SAN FRANCISCO BAY BASIN (REGION 2)
WATER QUALITY CONTROL PLAN
(BASIN PLAN)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

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Incorporating all amendments approved by the Office of Administrative Law as of November 5, 2019.

CHAPTER 1: INTRODUCTION

1.1 THE SAN FRANCISCO BAY REGION

The San Francisco Bay Region (Region) is 4,603 square miles, roughly the size of the State of Connecticut, and characterized by its dominant feature, 1,100 square miles of the 1,600 square mile San Francisco Bay Estuary (Estuary), the largest estuary on the west coast of the United States, where fresh waters from California's Central Valley mix with the saline waters of the Pacific Ocean. The Region also includes coastal portions of Marin and San Mateo counties, from Tomales Bay in the north to Pescadero and Butano Creeks in the south.

The Estuary conveys the waters of the Sacramento and San Joaquin rivers into the Pacific Ocean. Located on the central coast of California (Figure 1-1), the Bay system functions as the only drainage outlet for waters of the Central Valley. It also marks natural topographic separation between the northern and southern coastal mountain ranges. The Region's waterways, wetlands, and bays form the centerpiece of the United States' fourth-largest metropolitan region, including all or major portions of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties.

Because of its highly dynamic and complex environmental conditions, the Bay system supports an extraordinarily diverse and productive ecosystem. Within each section of the Bay lie deepwater areas that are adjacent to large expanses of very shallow water. Salinity levels range from hypersaline to fresh water, and water temperature varies throughout the Bay system. These factors greatly increase the number of species that can live in the Estuary and enhance its biological stability.

The Bay system's deepwater channels, tidelands, marshlands, freshwater streams, and rivers provide a wide variety of habitats that have become increasingly vital to the survival of several plant and animal species as other estuaries are reduced in size or lost to development. These areas sustain rich communities of crabs, clams, fish, birds, and other aquatic life and serve both as important wintering sites for migrating waterfowl and as spawning areas for anadromous fish.

1.2 THE BAY SYSTEM'S SURFACE WATER & GROUNDWATER

The Sacramento and San Joaquin rivers, which enter the Bay system through the Delta at the eastern end of Suisun Bay, contribute almost all the freshwater inflow to the Bay. Many small rivers and streams also convey fresh water to the Bay system. The rate and timing of these freshwater flows are among the most important factors influencing physical, chemical, and biological conditions in the Estuary. Much of the freshwater inflow, however, is trapped upstream by the dams, canals, and reservoirs of California's water diversion projects, which provide vital water to industries, farms, homes, and businesses throughout the state. This freshwater diversion has sparked statewide controversy over possible adverse effects on the Estuary's water quality, fisheries, and ecosystem.

Flows in the Region are highly seasonal, with more than 90 percent of the annual runoff occurring during the winter rainy season between October and April. Many streams go dry during the middle or late summer. For example, the Napa River, which is least affected by

upstream regulation, clearly shows the seasonal nature of runoff. Only 4-1/2 percent of this river's average annual runoff occurs during the summer months.

Groundwater is an important component of the hydrologic system in the Region. Groundwater provides excellent natural storage, distribution, and treatment systems. Groundwater also supplies high quality water for drinking, irrigation, and industrial processing and service. As an important source of freshwater replenishment, groundwater may also discharge to surface streams, wetlands, and San Francisco Bay.

A variety of historical and ongoing industrial, urban, and agricultural activities and their associated discharges degrade groundwater quality, including industrial and agricultural chemical spills, underground and above-ground tank and sump leaks, landfill leachate, septic tank failures, and chemical seepage via shallow drainage wells and abandoned wells. In addition, saltwater intrusion directly attributed to over- pumping has degraded the purity of some groundwater aquifers.

These adverse impacts on groundwater quality often have long-term effects that are costly to remediate. Consequently, as additional discharges are identified, source removal, pollution containment, and cleanup must be undertaken as quickly as possible. Activities that may potentially pollute groundwater must be managed to ensure that groundwater quality is protected.

1.3 PROTECTING SAN FRANCISCO BAY: THE WATER BOARD

Because of its unique characteristics, the San Francisco Bay estuarine system merits special protection. The adverse effects of waste discharges must be controlled. Extensive upstream water diversions must be limited, and their effects mitigated. To address these and other water issues, the California Legislature established the State Water Resources Control Board (State Water Board) and the nine Regional Water Quality Control Boards (Regional Water Boards) in 1949. Operating under the provisions of the California Water Code (Water Code), their unique relationship couples state-level coordination and regional familiarity with local needs and conditions. Their joint actions constitute a comprehensive program for managing water quality in California, as well as for effective state administration of federal water pollution control laws.

The State Water Board administers water rights, water pollution control, and water quality functions for the state as part of the California Environmental Protection Agency (Cal/EPA). It provides policy guidance and budgetary authority to the Regional Water Boards, which conduct planning, permitting, and enforcement activities. The State Water Board shares authority for implementation of the federal Clean Water Act and the state Porter-Cologne Act with the Regional Water Boards.

The San Francisco Bay Regional Water Quality Control Board (Water Board) regulates surface water and groundwater quality in the Region. The area under the Water Board's jurisdiction comprises all of the San Francisco Bay segments extending to the mouth of the Sacramento-San Joaquin Delta (Winter Island near Pittsburg).

California's governor appoints the nine-member Water Board, whose members serve for four-year terms. Water Board members must reside or maintain a place of business within the Region and must be associated with or have special knowledge of specific activities related to water quality control. Members of the Water Board serve without pay and conduct their business at regular meetings and frequent public hearings where public participation is encouraged.

The Water Board's overall mission is to protect surface waters and groundwater in the Region. The Water Board carries out its mission by:

- Addressing Region-wide water quality concerns through the creation and triennial update of a Water Quality Control Plan (Basin Plan);
- Preparing new or revised policies addressing Region-wide water quality concerns;
- Adopting, monitoring compliance with, and enforcing waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permits;
- Providing recommendations to the State Water Board on financial assistance programs, proposals for water diversion, budget development, and other statewide programs and policies;
- Coordinating with other public agencies that are concerned with water quality control; and
- Informing and involving the public on water quality issues.

1.4 WATER QUALITY CONTROL PLAN

By law, the Water Board is required to develop, adopt (after public hearing), and implement a Basin Plan for the Region. The Basin Plan is the master policy document that contains descriptions of the legal, technical, and programmatic bases of water quality regulation in the Region. The plan must include:

- A statement of beneficial water uses that the Water Board will protect;
- The water quality objectives needed to protect the designated beneficial water uses; and
- The strategies and time schedules for achieving the water quality objectives.

The Water Board first adopted a plan for waters inland from the Golden Gate in 1968. After several revisions, the first comprehensive Basin Plan for the Region was adopted by the Water Board and approved by the State Water Board in April 1975. Subsequently, major revisions were adopted in 1982, 1986, 1992, 1995, 2002, and 2004. Each proposed amendment to the Basin Plan is subject to an extensive public review process. The Water Board must then adopt the amendment, which is then subject to approval by the State Water Board. In most cases, the Office of Administrative Law and the U.S. Environmental Protection Agency (U.S. EPA) must approve the amendment as well.

The basin planning process drives the Water Board's effort to manage water quality. The Basin Plan provides a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses in a manner that will result in maximum benefit to the people of California. The Basin Plan fulfills the following needs:

- The U.S. EPA requires such a plan in order to allocate federal grants to cities and districts for construction of wastewater treatment facilities.
- The Basin Plan provides a basis for establishing priorities as to how both state and federal grants are disbursed for constructing and upgrading wastewater treatment facilities.
- The Basin Plan fulfills the requirements of the Porter-Cologne Act that call for water quality control plans in California.
- The Basin Plan, by defining the resources, services, and qualities of aquatic ecosystems to be maintained, provides a basis for the Water Board to establish or revise waste discharge requirements and for the State Water Board to establish or revise water rights permits.
- The Basin Plan establishes conditions (discharge prohibitions) that must be met at all times.
- The Basin Plan establishes or indicates water quality standards applicable to waters of the Region, as required by the federal Clean Water Act.
- The Basin Plan establishes water quality attainment strategies, including total maximum daily loads (TMDLs) required by the Clean Water Act, for pollutants and water bodies where water quality standards are not currently met.

The intent of this comprehensive planning effort is to provide positive and firm direction for future water quality control. However, adequate provision must be made for changing conditions and technology. The Water Board will review the Basin Plan at least once every three years. Unlike traditional plans, which often become obsolete within a few years after their preparation, the Basin Plan is updated as deemed necessary to maintain pace with technological, hydrological, political, and physical changes in the Region.

This Basin Plan contains water quality regulations adopted by the Water Board, and approved by the State Water Board, the Office of Administrative Law, and U.S. EPA. It also contains statewide regulations adopted by the State Water Board and other state agencies that refer to activities regulated by the Water Board. For the most recent list of statewide regulations applicable in the Region, please refer to the State Water Board's "Compendium of Current, Statewide Applicable Water Quality Regulations." Federal laws and regulations also specify water quality standards and are available at U.S. EPA's website.

1.5 WATERSHED MANAGEMENT PLANNING

In 1995, the Water Board initiated a watershed management approach to regulating water quality, expanding its primary focus from point sources of pollution to include more diffuse sources such as urban and agricultural runoff. A five-year statewide Strategic Plan was completed in 2001 and guides the water resource protection efforts by the State and Regional Water Boards. A key component of the Strategic Plan is the Watershed Management Initiative (WMI).

A watershed is the area of land drained by a stream or river system. It is where water precipitates and collects, extending from ridges down to the topographic low points where the water drains into a river, bay, ocean, or other water body. A watershed includes surface water bodies (e.g., streams, rivers, lakes, reservoirs, wetlands, and estuaries), groundwater (e.g., aquifers and

groundwater basins) and the surrounding landscape. Watershed management is a strategy for protecting water quality in all water bodies by looking at all components that make up a watershed area, including the natural environment, water supply, land uses and their effects on drainage, wastewater collection and discharges, and the ways humans interact with the water bodies.

In the Water Board's watershed management approach to water quality protection, water resource problems are identified and prioritized primarily on the basis of water quality within individual watersheds (i.e., the geographic drainage areas and groundwater basins used for management purposes). Unique solutions are developed for each watershed that consider all local conditions and pollution sources and rely on the input and involvement of local stakeholders. Major features of a watershed management approach are: targeting priority problems based on water quality information and monitoring, promoting stakeholder involvement in prioritization and management decisions, developing integrated solutions that make use of the expertise and authority of multiple agencies and organizations, and measuring success through monitoring and other collected data. The approach culminates in the creation and implementation of "watershed action plans."

The water quality of many water bodies continues to be degraded from pollutants discharged from diffuse sources, referred to as nonpoint sources, and from the cumulative impacts of multiple point sources such as drainage from urban areas, known as urban runoff. This degradation persists despite successful pollutant reduction efforts in the regulation of municipal and industrial wastewater point source discharges through the NPDES program. Watershed management represents a shift from the approach that focuses on regulation of point sources to a more regional approach that acknowledges environmental impacts from all activities, and prioritizes regulation of these activities with input from local stakeholders.

Watersheds transcend political, social, and economic boundaries. It is important to engage all affected stakeholders in designing and implementing goals for the watershed to protect water quality. Groups formed to create watershed action plans may include representatives from all levels of government, public interest groups, industry, academic institutions, private landowners, concerned citizens and others. Tasks in a watershed action plan could include a wide range of actions, such as improving coordination between regulatory and permitting agencies, increasing citizen participation in watershed planning activities, improving public education on water quality and protection issues, and enforcing current regulations on a more consistent and prioritized basis.

1.6 THE SAN FRANCISCO ESTUARY PROJECT

The Water Board has been an active participant in the San Francisco Estuary Project (Estuary Project), a cooperative program aimed at promoting effective, environmentally sound management of the San Francisco Bay Estuary while protecting and restoring its natural resources. In 1993, the Estuary Project reached its goal of developing a Comprehensive Conservation and Management Plan (CCMP). The CCMP addresses five critical concerns identified by the Estuary Project's broad-based advisory committees: decline of biological resources; increased pollutants; freshwater diversion and altered flow regime; dredging and waterway modification; and intensified land use.

Implementation of the CCMP's over 140 recommended actions has been ongoing since the early 1990s. The Water Board serves as lead state agency, undertaking responsibility for ensuring that CCMP actions are carried out. The Estuary Project's Public Involvement and Education Program, which seeks to inform and involve the public in Estuary issues, is currently housed at the Water Board office.

FIGURES

Figure 1-1: San Francisco Bay Basin
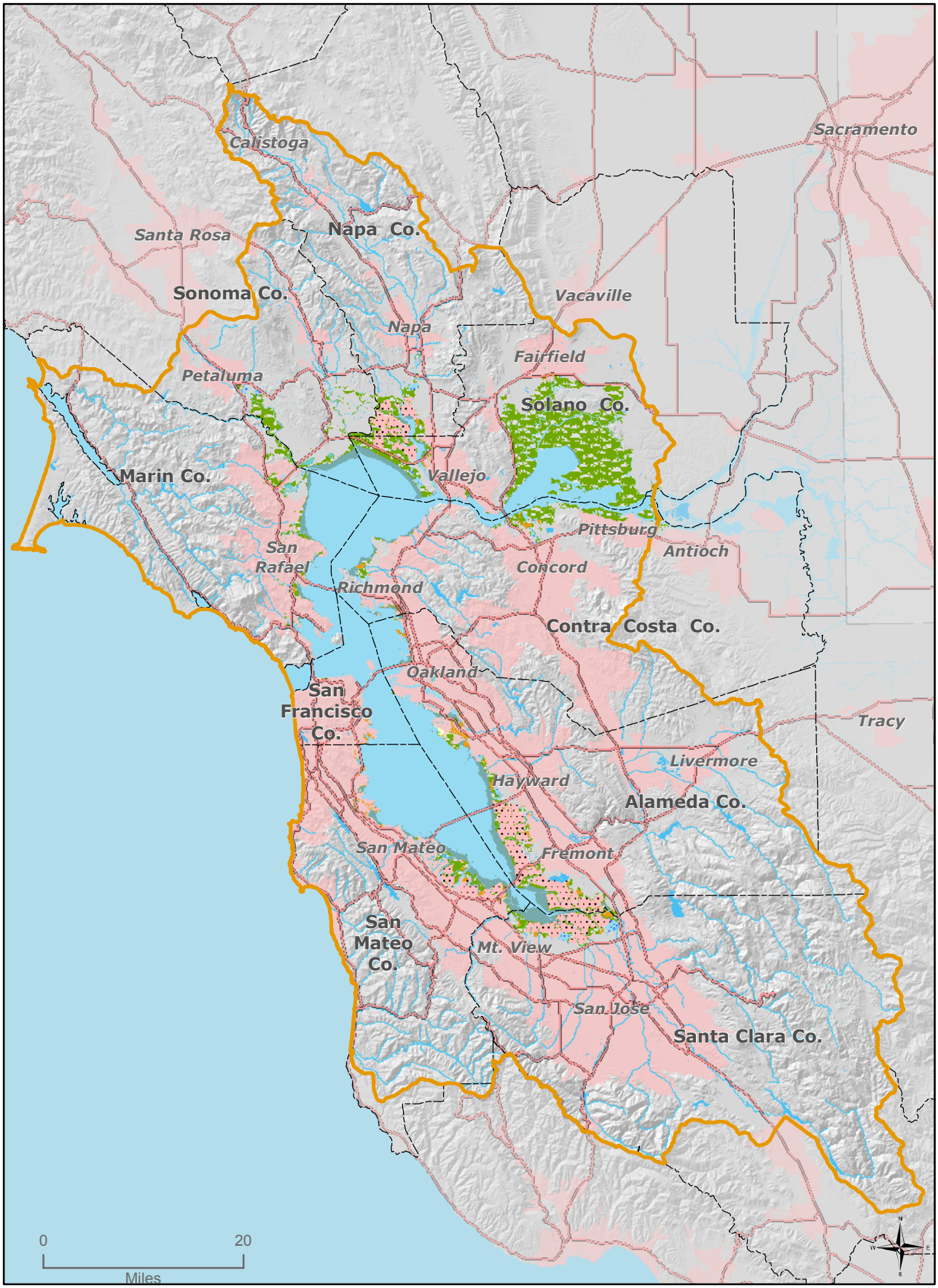
Figure 1-1 San Francisco Bay Basin