

## **1.0 INTRODUCTION**

### **1.1 WATERSHED MANAGEMENT INITIATIVE**

The water resource protection efforts of the State Water Resources Control Board and the Regional Water Quality Control Boards are guided by a five year *Strategic Plan* (developed in 1995 and last updated on November 15, 2001). A key component of the *Strategic Plan* is the Watershed Management Initiative (WMI), which promotes a watershed management approach for water resources protection. The WMI was developed to help State and Regional Boards meet our goal of providing water resource protection, enhancement, and restoration while balancing economic and environmental impacts.

In the past, State and Regional Board programs were primarily directed at site-specific problems. This approach was reasonably effective for controlling pollution from point sources. However, regulatory agencies have realized that in order to address diffuse nonpoint sources of pollutants, a new strategy is needed. There is also a growing focus on the resources to be protected and restored, rather than on individual regulatory programs. This is a return to the orientation of the Porter-Cologne Act in which the Regional Boards themselves are defined by watershed boundaries and regulations based on individual water bodies, their beneficial uses, water quality objectives, and ultimately, limits on waste discharges. In order to protect water resources within a watershed context, a mix of point and nonpoint source discharges, ground and surface water interactions, and water quality/water quantity relationships must be considered. The WMI is therefore designed to integrate various surface and ground water regulatory programs while promoting cooperative, collaborative efforts within a watershed. It is also designed to focus limited resources on key issues. The WMI uses a strategy of drawing solutions from all interested parties within a watershed, to more effectively coordinate and implement measures to control both point and nonpoint sources.

Each of the nine Regional Water Quality Control Boards prepares a “Chapter” that together form the “Integrated Plan” for Implementation of the WMI. These chapters are currently being updated on an as-needed basis. This document is the 2004 WMI Chapter of the San Francisco Bay Regional Water Quality Control Board (Region 2). Our Chapter is designed to be an information and outreach tool to describe the Regional Board’s watersheds and their major water quality issues, as well as describing program responsibilities, workplans, and needs in terms of both Regional Board and stakeholders’ needs. The Chapter identifies priorities to be funded by existing resources, as well as priority tasks that are currently unfunded, including those that might be potential projects for grant applications. This Chapter also discusses how we are structured to implement the Watershed Management Initiative, and how we are implementing our priority setting process.

The WMI Chapter is not a commitment to complete work. Work commitments are made in fund source-specific workplans. The Chapter may be used to provide information for making informed decisions on which activities will be funded by specific workplans. The Chapter identifies specific projects or types of projects we would like to see funded through grant programs, but these are general categories and not complete or exclusive lists. The Chapter is dynamic and represents the best information and strategy at the time of this writing. Since the document is an administrative management tool, it must be flexible and responsive to the

adaptive management required to address issues with changing priorities, new information, and changes in funding.

## **1.2 WATERSHEDS AND WATERSHED MANAGEMENT APPROACH**

A watershed is the land area extending from the topographic high points where water collects, such as ridges, down to the topographic low point where the area drains into a creek, river, bay, ocean, or other waterbody. Watershed management is the integration and coordination of activities that affect the watershed's natural resources and water quality. The premise of this concept is that many water quality and ecosystem problems are best prioritized, addressed, and solved at the watershed level rather than at the individual waterbody or discharger level. Major features of a watershed management approach are targeting priority problems, promoting a high level of stakeholder involvement, developing integrated solutions that make use of the expertise and authority of multiple agencies and organizations, and measuring success through monitoring and other data gathering.

Watershed management areas are geographically defined watershed areas where the Regional Board will implement the watershed approach. In this region, these are generally defined by County boundaries or by a large hydrologic area such as the Napa River watershed.

State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the state. Each Regional Board is semi-autonomous and makes water quality decisions for its region based on regional needs. These decisions include setting water quality standards, issuing waste discharge permits, adopting policies, and taking enforcement actions. The beneficial uses described in the Regional Board's Water Quality Control Plan (*Basin Plan*) define the resources, services, and desired qualities of the waters in our watersheds. The Regional Board is charged with protecting all these uses from pollution and nuisance that may occur as a result of waste discharges in the region. Therefore, the Regional Board Watershed Management Approach is the coordination of activities that affect beneficial uses of waters of the state within each watershed in our jurisdiction.

## **1.3 WATERSHED MANAGEMENT AREAS IN SAN FRANCISCO BAY REGION**

In order to implement the Watershed Management Initiative in the San Francisco Bay Region, we have defined watershed management areas at three levels: 1) San Francisco Bay Regionwide; 2) county watershed management areas; and 3) subwatersheds.

**Level 1 is the San Francisco Bay Region.** The San Francisco Bay Region is located on the central coast of California (Figure 1-1). The San Francisco Bay and Delta is one of the world's largest estuarine systems, which functions as the only drainage outlet for waters of the Central Valley. It also marks a natural topographic separation between the northern and southern coastal mountain ranges. The region includes the main Bay segments and the areas that drain to them, as well as the coastal watersheds that drain to the Pacific Ocean.

The San Francisco Bay Region covers an area of approximately 4,550 sq. mi., of which the land mass is approximately 90% (4,100 sq. mi.) Development activities have filled in the Bay

(including San Pablo and Suisun Bays), reducing the area of high tide downstream of the Delta from 516,000 to 327,000 acres. Average annual precipitation is about 22 inches per year, and ranges from 18 inches per year in the driest areas (Port Chicago in Suisun Bay and San Jose in the South Bay) up to 49 inches per year in the wettest area (Kentfield, Marin County).

The region’s waterways, wetlands, and bays form the centerpiece of the United States’ fourth-largest metropolitan region. Because of its highly dynamic and complex environmental conditions, the Bay system supports an extraordinarily diverse and productive ecosystem. In Section 2.0, *Regionwide Activities*, we describe activities that are implemented at this level.

**Level 2 is the watershed management areas, defined by county boundaries (Figure 1-1).**

There are nine counties in the San Francisco Bay Region, as listed in the table below. Only San Francisco County is wholly within Region 2. This region encompasses the majority of Marin, San Mateo, Alameda, and Santa Clara Counties. The remaining counties (Sonoma, Napa, Solano, and Contra Costa) have significant portions under the jurisdiction of other Regional Boards. Some county boundaries, such as Napa and Santa Clara, closely correspond to physical watersheds, the Napa River drainage area and the Santa Clara Valley, respectively. However, other counties in the Region are essentially politically defined geographic areas that encompass several small watersheds. The counties vary greatly in their urban and rural make-up, as well as in size and population:

County	Area (sq. mi.)	Population (2000 census)	County	Area (sq. mi.)	Population (2000 census)
Alameda	740	1,453,000	San Mateo	560	727,300
Contra Costa	510	962,900	Santa Clara	950	1,719,160
Marin	560	255,650	Solano	410	423,300
Napa	430	132,700	Sonoma	300	476,900
San Francisco	101	780,390			

Because of the hydrology of our region, there are many small watersheds draining to San Francisco Bay and relatively few large discrete watersheds; therefore it makes sense to work with watersheds on a county basis. The disadvantage of using county boundaries rather than true watershed boundaries is balanced to some extent by the fact that counties provide the best opportunity for local government and agency participation and coordination. However, we are increasingly focused on using true watershed boundaries that may cut across county lines, particularly in developing TMDLs. In Section 3.0, *Watershed Activities*, county level actions are described in detail.

**Level 3 is the subwatershed level within county watershed areas.** For example, the San Lorenzo Creek drainage area in Alameda County is a third level watershed. Nearly 50 significant drainage basins have been delineated in our Basin Plan. The Region’s watersheds include freshwater and estuarine streams, rivers and lakes and coastal creeks, lagoons, and bays. These surface waters serve as vital habitat and as spawning areas for anadromous and other fishes, and many aquatic and riparian species, as well as supporting municipal and domestic drinking water supply, agricultural and industrial process supply, water recreation, and navigation beneficial uses. Activities implemented at this level are described in more detail in

Section 2.3 *Monitoring and Assessment*, individual county watershed management areas in Section 3.2-3.10, and Section 3.11 *Total Maximum Daily Loads (TMDLs)*.

This watershed management process is flexible, with communication occurring up and down the watershed scale to encourage optimal use of resources and effective actions. For example, pollutant sources that directly affect the Bay, such as the major industrial wastewater discharges and certain legacy pollutants such as mercury and PCBs, are being managed at the regionwide level. Our experience to date suggests that urban runoff is best managed at the county level, where municipalities are responsible for their urban drainage areas, although we also work at the regionwide level in setting standards for program review and permit conditions. Local governments and local stakeholder groups have, in turn, defined problems and implementation actions at the subwatershed level, and Board staff work with these partners on watershed planning, monitoring, grant programs, etc., at this level. Regional Board staff involvement at all three levels will help to ensure that approaches to watershed management efforts are consistent regionwide.

#### **1.4 WATERSHED-BASED STRUCTURE AND MANAGEMENT**

The San Francisco Bay Regional Board is organized to encourage a watershed-based approach to implementing programs, with particular emphasis on integrating programs within watershed management areas. Our watershed-based organization structure, priority setting process, and approach to program management are discussed in this section.

Beginning in 1992, we organized our staff to focus on watersheds and to facilitate achievement of our WMI objectives. Currently our surface water responsibilities are divided among two watershed divisions (North Bay and South Bay), an NPDES Permit Division, and a Policy and Planning Division (see table below). The Policy and Planning Division is responsible for basin planning and policy development, monitoring and assessment, and Bay dredging and dredge material disposal. A Total Maximum Daily Load (TMDL) section was added to the Planning and Policy Division to develop and implement TMDLs in the Region. Our two other divisions work primarily on groundwater issues: the Groundwater Protection and Waste Containment Division works on Department of Defense/Department of Energy (DOD/DOE) cleanups and Chapter 15 landfills and spills. The Toxics Cleanup Division works on underground tanks and toxic cleanups.

WATERSHED BASED ORGANIZATION		
DIVISION	SECTION	WATERSHED MANAGEMENT AREAS
South Bay Watershed Management Division	Southeast Bay	Alameda and Santa Clara Counties
	Environmental Compliance	Regionwide, Solano County
North Bay Watershed Management Division	North Bay Counties	Contra Costa, Napa, and Sonoma Counties
	Coastal Counties	San Francisco, San Mateo, and Marin Counties
NPDES Permits Division	Section 1	Regionwide
	Section 2	Regionwide
	Section 3	Enforcement, regionwide
Policy and Planning	Policy and Planning TMDL	Regionwide Regionwide

## 1.5 PRIORITY ISSUES

At the onset of watershed planning efforts, most of our staff and resources were tied to specific core regulatory programs with demanding workloads. Since many of the priority watershed problems are caused by nonpoint sources of pollution, which generally are not managed with permits, we have found it necessary to reassess priorities based on water quality needs and resources available. Current Regional priorities are listed below in Table 1-1 and in Section 2.1 *High Priority Issues and Funding Needs in Regional Activities*.

**Table 1-1**  
Water Quality Priorities

<p>Our major water quality priorities are summarized below. In addition to Water Board priorities developed by the Board and staff, priorities are mandated by legislation, statute, regulation, the State Water Resources Control Board, Cal-EPA, and the U.S. EPA. The following priorities are not necessarily listed in priority order; however, TMDL-related work is considered the highest statewide priority. The listed priorities are also highlighted in the watershed sections as appropriate. Grant funding may aid in addressing some of these priorities, by working in partnership with other agencies and stakeholders. The Water Board will also use its regulatory authorities, e.g. permitting, enforcement, etc., to implement these priorities.</p>
<ul style="list-style-type: none"> <li>• <b>Municipal Stormwater/Urban Runoff</b> – priorities include proposed development of a single regional municipal stormwater permit to replace six existing Phase I permits; compliance oversight of municipal stormwater permits, construction, Caltrans, and industrial stormwater permits; implementation of Phase II stormwater permits for smaller municipalities; review of new</li> </ul>

development post-construction stormwater controls; and actions to control pollutants of concern (copper, mercury, PCBs, pesticides, toxicity, and trash). Converting all stormwater reports from paper reports to web-based submittals to track permit compliance, evaluate BMPs effectiveness, and pollutant loads reduction is a high priority.

- **Total Maximum Daily Loads (TMDLs)** –Priority TMDLs include:

- San Francisco Bay Legacy Mercury, PBDEs and PCBs
- Regionwide Urban Creeks Diazinon / Pesticide Toxicity
- Guadalupe River Watershed Mercury
- Tomales Bay and Lagunitas Creek Pathogens
- Walker Creek Mercury and Sediment
- Lagunitas Creek Sediment
- Napa River Nutrients, Pathogens, and Sediment
- Sonoma Creek Nutrients, Pathogens, and Sediment
- San Francisquito Creek Sediment
- Pescadero and Butano Creeks Sediment

See our TMDL website:

<http://www.waterboards.ca.gov/sanfranciscobay/tmdlmain.htm> for further details.

- **Wetlands and Stream Protection** priorities include Basin Plan amendments to include a stream protection policy and additional beneficial uses for stream and wetland protection; permitting and technical oversight of several large wetland restoration and enhancement projects in San Francisco Bay and coastal areas, including the North and South Bay Salt Ponds; mitigation tracking and monitoring for wetland projects; permitting of stream and wetland fill projects through 401 certifications and Waste Discharge Requirements; and outreach and education to municipalities, consultants, and non-profit groups on application of sound stream and river protection principles to hydromodification projects.
- **Rural Nonpoint Source (NPS)** – priorities include permitting and oversight of confined animal facilities (dairies, horse boarding, and other); application of sound management principles to vineyards and other agricultural land conversion activities; and oversight of existing Rural Wastewater and non-Chapter 15 Waste Discharge Requirements (WDRs).
- **Watershed Management** – priorities include continuing to work with watershed stakeholders in areas including Tomales Bay, Contra Costa, Alameda Creek watershed, and the Santa Clara Basin, while expanding and improving watershed partnerships in other key watersheds, particularly those with listed waterbodies where TMDLs are in process; developing capacity building and outreach for grant solicitations; and developing more cooperative working relationships with Calfed and other agency efforts. Internal priorities include increased coordination between surface and groundwater programs and making the nexus between these programs and the development and implementation of TMDLs.
- **Watershed Monitoring and Assessment** – priorities include the Surface Water Ambient Monitoring Program, Regional Monitoring Program, and coordination with other federal, State and local monitoring efforts.

- **Groundwater Protection and Toxics Cleanup**– priorities are to protect and restore groundwater quality for drinking water supply and other beneficial uses, through supporting local agencies, overseeing key contaminated MTBE sites and SLIC site cleanups, supporting Brownfield cleanups, facilitating cleanup and timely transfer of DOD/DOE sites, and regulating landfills.
- **NPDES Surface Water Protection** – priorities include reducing sanitary sewer overflows and beach closures; source control/pollution prevention; wastewater reuse; and permit compliance and reissuance.
- **Planning Activities** –priorities include development of stream protection policy (see above); development of site-specific objectives for copper, nickel, and cyanide; and updating Basin Plan surface water/groundwater maps and waterbody beneficial use listings.

## 1.6 INTERNAL COMMUNICATION

A high priority internal issue that has been identified in several of our priority-setting reviews is improving communication on watershed management issues among staff and with outside partners. Our staff strives to build relationships and communicate effectively with the key stakeholders in each watershed, which is key for targeting our limited grant dollars effectively. We have developed guidance for working with stakeholders on TMDLs and other watershed planning and implementation processes, including developing regional and local priorities for addressing water quality. We also continue working on improving interdivisional communication on watershed issues, which are more important now that the Watershed Management Division is split into two divisions.

We have established a number of permanent committees or workgroups to promote teamwork and better internal communication, including a Groundwater Committee, Urban Runoff Workgroup, 401 Certification Workgroup, and the Surface Water Integration Group (SWIG). The SWIG is comprised of the Division Chiefs from Watershed, NPDES, and Planning, section leaders from the Watershed and Planning/TMDL divisions, and Program Coordinators who are responsible for watershed management, nonpoint source, surface water, planning, and TMDLs. SWIG meets bimonthly to discuss watershed issues across divisions and is responsible for developing and implementing priority tasks and ensuring effective communication between divisions and sections, program areas, and watershed management areas.

In February 2004, staff initiated a Groundwater/Surface Water Interaction Committee, with the mission of fostering greater communication and cooperation between our groundwater and surface water divisions on such issues as impacts of stormwater retention basins on groundwater, contaminated groundwater impacting creeks and wetlands, and impacts on groundwater recharge from new impervious construction. This committee has prepared a factsheet for staff and outside agencies that defines groundwater and surface water interaction, explains why it is important to understand, and what effect it has on water quality in the Bay Area. The committee has also identified priority groundwater/surface water issues, pointed out research and mapping needs, and highlighted case studies where surface and groundwater staff are working together.

## 1.7 PROGRAM MANAGEMENT AND CHAPTER ORGANIZATION

Our regionwide programs are Basin Planning (Planning and Policy Development), Monitoring and Assessment, Nonpoint Source, Wetlands and Stream Protection, Core Regulatory Programs (NPDES, non-Chapter 15 Waste Discharge Requirements), Groundwater Resource Management, Geographic Information System (GIS), and TMDLs. The summary below describes the watershed management level for each surface water program and where pertinent discussions or data are located in this WMI Chapter.

### Basin Planning (Planning and Policy Development)

Basin Planning activities include conducting triennial reviews of planning priorities, development of water quality standards and implementation plans and policies, and preparation of Basin Plan amendments. In general, Basin Planning activities are conducted at the Regionwide scale, Section 2.2. However, there are also Basin Planning issues (beneficial uses, water quality objectives, implementation plans) specific to county watershed management areas or specific subwatersheds. Such issues are included as appropriate in Section 3.0, *Watershed Activities* section.

### Monitoring and Assessment

Monitoring and assessment efforts are occurring on both regional and watershed scales. Monitoring may be used to assess trends over time and obtain general assessment information on a regional scale. It may also be used to track pollution sources on a watershed scale. Section 2.3, *Monitoring and Assessment* discusses our Regional Monitoring and Assessment Strategy and implementation of the Surface Water Ambient Monitoring Program (SWAMP). Monitoring efforts within specific watersheds are discussed in Section 3.0 *Watershed Activities*.

### Nonpoint Source (NPS) Program

NPS activities include coordination of 319(h) grant activities, implementing the Plan for *California Nonpoint Source Pollution Control Program*, and implementing the Critical Coastal Areas program (see below). Management of NPS pollution is based on the requirements of the Porter-Cologne Water Quality Control Act. The Nonpoint Source (NPS) Program is both regionwide in dealing with such issues as erosion control and hydromodification, and locally directed, as in our focus on dairies in Marin and Sonoma Counties. Our overall strategy acknowledges the existing impairment of water bodies from nonpoint sources and puts forth long term goals to short-term objectives to address these impairments. Our regional activities are described in Section 2.4, *Nonpoint Source Program*. Specific implementation activities for each county watershed are included in Section 3.0 *Watershed Activities*.

### Wetlands and Stream Protection

Wetlands, creeks, and waterway protection and management continue to be a high priority in the San Francisco Bay Region. Further discussion of Wetlands issues and activities is contained in Section 2.5, *Wetlands and Stream Protection*. In addition, wetlands, creeks, and waterway protection and management issues specific to county watershed management areas or specific subwatersheds are highlighted in Section 3.0 *Watershed Activities*.

### Core Regulatory Programs (NPDES, Storm Water, non-Chapter 15 WDRs)

Core regulatory activities include review and revision of individual NPDES permits; issuance of general permits; Phase I and Phase II stormwater permits for municipalities, industries, and

construction sites; pretreatment inspections and audits; and issuance of Waste Discharge Requirements. Core regulatory also includes implementing waste load allocations established by TMDLs, via permit renewals. Core regulatory activities are implemented at both the regionwide and county watershed level. As a result, discussion of these core regulatory implementation issues and activities are contained both in Section 2.6, *Core Regulatory Programs*, and in Section 3.0 *Watershed Activities* for individual counties.

#### Groundwater Resource Management

Groundwater priorities are to protect and restore groundwater quality for drinking water supply and other beneficial uses, through supporting local agencies, overseeing key contaminated MTBE sites and SLIC site cleanups, supporting Brownfield cleanups, facilitating cleanup and timely transfer of DOD/DOE sites, and regulating landfills. These activities are discussed in detail in Section 2.7 *Groundwater Resource Management*.

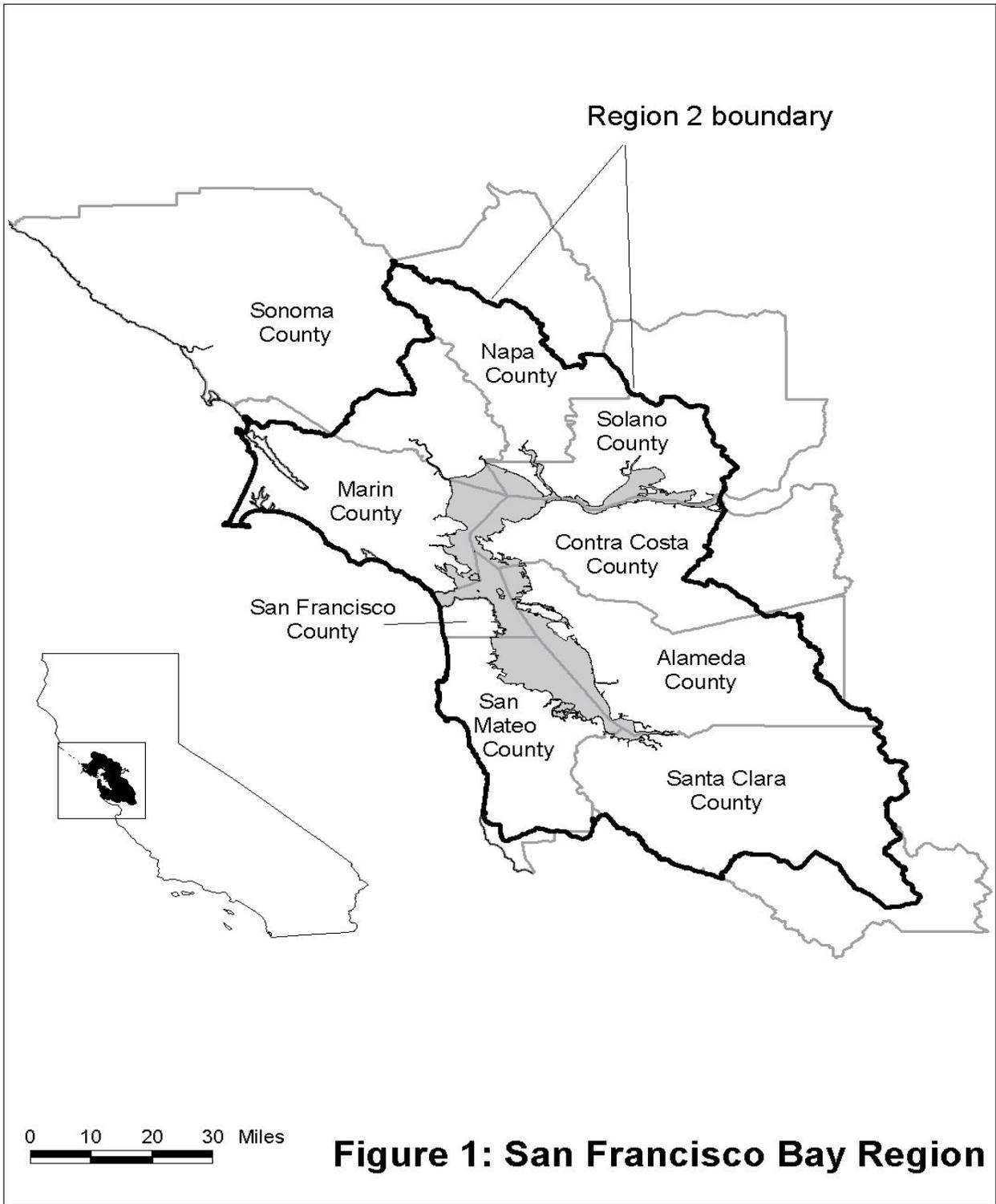
#### Geographic Information System (GIS)

The Regional Board continues to utilize GIS as a useful analytical tool for the study and monitoring of groundwater quality. The Regional Board is also increasing the use of GIS in its watershed and TMDL analysis, and the SWAMP team is using GIS to track and monitor sampling sites. Future goals include increasing staff access to GIS tools, developing staff training, and increasing public access to Regional Board data layers. GIS objectives are more fully discussed in Section 2.8 *Geographic Information System*.

#### Total Maximum Daily Loads (TMDLs)

Development of TMDLs is taking place at all three watershed levels, from several baywide TMDLs (pesticides, mercury) to subwatersheds. Since TMDLs are developed and implemented on a watershed basis, they are described under Section 3.0, *Watershed Activities*. A summary of our overall strategy is in Section 3.11, *Total Maximum Daily Loads*. Activities at the county watershed level and subwatersheds within counties are described in Sections 3.2-3.10, which include watershed descriptions, summaries of significant water quality issues, proposed workplans for FY 2004/05 and 2005/06, high priority unfunded activities, and high priority projects for grant funding.

County watershed programs are discussed in Section 3.0 *Watershed Based Activities*. Included in each watershed section is an overview of the watershed; a description of water quality concerns and issues; significant Regional Board activities in the watershed, both past and current; and both near and long-term activities that would benefit the watershed (both funded and unfunded).



**Figure 1: San Francisco Bay Region**