Central Coast Regional Water Quality Control Board

Fact Sheet
Gabilan Creek Watershed Turbidity TMDLs

Introduction

The federal Clean Water Act requires every state to evaluate its water quality data, to maintain a list of waters that are “impaired” (does not meet water quality standards), and to develop plans to address water quality impairments. In the Central Coast Region, water quality standards are described in the Water Quality Control Plan for the Central Coastal Basin (Basin Plan). The Basin Plan designates beneficial uses to all waters of the state and defines water quality objectives. The Basin Plan specifically defines turbidity water quality objectives that the TMDL must achieve.

Turbidity is an optical measure of stream water clarity, reported in nephelometric turbidity units (NTU). Turbidity can be caused by suspended solids such as clay, silt, finely divided inorganic and organic matter, and algae. At elevated levels, turbidity and associated suspended solids reduce light transmission and have detrimental impacts on aquatic ecosystems. The major streams in the Gabilan Creek watershed are highly impaired for turbidity.

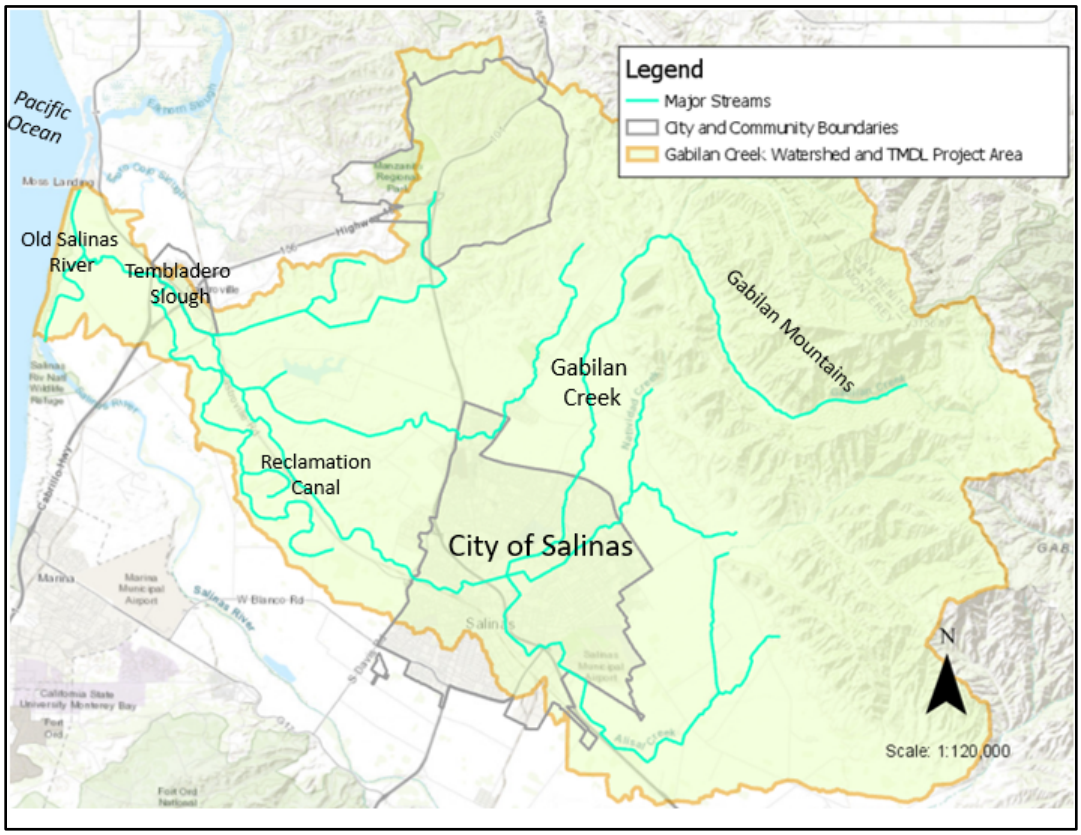
Total Maximum Daily Load (TMDL)

The term TMDL describes the maximum amount of a pollutant (turbidity) that a waterbody can receive and still meet water quality standards. The term TMDL or TMDL project also describes strategies to improve water quality and restore clean water. The Gabilan Creek Watershed Turbidity TMDL Project (Turbidity TMDL Project) identifies sources of turbidity, establishes the maximum amount of turbidity a waterbody can receive and still meet the turbidity water quality objectives, and allocates that amount to contributing sources. The Turbidity TMDL Project also establishes a monitoring and reporting program to verify compliance and a time schedule to restore water quality in the Gabilan Creek watershed.

The Turbidity TMDL Project

Project Area

The Turbidity TMDL Project area is the 160 square mile Gabilan Creek watershed, which extends from the southwestern slope of the Gabilan Mountains west to Monterey Bay and the Pacific Ocean (refer to figure below). Gabilan Creek is the major stream in this coastal watershed that flows out of the Gabilan Mountains into the alluvial lower Salinas Valley. Gabilan Creek is the first of a series of interconnected waterbodies including the Salinas Reclamation Canal, Tembladero Slough, and Old Salinas River.



Map of the Gabilan Creek watershed.

TMDL Impairment Analysis

The Turbidity TMDL Project identifies turbidity impaired waters in accordance with the Water Quality Control Policy for Developing California's Clean Water Act section 303(d) List. Specifically, staff compared turbidity data to turbidity evaluation guidelines used to determine water quality standards attainment for cold and warm freshwater habitats, COLD (25 NTU) and WARM (40 NTU) respectively.

The table below summarizes the results of this analysis. Streams in the Gabilan Creek watershed have been extensively monitored and samples frequently exceed the

evaluation guidelines. Further analysis shown in the table illustrates the magnitude of the turbidity impairments; 50th percentile/median turbidity levels greatly exceed the evaluation guidelines.

Table of turbidity summary data for monitoring sites including the percent exceedances of 303(d) List evaluation guidelines and the median of all turbidity data for waterbodies designated as having COLD and/or WARM beneficial uses in the Gabilan Creek watershed. Note: n/a represents beneficial use not applicable to the waterbody.

Waterbody	Monitoring Site Id.	Number of Samples	COLD % of Samples ≥ 25 (NTU)	WARM % of Samples ≥ 40 (NTU)	50th Percentile Median (NTU)
Gabilan Creek	309GAB	92	91	86	259
Natividad Creek	309NAD	164	88	76	100
Salinas Reclamation Canal/Alisal Creek	309ALG	158	89	81	119
Salinas Reclamation Canal	309ALD	104	n/a	61	56
Salinas Reclamation Canal	309JON	161	n/a	57	52
Tembladero Slough	309TEH	162	n/a	90	114
Tembladero Slough	309TDW	176	n/a	84	100
Tembladero Slough	309TEM	38	n/a	76	68
Old Salinas River Channel	309OLD	299	81	70	74
Alisal Slough	309ASB	157	65	45	36
Merrill Ditch	309MER	162	93	86	107
Espinosa Slough	309ESP	161	80	76	108
Santa Rita Creek	309RTA	60	90	83	200

Turbidity Numeric Targets and Water Quality Objectives

Numeric targets define the turbidity levels, in NTU, necessary to achieve the turbidity water quality objectives and therefore, the water quality necessary to support designated beneficial uses (i.e., water quality standard attainment). Staff is developing turbidity numeric targets for the TMDL based on the turbidity water quality objective in the Basin Plan, which states the following:

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. *Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases shall not exceed 20 percent.*
2. *Where natural turbidity is between 50 and 100 NTU, increases shall not exceed 10 NTU.*
3. *Where natural turbidity is greater than 100 NTU, increases shall not exceed 10 percent.*

The turbidity water quality objective has two parts, and both are being considered during the development of potential turbidity numeric targets.

- Part one (the narrative component of the turbidity water quality objective) - potential TMDL numeric targets derived from published studies and research on the adverse effects of turbidity on aquatic life.
- Part two (the numeric turbidity water quality objective) - potential TMDL numeric targets derived from analysis natural turbidity water quality conditions of reference streams.

Source Analysis

The Turbidity TMDL Project source analysis identifies different types of land cover, land conditions, management activities, and parties potentially responsible for turbidity in the Gabilan Creek watershed. Central Coast Water Board staff use several methods to identify potential sources of turbidity in a watershed including GIS analysis, published studies, field observations, and discussions with stakeholders. Since suspended sediments cause turbidity, studies that analyzed sources of sediment are particularly relevant to understanding sources of turbidity. Potential sources of turbidity identified in the Gabilan Creek watershed and potential responsible parties are summarized in the table below.

Table summarizing types of land cover/uses, potential sources of turbidity, and responsible parties in the Gabilan Creek watershed.

Type of Land Cover/Use	Description	Responsible Parties
Natural Areas	Erosion from undeveloped areas and woodlands	Landowners, ranching operations
Wetland	Channel maintenance	MCWRA, County of Monterey, landowners and owners and operators of agricultural lands
Wetland	Stream or channel bank erosion	MCWRA, landowners
Croplands	Sediment erosion from strawberry fields with plastic mulches	Owners and operators of agricultural lands and landowners
Croplands	Irrigation runoff from farm fields	Owners and operators of agricultural lands
Croplands	Stormwater runoff from farm fields	Owners and operators of agricultural lands
Nurseries and Greenhouses	Stormwater runoff from imperious surfaces	Owners and operators of agricultural lands, cannabis cultivators
Rural roads	Roadside ditch erosion	County of Monterey, landowners, owners and operators of agricultural lands
Highways	Channel erosion	Caltrans
Wetlands	Channel erosion of un-vegetated creeks	MCWRA, County of Monterey, landowners, owners and operators of agricultural lands
Grasslands	Over grazing	Landowners and operators of ranching operations
All	Insufficient vegetative buffers along creeks	Landowners and land managers
Developed urban areas	Urban stormwater runoff	City of Salinas, County of Monterey, Caltrans
Developed urban areas	Construction stormwater runoff	Landowners
Developed urban areas	Industrial stormwater	Landowners
All	Pumping (drainage lift pumps and tile drain sump pumps)	MCWRA, owners and operators of agricultural lands
Wetlands	Over steepened channels	MCWRA, County of Monterey, owners and operators of agricultural lands.

Implementation

The Turbidity TMDL Project uses both regulatory and non-regulatory mechanisms for implementation. Regulatory mechanisms include National Pollutant Discharge Elimination System (NPDES) permits and Waste Discharge Requirements (WDRs). Examples of NPDES permits include municipal stormwater permits and construction and industrial permits. Cannabis cultivation and Irrigated agricultural operations are enrolled in WDRs. The primary non-regulatory mechanism for controlling turbidity is the State's Nonpoint Source Implementation and Enforcement Policy, which outlines key elements to control pollution.

Turbidity TMDLs can also be implemented through the Monterey County Regional Stormwater Resource Management Plan (Regional Plan), which was developed by the Greater Monterey Integrated Regional Water Management (IRWM) stakeholders. The Regional Plan is a comprehensive stormwater management strategy for the greater Monterey Region, which encompasses the Gabilan Creek watershed. Grants are a funding source available to for stakeholders in the watershed to implement the turbidity TMDLs.

TMDL Adoption and Approval Process

Central Coast Water Board staff are in the initial phases of the TMDL approval process which includes the following sequential steps:

- Central Coast Water Board adoption (estimated December 2021)
- State Water Resources Control Board approval
- California Office of Administrative Law approval (which defines the effective date of the TMDL);
- U.S. Environmental Protection Agency approval.

The California Environmental Quality Act (CEQA) requires that the Central Coast Water Board to disclose and consider the environmental implications of adopting the Gabilan Creek watershed TMDLs. Environmental information will be available in electronic format from Turbidity TMDL project website with the Turbidity TMDL adoption Staff Report.

Public participation is an important element throughout the course of TMDL Project development. Central Coast Water Board staff will notify interested parties of opportunities for public participation including public meetings and workshops; staff also

solicit public comments and encourage other forms of public participation through correspondence, email, and other informal contacts.

For More Information

The Central Coast Water Board encourages your participation in this TMDL project.

To find more information, visit the project webpage at:
https://www.waterboards.ca.gov/centralcoast/water_issues/programs/tmdl/docs/salinas/turbidity/index.html

To receive future project announcements please subscribe to the electronic email list by checking the box for the Gabilan Creek Turbidity TMDLs at:
https://www.waterboards.ca.gov/resources/email_subscriptions/reg3_subscribe.html

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Fact Sheet last updated 3/10/2021