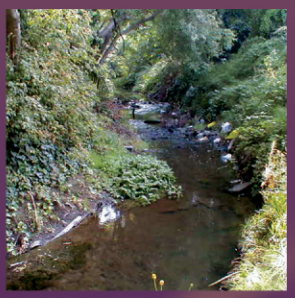
TMDLs

Taking Action for Clean Water



Clean water is essential for fishing, swimming, drinking, agriculture, protecting wildlife habitat, and other beneficial uses. Since 1972, when Congress passed the federal Clean Water Act, the San Francisco Bay Regional Water Quality Control Board has made great strides toward restoring polluted water bodies. Yet, a number of water bodies still do not meet standards established to protect beneficial uses. As part of the effort to solve these remaining water quality problems, the San Francisco Bay Regional Water Quality Control Board is developing Total Maximum Daily Loads (TMDLs).

SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

STATE WATER RESOURCES CONTROL BOARD

TMDL Elements

- **Problem Statement: Describes the water body, impaired beneficial uses, and pollutant(s) causing the impairment.**
- **Numeric Targets: Expresses the desired condition of the water body to protect beneficial uses. Defines indicators and associated target(s) necessary to meet numeric or narrative water quality standards.**
- **Source Analysis: Assesses the relative contributions of different pollutant sources or causes and the extent of necessary reductions/controls.**
- **Linkage Analysis: Describes the relationship between numeric target(s) and sources, and estimates the ability of the water body to assimilate the pollutant.**
- **Allocations: Allocates responsibility for pollutant reduction. Allocations may be specific to agencies or persons (businesses), or general by source category or sector. The sum of individual allocations must equal the total allowable pollutant level.**
- **Margin of Safety: Accounts for uncertainty associated with calculating pollutant loads and their impact on water quality. The margin of safety may be implicit (i.e., through use of conservative assumptions) or explicit (i.e., by assigning a specific allocation to the margin of safety).**
- **Implementation Plan: Details pollution prevention, control, and restoration actions, responsible parties, and schedules necessary to attain water quality standards. Identifies enforceable measures (e.g., prohibition) and triggers for Regional Board action (e.g., performance standards).**
- **Monitoring/Re-evaluation: Describes the monitoring strategy that will be used to evaluate the effectiveness of the TMDL and a schedule for reviewing and, if necessary, revising the TMDL and associated implementation elements.**

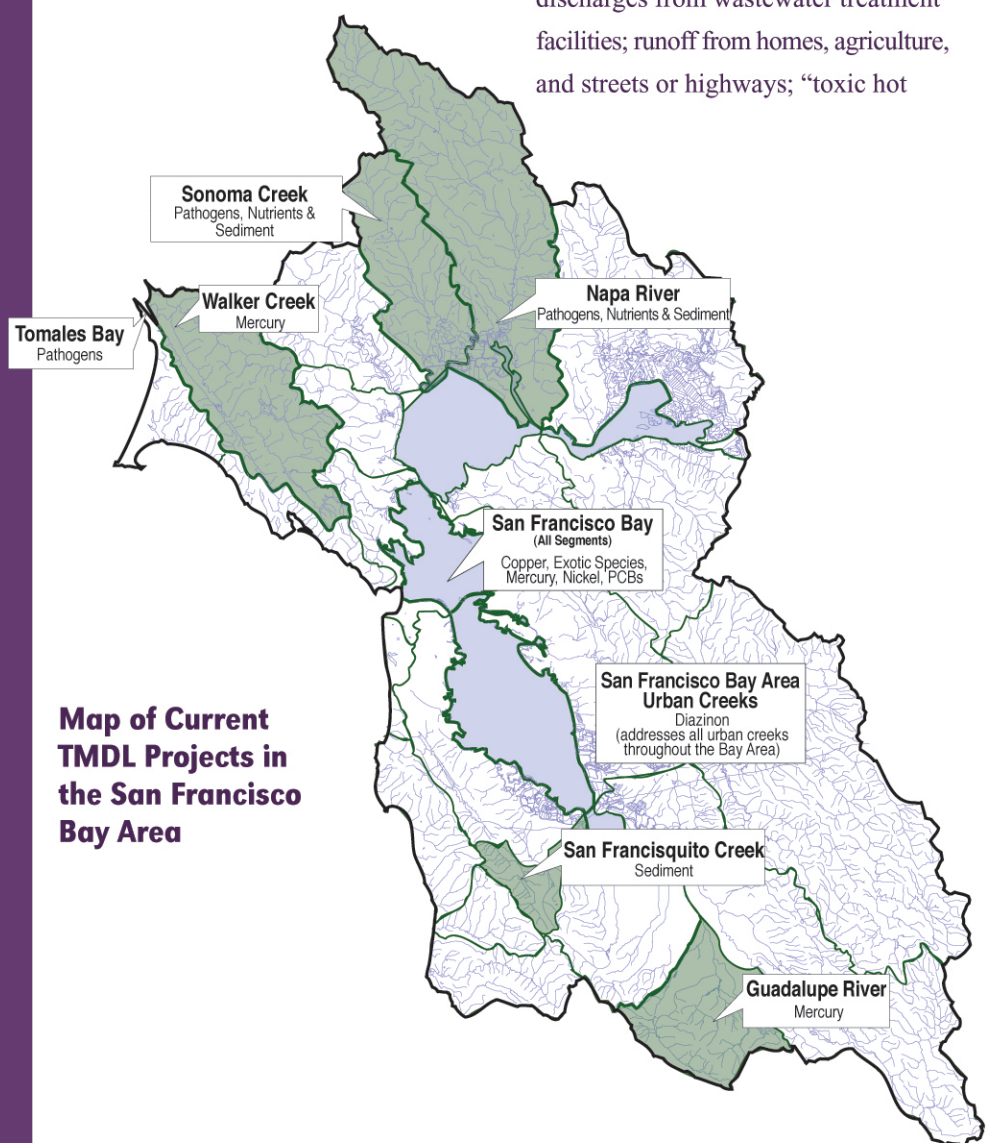
A "Don't Swim" warning sign highlights the need to develop TMDLs as part of the effort to solve water quality problems.

Photo By: Steve Moore

What Are TMDLs?

Total Maximum Daily Loads (TMDLs) are actions to restore clean water. Section 303(d) of the federal Clean Water Act requires that states identify water bodies that do not meet water quality standards. TMDLs examine these water quality problems, identify sources of pollutants, and specify actions that create solutions.

TMDLs define how much of a pollutant a water body can tolerate and meet water quality standards. TMDLs account for all the sources of a pollutant, including discharges from wastewater treatment facilities; runoff from homes, agriculture, and streets or highways; "toxic hot



Map of Current TMDL Projects in the San Francisco Bay Area

spots;" and deposits from the air. In addition to accounting for past and current activities, TMDLs may consider projected growth that could increase pollutant levels.

The San Francisco Bay Regional Water Quality Control Board (Regional Board) is developing more than 30 TMDL projects to address more than 160 listings for water bodies impaired by specific pollutants. For example, the TMDL project for diazinon and pesticide-related toxicity in San Francisco Bay Area urban creeks addresses more than 30 impaired urban creeks.

Who Is Affected by TMDLs?

TMDLs affect everyone. TMDLs help ensure clean water for fishing, swimming, boating, protecting wildlife and many other beneficial uses. Everyone can have a role in the solutions TMDLs create by participating in the process and reducing water pollution (see "How Can I Get Involved?" on back page) Public review is an essential part of the TMDL process.

How Are TMDLs Developed?

Developing a TMDL involves the following steps:

- **Creating a Project Plan.** A project plan describes the water body (or water bodies), pollutant(s), relevant water quality standard(s), and affected beneficial uses; the scope of the TMDL project; the Regional Board's approach; and issues unique to that TMDL. The project plan sets a completion schedule for each step of the process.

- **Developing a TMDL Project Report and an Implementation Plan.** A TMDL Project Report describes the water quality problem addressed by the TMDL, details the sources, and outlines solutions. The report includes all the elements necessary for a TMDL (see "TMDL Elements"). An Implementation Plan describes how and when pollution prevention, control, or restoration actions will be accomplished and who is responsible for these actions.

- **Amending the Basin Plan.** The final step in the TMDL process is adopting an amendment to the Water Quality Control Plan for the San Francisco Bay Basin, referred to as the Basin Plan. The Basin Plan amendment is the document that legally establishes a TMDL and specifies regulatory requirements. Basin Plan amendments are adopted through a public process that requires approval by the Regional Board, the State Water Resources Control Board, the California Office of Administrative Law, and the U.S. Environmental Protection Agency.

Cassandra Roberts of Moss Landing Marine Laboratories holds up a leopard shark caught during a Coastal Fish Contamination Program study. High levels of mercury in fish prompted several TMDL projects.

Photo by: Dyan Whyte

The TMDL process involves working with agencies such as the California Department of Fish and Game, the California Department of Pesticide Regulation, the U.S. Geological Survey, and the National Resource Conservation Service. The process requires coordinating with other programs within the Regional Board, such as the National Pollutant Discharge Elimination System wastewater and storm water programs, and the nonpoint source program.

How Long Does it Take To Develop a TMDL?

The process might take four to six years from the beginning of a TMDL project to a Basin Plan amendment. The time required depends on the complexities of scientific and policy issues, the availability of scientific information, and whether additional research studies and data are needed.

Dyan Whyte of the Regional Board extracts ghost shrimp to test for mercury impacts from an abandoned mine.

Photo by: Priya Ganguli

How Can I Get Involved?

Public participation is a vital part of the TMDL process. Those interested in TMDLs are often referred to as stakeholders. Each TMDL project has its own stakeholder process, which can include attending meetings, submitting written comments on draft reports, and reviewing posted items on the Regional Board Web site, www.swrcb.ca.gov/rwqcb2. Sometimes the Regional Board will seek public assistance with tasks, such as data gathering, data analysis, or public education efforts.

Reducing Water Pollution

One of the most important ways we can help with TMDLs is by taking steps to prevent or reduce water pollution. Everyday activities, such as gardening and driving your car, can lead to water pollution. Reducing pesticide use and taking public transportation are just two of the many ways to reduce water pollution. The following Web sites provide more information on things you can do: www.swrcb.ca.gov/nps/lookwhatyoucando.html and www.epa.gov/water/citizen/thingstodo.html.

If you would like to participate or for more information, visit our Web site at www.swrcb.ca.gov/rwqcb2, e-mail tmdlinfo@rb2.swrcb.ca.gov, call 510.622.4592, or write to TMDL Info, RWQCB, 1515 Clay Street, Suite 1400, Oakland, CA 94612. Please specify which water bodies and/or pollutants you are most interested in.

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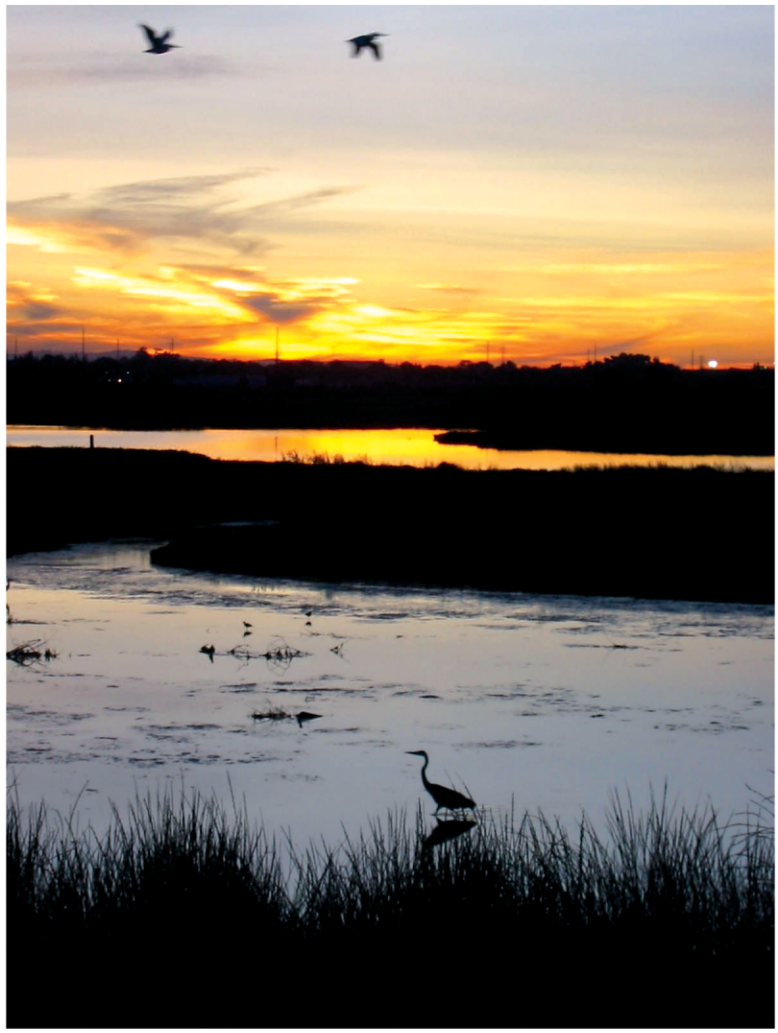

Birds fly over the Palo Alto baylands at sunset. TMDLs help ensure clean water for wildlife habitat, fishing, swimming, and many other beneficial uses.

Photo by: Don Weden

How Are TMDLs Carried Out?

Developing TMDLs is only the first step toward solving water quality problems. TMDLs must be carried out to be effective. TMDLs specify a set of actions to improve water quality that can include the following options:

- Enhancing pollution prevention programs for wastewater and urban runoff.
- Cleaning up "toxic hot spots."
- Reducing pollution from agriculture, animal feedlots, septic systems, and marinas.
- Restoring habitat for fish, birds, and other wildlife.
- Working with local governments to create or revise ordinances and other policies.
- Forming partnerships with other government agencies, wastewater treatment facilities, industry, local governments, environmental organizations and other interested parties.
- Educating businesses, homeowners, and others about ways to prevent or reduce water pollution.