Structure and Effectiveness
of the State's Water Quality Programs:
Section 303(d) of the Federal Clean Water Act
and Total Maximum Daily Loads (TMDLs)

Report to the Legislature Pursuant to AB 982 of 1999

MARCH 2003

STATE WATER RESOURCES CONTROL BOARD
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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ABBREVIATIONS

SWRCB	STATE WATER RESOURCES CONTROL BOARD
CWA	CLEAN WATER ACT
TMDL	TOTAL MAXIMUM DAILY LOAD
PAG	PUBLIC ADVISORY GROUP
ACTION PLAN	TMDL INITIATIVE ACTION PLAN
SWAMP	SURFACE WATER AMBIENT MONITORING PROGRAM
RWQCB	REGIONAL WATER QUALITY CONTROL BOARD
OAL	OFFICE OF ADMINISTRATIVE LAW
U.S. EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY
AB	ASSEMBLY BILL
FED	FUNCTIONAL EQUIVALENT DOCUMENT
FY	FISCAL YEAR
BASIN PLAN	REGIONAL WATER QUALITY CONTROL PLANS
USFS	U.S. FOREST SERVICE
DFG	CALIFORNIA DEPARTMENT OF FISH AND GAME
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
TRPA	TAHOE REGIONAL PLANNING AGENCY
USGS	U.S. GEOLOGICAL SURVEY
U.C.	UNIVERSITY OF CALIFORNIA
LADWP	LOS ANGELES DEPARTMENT OF WATER AND POWER
TIE	TOXICITY IDENTIFICATION EVALUATIONS
QAPP	QUALITY ASSURANCE PROJECT PLAN
BMP	BEST MANAGEMENT PRACTICES
SCCWRP	SOUTHERN CALIFORNIA COASTAL WATER RESEARCH PROJECT
SAWPA	SANTA ANA WATERSHED PROJECT AUTHORITY
DPR	CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION
PY	PERSONNEL YEARS
TSMP	TOXIC SUBSTANCE MONITORING PROGRAM
SMWP	STATE MUSSEL WATCH PROGRAM
TTP	TOXICITY TESTING PROGRAM
CFCP	COASTAL FISH CONTAMINATION PROGRAM
WQMCC	WATER QUALITY MONITORING COORDINATING COMMITTEE
SPARC	SCIENTIFIC PLANNING AND REVIEW COMMITTEE
RMAS	REGIONAL MONITORING AND ASSESSMENT STRATEGY
ADW	AGRICULTURALLY DOMINATED WATER BODY
EDW	EFFLUENT DOMINATED WATER BODY
POTW	PUBLICLY OWNED TREATMENT WORKS
PCH	PACIFIC COAST HIGHWAY

EXECUTIVE SUMMARY

This is the third and last report prepared by the State Water Resources Control Board (SWRCB) to the Legislature pursuant to Water Code section 13191. The law requires SWRCB to submit three annual reports to the Legislature on the structure and effectiveness of the state's water quality management programs as they relate to section 303(d) of the federal Clean Water Act (CWA). Section 303(d) requires each state to develop a list of water bodies that are not attaining water quality standards [303(d) list] and to establish Total Maximum Daily Loads (TMDLs) outlining pollutant loads that can be allowed without adversely affecting the beneficial uses of those water bodies that are listed.

The first report, submitted to the Legislature in January 2001, described the TMDL program and processes as they existed then, and addressed the concerns raised by the Public Advisory Group (PAG) established pursuant to the requirements of Water Code section 13191. Subsequently, SWRCB restructured its TMDL program and developed the TMDL Initiative Action Plan (Action Plan) in an effort to improve the structure and effectiveness of the program. The second report, submitted to the Legislature in February 2002, focused on the Action Plan which addresses the areas that needed improvement in the state's 303(d) listing and TMDL processes. This third report presents the progress made in 2002 in our continuing effort to improve 303(d) listing and TMDL processes and to effectively implement the TMDL program. The report discusses the ongoing work of developing the 2002 303(d) list, the statewide 303(d) listing/delisting policy and TMDL development and implementation guidelines, and the status of TMDL development at each Regional Water Quality Control Board (RWQCB). It also provides a status report of the state's Surface Water Ambient Monitoring Program (SWAMP) and an updated version of the Action Plan.

In 2002, a great deal of PAG's efforts and time was focused on the development of the 2002 303(d) list and the statewide listing/delisting policy. SWRCB staff met with PAG members at six separate meetings around the state. The discussions at those meetings and at PAG's quarterly meetings have helped to shape the listing/delisting policy. SWRCB is committed to addressing all the consensus recommendations of PAG in this policy. SWRCB staff has also held meetings with several other stakeholder groups and staff of the nine RWQCBs to determine the scope of the policy and the areas of concern it should address. Staff will continue to consult with these groups and PAG throughout the process of developing the listing/delisting policy and the TMDL guidelines. Both the policy and the guidelines are scheduled to be adopted by January 1, 2004, as required by Water Code section 13191.3.

SWRCB and RWQCBs have made progress towards completing TMDLs in 2002. To date, 21 TMDLs have been completed and are being implemented; nine of those were completed in 2002. In addition, thirteen TMDLs that were adopted by RWQCBs in 2001 and 2002 are currently pending SWRCB, Office of Administrative Law (OAL), or U.S. Environmental Protection Agency (U.S. EPA) approval. Nine more TMDLs are scheduled to be adopted by RWQCBs in 2003 and 2004. Forty-six TMDLs (without

implementation plans) were established by U.S. EPA in 2002 with assistance from RWQCB staff. The work for approximately 100 additional TMDLs is also underway at the nine RWQCBs. These TMDL accomplishments are discussed in Chapter III of this report beginning with Page 9.

As demonstrated in our previous reports of this subject matter, SWRCB's TMDL program is faced with many challenges. SWRCB and RWQCBs are striving to overcome those challenges with the available resources through program restructuring and implementation of the Action Plan. The statewide listing/delisting policy and TMDL guidelines, once adopted, will provide guidance to RWQCBs for developing future 303(d) lists and TMDLs, and therefore improve program efficiency and consistency.

I. INTRODUCTION

CWA section 303(d) requires the states to produce a list of waters that are not attaining water quality standards after technology-based limits are imposed on all point sources discharging to the subject waters. The states are required to develop TMDLs for those waters included in the 303(d) list. A TMDL must account for all pollutant sources that caused the water to be listed on the 303(d) list. Federal regulations require that the TMDL, at a minimum, account for contributions from point sources and nonpoint sources, such as polluted runoff. The U.S. EPA is required to review and approve the list of impaired waters and each TMDL developed by the states. If U.S. EPA disapproves a 303(d) list or a TMDL, then U.S. EPA is required to establish the list or TMDL for the state.

Water Code section 13191, established by Assembly Bill (AB) 982 (Chapter 495, Statutes of 1999), requires SWRCB to convene an advisory group or groups to assist in the evaluation of the structure and effectiveness of the state's water quality programs implementing CWA section 303(d). The law requires SWRCB to report to the Legislature regarding the structure and the effectiveness of these programs and to consider any recommendations of the advisory group or groups on or before November 30, 2000 and annually thereafter until November 30, 2002. AB 982 also codified Water Code section 13192, which requires SWRCB to assess its surface water quality monitoring programs and to propose a statewide comprehensive surface water quality monitoring program.

AB 982 PAG was established in February 2000. Over the past three years, SWRCB has worked with PAG members to evaluate the state's TMDL program and to develop and implement plans to improve the program's structure and effectiveness. PAG is comprised of 12 representatives of various environmental groups and 12 representatives from various regulated public organizations and private industries. A complete list of PAG members is presented in Appendix A.

With the assistance of PAG, SWRCB has completed and submitted to the Legislature a report proposing SWAMP (November 2000) and two reports related to the structure and effectiveness of the TMDL program (January 2001 and February 2002). The first TMDL report described the TMDL program and processes as they existed in 2000 and addressed the concerns raised by PAG regarding the structure and the effectiveness of the program. Subsequently, SWRCB restructured its TMDL program and developed the Action Plan, in an effort to improve the structure and effectiveness of the program. TMDL staff level at all nine RWQCBs was increased as a result of the General Fund augmentation provided by the Legislature in FY 2000-01. The second TMDL report focused on the reorganization efforts and the Action Plan which addresses the areas that needed improvement in the state's 303(d) listing and TMDL development processes.

In 2001, PAG supported legislation that established Water Code section 13191.3 (Senate Bill 469, Chapter 20, Statutes of 2002). This new law requires SWRCB to

prepare guidelines for listing and delisting 303(d) waters and for developing and implementing TMDLs. These guidelines must be prepared on or before July 1, 2003 and finalized not later than January 1, 2004.

The work to develop the listing/delisting policy and the TMDL guidelines is in progress. At the same time, SWRCB and RWQCB staffs have been developing the 2002 303(d) list which was adopted by SWRCB and submitted to U.S. EPA in February 2003. This third, and last, report to the Legislature required by Water Code section 13191 discusses the progress in the development of the 2002 303(d) list, the listing/delisting policy, and the TMDL guidelines. The report also discusses the status of TMDL development and the implementation of SWAMP at each region and provides an update of the Action Plan.

II. DEVELOPMENT OF 2002 303(d) LIST, LISTING/DELISTING POLICY, AND TMDL GUIDELINES

2002 303(d) List

The state's 303(d) list was last revised in 1998. Federal regulations require that the 303(d) list be updated every two years. A federal rule in February 2000 suspended the 2000 submittal, and the next revision of the list was due to U.S. EPA in October 2002.

In March 2001, RWQCBs issued solicitations to federal, state and local agencies and the public for available data and information to support the update of the 303(d) list. The solicitation was closed on May 15, 2001. As required by federal regulations, RWQCB staff assembled and evaluated all existing and readily available water quality-related data and information and prepared draft staff reports proposing additions, deletions, and other changes to the existing 303(d) list. Several regions also provided a "watch list" which includes water bodies where minimal, contradictory, or anecdotal information suggests standards are not met, but the available data or information is inadequate for staff to determine whether the water body should be included in the 303(d) list.

In January 2002, RWQCBs submitted their staff reports and proposed 303(d) lists to SWRCB, along with all relevant documents, including copies of public submittals, data/information, and documents referenced in the submittal. SWRCB staff reviewed RWQCB proposals, made determination on whether to concur with RWQCBs' recommendations, and worked with RWQCB staff to resolve the differences. Subsequently, SWRCB staff developed a statewide list, supported by fact sheets for each proposal to add or delete water bodies or make other changes to the existing 303(d) list. The rationale for decisions to use or not to use any existing and readily available data and information was provided in the fact sheets and in all supporting documents that are part of the record of SWRCB's 303(d) list development. Staff also assigned priorities to the listed water bodies for the purposes of developing TMDLs, as required by federal law.

The existing 1998 303(d) list contains 509 water bodies and 1472 water body/pollutant combinations. The 2003 303(d) list contains 679 water bodies and 1852 water body/ pollutant combinations. SWRCB approved the 2002 section 303(d) list on February 4, 2003 and submitted the list to U.S. EPA for its consideration on February 28, 2003.

303(d) Listing/Delisting Policy

Water Code section 13191.3 requires SWRCB to develop guidelines to be used by SWRCB and RWQCBs for the purposes of listing and delisting waters and developing and implementing TMDLs. The law requires that the guidelines be adopted by January 1, 2004. The work of developing a statewide listing/delisting policy for SWRCB

adoption is currently underway. During the development of the 2002 303(d) list, many issues and concerns were raised by the members of PAG and other interested parties. Those issues and areas of concern have provided the framework for the development of the listing/delisting policy. Topics of concern include the interpretation of narrative water quality objectives, representative samples of upstream and downstream conditions, data quality requirements, minimum data needed to support listing decisions, and priority setting.

Several meetings were held between December 2001 and April 2002 to develop the scope of the policy. SWRCB staff met with PAG members at six separate meetings around the state and with representatives from other groups such as the Southern California Alliance of Publicly Owned Treatment Works, the California Water Quality Coalition sponsored by the California Farm Bureau Federation, and the California Storm Water Quality Task Force. SWRCB staff also consulted with the RWQCB staff and management advocates who are involved in the listing/delisting process. Comments and advice received from all of these groups were taken into consideration in determining the scope of the policy.

Three consensus recommendations were developed by PAG regarding the listing/delisting policy, all of which will be incorporated in the final policy:

1. PAG agrees that the listing process should be transparent.
2. The public participation process should be transparent; in addition, it should be specific and well advertised, with active outreach to diverse geographic areas and those with environmental justice interests.
3. To the greatest extent possible, there should be a consistent, standardized set of tools and principles used across regions to evaluate data. Additionally, site-specific information should be taken into consideration.

This statewide policy will outline the factors for listing and delisting waters, including acceptable data quality, criteria for assigning priority to listed water bodies, criteria for developing a watch list, public notice procedures, data solicitation procedures, definition of readily available data, and many other factors pertinent to the process.

Table 1 provides the timeline for developing the policy. SWRCB will continue to work closely with PAG, RWQCB staff, and U.S. EPA throughout the process of developing the listing/delisting policy. It is important to note that U.S. EPA is currently developing a new TMDL Rule which includes requirements for listing 303(d) waters. The new Rule is not publicly available at this time. As we move forward with the development of the listing/delisting policy, we may be required to revisit some of the issues after the new Rule is published and revise the policy if necessary to ensure it is consistent with the new federal Rule.

Table 1. Timeline for Development of the 303(d) Listing/Delisting Policy

Task	Completion Date
Scoping meetings	December 2001 through March 2002
Discuss proposal with RWQCB staff	May 2002
Draft concept paper to PAG	July 2002
Discuss proposals at PAG meeting	July 2002
Policy reparation	January 2003 through June 2003
Draft functional equivalent document (FED)	January 2003 through September 2003
RWQCB staff review	May 2003
Formal release of draft policy	July 2003
Formal release of draft FED	September 2003
Public hearing(s)	November 2003
Response to comments	September 2003 through December 2003
Revise FED and draft policy	November 2003 through January 2004
SWRCB workshop and board meeting	January 2004
Submit policy and records to OAL for approval	April 2004

TMDL Development and Implementation Guidelines

In addition to the tasks of developing the 2002 303(d) list and the statewide listing/delisting policy, SWRCB staff is also working on the development of statewide guidelines for developing and implementing TMDLs, as required by Water Code section 13191.3. U.S. EPA has provided startup funding for a contract with Tetra Tech, Inc. to determine the scope of the guidelines. The contractor has been working with SWRCB and RWQCB staff to accomplish this task. A portion of federal grants received for fiscal year (FY) 2002-03 has been earmarked for continued work to develop the guidelines, subject to U.S. EPA approval. Table 2 presents the schedule for developing the TMDL guidelines. The law requires that SWRCB finalize these guidelines by January 1, 2004. As stated earlier, U.S. EPA is currently developing a new TMDL Rule, which is not publicly available as of this date. To ensure consistency with the new federal Rule, SWRCB may be required to revisit some issues and/or revise the guidelines that are being developed once the new Rule is published.

Table 2. Timeline for Adoption of TMDL Development and Implementation Guidelines

Tasks	Completion Date
Initial project scoping	June 2002
Project scoping report	August 2002
U.S. EPA reviews/approves project and releases funds	October 2002
PAG briefing	October 2002
Draft core guidance document	April 2003
Draft core guidance document to PAG	July 2003
Draft technical modules/issues papers	August 2003
Draft final guidelines to PAG for comment	August – September 2003
Draft final guidelines released for public comments	September 2003
SWRCB prepares response to public comments	November 2003
SWRCB adopts final guidelines	January 2004

III. TMDL DEVELOPMENT AND IMPLEMENTATION

RWQCB Accomplishments

Development of TMDLs in California is primarily RWQCBs' responsibility. RWQCBs adopt TMDLs, including implementation provisions, as amendments to the Regional Water Quality Control Plans (Basin Plan). Previous lawsuits have resulted in court-ordered consent decrees that required U.S. EPA to establish TMDLs within specified time frames. These TMDLs are established either by RWQCBs or by U.S. EPA staff with assistance from RWQCB staff. TMDLs established by U.S. EPA do not include any implementation features. To ensure that these TMDLs are implemented, RWQCBs either develop specific implementation plans for the TMDLs or require implementation through their existing permitting programs.

RWQCBs were able to produce TMDLs in 2002 at a faster pace than they could previously. This is because of the increased knowledge and experience learned by staff developing TMDLs. Communications among the staffs at the nine RWQCBs and SWRCB have also improved significantly through the TMDL Roundtable. The Roundtable contains a group of RWQCB, SWRCB, and U.S. EPA staffs who meet monthly to discuss issues and problems associated with TMDLs and program management, and to exchange ideas and share knowledge and experiences. The discussions at the Roundtable have helped RWQCBs improve its performance in completing TMDLs.

Completed TMDLs

To date, 21 TMDLs have been completed and are being implemented; nine of those were completed in 2002. In addition, thirteen TMDLs adopted by the RWQCBs in 2001 and 2002 are currently pending approval by SWRCB, OAL or U.S. EPA. Nine more TMDLs are scheduled to be adopted by RWQCBs in 2003 and 2004. Forty-six TMDLs (with no implementation plans) were developed in 2002 by U.S. EPA staff with assistance from RWQCB staff. Staff at the nine RWQCBs has also begun working on approximately 100 additional TMDLs. Tables 3 through 6 provide lists of TMDLs that (1) have been completed; (2) have been adopted by RWQCB and or pending approval by SWRCB, OAL, or U.S. EPA; (3) are scheduled for adoption by RWQCBs in the next few months; and (4) have been established by U.S. EPA.

Table 3. Completed TMDLs

RWQCB	Water Body	Pollutant/Stressor	Date Completed
1	Garcia River	sediment	3/2002
1	Laguna de Santa Rosa	ammonia and dissolved oxygen	5/1995
2	South San Francisco Bay	copper	1/2003[1]
2	South San Francisco Bay	nickel	1/2003[1]
3	San Lorenzo River	nitrate	1/2003
4	East Fork San Gabriel River	trash	2/2000
4	Los Angeles River	trash	8/2002
4	Ballona Creek	trash	8/2002
5	Salt Slough	selenium	7/1999
5	Grasslands Marsh	selenium	4/2000
5	San Joaquin River	selenium	3/2002
5	Sacramento River	cadmium	6/2002
5	Sacramento River	copper	6/2002
5	Sacramento River	zinc	6/2002
7	New River	pathogen	8/2002
7	Alamo River	sediment	6/2002
8	Santa Ana River	nutrients	12/1994
8	Newport Bay/San Diego Creek	nitrogen	4/1999
8	Newport Bay/San Diego Creek	phosphorus	4/1999
8	Newport Bay/San Diego Creek	sediment	4/1999
8	Newport Bay/San Diego Creek	fecal coliform	2/2000

[1] Site-specific water quality objectives and implementation provisions for the new objectives have been approved by U.S. EPA. These site-specific objectives and implementation plan provided a basis for delisting Lower South San Francisco Bay for copper and nickel, and therefore precluded establishing a complete TMDL.

Table 4. TMDLs Adopted by RWQCBs and Pending Approval of SWRCB, OAL or U.S. EPA

RWQCB	Water Body	Pollutant/Stressor	Date Adopted	Status
3	Morro Bay	siltation	5/2002	SWRCB
3	San Lorenzo River	sediment	9/2002	SWRCB
3	Las Tablas Creek-Nacimiento Reservoir	mercury	11/2002	SWRCB
3	Morro Bay	pathogens	12/2002	SWRCB
4	Santa Monica Bay Beaches	coliform (dry-weather)	1/2002	U.S. EPA
4	Calleguas Creek	nutrients	10/2002	SWRCB
4	Santa Monica Bay	pathogen (wet weather)	12/2002	SWRCB
4	Santa Clara River	chloride	10/2002	SWRCB
5	Clear Lake	mercury	12/2002	SWRCB
6	Heavenly Valley	sediment	1/2001	U.S. EPA

(Continued) Table 4. TMDLs Adopted by RWQCBs and Pending Approval of SWRCB, OAL or U.S. EPA

RWQCB	Water Body	Pollutant/Stressor	Date Adopted	Status
6	Indian Creek Reservoir	nutrients	7/2002	OAL
7	New River Sediment	sediment	6/2002	U.S. EPA
9	Chollas Creek	diazinon	8/2002	SWRCB

Table 5. TMDLs Pending Adoption by RWQCBs

RWQCB	Water Body	Pollutant/Stressor	Hearing Date
2	San Francisco Bay	mercury	7/2003
3	Chorro/Los Osos Creeks	nutrients	10/2004
3	Morro Bay	nutrients	5/2003
4	Los Angeles River	nutrients	6/2003
4	Los Angeles River	coliform	10/2004
4	McGrath Beach	coliform	4/2003
4	San Gabriel River	nutrients	4/2003
8	Newport Bay	chlorpyrifos	3/2003
8	Newport Bay	diazinon	3/2003

Table 6. TMDLs Established by U.S. EPA[1]

RWQCB	Water Body	Pollutant/Stressor	Date Established
1	Trinity River South Fork / Hayfork Creek	sediment	12/1998
1	Redwood Creek	sediment	12/1998
1	South Fork Eel River	sediment	12/1999
1	South Fork Eel River	temperature	12/1999
1	Noyo River	sediment	12/1999
1	Van Duzen River/Yager Creek	sediment	12/1999
1	Navarro River	sediment	12/2000
1	Navarro River	temperature	12/2000
1	Ten Mile River	sediment	12/2000
1	Gualala River	sediment	12/2001
1	Trinity River	sediment	12/2001
1	Albion River	sediment	12/2001
1	Big River	sediment	12/2001
1	North Fork Eel River	sediment	12/2002

(**Continued) Table 6. TMDLs Established by U.S. EPA**[1]

RWQCB	Water Body	Pollutant/Stressor	Date Established
1	North Fork Eel River	temperature	12/2002
1	Mattole River	sediment	12/2002
1	Mattole River	temperature	12/2002
4	Calleguas Creek	chloride	3/2002
8	Upper Newport Bay	cadmium, coppr, lead, selenium, zinc, chlordane, chlorpyrifos, diazinon, dieldrin, PCBs, DDT	6/2002
8	Lower Newport Bay	cadmium, lead, selenium, zinc, chlordane, dieldrin, PCBs, DDT	6/2002
8	Rhine Channel	copper, lead, selenium, zinc, mercury, chromium, chlordane, dieldrin, DDT, PCBs	6/2002
8	San Diego Creek	cadmium, copper, lead, selenium, zinc, chlordane, chlorpyrifos, diazinon, dieldrin, PCBs, DDT, toxaphene	6/2002

[1] These TMDLs do not include implementation plans.

TMDL Work in Progress

In addition to the TMDLs listed above that have been completed or developed, RWQCBs are also working to develop approximately 100 TMDLs based on the 1998 303(d) list, develop implementation plans for the TMDLs established by U.S. EPA, and implement the completed TMDLs. The following are some examples of the TMDL-related work currently underway at each RWQCB. A complete list of TMDLs currently being developed and their status is included in the attached Action Plan (Appendix B).

<u>Region 1</u>: North Coast Region

- **Garcia River Sediment TMDL**
  Staff has begun implementing the Garcia River Watershed Water Quality Attainment Action Plan for Sediment, which includes the TMDL. Public and agency workshops

detailing the implementation program have been completed. Staff is currently reviewing the draft TMDL landowner plans submitted to RWQCB by Garcia River landowners.

- **Basin Plan Amendment for the Control of Sediment Discharges**
  Staff is currently developing the scope of the Basin Plan amendment. This amendment is designed to control sediment discharges across the North Coast region and to guide the development of TMDL implementation plans for sediment-impaired water bodies. Staff members at RWQCB across all programs participated in the internal workgroups to develop the goals and strategies of the amendment.

- **Salmon River Nutrient and Temperature TMDLs**
  Monthly monitoring and sampling for nutrients began in June 2002. Continuous temperature monitoring began in June 2002 under contract with the U.S. Forest Service (USFS), Klamath National Forest.

- **Lost River Nutrients and Temperature TMDLs and Klamath River Nutrients, Dissolved Oxygen and Temperature TMDLs**
  Monthly summertime monitoring and sampling were initiated in May 2001 and continued in May 2002. In June 2002, staff held a TMDL coordination meeting with the Oregon Department of Environmental Quality and U.S. EPA Regions 9 and 10.

- **Shasta River Dissolved Oxygen and Temperature TMDLs**
  Impairment assessment began in February 2002. A public meeting with the Shasta River Coordinated Resources Management Planning Council was held in April 2002.

- **Scott River Sediment and Temperature TMDLs**
  Impairment assessment began in February 2002.

- **Elk River Sediment TMDL and Freshwater Creek Sediment TMDL**
  Impairment assessment began in April 2002. Public meetings were held in May 2002 on the background and approach to these TMDLs.

- **Mendocino Coast Sediment TMDL Implementation Plans**
  Preparation of TMDL implementation plans and Basin Plan amendment packages has been initiated for the Albion River, Big River, Noyo River, and Ten Mile River watersheds. Several public scoping and informational meetings were held in the Albion, Noyo and Ten Mile watersheds between January and May 2002.

Region 2: San Francisco Bay Region

- **San Francisco Bay PCBs TMDL**
  A TMDL report was completed in September 2002. The report includes TMDL problem statement, numeric targets, source assessment, load allocations, linkage analysis, and implementation strategies.

- **San Francisco Bay Area Urban Creeks Diazinon TMDL**
  The TMDL report, including TMDL problem statement, numeric targets, source assessment, load allocations, linkage analysis, and implementation strategies, was completed in August 2002. Staff has also worked closely with municipal storm water programs to ensure that all programs have pesticide toxicity reduction strategies and has provided regular updates to the Urban Pesticide Committee, a toxicity control strategy coordinating committee that serves as the primary stakeholder forum for this TMDL project.

- **Tomales Bay Pathogens TMDL**
  Staff completed the TMDL report in September 2002. The TMDL report includes a problem statement, numeric targets, source assessment, load allocations, linkage analysis, and the general approach for implementation of nonpoint source pathogen control measures.

- **Napa River Sediment TMDL**
  A watershed-scale study of steelhead and salmon limiting factors was completed in June 2002. The study evaluates how sediment supply and other factors may limit species populations. RWQCB has received letters and/or resolutions of support for the study from the Napa County Farm Bureau, the Napa Valley Grape Growers Association, the California Department of Fish and Game (DFG), and the Friends of Napa River. The findings of this report will be the basis for developing the TMDL.

- **San Francisquito Creek Sediment TMDL**
  Staff worked with two counties, three cities and two towns in the watershed that are the permittees under the National Pollutant Discharge Elimination System (NPDES) Storm Water Program to coordinate sediment reduction programs through county-wide urban runoff pollution prevention program. Together with the San Francisquito Creek Joint Powers Authority, staff established a Technical Advisory Committee and developed a scope of work for a sediment budget analysis that will form the foundation of the TMDL source assessment.

Region 3: Central Coast Region

- **Pajaro River Nutrient TMDL**
  Draft problem statement, numeric targets, and source analysis have been completed. Staff has engaged stakeholders in a preliminary review of these components of the TMDL and established research needs and contracts to fill data gaps. The TMDL report will be completed in June 2003.

- **San Luis Obispo Creek Nutrient TMDL**
  Staff has completed a draft TMDL report and the implementation and monitoring plan and has met several times with stakeholders regarding implications of the TMDL and the need for implementation.

- **Clear Creek-Hernandez Reservoir Mercury TMDL**
  A sampling program has been designed and implemented by RWQCB staff. Staff has also completed the draft numeric targets and source analysis.

- **Morro Bay Metals TMDL, San Luis Obispo Creek Pathogens TMDL, Monterey Harbor Metals TMDL, San Lorenzo River Pathogen TMDL, and Watsonville Slough Metals, Oil and Grease, and Pesticides TMDLs**
  Sampling programs and preliminary TMDL components, including problem statements and numeric targets, have been completed for these TMDLs.

- **Salinas River Siltation TMDL and Pajaro River Siltation TMDL**
  Staff has completed initial sampling and conducted initial stakeholder outreach (public meetings, presentations to organizations, distribution of newsletter articles and fact sheets). Contracts for additional sampling to fill data gaps have also been developed.

- **Salinas River Nutrients, Pesticides, and Salinity TMDLs**
  Contracts for additional sampling to fill data gaps and for analysis to develop the TMDLs have been developed.

Region 4: Los Angeles Region

- **Basin Plan Amendment to Revise the Bacteria Water Quality Objective**
  This Basin Plan amendment updates the bacteria water quality objectives to reflect the most recent local and national epidemiological research and to be consistent with U.S. EPA's water quality criteria recommendations and the minimum protective bacteriological standards in the California Code of Regulations. The updated objectives will serve as a basis for future pathogen TMDLs. The Basin Plan amendment was adopted by RWQCB in October 2001 and approved by SWRCB in July 2002.

- **Basin Plan Amendment to Revise the Ammonia Water Quality Objectives**
  The proposed Basin Plan amendment would update the freshwater ammonia water quality objectives to reflect U.S. EPA's most recent research, and would serve as a basis for upcoming nutrient TMDLs. RWQCB adopted the Basin Plan amendment in April 2002, and the Administrative Record was transmitted to SWRCB in July 2002 for its review and approval.

- **Santa Clara River Nutrient TMDL**
  A steering committee consisting of RWQCB staff, stakeholders and interested parties has been formed to provide guidance for development of the TMDL. The stakeholders have funded a contract to develop the source assessment and linkage analysis. The TMDL is scheduled to be completed and considered by the RWQCB in spring 2003.

- **Dominguez Channel Pathogen TMDL**
  Staff has initiated work on this TMDL and has conducted a dry weather sampling program to determine sources and assess in-channel water quality. Staff has also initiated modeling of Dominguez Channel. The TMDL is scheduled to be completed and considered by RWQCB in 2003.

Region 5: Central Valley Region

- **Upper Sacramento River Cadmium, Copper, and Zinc TMDL**
  Staff has begun implementation of these TMDLs through existing NPDES permits and enforcement orders and through existing remedies at the Iron Mountain Mine site.

- **Sacramento and Feather River Diazinon TMDL and Basin Plan Amendment**
  In May 2002, staff released a draft TMDL report and draft program of implementation report for the control of diazinon in the Sacramento and Feather Rivers. RWQCB staff held two days of workshops in Yuba City to discuss these reports. The TMDL report presented the technical analysis of the TMDL and several options for the allocation of loads. The program of implementation report describes alternatives available to growers to reduce or eliminate off-site migration of diazinon as well as a number of implementation options. The TMDL is scheduled for RWQCB consideration in July 2003.

- **Sacramento Area Urban Creeks TMDL**
  RWQCB staff developed a preliminary draft TMDL for diazinon and chlorpyrifos in Sacramento area urban creeks. The draft TMDL was released to the public in August 2002. Staff also completed a data report on levels of diazinon, chlorpyrifos and several other pesticides in rain water, which covered 2001 sampling. In addition, staff collected and analyzed rainwater from storms in January-March 2002.

- **Delta Diazinon and Chlorpyrifos TMDL**
  RWQCB staff developed a monitoring plan and began its sampling program in the Sacramento-San Joaquin Delta. Sampling will occur for at least a year. The objective is to characterize the sources of diazinon and chlorpyrifos within the Delta.

- **Sacramento, Feather, and San Joaquin Rivers Diazinon and Chlorpyrifos Management Practices**
  In May 2002, RWQCB staff developed a draft Agricultural Practices and Technology Report for the use of diazinon and chlorpyrifos in the Sacramento, Feather, and San Joaquin Rivers. The report identifies practices that may be used to reduce the offsite movement of diazinon and chlorpyrifos from agricultural areas during the dormant spray and irrigation seasons.

- **San Joaquin River Diazinon and Chlorpyrifos TMDL and Basin Plan Amendment**
  RWQCB staff developed a preliminary draft TMDL for diazinon and chlorpyrifos in the San Joaquin River. A public draft was released in July 2002. The TMDL report presents the technical analysis of the TMDL including several options for the allocation of loads.

- **Merced, Tuolumne and Stanislaus Rivers Diazinon and Chlorpyrifos TMDL**
  RWQCB staff developed a preliminary draft source analysis report for diazinon and chlorpyrifos in these three rivers. The report includes water column concentrations and loads for samples collected during the dormant spray and irrigation seasons in 2000 and 2001 and a compilation of earlier data. Dormant and irrigation season monitoring in 2002 is continuing.

- **San Joaquin River Salt and Boron TMDL and Basin Plan Amendment**
  In January 2002, RWQCB staff released a draft TMDL report for salt and boron in the San Joaquin River. A public workshop was held in March to discuss the report. The TMDL report presented the technical analysis of the TMDL and the allocation of loads, including a scenario to allocate loads based on real time conditions. The TMDL is expected to be considered by RWQCB in June 2003.

- **San Joaquin River Low Dissolved Oxygen TMDL**
  Staff developed a draft source and linkage analysis report for dissolved oxygen in the Stockton Deepwater Ship Channel of the San Joaquin River. Staff has also completed an Interim Performance Goal and Final Target Analysis Report. Staff continues to work with the San Joaquin River Dissolved Oxygen Steering Committee that has developed a plan of action for the development of this TMDL and an implementation plan.

- **Other Mercury TMDL Work in Progress**
  TMDLs for mercury are in the development phase for Cache Creek, Sacramento-San Joaquin Delta, Harley Gulch, Sulphur Creek, Bear Creek, and the Sacramento River. Work includes data collection and analysis, target development, and preliminary source analyses for each of these TMDLs.

<u>Region 6</u>: Lahontan Region

- **Lake Tahoe Sedimentation/Nutrient TMDL**
  An interagency TMDL development team began meeting in November 2001. Staff is having monthly meetings with the group to develop TMDL components. The problem statement and numeric targets were completed in October 2001 and work on the source analysis and linkage analysis is ongoing. Contracted work for research and data collection began in March 2002. Several public outreach meetings were held in June 2002, including presentations at two public TMDL forums, a presentation to the Tahoe Regional Planning Agency's (TRPA) Advisory Planning Commission, and a press workshop that generated a large amount of

positive coverage. A collaborative approach to the development and update of planning documents has been established between RWQCB, TRPA, and USFS to integrate and standardize agency planning documents by 2007.

- **Bridgeport Reservoir Nutrient TMDL**
  Surface water quality monitoring is being conducted quarterly through a contract with the U.S. Geological Survey (USGS). A limnological study and TMDL development is in progress through a contract with the University of California (U.C.) Berkeley. RWQCB staff is coordinating with USGS to initiate a groundwater sampling contract. A stakeholder meeting was held in February 2002. Staff met with the federal Bureau of Land Management to gather information regarding grazing allotments and stream conditions. Staff also met with the Natural Resources Conservation Service, U.C. Davis Extension and Cooperative Extension, and DFG to discuss impaired areas and potential early implementation in the Bridgeport Reservoir watershed. Staff revised a draft problem statement in May 2002.

- **Crowley Lake Nutrient TMDL**
  Internal nutrient loading assessment and riparian restoration and monitoring work is ongoing through contracts with U.C. Santa Barbara Sierra Nevada Aquatic Research Laboratory.

- **Haiwee Reservoir Copper TMDL**
  On June 30, 2001, a draft progress report, which included the elements of a TMDL report, was submitted to U.S. EPA. During TMDL analysis, staff identified several key data gaps that needed to be filled before completing the TMDL. A study plan was developed collaboratively with staff of RWQCB, the Los Angeles Department of Water and Power (LADWP), and U.S. EPA to fill these gaps. However, LADWP later petitioned to SWRCB for a review of RWQCB's study plan and is no longer cooperating with RWQCB to fill the data gaps. In order to assess beneficial use impacts and move forward with the TMDL, RWQCB has contracted with USGS to collect water quality samples at the reservoir in the summer of 2002. LADWP and RWQCB staff also collaborated to develop and implement studies in the Owens Valley to better characterize the TMDL copper source analysis. LADWP had also contested Haiwee Reservoir's status as a water of the United States and its inclusion on the 303(d) list. RWQCB held a workshop in October 2002 to evaluate whether Haiwee Reservoir and certain other waters in the region are waters of the United States. Based on the outcome of the workshop, RWQCB will determine whether the TMDL for Haiwee Reservoir will be completed or whether only state regulatory mechanisms will be used to protect the beneficial uses of the reservoir.

- **Tinemaha Reservoir Copper TMDL**
  Impairment verification studies are ongoing to assess the current ambient concentrations of copper in the reservoir. Results of these studies will be used to determine whether a TMDL is necessary. In the interim, the copper sulfate applications at the reservoir, which is considered the primary source of copper impairment, will be permitted through the Statewide General NPDES Permit for

Aquatic Pesticides. In April 2002, RWQCB staff completed review of the Monitoring and Reporting Plan for the General Permit submitted by LADWP and requested changes to ensure that monitoring will adequately characterize the reservoir's recovery time and assess the restoration of water quality following a copper sulfate treatment.

- **Susan River Toxicity TMDL**
  In conjunction with SWRCB's Toxicity Testing Program, RWQCB staff is developing a study plan to determine the existing magnitude and frequency of toxicity in the river and to determine the causal agent of any demonstrated toxicity through toxicity identification evaluations (TIEs). Staff met with the contractor in June 2002 to review existing data and develop a preliminary project scope. Field investigation to establish sampling sites and identify access issues has begun. The first round of toxicity testing is anticipated to begin in March 2003.

- **Squaw Creek Sedimentation TMDL**
  A report describing biological water quality targets for Squaw Creek was completed in April 2002. The sediment source assessment report for the Squaw Creek watershed was completed in June 2002. A citizen group committed to the restoration of Squaw Creek was established and funding has been acquired to establish three stream flow gages within the watershed.

- **Truckee River Sedimentation TMDL**
  An initial sediment source modeling study was completed in July 2001. Citizen monitoring efforts to monitor water quality throughout the watershed continued with active RWQCB support. Watershed restoration and sediment control projects were completed throughout the watershed in October 2001 with the assistance of 800 volunteers. Contracts were written in February 2002 to develop monitoring, modeling, assessment, and community collaboration efforts to support development of TMDL. Outside funding was secured to conduct sub-watershed assessments, successfully leveraging state funds against local, federal, and private funding sources. Plans for community involvement in the TMDL were developed with the help of the Truckee River Watershed Council and the California Center for Public Dispute Resolution. A TMDL collaboration forum was held in Truckee in September 2002.

<u>Region 7</u>: Colorado River Basin Region

- **Imperial Valley Drains Sediment TMDL**
  Impairment assessment was completed in December 2001. The Quality Assurance Project Plan (QAPP) was completed in January 2002. Monitoring and sampling have occurred on a monthly basis since February 2002.

- **Salton Sea Nutrient TMDL**
  The Salton Sea Nutrient TMDL Technical Advisory Committee/Stakeholder Group was established in November 2001. Staff has been meeting monthly with the group

to develop TMDL components. The problem statement was completed in January 2002. A Salton Sea Modeling Symposium was also held in January 2002, and the work on the extensive model that is necessary for developing the TMDL began in February 2002. QAPP was completed in March 2002. Monitoring and sampling have been occurring on a monthly basis since March 2002. A California Environmental Quality Act scoping meeting was held in April 2002. Evaluation of best management practices (BMPs) began in May 2002.

- **Palo Verde Outfall Drain Pathogen TMDL**
  A draft problem statement for this TMDL was completed in March 2002. QAPP was completed in June 2002. Monitoring and sampling are occurring on a monthly basis.

- **Alamo River Pesticide TMDL**
  QAPP was completed in February 2002. A draft problem statement was completed in April 2002. Toxicity monitoring and sampling are occurring on a monthly basis.

- **Coachella Valley Storm Drain Pathogen TMDL**
  Impairment assessment began in January 2002. A draft problem statement was completed in April 2002.

- **Imperial Valley Drains Selenium TMDL**
  Impairment assessment began in January 2002.

Region 8: Santa Ana Region

- **Newport Bay Fecal Coliform TMDL**
  Staff continues to work on the implementation of the fecal coliform TMDL. Comprehensive monitoring programs were established to determine the various sources that caused coliform impairment to the recreational use and shellfish harvesting in the bay. Sampling of Newport Bay waters and its tributaries was conducted during the summers of 2001 and 2002. Sampling was conducted at the Dunes Embayment in august 2001 and May through September 2002 to determine if bacterial counts are higher during high-frequency swimmer use. Staff has also initiated an investigation to determine additional potential sources of fecal contamination due to waterfowl, tidal cycles, Dunes Marina, and sediment.

- **Newport Bay/San Diego Creek Watershed Nutrient TMDL**
  The implementation plan for this TMDL identifies a number of tasks, including a review and possible revision of the water quality objectives for nutrients in San Diego Creek. Phase II of the evaluation, consisting of an investigation of the nutrient and macro-algal dynamics in Newport Bay, was completed in the spring of 2002. Under the monitoring program required by the TMDL, the watershed stakeholders completed the first year of monitoring; a data summary report was submitted to RWQCB and made available to the public.

- **Newport Bay's Rhine Channel Toxics TMDL**
  Staff is currently developing an implementation plan for this TMDL that was established by U.S. EPA in June 2002. A number of studies were conducted to assist in the development of the implementation plan. A study of the spatial extent of sediment contamination and a TIE were completed in May 2002. The study to identify the sources of metals contamination is currently underway.

- **San Diego Creek Metals TMDL**
  Staff is currently developing implementation plans for this U.S. EPA-established TMDL. Investigation of metals toxicity in the creek was initiated by the Southern California Coastal Water Research Project (SCCWRP) on behalf of RWQCB and U.S. EPA. The first storm water samples were collected in March 2002.

- **Big Bear Lake Nutrient TMDL**
  Stakeholders, in coordination with RWQCB staff, completed development of QAPP and sampling program. Monthly lake and watershed (source analysis) sampling was initiated in 2001. Sediment samples were taken in June 2002 to determine internal loading of nutrients within Big Bear Lake and to develop a nutrient budget for the lake.

- **Rathbone Creek Nutrient and Sediment TMDLs and Summit Creek Nutrient TMDL**
  Stakeholders, in coordination with RWQCB staff, completed development of QAPP and sampling program. Sampling was initiated in 2001 and flow measurements and source analysis were also initiated in 2002.

- **Grout Creek Nutrient TMDL and Big Bear Lake Sediment TMDL**
  Stakeholders, in coordination with RWQCB staff, completed development of QAPP and sampling program. Sampling was initiated in 2001.

- **Knickerbocker Creek Pathogen TMDL**
  QAPP was completed in June 2002, and weekly sampling to confirm pathogen impairment and to determine sources was initiated in June 2002.

- **Canyon Lake Pathogen TMDL**
  QAPP was completed in July 2001. Biweekly pathogen sampling was initiated in September 2001. Watershed pathogen source analysis was initiated in January 2002. RWQCB staff continues the TMDL Workgroup meetings with stakeholders to discuss TMDL progress and issues.

- **Lake Elsinore Toxics TMDL**
  Soil surveys for heavy metal source analysis in the watershed was initiated in June 2002. RWQCB staff continued the TMDL Workgroup meetings with stakeholders to discuss TMDL progress and issues.

- **Lake Elsinore Sediment TMDL**
  Sediment coring and age dating of the sediment cores to determine the rate of sediment deposition were completed in June 2002. QAPP was completed in July 2002. The sediment deposition rate will be used to evaluate whether sediment is causing impairment in Lake Elsinore and may justify delisting the Lake for sediment in the future.

- **Lake Elsinore Nutrient TMDL**
  In-lake monthly (fall/winter) and bimonthly (spring/summer) monitoring continued from July 2001 through June 2002. Watershed sampling for source analysis was conducted when precipitation resulted in runoff. The Santa Ana Watershed Project Authority (SAWPA) was awarded a CWA section 205(j) grant to develop a watershed model for developing nutrient allocations for Lake Elsinore. RWQCB staff has assisted SAWPA and sub-contractors in data compilation and collection. Two Lake User Surveys were conducted in April and May 2002 to assist RWQCB staff in determination of nutrient numeric targets for the protection of recreation beneficial uses. RWQCB staff continues the TMDL Workgroup meetings with stakeholders to discuss TMDL progress and issues.

- **Canyon Lake Nutrient TMDL**
  The problem statement for this TMDL was presented to RWQCB in October 2001. In-lake monthly (fall/winter) and bimonthly (spring/summer) monitoring continued from July 2001 through June 2002. Watershed sampling for source analysis was conducted when precipitation resulted in runoff. The model developed for the Lake Elsinore nutrient TMDL will also be utilized for developing this TMDL. RWQCB staff continues the TMDL Workgroup meetings with stakeholders to discuss TMDL progress and issues.

- **Chino Creek, Cucamonga Creek, and Santa Ana River-Reach 3 Pathogen TMDLs**
  RWQCB staff initiated the stakeholder process to develop consensus approach and funding mechanism to support TMDL development. A monitoring plan for each of the TMDLs was completed in December 2001, and monitoring was initiated in January 2002. Weekly sampling occurred during January through March 2002. SAWPA was awarded a second 205(j) grant to conduct additional studies and develop a model that can be used for allocation determination for Chino Creek pathogen TMDL. This model will also be utilized for developing pathogen TMDLs for the Cucamonga Creek and Santa Ana River.

Region 9: San Diego Region

- **Rainbow Creek Nutrients TMDL**
  RWQCB conducted a public hearing to consider adoption of the proposed TMDL Basin Plan amendment on May 8, 2002. At the hearing, RWQCB decided to leave the hearing record open and postpone further consideration of the matter until after SWRCB adopts the 2002 303(d) list. Staff is continuing to meet with key

stakeholders to resolve outstanding issues and revise the draft TMDL. Prior to the public hearing, staff conducted three public workshops on the draft TMDL and approximately 22 meetings with stakeholders.

- **Shelter Island Yacht Basin Dissolved Copper TMDL**
  The draft TMDL report and implementation plan are currently undergoing internal management review. Informal reviews by U.S. EPA and SWRCB staff are also underway. RWQCB is expected to consider adoption of the TMDL and Basin Plan amendment in the first quarter of 2003. Approximately seven public meetings and 12 meetings with key stakeholders have been held to date on the TMDL and related issues. In July 2002, staff presented the TMDL at the 11th International Congress on Marine Corrosion and Biofouling.

  RWQCB is a member on the San Diego Advisory Committee for Environmentally Superior Antifouling Paints, along with 12 other state, local, and private organizations. The advisory committee, created by the Legislature in 2001, is charged with advising U.C. on the development of a report to identify incentives to promote the use of non-toxic coatings on recreational boats. The report, which will form the basis of the economics analysis component of the TMDL, is due December 31, 2002. Two related projects are also underway—the Non-Toxic Hull Paint Demonstration Project by U.C./Sea Grant and the Diver Best Management Practices Evaluation by SCCWRP. Both projects will facilitate implementation of the TMDL.

- **Chollas Creek Metals TMDL**
  The draft problem statement, numeric targets, and source analysis for this TMDL are completed. Comments on these components have been received from U.S. EPA and a stakeholder group. Staff is revising the drafts of load allocations, linkage analysis and margin of safety in light of new data. Four public workshops and four stakeholder/technical meetings on the draft TMDL have been conducted to date.

- **Mission Bay Bacteria TMDL**
  The draft problem statement and numeric target components have been developed and await internal review. Approximately $8 million of state and City of San Diego funds have been committed to numerous projects to address elevated levels of bacteria in Mission Bay. Staff participates in regular meetings with TMDL stakeholders and in various committees charged with the design and oversight of the supporting projects. Two of the projects, an Epidemiology Study and a Bacteria Sources Identification Study, will provide critical information needed for the source analysis component of the TMDL. Because the earliest project results will not be available until 2004, it is anticipated that the RWQCB will consider adoption of this TMDL in 2005.

- **San Diego Bay - Near Chollas Creek and Seventh Street Channel Benthic Community Degradation and Toxicity TMDLs**
  There are approximately 17 locations in San Diego Bay with known contaminated bay sediment. To facilitate TMDL development and eventual site remediation and cleanup, and to ensure bay-wide consistency, RWQCB staff has recommended minimum requirements for site characterization and methodologies for data analysis and for establishing sediment cleanup levels.

  The areas of San Diego Bay near the mouths of Chollas Creek and Seventh Street Channel are designated "toxic hot spots." Draft problem statement and numeric target components for these TMDLs have been developed. Site investigation is needed to determine if the hotspots still exist and to determine the cause of impairment. The initial site assessment began in July and August 2001. In June 2002, the results from the study were presented to a committee of RWQCB members, interested parties, and the public at the San Diego Bay Contaminated Marine Sediments Assessment and Remediation public workshop. The results from the initial extent and magnitude study will be used in the next phase of the site assessment, which involves a TIE. It is anticipated that RWQCB will consider adoption of these TMDLs in 2005.

- **San Diego Bay – "B" Street and Broadway Piers, Near Grape Street, and Switzer Creek Benthic Community Degradation and Toxicity TMDLs**
  These TMDLs also address the contaminated bay sediments at various "toxic hotspots." RWQCB will use all of its FY 2002-03 TMDL contract funds to conduct the site assessment at these sites in San Diego Bay. Staff is currently reviewing the sampling plan submitted by U.C. Davis scientists and working with SWRCB to secure the contractual arrangements under a statewide master contract with U.C. Meetings with the two key stakeholders, the San Diego Unified Port District and City of San Diego, regarding cost sharing for the site characterization and sample design are also underway. It is anticipated that RWQCB will consider adoption of these TMDLs in 2007.

TMDL Budget Allocations

FY 2002-03 baseline budget for TMDL development contains $8.4 million in the General Fund and $3 million in federal grants. The budget for implementing TMDLs is $2.97 million in the General Fund. This funding is at the same level as FY 2000-01. In FY 2001-02, in addition to the baseline funding, SWRCB received a one-time federal grant (CWA section 106 grant) of $1.45 million for TMDL contract support. That amount was increased to $1.8 million for FY 2002-03. These are one-time federal grants that are determined on a yearly basis, depending on program priority for a given year. Therefore, they are not considered baseline resources for TMDL. The following tables explain the funding sources and the distribution of funds among SWRCB and the nine RWQCBs. Table 7 details annual budget augmentations for TMDL development since

FY 1999-2000, the first year when federal and state funds were dedicated to developing TMDLs. Table 8 presents resources for TMDL implementation since FY 2000-01, the first time funds were appropriated for TMDL implementation activities. Table 9 shows FY 2002-03 distribution of TMDL baseline funds among organizations within SWRCB and RWQCBs.

Because of the state's fiscal difficulties, the California Department of Pesticide Regulation's (DPR) budget supporting the development of pesticide-related TMDLs has been reduced by $1,425,000, from $3,480,000 in FY 2001-02 to $2,055,000 in FY 2002-03. This reduction includes 6.0 Personnel Years (PYs) at DPR whose work supported the development of TMDLs and $820,000 in annual contracts with RWQCBs.

In April 2002, SWRCB submitted to the Legislature a report detailing a long-term strategy to develop TMDLs for all the waters on the 1998 303(d) list [*Total Maximum Daily Load (TMDL) Program Water Quality Attainment Budget Strategy* (January 2002)]. The report was prepared pursuant to the requirements of the Supplemental Report of the 2001 Budget Act. In the report, SWRCB estimated that a total of 383 TMDL projects would be needed to address all water body/pollutant combinations (1,472) on the 1998 303(d) list. The total cost for development and implementation of those TMDLs in a 12-year planning period was estimated at $467 million. However, as stated in Chapter II of this report, the proposed 2002 303(d) list contains more water bodies and water body/pollutant combinations than the 1998 list. Completion of all TMDLs required, based on the new list, will cost more than previously estimated.

Table 7. TMDL Development Resources Annual Augmentation and Totals

Fiscal Year	Fund Source	Total Dollars	PYs	Staff Dollars	Contract Dollars
1999-00	Federal[1]	$3,005,488	28.5	$3,005,488	$0
	General Fund	$3,983,000	31.5	$2,323,000	$1,660,000
	Total	$6,988,448	**60.0**	**$5,328,488**	**$1,660,000**
2000-01	General Fund	$4,500,000	34.5	$3,100,000	$1,400,000
	Total	**$11,488,488**	**94.5**	**$8,428,488**	**$3,060,000**
2001-02	Federal[2]	$1,450,000	0	0	$1,450,000
	Total	$12,938,488	94.5	**$8,428,488**	**$4,510,000**
2002-03	Federal[2]	$1,800,000	0	$0	$1,800,000
	Total	$13,288,488	**94.5**	**$8,428,488**	**$4,860,000**

[1] For the details of federal fund sources and amounts, see Table 6.
[2] These are one-time federal grants. The amount and the program to be funded by the grant are determined by U.S. EPA each year, based on it's program priority of a given year.

Table 8. Implementation Resources Annual Augmentation and Totals

Fiscal Year	Fund Source	Total Dollars	PYs	Staff Dollars	Contract Dollars
2000-02	General Fund	$2,970,000	21	$1,970,000	$1,000,000
	Total	$2,970,000	21	$1,970,000	$1,000,000
2001-02		$0	0	$0	$0
	Total	$2,970,000	21	$1,970,000	$1,000,000
2002-03		$0	0	$0	$0
	Total	**$2,970,000**	**21**	**$1,970,000**	**$1,000,000**

Table 9. FY 2002-03 Distribution of TMDL Development and Implementation Baseline Resources

Organization	Federal (106) Grant Dollars	Federal (104b3) Grant Dollars	Federal (319h) Grant Dollars	General Fund Staff Dollars	General Fund Contract Dollars	Total TMDL PYs	Total TMDL Dollars
Region 1	0	0	272,718	867,196	325,399	**12.3**	**1,465,313**
Region 2	236,276	0	0	701,270	228,399	**10.5**	**1,165,945**
Region 3	0	0	295,444	598,672	224,928	**10.5**	**1,119,044**
Region 4	0	677,580	0	687,282	305,599	**13.3**	**1,670,461**
Region 5	88,604	0	431,803	995,090	780,399	**16.3**	**2,295,896**
Region 6	29,535	0	193,175	591,875	257,799	**8.9**	**1,072,384**
Region 7	0	0	124,996	508,124	226,599	**7.3**	**859,719**
Region 8	236,276	0	0	657,566	283,799	**9.7**	**1,177,641**
Region 9	236,276	0	0	491,945	237,079	**8.0**	**965,300**
OCC[1]	0	0	0	292,518	0	**2.9**	**292,518**
DWQ	49,224	58,920	11,363	1,001,462	1,190,000[2]	**13.0[3]**	**2,310,969**
SWCAP[4]	24,297	13,500	25,501			**0.0**	**63,298**
TOTALS:	**$900,488**	**$750,000**	**$1,355,000**	**$7,393,000**	**$4,060,000**	**112.7[5]**	**$14,458,488**

[1] Office of the Chief Counsel.

[2] Statewide contract resources for development and implementation of preventative and corrective actions for nonpoint source TMDLs consistent with the state's Nonpoint Source Pollution Control Program.

[3] Include 3 PYs located at San Francisco Bay, Los Angeles, and Lahontan RWQCBs who are responsible for coordinating regional citizens monitoring efforts that support TMDL development and implementation.

[4] Statewide Cost Allocation Plan represents General Fund recoveries of statewide general administrative costs incurred by central service agencies from federal funding sources (Government Code sections 13332.01-13332.02).

[5] The difference between the total TMDL PYs (112.7) in this table and total authorized PYs for TMDL program (as shown in Tables 7 and 8) is 2.8 PYs. These 2.8 PYs are allocated to Storm Water and NPS programs for activities supporting TMDL development and implementation.

Action Plan Update

The Action Plan has been established to ensure that the TMDL effort in California results in tangible water quality improvements in the shortest possible time, with the ultimate objective of restoring and maintaining water quality standards of the state's waters. The purpose of the Action Plan is to identify strategies and specific actions to be taken to meet three goals: (1) improve TMDL program performance in California; (2) enhance communication among SWRCB, RWQCBs, and stakeholders; and (3) enhance collaboration and support among SWRCB, RWQCBs, and all stakeholders, including the public, regulated community, and other regulatory and resource agencies.

Because the strategies and actions needed to support these goals are expected to change to some degree over time, the Action Plan is a dynamic planning document that is to be revised as needed to reflect progress. Edition 1.0, developed in October 2001 and revised in December 2001, focused on strategies and actions to promote statewide TMDL efforts in the near-term. Edition 2.0, attached to this report as Appendix B, was revised in August 2002. This updated edition of the Action Plan is a continuation of these strategies and actions and reflects progress, new information, and unforeseen circumstances associated with implementing Edition 1.0. We will continue to review, update, and revise the strategies and actions annually. Most importantly, we will evaluate the strategies and actions relative to effectively and timely attainment of the goals of the TMDL Initiative and the ultimate objective to attain water quality standards.

IV. SURFACE WATER AMBIENT MONITORING PROGRAM

A strong monitoring program is essential to the success of the TMDL program. Extensive monitoring data and information on the quality of the waters of the state are the backbone of the TMDL program. SWRCB's SWAMP, once fully implemented, is intended to produce water quality data to improve RWQCBs' abilities to list and delist 303(d) waters.

Program Overview

Water Code section 13192 requires SWRCB to assess SWRCB's and RWQCBs' surface water monitoring programs and to submit to the Legislature a proposal of a comprehensive surface water quality monitoring program. The report proposing SWAMP was submitted to the Legislature in November 2000. SWAMP was developed to (1) integrate the existing water quality monitoring activities of SWRCB and RWQCBs and (2) coordinate with monitoring programs of other agencies, dischargers, and citizen groups. Under SWAMP, SWRCB is responsible for statewide monitoring efforts and oversees RWQCB monitoring activities, while each RWQCB establishes monitoring priorities for the water bodies within its jurisdiction for site-specific monitoring. To ensure statewide consistency, SWAMP also specifies the protocols and methodologies to be used for sampling, data analysis and data reporting.

SWAMP Funding

Four existing SWRCB surface water monitoring programs have been included as part of SWAMP, i.e., the Toxic Substance Monitoring Program (TSMP), the State Mussel Watch Program (SMWP), and the Toxicity Testing Program (TTP) and the Coastal Fish Contamination Program (CFCP). The baseline budget for these four programs in FY 2000-01 was 8.5 PYs and $1,234,000 in contract support. In FY 2000-01, SWRCB's budget was augmented by 10.5 PYs and $3.6 million in contract funds to support and expand the implementation of ambient monitoring, bringing the total funding for SWAMP in FY 2000-01 to 19 PYs and $4,834,000 in contract. Due to the state's fiscal difficulties, baseline funding for TSMP, SMWP and TTP was reduced by $250,000 in contract support in FY 2001-02. SWAMP contract resources were further reduced by $250,000 in FY 2002-03 for other ambient monitoring activities. Table 10 shows the funding history for SWAMP, and Table 11 details the distribution of FY 2002-03 SWAMP funds among SWRCB and RWQCBs.

In our November 2000 report to the Legislature proposing SWAMP, SWRCB estimated that the annual cost to fully implement SWAMP ranged from approximately $59 million to $115 million, including 87 to 132 PYs at SWRCB and RWQCBs. At current funding level, only a small portion of SWAMP can be implemented, and RWQCBs are focusing the resources where monitoring information is most needed to support their program priorities.

Table 10. General Fund Resources for SWAMP

Fiscal Year		TSMP, SMWP & TTP		CFCP		OTHER AMBIENT MONITORING		SWAMP TOTAL	
		PYs	Contract	PYs	Contract	PYs	Contract	PYs	Contract
2000-01	Baseline	5.5	$860,000	3	$374,000	0	0	8.5	$1,234,000
	Augmentation	0	0	0	0	10.5	$3,600,000	10.5	$3,600,000
	Total	5.5	$860,000	3	$374,000	10.5	$3,600,000	**19**	**$4,834,000**
2001-02	Baseline	5.5	$860,000	3	$374,000	10.5	$3,600,000	19	$4,834,000
	Reduction	0	($250,000)	0	($144,000)[1]	0	0	0	($394,000)
	Total	5.5	$610,000	3	$230,000	10.5	$3,600,000	**19**	**$4,440,000**
2002-03	Baseline	5.5	$610,000	3	$230,000	10.5	$3,600,000	19	$4,440,000
	Reduction	0	0	0			($250,000)	0	(250,000)
	Total	**5.5**	**$610,000**	**3**	**$230,000**	**10.5**	**$3,350,000**	**19**	**$4,190,000**

[1] This amount was deducted from SWRCB budget and included in the budget of the Office of Environmental Health Hazard Assessment for its work of assessing human health risks using the data collected by CFCP.

Table 11. Distribution of FY 2002-03 SWAMP Funds

ORGANIZATION	PYs	CONTRACT
Region 1	1.8	$417,280
Region 2	1.5	$320,565
Region 3	1.3	$350,565
Region 4	1.4	$364,526
Region 5	2.5	$861,391
Region 6	1.3	$352,526
Region 7	1.0	$308,565
Region 8	1.0	$289,791
Region 9	1.2	$289,791
SWRCB	6.0	$635,000
Total	**19.0**	**$4,190,000**

SWAMP Progress

It is important to recognize that SWAMP is still in its infancy. Extensive planning and preliminary research activities were conducted during 1999, 2000, and 2001 to provide the guidance and framework to create an effective surface water quality ambient monitoring program for all of California's surface waters. Field-monitoring activities in accordance with SWAMP began in FY 2001-02 and focused on target monitoring.

Guidance documents were prepared by SWRCB to provide a framework within which the RWQCBs could develop region-specific SWAMP projects. RWQCB SWAMP workplans for FY 2002-03 have been completed, in which staff identified the water bodies to be monitored in the fiscal year.

The Water Quality Monitoring Coordinating Committee (WQMCC) was established, consisting of SWRCB and RWQCB SWAMP staff and representatives from DFG and U.C. WQMCC meets regularly to discuss SWAMP activities and address existing and potential issues. One of the primary focuses of WQMCC's 2002 meetings has been the development of a QAPP, which is critical to ensure high quality of data. SWAMP sponsored a number of scientific workshops on quality assurance in 2002. Topics for these workshops included sample collection and field data measurement, laboratory analytical methodology and quality assurance/quality control issues, biological assessment and toxicity testing issues, and data management issues. Resolutions of many of these issues are evolving from the discussions held at these workshops and WQMCC meetings.

Data Management

SWAMP was developed with the objective of collecting high quality monitoring data to be used by SWRCB and RWQCB programs. Data management, evaluation, and reporting are high priorities of SWAMP. SWAMP database is being developed through a contract with the San Jose State University, which, once in operation, will be the central depository of all data collected by SWAMP with links to other available databases. This database will eventually be included in SWRCB's System for Water Information Management.

Scientific Review of SWAMP

SWAMP has organized an external scientific panel, the Scientific Planning and Review Committee (SPARC), to review study design, approaches, indicators, and other relevant topics. SPARC members are representatives from federal and state agencies and academics with expertise in the fields that include monitoring program management, fish habitat, invertebrates, sediment, organic chemistry, metals chemistry, quality assurance, pathogens, toxicology, and statistics, etc.

SPARC held a two-day meeting in May 2002, at which staff from the nine RWQCBs gave presentations on past and future SWAMP activities within each region. One major comment from SPARC members at the meeting was that statewide data comparability needs to be the first step towards statewide consistency for SWAMP. Statewide data comparability means that ambient water quality measurements taken in one part of the state can be directly compared with like measurements taken in other parts of the state. Data comparability in SWAMP is being achieved through requirements in SWAMP QAPP. Statewide data comparability issues and other comments and recommendations in SPRAC report will be the subject of future WQMCC meetings.

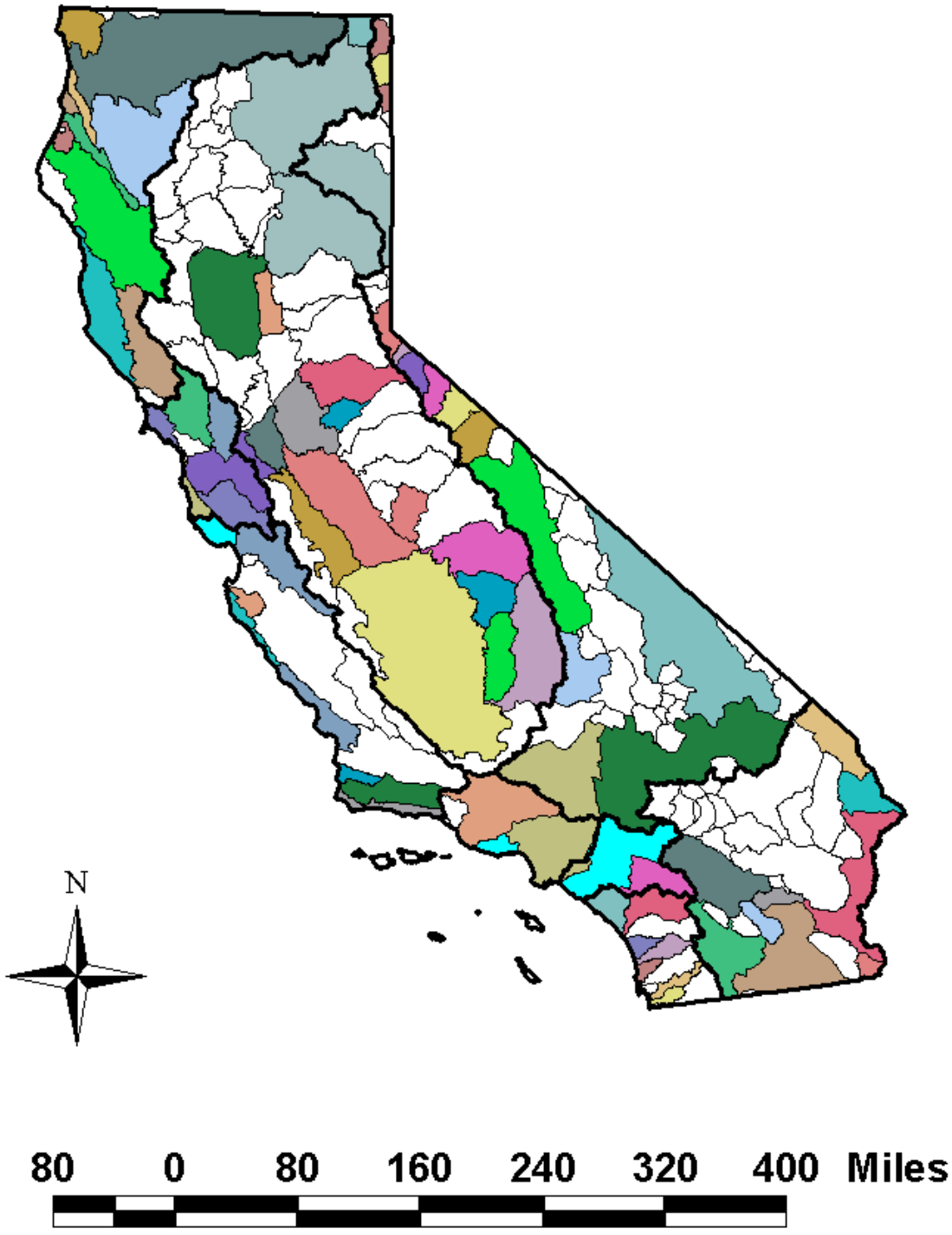
Current Monitoring Activities

Because of the budget constraints, SWRCB and RWQCBs have been implementing SWAMP by primarily focusing on site-specific monitoring to better characterize problem sites or clean locations (reference sites) to meet each RWQCB's needs for 303(d) listing, TMDL development, and other core regulatory programs. Some of the monitoring activities under SWAMP for FY 2002-03 are conducted through contracts and interagency agreements with a number of organizations, such as DFG and USGS. Approximately $2 million is allocated to the master contract with DFG, and $250,000 is allocated to the master contract with USGS.

Another major component of SWAMP– the overall status and trends of the state's surface water quality–will be implemented in the future if additional funds are made available. Until then, RWQCBs will continue to use SWAMP resources to address high priority water quality issues in each region, while following SWAMP protocols to ensure statewide data comparability.

The following describes the surface water monitoring program currently being implemented at each RWQCB under the umbrella of SWAMP, with maps that identify the watersheds where monitoring activities have occurred or have been scheduled between FY 2001-02 and FY 2002-03. Specific water bodies being monitored and monitoring locations for each RWQCB is provided in Appendix C. At the end of FY 2002-03, samples will have been collected and analyzed for 480 water bodies located in 76 of the state's 172 watersheds (hydrological units).

Statewide SWAMP Monitoring 2001-2003



Colored areas are watersheds with monitoring activities. See following regional maps and Appendix C for list of watersheds, water bodies and monitoring locations.

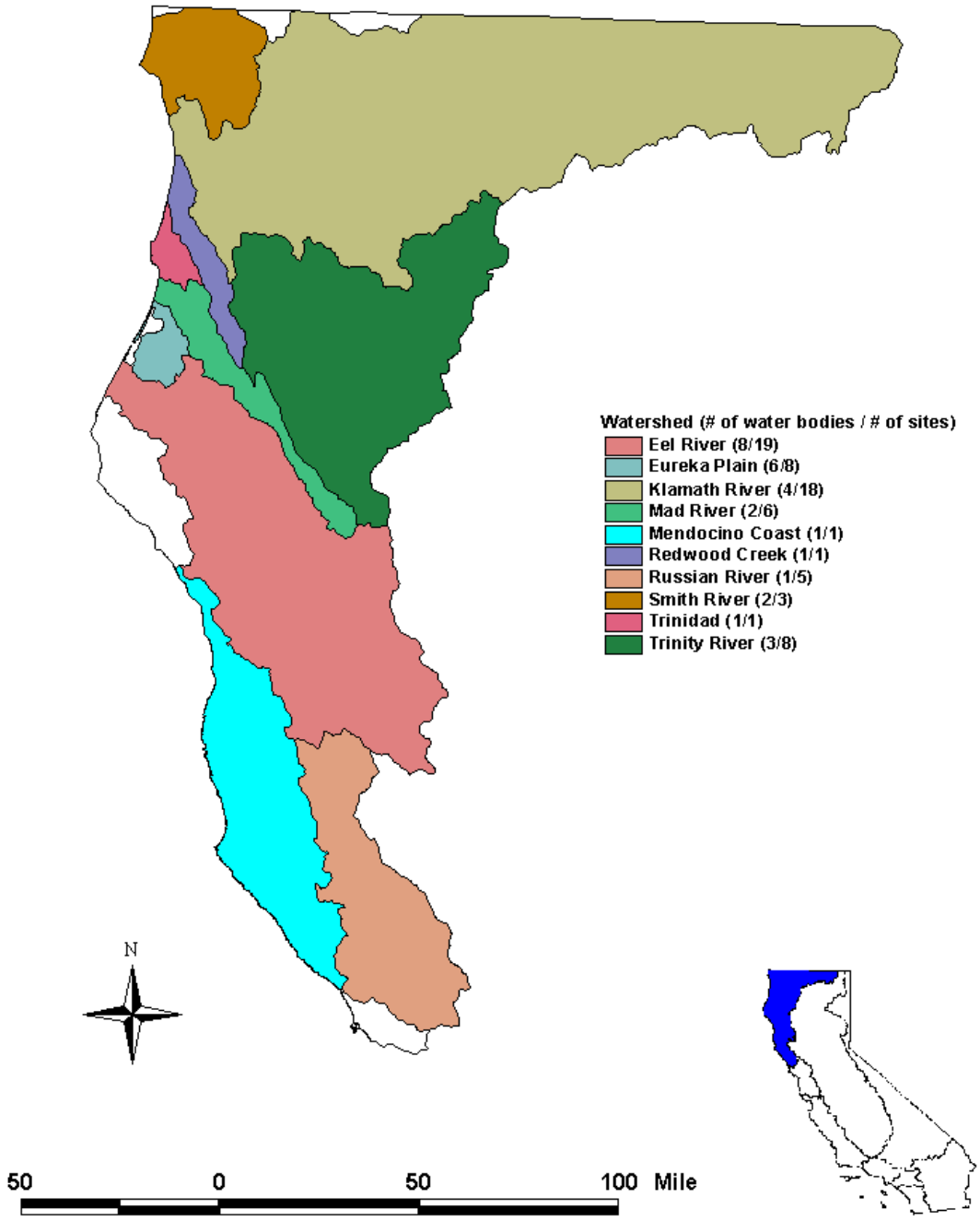
Region 1: North Coast Region

The North Coast region has thousands of stream miles most of which have little or no assessment information. Much of the water quality data is confined to the Russian River basin or to a limited number of specific sites, collected as a result of discharger self-monitoring requirements, cleanup activities, or enforcement actions. With the exception of the Russian River and a few of its tributaries, there is no long-term data on any water body in the region.

Data collected through SWAMP in this region will be used to identify temporal trends in water quality in water bodies for which there currently exists little or no data. This effort is coordinated with RWQCB's core regulatory program, north coast watershed assessment program, nonpoint source program, and TMDL program. The core regulatory program is currently using the draft monitoring data collected by SWAMP to implement the California Toxics Rule. Information collected by SWAMP is also being used to establish receiving water data for NPDES discharges.

The North Coast RWQCB is on a very tight time schedule to establish a number of TMDLs as a result of a court-ordered consent decree. SWAMP is used to collect data in support of these efforts. Draft nutrient data is currently being used to assist U.S. EPA in establishing TMDLs for the Eel River. RWQCB also plans to fund an infrared thermal imaging study of the Scott and Shasta river basins with SWAMP funds to support the watershed assessment program and TMDL efforts in these watersheds. SWAMP has also provided resources for the installation and maintenance of three new stream gages in the Eel River watershed where information on stream flow and sediment load is urgently needed as development of TMDLs is currently underway.

Region 1 SWAMP Monitoring
FY 2001-2003



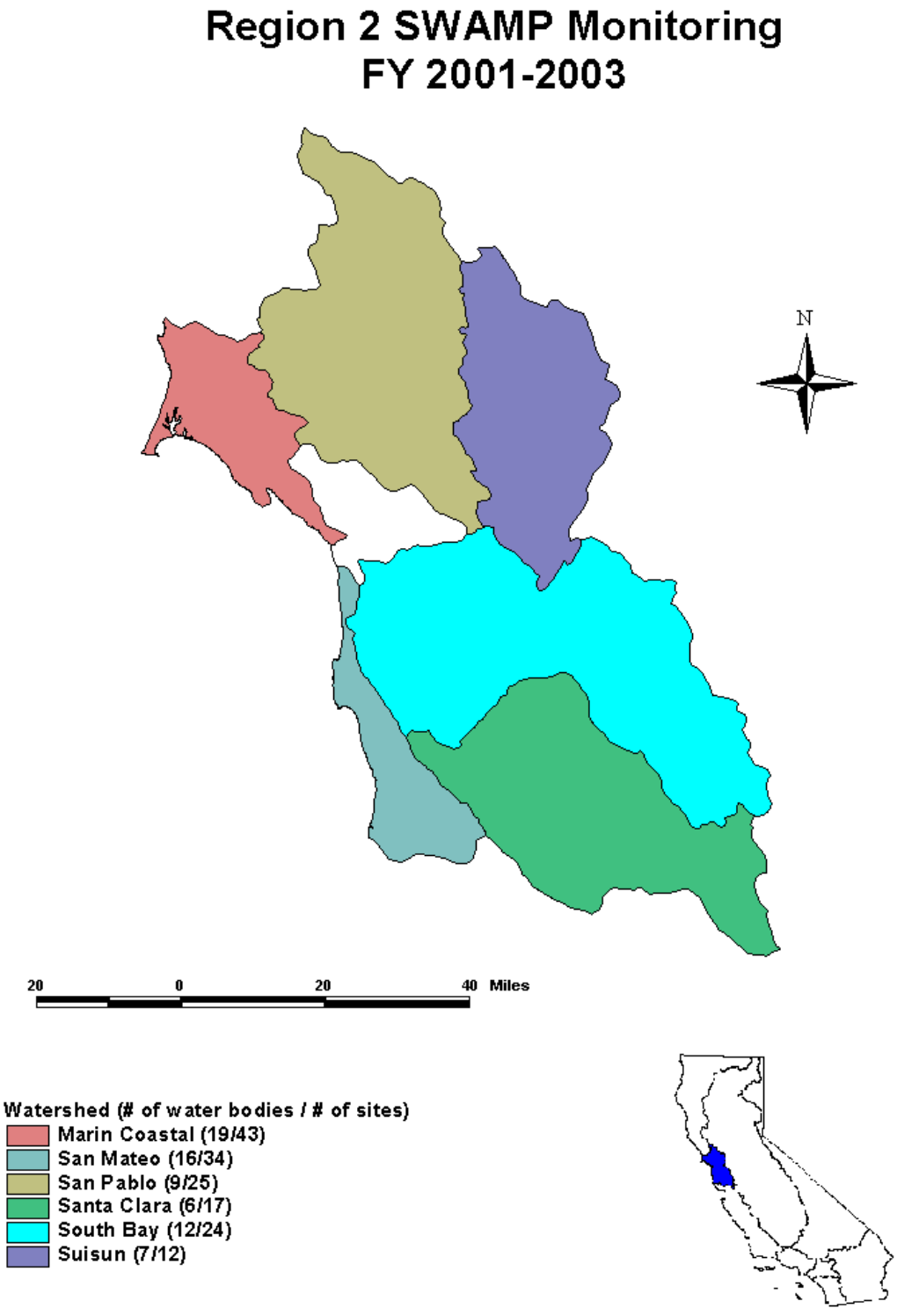
See Appendix C for list of water bodies and monitoring locations.

Region 2: San Francisco Bay Region

The goal of SWAMP in the San Francisco Bay region is to monitor and assess all water bodies of the region in order to identify reference sites (clean sites) and water bodies or sites that are impaired, based on data and information that provide a weight-of-evidence assessment of water quality. The San Francisco Bay RWQCB has developed a Regional Monitoring and Assessment Strategy (RMAS) in order to develop information for all water bodies in the region for the report required by CWA section 305(b) [305(b) report] and the 303(d) list. SWAMP resources are used to implement the RMAS. The selection and schedule of watersheds to be monitored are based on a number of factors. Overall, RWQCB is seeking geographic balance in the region in committing its monitoring resources. Watersheds monitored in the beginning years of the program tended to involve time-sensitive issues such as endangered species habitat (e.g., salmonids) or imminent development plans. In some instances, paired watersheds, which are close geographically and have similar land use and geology, are chosen for monitoring.

SWAMP funds are used to concentrate on monitoring watersheds, lakes/reservoirs, and bays and estuaries in this region other than the San Francisco Bay, which is currently monitored through the San Francisco Estuary Regional Monitoring Program. SWAMP monitoring will be used to evaluate beneficial uses in this region, through the use of water quality indicators.

The data collected as a result of SWAMP monitoring will be used to identify impaired water bodies and the cause of impairment for the 303(d) list, identify reference conditions, and establish baseline conditions to evaluate future land use changes. SWAMP data will also be used to determine if there is an association between land use and water quality impacts, evaluate methods to develop the best approach for watershed assessments, and develop indices (i.e., the Index of Biological Integrity).



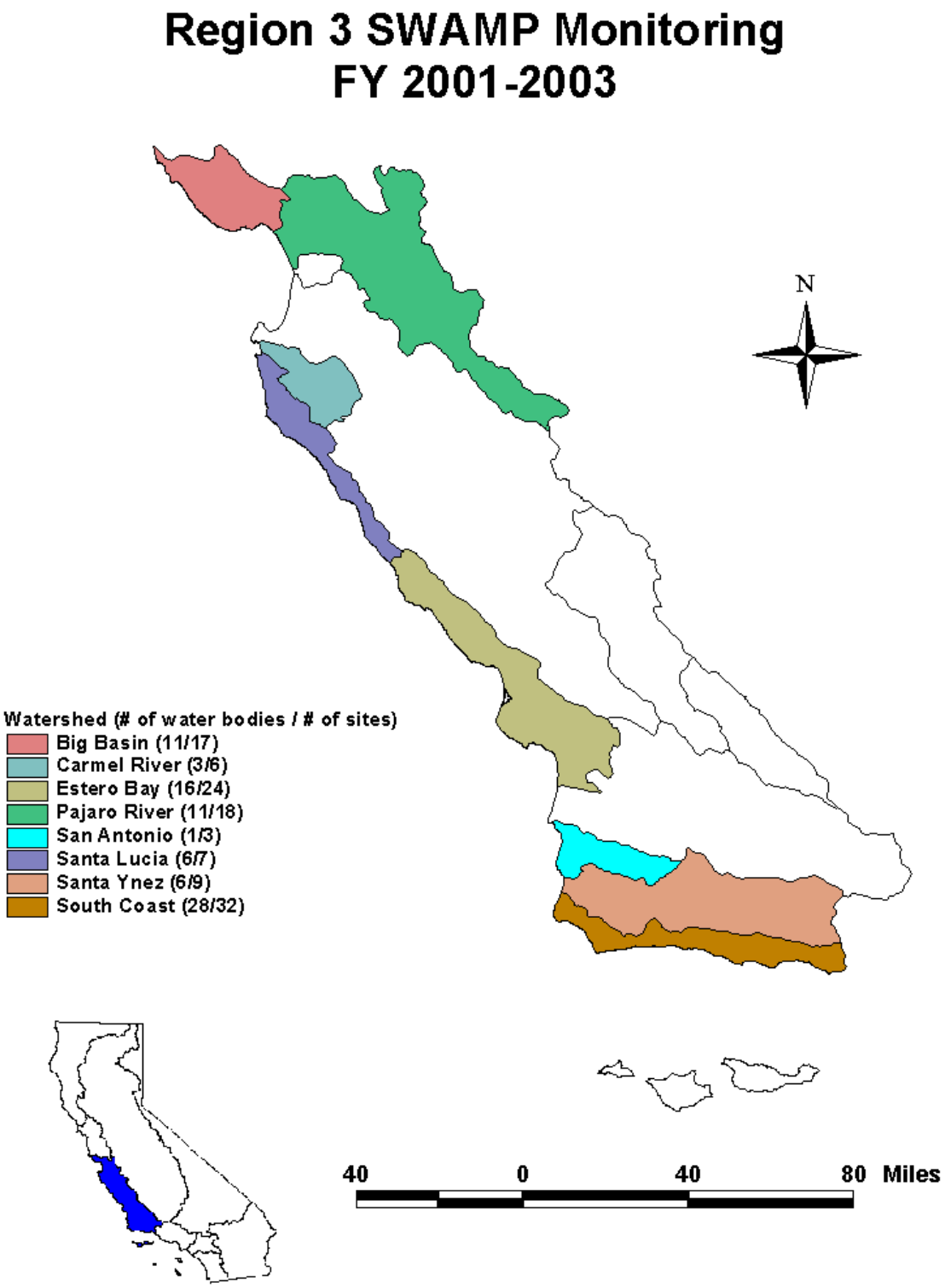
See Appendix C for list of water bodies and monitoring locations.

Region 3: Central Coast Region

SWAMP activities in this region are incorporated in RWQCB's Central Coast Ambient Monitoring Program. Primary issues to be addressed in this region are related to nonpoint source pollution associated with row crop agriculture, vineyards, rangeland, and timber harvest. Urban runoff problems are increasing in some parts of the region. Nutrients, sedimentation, pesticides, and pathogens are the primary causes for 303(d) listings in the region. The goal of SWAMP monitoring in this region is to provide a screening level assessment of water quality based on a variety of indicators. The plan to carry out this goal includes several components: Coastal Confluences, Nearshore Assessment, and Watershed Characterization.

Coastal Confluences monitoring establishes ongoing monitoring sites at the lower ends of thirty major creeks and rivers right above tidal influence. This component provides trend data across the entire region, giving information on the nature of inputs to the ocean, which helps to prioritize problem watersheds. Nearshore Assessment focuses on how inputs from river mouths impact the nearshore environment and is being closely tied to Coastal Confluences data. The Watershed Characterization component is conducted in a five-year rotational cycle. Additional "focused" monitoring sites are placed at other locations of interest in the watershed, such as above and below specific land uses, point sources, BMPs, or other areas in need of characterization.

The data collected as a result of SWAMP monitoring will be used in some cases to determine whether water bodies warranted listing on the 303(d) list. At sites along the mainstem and at the lower ends of major tributaries of streams and rivers, some of the monitoring will provide indications of water quality degradation for anadromous fish species, using fish toxicity testing, benthic community analysis, habitat condition, and physical and chemical water condition.



See Appendix C for list of water bodies and monitoring locations.

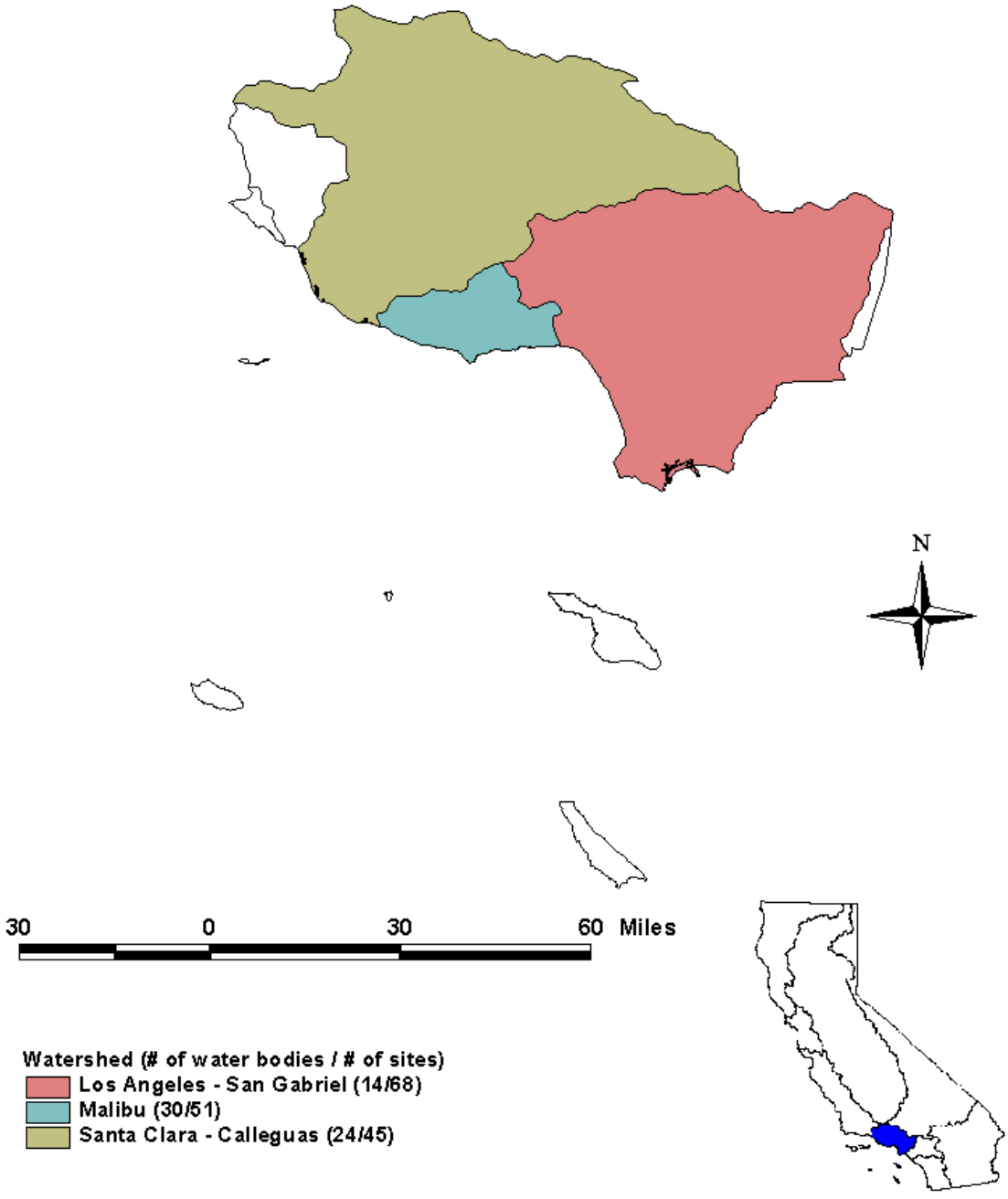
Region 4: Los Angeles Region

SWAMP sampling and analysis in the Los Angeles region will be used to assess the ambient conditions of the watersheds in Los Angeles and Ventura counties and will further delineate the nature, extent, and sources of toxic pollutants which have been detected or are suspected to be problematic for this region and its individual watersheds. Where applicable, a triad approach (benthic community analysis, water chemistry, and toxicity testing) is being used. The monitoring will also help to identify pristine conditions where no pollutants or contaminants are found.

Although the overall goal of SWAMP is to assess the ambient conditions of the watersheds, each watershed in the region is unique, and the design of the monitoring program and goals reflect this individuality. For example, the primary objective of monitoring in the Santa Clara watershed is to provide a broad baseline of the overall health of the watershed. Additional sub-objectives include determination of beneficial use attainment, filling in data gaps where data is either inconsistent or incomplete, and identification of potential reference sites for this watershed. A broad suite of parameters will be tested at the various stations to meet the needs of each unique watershed. In addition to the assessment of the ambient conditions of targeted watersheds, data collected by SWAMP will be used to develop the 305(b) report, 303(d) list and TMDLs, and for NPDES permit renewals. The information gathered will also be used in trend analysis, identification of impaired beneficial uses, as well as potentially in the development of an index of biological integrity.

SWAMP funds were focused in FY 2000-01 on monitoring in the Santa Clara-Calleguas hydrologic unit, and in FY 2001-02 on approximately 30 coastal sub-watersheds of the Malibu and Los Angeles-San Gabriel hydrologic units. Many of these sub-watersheds had not been sampled at all and others had been sampled modestly at best. In FY 2002-03, SWAMP resources are focusing on the Dominguez Channel and Los Angeles and Long Beach harbors. The focus of sampling is on basic and conventional water column chemistry, bacteriology, and bioassessment at most stations, with a major focus on bioassessment which historically has been overlooked.

Region 4 SWAMP Monitoring
FY 2001-2003



See Appendix C for list of water bodies and monitoring locations.

Region 5: Central Valley Region

Three major watersheds—Sacramento River, San Joaquin River, and Tulare Lake Basin—have been delineated within the Central Valley region, which stretches from the Oregon border to the northern tip of Los Angeles County. Since each watershed has both a unique set of stakeholders and unique water quality concerns that must be addressed, the management process and the accompanying monitoring program are watershed specific.

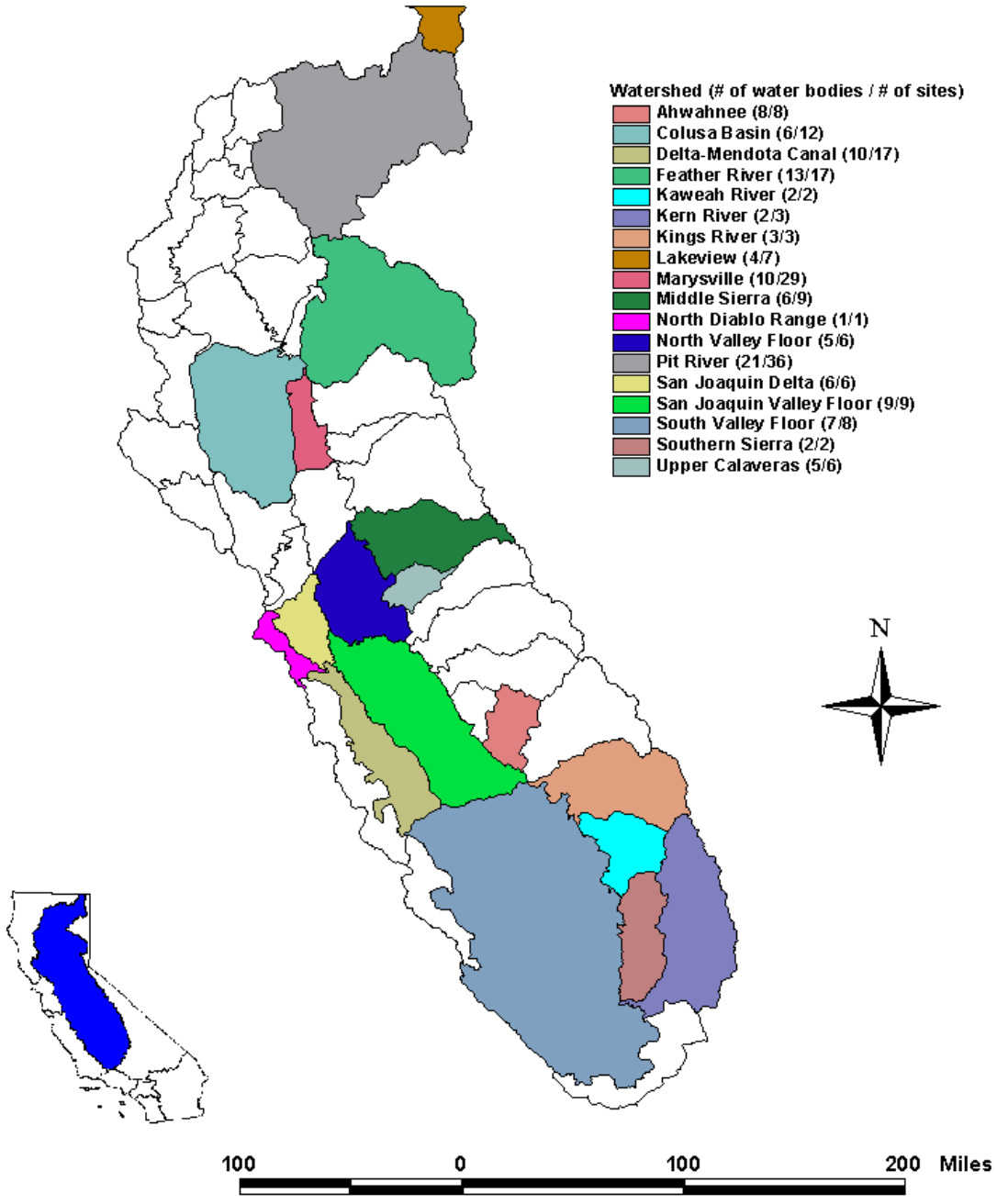
In the upper Sacramento River watershed, water quality issues principally relate to nonpoint source pollution resulting from past and current land management practices. These practices include livestock grazing, irrigated and non-irrigated agriculture, road and building construction, timber harvest, urban runoff, abandoned and inactive mines, and hydro-modification (i.e., dams, diversions, and stream channel disturbances). The overall SWAMP objective for this watershed is to evaluate the extent of water quality and beneficial use impairment.

The lower Sacramento River watershed contains over 5,700 miles of agriculturally dominated water bodies (ADWs). An ADW is a water body receiving greater than 50 percent of the flow from agricultural discharges during a significant portion of the irrigation season. Baseline aquatic community composition in these ADWs is largely unknown. In the fall of 2000, the Central Valley RWQCB undertook a SWAMP biological monitoring project in ADWs and effluent dominated water bodies (EDWs) of the Sacramento River watershed. This two-year project was intended to identify baseline aquatic community composition and assess the habitat condition at 45 sites, and to move towards identification of biological indicators of water quality in wadeable ADWs and EDWs of the lower Sacramento River watershed.

In the San Joaquin River watershed, SWAMP builds upon a monitoring framework developed as part of the agricultural subsurface drainage management program that has evolved since 1985. In addition, the watershed has been divided into five sub-basins to facilitate expanded monitoring within each sub-basin on a five-year rotational basis. SWAMP resources are being utilized for targeted sampling activities to better characterize the extent and source of known and suspected water quality impairments. Findings will be used to focus future control efforts and evaluate potential listing and delisting of 303(d) water bodies.

Point and nonpoint sources of pollution resulting from historical and current land use dominate water quality concerns in the Tulare Lake Basin. These uses include industrial processes, livestock grazing, dams, recreation, irrigated agriculture, confined animal facilities, and foothill and urban development. To date, there has been no comprehensive monitoring or assessment initiated for surface waters in this watershed. The overall objective of SWAMP for the Tulare Lake Basin is to identify reference and baseline surface water conditions, assess water quality and beneficial use impairment/support, provide data for impaired water body listings, and determine if there is an association between land use and water quality impacts.

Region 5 SWAMP Monitoring
FY 2001-2003



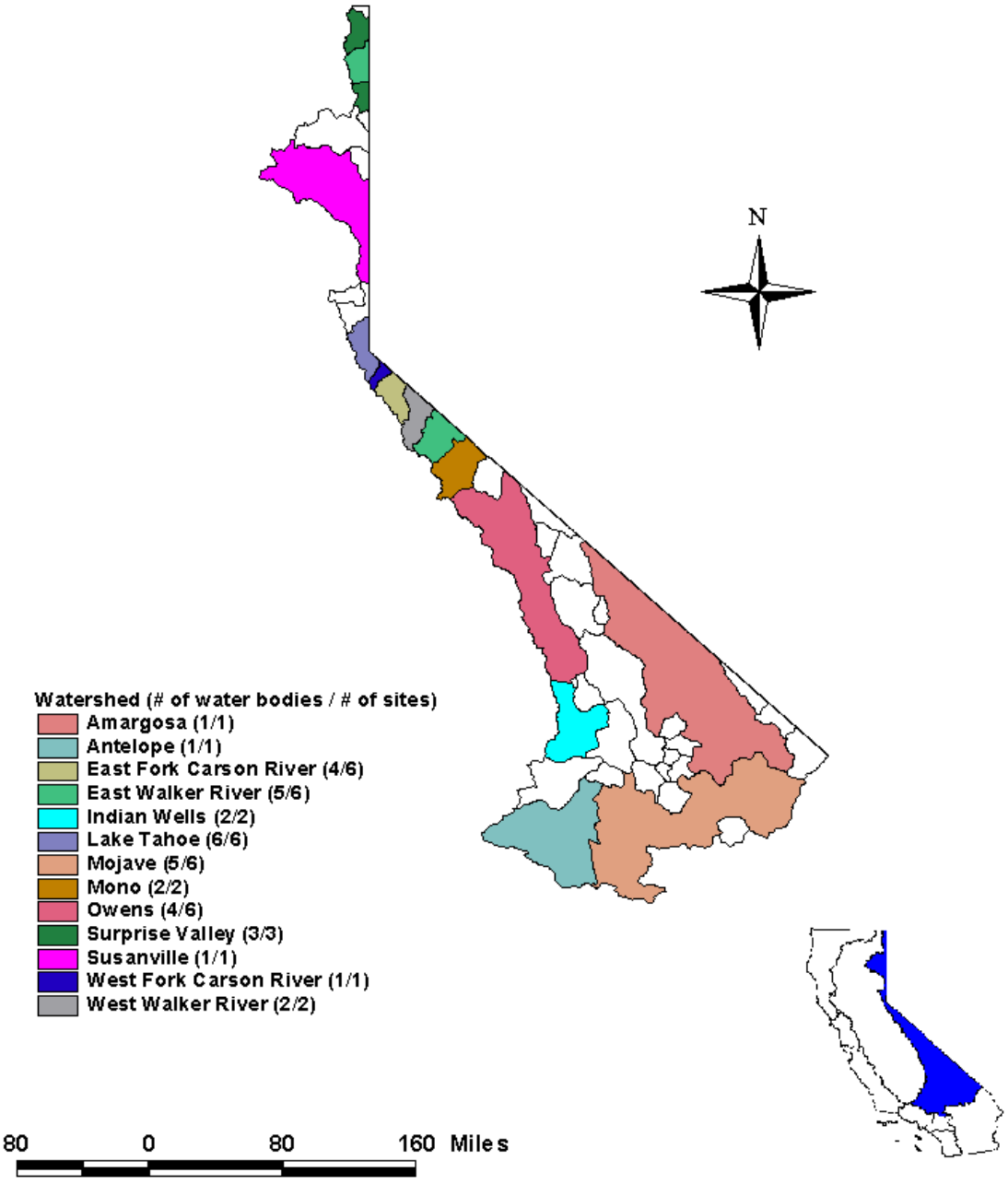
See Appendix C for list of water bodies and monitoring locations.

Region 6: Lahontan Region

The Lahontan region spans eastern California from the Oregon border in the north to the Mojave Desert in the south. SWAMP is the only significant source of ambient monitoring funds currently available to this region, as there are few regulated industrial or municipal dischargers to provide substantial monitoring information. The Lahontan RWQCB is using its SWAMP funds to establish a core network of long-term water monitoring stations throughout the region, primarily at locations where discrete numeric water quality objectives have long been established but little or no monitoring has occurred. This approach will allow the RWQCB to make more rapid and definitive assessments of the extent to which water quality standards are met or violated.

The objectives of SWAMP at this region are twofold. The first objective is to determine, using a broadly dispersed, region-wide network of sampling stations, whether ambient water quality for the monitored sites achieves the chemical and physical water quality objectives stipulated in the Basin Plan. The second objective is to continue an effort begun in 1999 to establish “reference conditions,” and eventually develop indices of biological integrity, for streams in the eastern Sierra Nevada based on instream benthic macroinvertebrate and algae assemblages. Bioassessment monitoring is focused on the hydrological units in the center of the region in an effort to develop biological reference conditions for streams in the eastern Sierra ecoregion.

Region 6 SWAMP Monitoring
FY 2001-2003



See Appendix C for list of water bodies and monitoring locations.

Region 7: Colorado River Basin Region

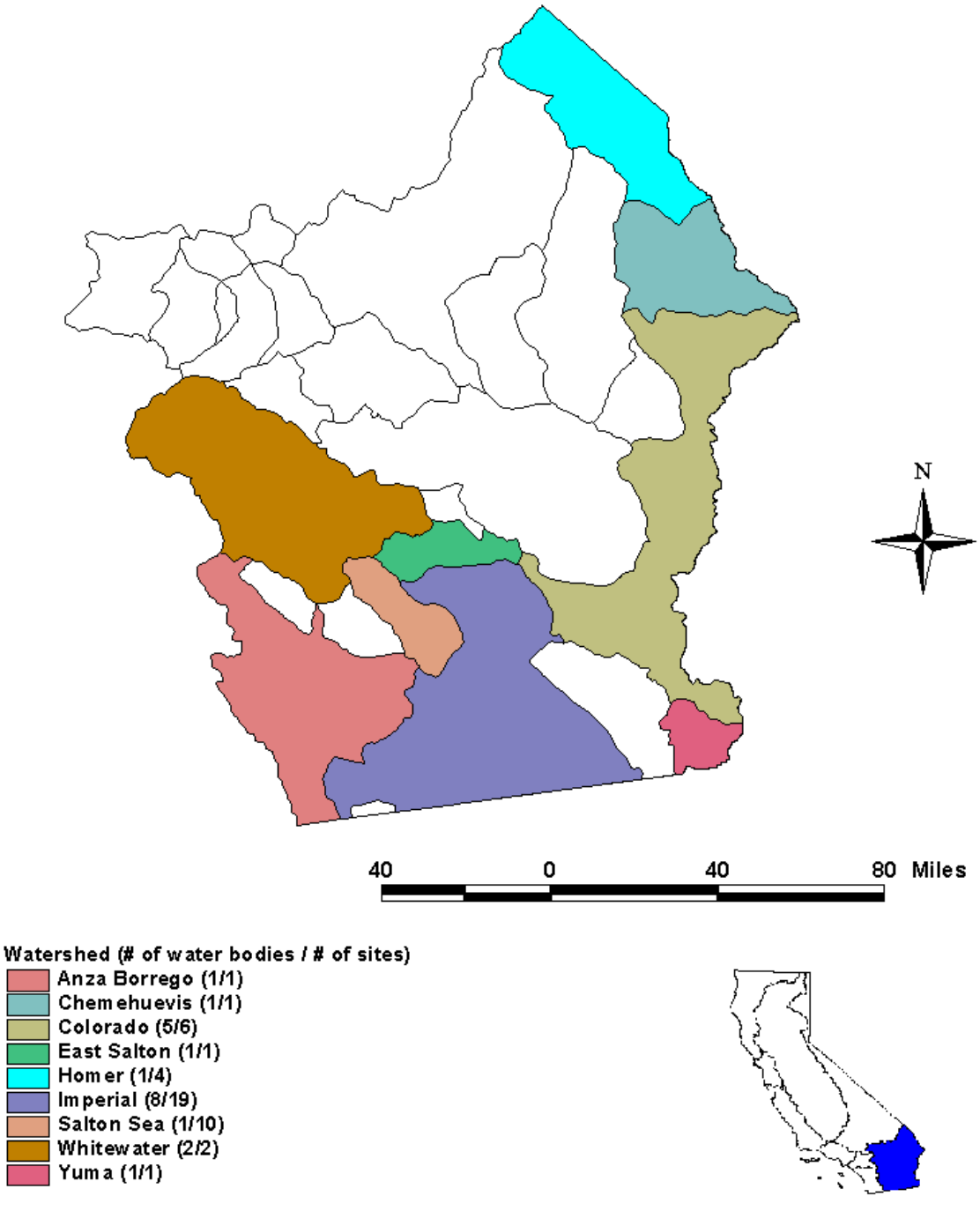
Most surface waters in the Colorado River Basin region are located in the Imperial Valley and East Colorado River Valley, with a few in the Coachella Valley, Lucerne Valley, and Hayfield planning areas. Therefore, SWAMP implementation in the region is focusing on the Imperial Valley and East Colorado River Valley.

SWAMP is implemented in each hydrologic area of the region over a five-year period. The site-specific goal is to monitor and assess the physical, chemical, and biological quality of the region's surface waters. Efforts will concentrate on the Alamo River, given that the Alamo River Sedimentation/Siltation TMDL is the first TMDL that will be implemented in Imperial Valley. The use of BMPs to control silt runoff will take place within the next five years. Ambient monitoring information collected now and during implementation will be used to measure the effectiveness of BMPs. Furthermore, several constituents of concern that are transported with silt may be affected by BMPs. Monitoring will determine if implemented BMPs are reducing the amount of silt and the loading of other contaminants.

RWQCB staff selected monitoring sites based on protecting beneficial uses, taking into consideration the factors such as historical information, site location, information currently being collected, and future plans for implementation of BMPs. Locations that exhibited high concentrations of contaminants (e.g., selenium, pesticides, bacteria) were selected to monitor the progression of these pollutants. Similarly, sites in critical areas with regional significance (e.g., international boundary, diversion points, state borders, source waters) were also included.

SWAMP will provide a comprehensive view of changes that occur with BMP implementation and help develop a bioassessment program specific to the region. The information collected through SWAMP will also be used to prepare the 305(b) report and 303(d) list and to support RWQCB's Basin Planning activities and complement other programs and studies conducted in the region.

Region 7 SWAMP Monitoring
FY 2001-2003



See Appendix C for list of water bodies and monitoring locations.

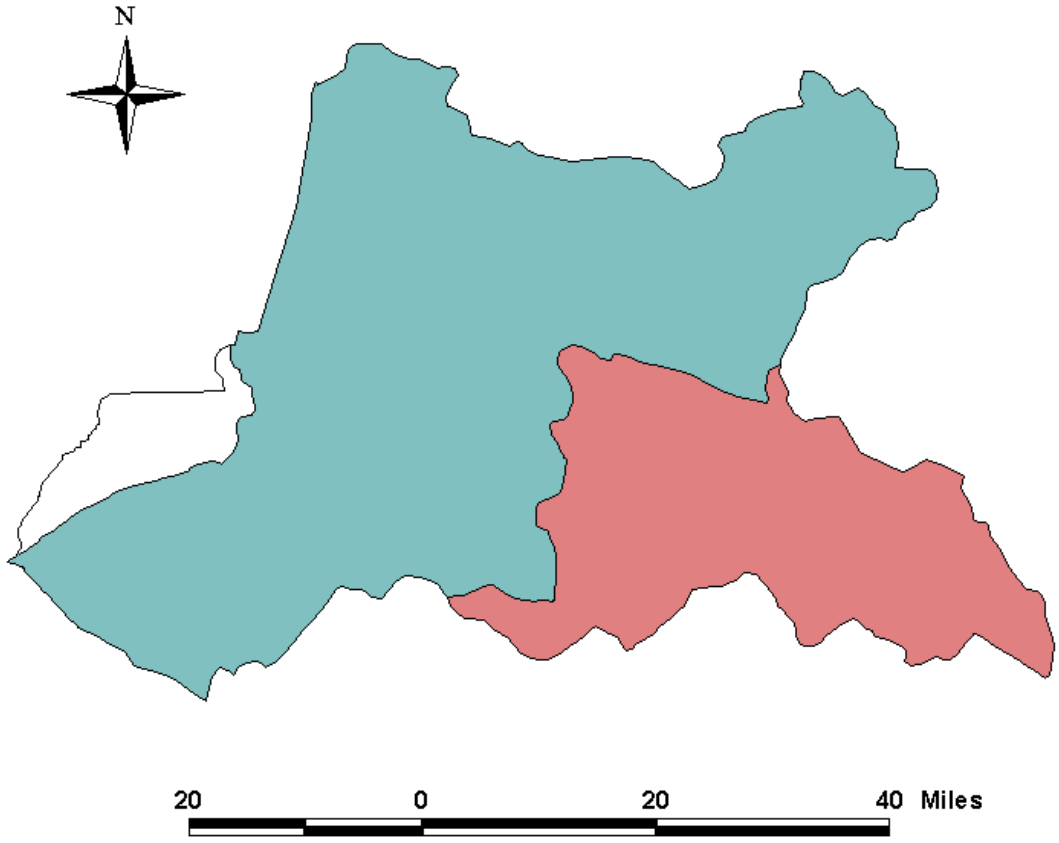
Region 8: Santa Ana Region

A comprehensive monitoring program is needed in the Santa Ana region to determine if the water quality objectives and/or beneficial uses are being attained in the receiving water bodies in this region. SWAMP activities in the region for FY 2000-01 through FY 2002-03 involve sampling in Anaheim Bay, Huntington Harbor, Lake Elsinore, and Canyon Lake. Sampling at Big Bear Lake is planned for FY 2004-05.

The general monitoring approach in this region involves applying a random sampling design to each water body being studied. Sampling activities include collecting surficial sediment samples for toxicity, benthic community and sediment chemistry analyses; and water column samples for toxicity and bacteria analyses. Furthermore, the water quality indicators are specific for each water body type and relate to the specific beneficial use being studied. This design, along with consistent sampling and analytical protocols, will not only allow RWQCB staff to determine whether each water body is attaining the beneficial uses but also allow for comparison among the different water bodies being studied in the region.

The data gathered by these activities will be used to prepare the region's 305(b) report, update the 303(d) list, support other regulatory programs at the RWQCB, and determine the need to do focused studies in the future.

Region 8 SWAMP Monitoring
FY 2001-2003



See Appendix C for list of water bodies and monitoring locations.

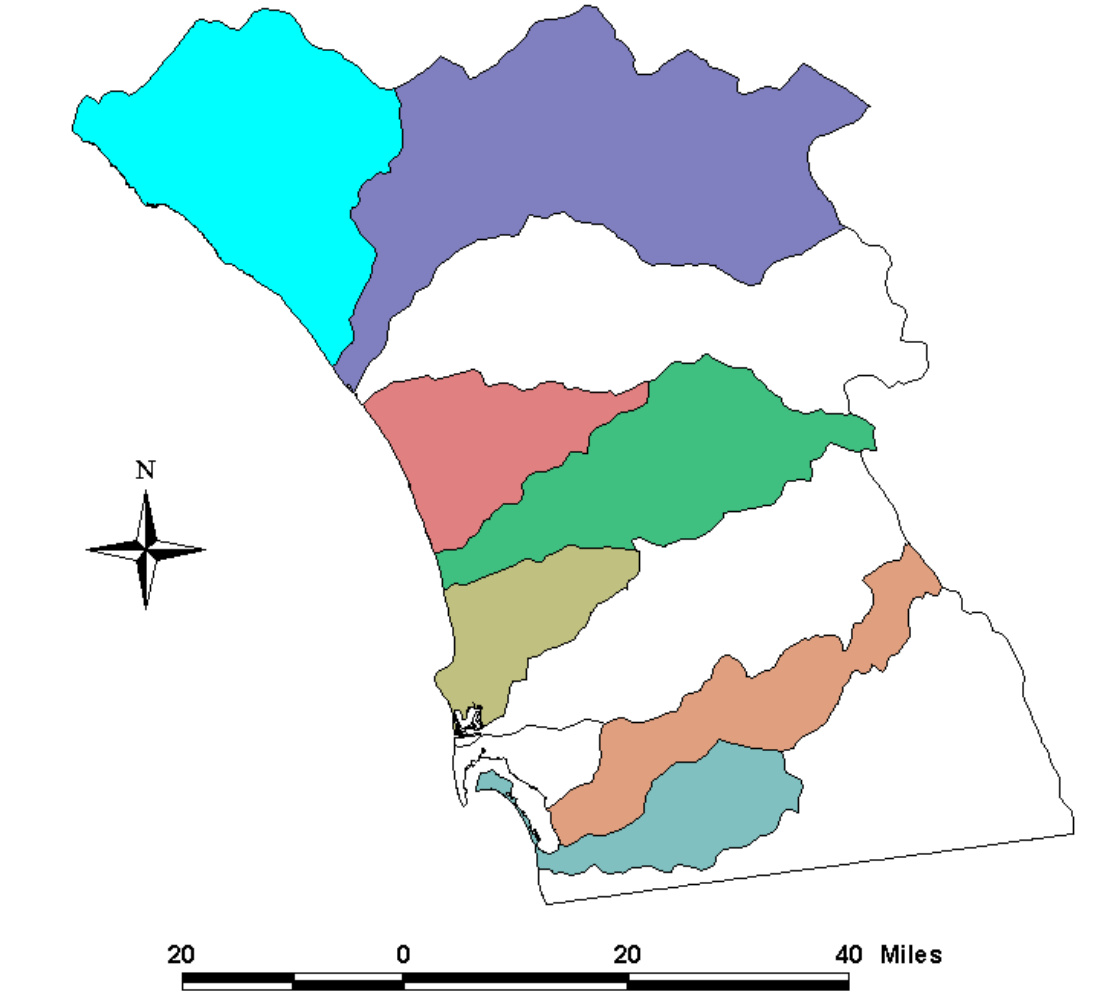
Region 9: San Diego Region

The creation of SWAMP has allowed the San Diego RWQCB to begin ambient monitoring on a five-year rotational basis in the region. This approach ensures that at the end of a five-year period there will have been monitoring activities in each of the watersheds in the region.

The primary objectives for SWAMP monitoring in this region include identifying the spatial extent of degraded sediment locations in rivers, lakes, nearshore waters, enclosed bays, and estuaries. Other objectives include monitoring sites influenced by point sources (e.g., storm drains, publicly owned treatment works, etc.) and those influenced by nonpoint sources of pollutants. In order to accomplish the objectives, the RWQCB plans to use the following indicators: biological response (sediment and water toxicity); pollutant exposure (fish tissue chemistry, nutrients, inorganic and organic water chemistry); and habitat (sediment grain size and gradations, hydrogen sulfide, and ammonia).

SWAMP monitoring in the San Diego region is intended to provide reliable, high quality information necessary to produce the 305(b) report and 303(d) list that are more comprehensive and more defensible than those of past years.

Region 9 SWAMP Monitoring
FY 2001-2003



Watershed (# of water bodies / # of sites)
- Carlsbad (8/10)
- Otay (9/9)
- Penasquitos (5/5)
- San Dieguito (4/4)
- San Juan (16/19)
- Santa Margarita (7/7)
- Sweetwater (1/1)

See Appendix C for list of water bodies and monitoring locations.