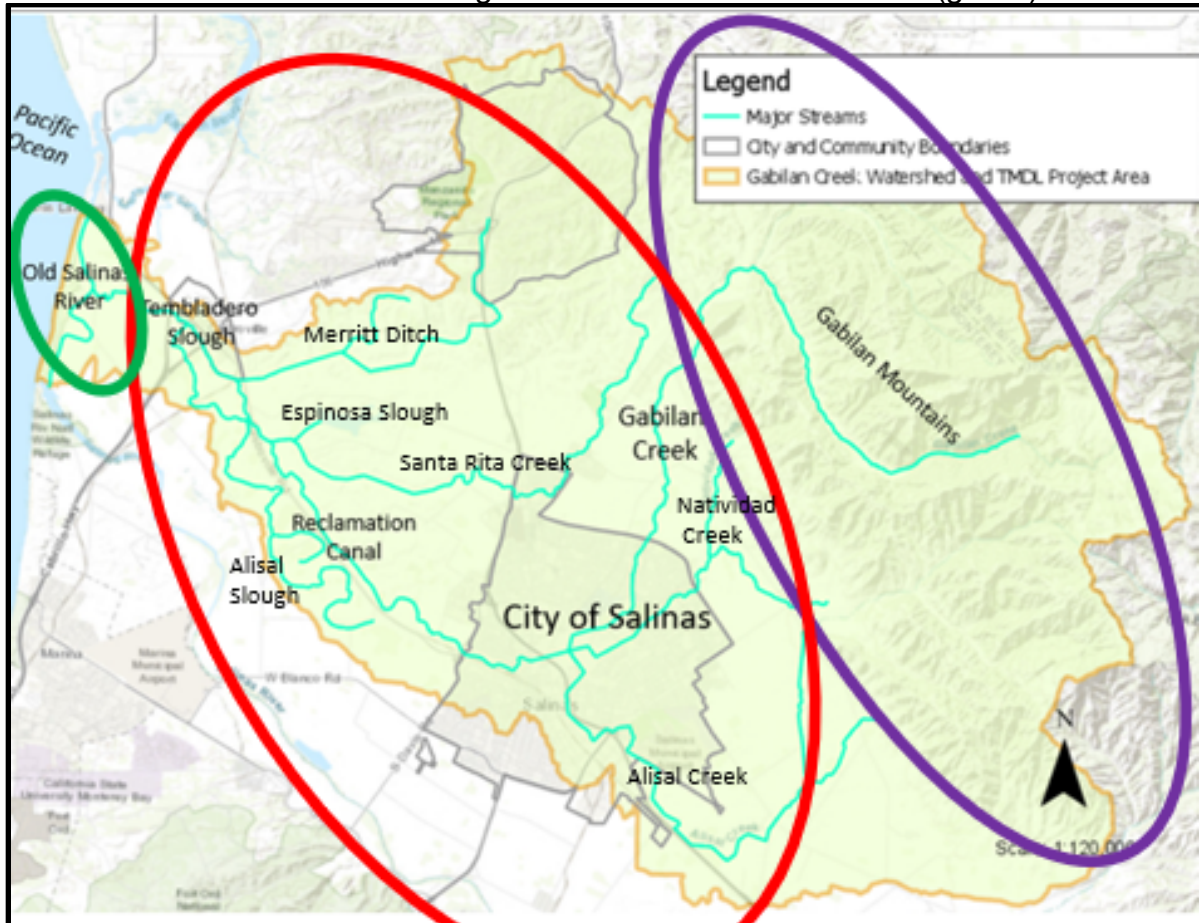
All major surface waters in the lower Gabilan Creek watershed are highly impaired for turbidity and do not meet the Basin Plan general objectives for turbidity. The elevated levels of turbidity have detrimental impacts on aquatic ecosystems in the watershed. This TMDL Project establishes turbidity numeric targets to achieve water quality standards and assigns TMDL allocations to responsible parties. A wide range of land uses, management conditions, and activities in the watershed are sources of turbidity that cause erosion and mobilization of fine sediments deposited in the waterbody. This TMDL Project includes an implementation plan to address the sources of turbidity in the watershed such as irrigated agriculture, urban stormwater, pumping, and channel conditions.

RECOMMENDATION

Adopt Resolution No. R3-2022-0002 as proposed.

FIGURES

Figure 1. Map of the Gabilan Creek watershed showing the three geographic areas of the watershed defined for the TMDL Project. The upper watershed (headwaters) outlined by the purple oval shape on the right, the lower watershed above brackish waters outlined by the center oval (red), and tidal brackish waters of the Old Salinas River and lower Tembladero Slough in the smaller oval on the left (green).



ATTACHMENTS

Attachment 1: Resolution No. R3-2022-0002 and Basin Plan amendment (Attachment A to the Resolution)

Attachment 2: TMDL Project Technical Report (with three separate appendices)

Attachment 3: CEQA Checklist and Analysis

Attachment 4: TMDL Economic Analysis

Attachment 5: Scientific Peer Review and Staff Responses to Comments

Attachment 6: Notice of Public Hearing-Notice of Opportunity to Comment

Attachment 7: Public Comments and Staff Responses to Comments