STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF MAY 15-17, 2019
Prepared on April 22, 2019

ITEM NO.: **17**

SUBJECT: **TOTAL MAXIMUM DAILY LOAD PROGRAM UPDATE**

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ACTION: **Informational/Discussion**

This item provides an overview of California's Total Maximum Daily Load (TMDL) Program and describes the activities, goals, and priorities of the Central Coast Water Board's TMDL Program.

BACKGROUND

The TMDL Program is an important component of the federal Clean Water Act framework to restore and protect our nation's waters. Section 303(d) of the Clean Water Act requires every state to evaluate all available water quality data and make a list of waterbodies that do not attain water quality standards[1] (called the 303(d) List). Waters on the 303(d) List are considered impaired for a particular pollutant. States must develop TMDLs to address the impairments. A TMDL is the maximum amount of a pollutant the waterbody can assimilate and still attain water quality standards. The Water Board adopts the TMDL(s) and an associated implementation plan that identifies actions, regulatory (e.g., waste discharge requirements, conditional waivers, etc.) and/or non-regulatory (e.g., voluntary actions and grant funded restoration and treatment projects), that should be taken to attain water quality standards within a reasonable time schedule. When the TMDL is implemented effectively, the waterbody will attain water quality standards and be removed from the 303(d) List.

TMDLs are not self-implementing, are not enforceable on their own, and do not replace existing water pollution control programs. TMDLs are only enforceable when incorporated into a regulatory program action. Regulatory programs may then use any existing regulatory tools to attain water quality standards, including prohibitions, enforcement actions, interagency agreements, and other policies for water quality control.

Some TMDLs and their implementation plans are adopted as amendments to the *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan). Where another method is used to establish TMDLs, those TMDLs are incorporated into the Basin Plan after the TMDLs are adopted by the Regional Board and approved by the U.S. Environmental Protection Agency (USEPA). Methods of TMDL adoption are discussed further below. The Basin Plan currently identifies 41 TMDLs for the Central Coast Region. Pursuant to the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), Water Board regulatory programs must be consistent with

[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 antidegradation requirements.

those TMDLs and the associated implementation plans when developing or revising waste discharge requirements and conditional waivers.[2]

Approach to Developing a TMDL and Implementation Plan

The following sections describe the approach to develop TMDLs and their associated implementation plans. The approach includes a series of steps for document development and review, opportunities for public review and comment, and finally adoption and approval. The basic steps are illustrated in Figure 1 and discussed below.

TMDL Document Development: The primary documents prepared to support a TMDL and implementation plan include a technical TMDL Project Report, public comments and staff responses to those comments, and either an order or resolution for the Board to consider adopting, among other documents needed for the administrative record. When the TMDL and the implementation plan is prepared as an amendment to the Basin Plan, staff develop additional documents such as scientific peer review comments and responses, the Basin Plan amendment language, and appropriate CEQA documentation.

The technical TMDL Project Report provides a framework to evaluate pollution control efforts and a strategy to improve and protect water quality (i.e., for a waterbody to attain water quality standards). A technical TMDL Project Report includes the following:

- Water Quality Conditions: Describes the detailed analysis of the water quality data and the nature of the impairment (i.e., which beneficial uses are impaired and which water quality objectives are not being attained);
- Source Analysis: Identifies the amount, timing (seasonal variation), and point of origin of the pollutant(s);
- Numeric Targets: Defines the desired future water quality and/or ecological conditions needed to attain water quality standards;
- Load Calculations: The maximum amount of a pollutant the waterbody can assimilate and still attain water quality standards. Technically, a TMDL calculation is the sum of the pollutant loads from point sources, nonpoint sources (including natural sources), and a margin of safety. This also includes accounting for seasonal variation;
- TMDL Allocations: The maximum pollutant load assigned to each responsible party (source). Point sources are assigned “wasteload allocations” and nonpoint sources are assigned “load allocations” (collectively referred to as allocations herein);
- Linkage Analysis: Describes the relationship between the pollutant loads, the pollutant sources, and the actions needed to achieve the desired conditions or numeric targets; and
- Implementation Plan: A strategy to restore water quality that includes two basic elements: a) the specific regulatory and non-regulatory mechanisms needed to correct the water quality impairment, and b) a reasonable time schedule to achieve the water quality standards.

TMDL Public Participation: Public participation is a vital part of developing TMDLs and associated implementation plans. Although the public participation process can vary by project, it always includes several opportunities for public engagement. First, staff conduct outreach to identify interested parties and solicit data and information before TMDL documents are drafted. For a recent TMDL effort, this outreach included contacting un-enrolled agricultural growers in the Franklin Creek TMDL Project area and TMDL Program staff assisted in increasing grower

[2] The Porter-Cologne Act section 13263(a) states that waste discharge requirements (WDRs) “shall implement any relevant water quality control plans [basin plans]…” and section 13269(a) states that a waiver of WDRs may be adopted if it “is consistent with any applicable state or regional water quality control plan [basin plan].”

enrollment in the Agricultural Order through this effort. Outreach also includes identifying and engaging with community members, leaders, and organizations within or with a nexus to the TMDL Project area with an added emphasis on environmental justice organizations and disadvantaged communities. Interested parties are invited to participate in one or more public meetings and to comment on the draft TMDL Project Report (including the TMDLs and associated implementation plan). Finally, the adoption and approval processes typically include a public hearing, opportunity to provide comments to the Water Board, and the right to petition the State Board for review or reconsideration when the TMDL is not adopted as a Basin Plan Amendment (see options for adoption and approval section below).

TMDL Adoption and Approval: When a water quality impairment is caused by controllable human activities, California's *Water Quality Control Policy for Addressing Impaired Waters* (Impaired Waters Policy) requires the Water Boards to develop TMDLs and an associated implementation plan to correct the water quality impairment.[3] First, the Regional Water Boards adopt TMDLs and any associated implementation plan, and then depending the method used to adopt the TMDL, additional approvals from the State Water Board, California Office of Administrative Law, and the USEPA may be necessary for the TMDL and implementation plan to become effective. The Impaired Waters Policy articulates three acceptable options to adopt TMDLs:

1. Adopt the TMDL(s) and implementation plan as a Basin Plan amendment. When the TMDL implementation plan incorporates multiple regulatory actions for implementation to address the water quality impairment (e.g., waste discharge requirements, conditional waivers, etc.), staff must use the Basin Plan amendment approach. Once adopted by the Regional Water Board, these TMDLs and implementation plans must be approved by the State Water Board and Office of Administrative Law. Although USEPA does not approve implementation plans, it must approve TMDLs.
2. Adopt the TMDL(s) and implementation plan in a single regulatory action. When the impairment can be addressed by implementing a single regulatory mechanism (e.g., waste discharge requirements, conditional waiver, cleanup and abatement order, etc.), then the Regional Water Board may adopt the TMDL and implementation plan concurrently with an underlying permitting action, enforcement action, or another single regulatory action that reflects the TMDL assumptions and that is designed by itself to correct the impairment. Once the single regulatory action is adopted by the Regional Board, any TMDL adopted in the regulatory action must also be approved by USEPA.
3. Adopt the TMDL by certifying that a non-regulatory program implemented by another entity or a regulatory program implemented by another agency will correct the impairment. In these cases, the Regional Water Board may adopt a TMDL through a resolution or order that certifies that a non-regulatory program implemented by another entity or a regulatory program of another agency will correct the impairment. Once certified, these TMDLs must also be approved by USEPA.

Although the scope, scale, and geographic range of each TMDL Project varies, the process to adopt and approve a TMDL and implementation plan as a Basin Plan amendment takes about two years. However, TMDLs adopted by another method, as defined in the Impaired Waters Policy and described above, require fewer steps and therefore may take less time. Figure 1 illustrates a typical timeline and the various steps to develop and obtain approval of a TMDL and

[3] The Impaired Waters Policy, states: "Where waters are not meeting their beneficial uses from anthropogenic sources of pollutants, the Water Boards will use the Total Maximum Daily Load (TMDL) program to craft an implementation plan to ensure that the waters meet all applicable standards as soon as is practicable."

implementation plan adopted as a Basin Plan amendment. Note that this timeline does not include implementation, which begins upon approval of the TMDL and implementation plan.

Figure 1. Approximate timeline to develop and obtain approval for a TMDL and implementation plan adopted as a Basin Plan amendment. The * symbol identifies steps unique to TMDLs approved as a Basin Plan amendment (not typically required for non-Basin Plan amendments).

	TMDL Project Process Steps	**Year 1**	**Year 2**
Documentation Development	Data analysis and research		
	Draft TMDL Project Report		
	TMDL approval documentation (Resolution, Basin Plan amendment, CEQA, etc.)		
	Scientific Peer Review of documentation*		
	Final Board Hearing documentation		
Public Participation	Public outreach, meeting, and data solicitation		
	Public meeting and CEQA scoping*		
	Public notice and comment period for Regional Water Board Hearing		
	Public notice and comment period for State Water Board Hearing*		
Adoption and Approvals	Regional Water Board adoption		
	State Water Board approval*		
	Office of Administrative Law approval*		
	USEPA approval		

DISCUSSION

TMDL Project Visibility: One goal of the TMDL Program is to increase the accessibility of TMDLs and implementation plan details and make it easy for regulatory program staff to determine where TMDL allocations apply. To that end, Central Coast Water Board TMDL staff developed a TMDL Project watershed map and published it to the Central Coast Region's website. The interactive map allows the user to identify areas where TMDLs and associated implementation plans have been approved and provides links to the TMDL project documentation (i.e., Basin Plan amendment language and implementation plan information including the TMDLs, allocations, and time schedules). In addition, the TMDL map data and the maps showing the location of the 303(d) listed waterbodies are now available in GeoTracker, the database used to track various regulatory program information. Regulatory program staff can now use the GeoTracker mapping tools to easily determine if their facility, or permittee is adjacent to a 303(d) listed waterbody or is located within a TMDL project area, and it provides a link to the TMDL project documentation. The Central Coast TMDL map serves as a pilot for the statewide map that is currently under development.

TMDL Effectiveness Tracking: Board members have historically asked for information on the effectiveness of TMDLs and how Water Board staff track effectiveness (i.e., the TMDL is implemented by regulatory and/or non-regulatory mechanisms and attains water quality standards within the time schedule, therefore justifying removal from the 303(d) List). Removal from the 303(d) List is the ultimate measure of successfully attaining water quality standards. Each time staff conduct a new data assessment to update the 303(d) List, the database generates a comprehensive and automated report showing the status for all impairments with approved TMDLs (i.e., impaired vs. not impaired). Using this report, staff will update the Board on the status of all TMDLs and highlight the implementation program activities that resulted in achieving water quality standards and removing a waterbody from the 303(d) List. The next update of the 303(d) List (for the Central Coast Region) is scheduled for completion in December 2020. The Central Coast Region's current 303(d) List is based on data from 2010 or older and therefore does not provide an up to date evaluation of water quality status or TMDL effectiveness in our region.

In addition, staff use TMDL Report Cards to describe the status of some TMDL Projects. Each year, since 2012, Central Coast Water Board staff developed, and will continue to develop, three or more TMDL Report Cards for the State Water Board's Performance Report. These two-page summaries provide a snapshot in time of the water quality conditions and highlight water quality outcomes associated with the implementation of TMDLs. In each TMDL Report Card, staff assign one of four status determinations: "Targets achieved/waterbody delisted", "conditions improving", "data inconclusive", or "improvement needed". Recent TMDL Report Card stories were chosen to highlight success stories, or program implementation strategies that are successful and staff summarized these TMDL Report Cards in the January 2019 EO Report[4] to the Board. Staff will continue to provide Report Card summaries to the Board each year in the EO Report.

TMDL Program Work Prioritization: Each time staff update the 303(d) List they prioritize all 303(d) List impairments for TMDL development. Over the next 24 months, TMDL Program staff will be focused on updating the 303(d) List and prioritizing impairments for TMDL development using the following prioritization criteria:

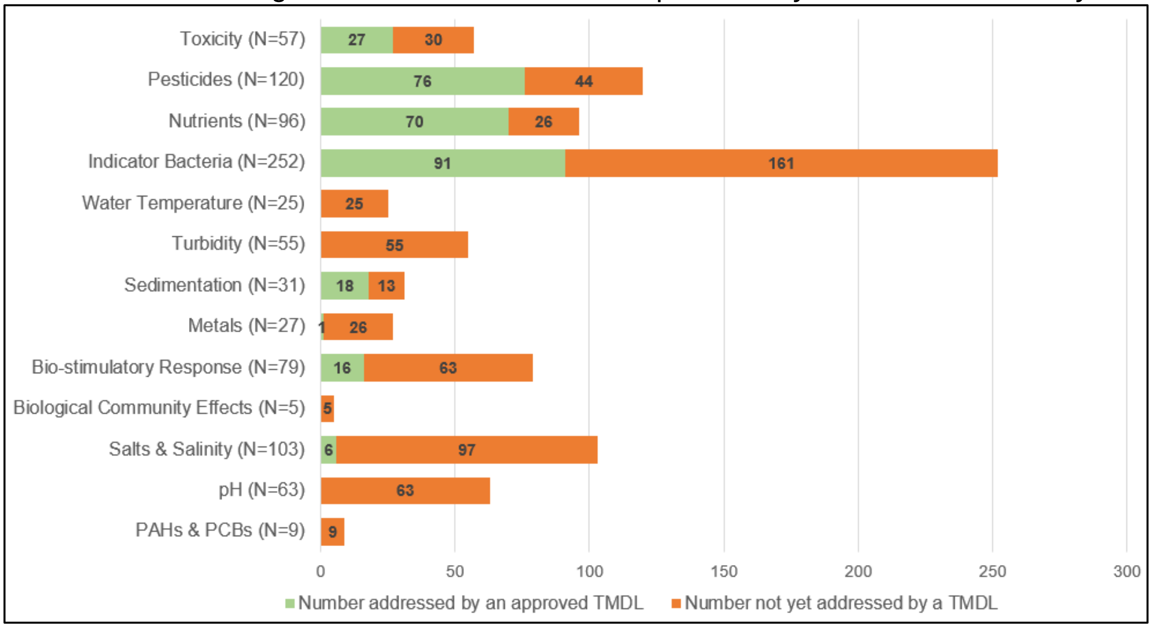
- Impairments aligned with the Central Coast Water Board's top two priorities[5] and vision for healthy aquatic habitat, proper land management, and clean groundwater.
  - Priority one: "Preventing and correcting threats to human health", e.g., nitrate, toxins from harmful algal blooms, indicator bacteria in high use recreational areas, etc.
  - Priority two: "Preventing and correcting threats to aquatic habitat", e.g., toxicity, pesticides, nutrients and resulting biostimulatory responses (e.g., dissolved oxygen), turbidity, water temperature, and sedimentation.
- Impairments in ecologically important waterbodies such as estuaries, migration corridors to high quality waters, and habitats that sequester carbon and mitigate climate change effects.
- TMDLs and implementation plans that can achieve short-term water quality improvement because they align with effective program implementation mechanisms.

[4] EO Report to the Board for the Regular Meeting of January 21-Febuary 1, 2019
[5] Central Coast Water Board priorities, as stated in the Offsite Meeting Staff Report for the regular meeting of July 11, 2012, Agenda Item 3.

- Opportunities to build upon past work, prepare for future work, or to address multiple impairments under a single TMDL Project.

Using this prioritization approach, TMDL Program staff has already developed TMDLs and associated implementation plans for many high priority impairments including toxicity, pesticides, nutrients, and indicator bacteria. The current 303(d) List identifies 922 impairments and Central Coast Water Board TMDL Program staff developed TMDLs and implementation plans to address 33% of those impairments. Figure 2 illustrates which pollutants the TMDL Program work has focused on.

Figure 2. Proportion of current 303(d) List impairments that are being addressed by approved TMDLs and associated implementation plans. For each pollutant group, "N" indicates total number of impairments, the green portion of each bar indicates the number of impairments addressed, and orange indicates the number of impairments yet to be addressed by TMDLs.



Incorporating Climate Change: Climate change will affect water quality and consequently must be considered in developing TMDLs and the associated implementation plans. In addition to evaluating and summarizing the data related to historic and current rainfall and surface water flows, future TMDL documents will provide a reasonable climate change scenario for the TMDL watershed/project area. Staff are currently evaluating multiple climate change models to identify those most relevant and informative to the Program.

TMDL Annual Workplan: Each year, the TMDL Program develops an annual workplan in February and begins implementing that workplan on July 1st. Table 1 summarizes the TMDL workplan tasks for July 2019 through June 2020 and reflects the work of 4.6 full time staff. In general, the TMDL Program aims to develop meaningful TMDLs and associated implementation plans for regulatory programs to implement, to comprehensively update the 303(d) List, and to support TMDL related grant and contract management needs.

Table 1. TMDL Program workplan projects for fiscal year 2019-2020.

	TMDL Program Project	**Number of Impairments**	**Project Goal for July 2020**
TMDL Development	Pinto Lake watershed nutrients/algal blooms TMDLs	12	TMDL Project Report and Basin Plan amendment package for Regional Water Board Approval
	Gabilan watershed turbidity TMDLs	10	Draft TMDL Project Report for public outreach
	Lower Salinas organophosphate pesticides TMDLs	43	TMDL Project Report for Scientific Peer Review
	Santa Barbara coastal watersheds salts TMDLs	8	Draft TMDL Project Report for public outreach
	Santa Ynez River TMDLs nutrients/biostimulatory effects	4	Draft TMDL Project Report for public outreach
Contract/Grant Management	Elkhorn Slough nutrient modeling to support TMDL	11	Project progress reports for year-one of the three-year contract
	Neonicotinoid pesticide criteria	--	Project progress reports, project work plan, draft water quality criteria reports
	Oso Flaco watershed restoration	--	Completed CEQA documents, and monitoring plan
Statewide Program	Interagency Coordination: DPR	--	Ongoing coordination to implement the Management Agency Agreement
	Statewide Bio-objectives / Biostimulatory Group	--	Support and participate in statewide project to develop biological objectives
	Statewide Mercury TMDL	7	Support in TMDL development
Other	Implementation Program Support: Agriculture Order	--	CEQA and EIR documents completed
	2020 303(d) List development	--	Complete data assessments
	TMDL Report Cards	--	Final TMDL Report Cards on website

CONCLUSIONS

The TMDL Program staff develop strategies that describe how pollutant loads, coming from various sources, must be reduced in order to attain water quality standards. The Water Board's regulatory mechanisms, as well as non-regulatory actions (e.g., voluntary actions and grant funded restoration and treatment projects) are essential for restoring water quality. Where requirements in existing permits and other regulatory mechanisms are not effective, the regulatory programs may use any existing regulatory tool to attain water quality standards, including enforcement actions.

TMDL Program staff recognize the need to track implementation effectiveness. Staff will look for opportunities to use readily available tools to identify program actions that are effective and will continue to work with the State Water Board to further develop those tools (e.g., evaluate trends in water quality data, showing progress toward attaining water quality standards). Following the completion of the 2020 303(d) List assessment (scheduled for December 2020), staff will use the 303(d) List database's automated TMDL status outputs to provide a comprehensive report for all impairments with a TMDL (impaired vs not impaired). In addition, staff will look for opportunities to allocate staff resources in the TMDL Program to this effort in advance of December 2020.

To date, the TMDL Program has developed TMDLs and associated implementation plans to address 33% of the impairments identified on the 303(d) List. The majority of those focused on the Central Coast Water Board's highest priority water quality problems including toxicity, pesticides, nutrients, and indicator bacteria. TMDL staff will continue to identify high priority impairments on the 303(d) List for future TMDL development, as is evident in the 2019-2020 fiscal year workplan for the TMDL Program.

Finally, TMDL Program staff will continue to look for opportunities to increase the accessibility of TMDL Project information for the public and staff in the various implementing programs.