

Fact Sheet Region 2

San Francisco Bay Regional Water Quality Control Board

Overview

The San Francisco Bay Region, centrally located along our state's coastline, marks a natural topographic separation between the northern and southern coastal mountain ranges. More than 7 million people live in the 4,600-square-mile area. The San Francisco Bay estuarine system drains 40 percent of California and includes the Central Valley Region's Sacramento and San Joaquin Rivers, which account for 90 percent of the freshwater inflow to the bay. The San Francisco estuary is the largest estuary on the west coast of North and South America and forms the centerpiece of the nation's fifth largest metropolitan area, comprising San Francisco, Oakland and San Jose.

The region includes all or major portions of nine counties. With a generally Mediterranean climate of mild, wet winters and cool, dry summers, the region encompasses a range of microclimates from the foggy coast to the dry inland. The mean annual precipitation varies from 14 to 49 inches. Flows are highly seasonal, with more than 90 percent of the annual runoff occurring between November and April. Many streams run dry during the summer.

The land surrounding the San Francisco Bay is densely populated and highly urbanized, with channelized creeks and flood control structures, dams and reservoirs. A heavily industrialized corridor runs along the Contra Costa shoreline from Richmond to Pittsburg, home to major oil refineries and chemical companies. The land draining into the northern reaches of the estuary, which includes San Pablo and Suisun bays, supports pockets of urbanization within open space and extensive crop and range land, including vineyards in Napa and Sonoma counties and dairies in Sonoma and Marin counties. The less developed coastal watersheds in Marin and San Mateo counties support listed populations of salmon and steelhead. In the region, contaminants from urban runoff, mining and pesticide application are major concerns.



Water Facts

1,100 square miles of San Francisco Bay Estuary

110 miles of coastline

7,655 miles of streams

Freshwater diversions provide drinking water to 22 million residents and irrigation water from 4.5 million acres of farmland

Two-thirds of the state's salmon and nearly half of the birds migrating along the Pacific Flyway pass through the estuary



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San Francisco Bay

Vision and Goals for Monitoring

San Francisco Bay Region SWAMP's primary goal is to form a coalition with urban dischargers and other organizations to fund, monitor and assess water quality in the region's watersheds to determine whether beneficial uses are protected. Regional SWAMP monitoring objectives include:

- Developing useful data for evaluating waterbodies for 305(b) reports and 303(d) listings.
- Using a weight-of-evidence approach to measure environmental stressors (pollutants or other water quality parameters), biological effects (toxicity tests) and ecological indicators (such as benthic community analysis).
- Determining relationships among observed biological effects, levels of specific stressors and land uses, including water management.
- Using standard sampling protocols, SWAMP quality assurance management plan procedures and the SWAMP database to provide statewide comparability and availability of data.
- Generating data and associated information for the development of indicators, indices and other tools that can be used to make management decisions.
- Measuring long-term trends at impacted and reference sites.

Program Activity

In the past five years, San Francisco Bay Region SWAMP has:

- Generated a substantial set of physical, chemical and biological data for 34 watersheds in all seven of our hydrologic units.
- Conducted a study of contaminants in fish at 10 reservoirs where people catch and consume fish, which resulted in fish consumption advisories.
- Developed a Rapid Trash Assessment Protocol and concluded a pilot study.
- Implemented a continuous monitoring program with an extensive dataset that we are using to evaluate potential impacts on salmonids and other aquatic organisms.
- Collected physical habitat and benthic macroinvertebrate (BMI) data that are being used to develop a Bay Area-specific index of biotic integrity (IBI).

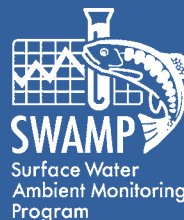
Bioassessment data has proven to be a useful, integrative measure to evaluate water quality improvement. For example, Chileno Creek, a tributary to Walker Creek in Marin

County, was surrounded by land used primarily for grazing. However, one section of the creek has undergone physical habitat restoration, and cows are now excluded from the restored reach of the creek. Bioassessment has shown significant improvement in the aquatic community as a result of the restoration.

Collaborative Efforts

As part of its coalition building goal, San Francisco Bay Region SWAMP collaborates with a number of organizations. Currently, SWAMP coordinates with the San Francisco Estuary Regional Monitoring Program to ensure that information is developed to assist the Water Board in managing water quality in the San Francisco Bay Region. The region's SWAMP program also coordinates with BAMBI^{net}, a consortium of organizations that collect, manage and analyze BMI data, to develop a Bay Area index of biotic integrity.

Another collaborative effort involved a region SWAMP study indicating that mercury, PCBs and several pesticides exceeded screening values for fish in 10 area reservoirs. After reviewing the data, the region's SWAMP staff immediately convened a working collective that included the Office of Environmental Health Hazard Assessment, Department of Health Services, county environmental health departments, water purveyors and SWAMP staff to protect the public. The cooperative effort established fish advisories, developed warning signs in seven languages and posted them at reservoirs, developed "frequently asked questions" information and issued a joint press release. A report on the study Chemical Concentrations in Fish Tissues from Selected Reservoirs and Coastal Areas: San Francisco Bay Region is available at <http://www.waterboards.ca.gov/sanfranciscobay/>.



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