VOLUME I

NONPOINT SOURCE PROGRAM STRATEGY AND IMPLEMENTATION PLAN, 1998-2013 (PROSIP)

State Water Resources Control Board
California Coastal Commission

JANUARY 2000

EXECUTIVE SUMMARY

The *Plan for California's Nonpoint Source Pollution Control Program* (Program Plan) is the first significant upgrade of California's Nonpoint Source (NPS) Pollution Control Program (NPS Program) since its inception in 1988. California is required to have its Program conform to the Clean Water Act (CWA) and section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). The lead State agencies for upgrading the Program are the State Water Resources Control Board (SWRCB) (designated lead water quality agency), the nine Regional Water Quality Control Boards (RWQCBs), and the California Coastal Commission (CCC) (designated lead coastal zone management agency). The Program Plan will be submitted for approval to the U.S. Environmental Protection Agency (USEPA) and the National Oceanic and Atmospheric Administration (NOAA), the lead federal agencies that administer the CWA and the Coastal Zone Management Act (CZMA) respectively.

Finding solutions to NPS pollution poses unique challenges. Although the SWRCB and CCC have lead roles in developing and coordinating the implementation of the Program, they are not solely responsible for solving the problem. Over 20 other State agencies have authorities, programs, or responsibilities relating to the control of NPS pollution. Coordinating and focusing such a large number of entities to produce an effective NPS program in a state as large and geomorphologically diverse as California poses unique and difficult challenges. While increased use of regulatory authorities can help to address certain categories of NPS pollution (such as the relatively recent effort to issue permits for the most significant municipal storm water discharges), California will need to rely on a wide range of tools, activities, and authorities to address NPS pollution statewide. Initially, implementation will focus significant resources on management measures (MMs) identified as primary and secondary in Table 8, on retooling the Program's infrastructure, and on institutionalizing Program processes and mechanisms to make certain the State meets the commitments made in the Program Plan.

The State is committed to implementing the 61 NPS MMs by 2013 consistent with Federal Administrative Guidance (USEPA and NOAA, 1998), the Three-Tiered Approach adopted in the Nonpoint Source Management Plan, November 1988 (1988 Plan), and priorities identified in the Watershed Management Initiative (WMI) Chapters. The WMI, approved by the SWRCB in 1995, is used to help the SWRCB meet its goal to provide water resource protection, enhancement, and restoration. WMI uses an integrated planning approach to create and implement unique solutions for each watershed. Each RWQCB and the SWRCB revises its WMI Chapter annually to reflect changing priorities and conditions in the State's watersheds. Revisions currently underway will ensure that the WMI chapters and RWQCBs' actions are consistent with the Program Plan's goal of implementing all MMs by 2013.

Total Maximum Daily Loads (TMDLs) are another implementation planning tool that will enhance the State's ability to foster implementation of appropriate NPS MMs. By providing watershed-specific information, TMDLs will help target specific sources and corresponding corrective measures and will provide a framework for using more stringent approaches that may be necessary to achieve water quality goals and maintain beneficial uses.

Approximately 1,500 water body-pollutant combinations requiring TMDL development have been identified in the CWA section 303(d) list. During the Fifteen-Year Strategy, the RWQCBs are committed to the development of 500 to 800 individual TMDLs which will account for all 1,500 water body-pollutant combinations. The commitment of financial and staff resources to this effort will be influential in addressing the State's effectiveness in controlling NPS problems.

NPS pollution, also known as polluted runoff, is the leading cause of water quality impairments in California and in the Nation. NPSs, including natural sources, are the major contributors of pollution to impacted streams, lakes, wetlands, estuaries, marine waters, and ground water basins in California and are important contributors of pollution to harbors and bays (SWRCB, 1998). Unlike pollution from distinct, identifiable point sources (e.g., industrial or waste water treatment plant discharge pipes), NPS pollution comes from many diffuse sources. Rainfall, snowmelt, or irrigation water that moves over and through the ground results in NPS pollution. As the runoff moves, it picks up and carries away natural and human-made pollutants and deposits them into lakes, rivers, wetlands, ground water, and other inland and coastal waters.

The Program's roots were established in 1988 when the SWRCB adopted and the USEPA approved the original plan for the 1988 Plan (SWRCB, 1988) in response to CWA section 319. In 1990 Congress identified NPS pollution as a significant factor contributing to coastal water degradation, noting the link between coastal water quality and land use activities. In response, Congress amended the CZMA by passing CZARA. CZARA requires the lead water quality agency and coastal zone management agencies to jointly develop and submit a coastal nonpoint pollution control program (CNPCP).

In February 1994, the SWRCB initiated a comprehensive review of the Program using technical advisory committees (TACs) for ten categories of NPS pollution. Over 150 people participated in the TACs as public and private representatives for irrigated agriculture, nutrient application, pesticide application, confined animal facilities, grazing, urban runoff, on-site sewage disposal systems, boating and marinas, hydromodification and wetlands, and abandoned mines. The TACs presented their recommendations to the SWRCB in 1995 (SWRCB, 1994 a-i).

In lieu of a separate program for the coastal zone, the State decided to satisfy CZARA requirements on a statewide basis. As required by statute, in September 1995, the SWRCB and CCC submitted California's initial CZARA response to USEPA and NOAA. The response included two documents: *California's Coastal Nonpoint Pollution Control Submittal*, detailing the State's existing programs related to NPS pollution management, and the *Initiatives in Nonpoint Source Management*, based on the recommendations of the TACs.

USEPA and NOAA released draft findings and conditions for the State's September 1995 submittal in October 1996. In August 1997, the SWRCB, CCC, USEPA Region 9, and USEPA and NOAA headquarters staffs negotiated the *Action Plan* which outlined a framework and activities for the State to achieve both an approvable program consistent with CZARA and an *"enhanced status"* Program by addressing the nine key elements in the USEPA's *Nonpoint Source Program and Grants Guidance of 1997 and Future Years*. In July 1998, USEPA and NOAA issued their Final Findings and Conditional Approval for California's submittal. Consistent with the *Action Plan* and final administrative changes to CNPCP guidance issued in October 1998, for final approval the State must: (1) adopt MMs consistent with the *Guidance Specifying Management Measures for*

Sources of Nonpoint Pollution to Coastal Waters (USEPA, 1993); (2) identify back-up and enforceable policies and mechanisms for the MMs; (3) demonstrate the ability for widespread implementation of the MMs; and (4) address the nine key elements.

The Program Plan is the State's final submittal intended to satisfy the CWA section 319(h) requirements for "an upgraded program" and the CZARA requirements for a CNPCP. The Program Plan achieves this goal by providing a single unified, coordinated statewide approach to dealing with NPS pollution structured around 61 MMs. MMs serve as general goals for the control and prevention of polluted runoff. Site-specific management practices (MPs) are then used to achieve the goals of each management measure. Implementation of MMs will occur using a fifteen-year strategy with three nested five-year implementation plans. The fifteen-year strategy and each five-year implementation plan use an iterative program process. The program process includes: (1) assessing Program activities; (2) targeting efforts; (3) planning activities based on Program goals and objectives; (4) coordinating the efforts of federal, State, and local agencies and stakeholders; (5) implementing coordinated actions; (6) tracking and monitoring the results of implemented actions; and (7) reporting on Program results. The Program Plan is designed to be flexible and adaptable over time.

Specifically, the Program Plan:

1. Adopts 61 MMs as goals for six NPS categories (agriculture, forestry, urban areas, marinas and recreational boating, hydromodification, and wetlands/riparian areas/vegetated treatment systems);
2. Provides a fifteen-year strategy for fully implementing the MMs;
3. Continues use of the "Three-Tiered Approach" for addressing NPS pollution problems (Tier 1: Self-Determined Implementation of Management Practices [formerly referred to as "voluntary" implementation]; Tier 2: Regulatory Based Encouragement of Management Practices; and Tier 3: Effluent Limitations and Enforcement Actions). Senate Bill 227 (California Water Code [CWC] section 13369) requires the SWRCB to develop by February 1, 2001, guidance for describing the process by which the SWRCB and RWQCBs will enforce the Program Plan;
4. Provides the first of three five-year implementation plans targeting activities for specific MMs consistent with State and regional priorities in specific watersheds and also establishes mechanisms for: (a) coordination among agencies; (b) participation by the public; (c) assistance technically and financially; (d) adoption of additional MMs as goals, if needed; and; (e) monitoring and reporting of program effectiveness;
5. Promotes long-term interagency coordination among State agencies of the California Environmental Protection Agency and Resources Agency as well as other local, State, and federal agencies;
6. Identifies back-up authorities and enforceable policies and mechanisms for the 61 MMs adopted by the State; and
7. Relies on the use of existing authorities and regulatory processes to achieve implementation but allows for the adoption of the MMs as regulation after each five-year cycle if adequate progress in NPS pollution control has not been demonstrated.

Program accountability is critical to reassure the public of the State's commitment to deal with the NPS pollution problem. The Program Plan contains actions that will result in consistent and timely evaluation and reporting of the Program's progress in effectively dealing with NPS pollution. This

includes annual, biennial, and five-year reporting cycles and the use of Internet-based interactive information tools. Also important is greater public participation through: (1) development of the five-year implementation plans; (2) tracking the implementation of and assessing effectiveness of MMs; (3) use of public reports; (4) expanded volunteer monitoring and education programs; (5) use of the Internet; and, (6) expansion of public outreach workshops.

The Program Plan also contains a Memorandum of Understanding (MOU) between the SWRCB and CCC. Although the two agencies have worked side-by-side to complete this document, the MOU commits the agencies to continue implementing the Program Plan after it is adopted by the SWRCB and CCC and approved by the federal agencies. Actions in the first five-year implementation plan require the SWRCB and CCC to review and update existing Management Agency Agreements and MOUs as appropriate and to develop others as needed. This aspect is important because the success of this Program Plan is dependent on the active participation of other government agencies with NPS responsibilities and private partners with significant influences over land use practices.

TABLE ES-1

SUMMARY OF MAJOR TASKS THAT THE NPS PROGRAM LEAD AGENCIES SEEK TO COMPLETE AS OF 2003

	Plan section
A. Assess Program Activities	
• The State will continue use of the State's Water Quality Assessment (WQA) as the primary tool for assessing NPS pollution statewide. **By August 1, 2001**, the SWRCB will provide WQA data prepared pursuant to CWA sections 305(b) and 303(d) on the Internet for public reference and to help monitor and track the effectiveness of the NPS Program. The data, included on the Geographically-based Water Body System (GeoWBS) database, will identify water body size, degree to which beneficial uses are supported, affected beneficial uses, pollutants, and pollution sources.	II-B
• **By August 1, 2001**, the State with the assistance of University of California, Davis's Information Center for the Environment (UCD ICE) will complete development of a database that will enable State agencies to geographically track implementation of MMs and MPs.	II-G
B. Target Efforts	
• **On even-numbered years** or as required by the USEPA, the SWRCB will prepare the CWA section 303(d) and TMDL priority lists that will assist the State in targeting priorities by water body, geographic region, pollutant, etc. • **By December 31, 2000**, the Critical Coastal Area (CCA) Committee will develop an initial list of CCAs where targeted implementation of MMs will occur.	II-C
C. Plan Activities Based on Program Goals and Objectives	
• **By July 1, 2000** and annually thereafter, the SWRCB, CCC, and RWQCBs will prepare joint annual workplans for NPS Program activities to include information on use of funding sources (including bond funds). • **By July 1, 2000**, the CCC will update its in-house Procedural Guidance Manual to reflect newest development of NPS MMs and to provide guidance for updates and amendments to local coastal programs (LCPs) and development of new LCPs. • Pursuant to the **schedules listed in Appendix C**, the RWQCBs will develop TMDLs.	II-D & Apx C
D. Coordinate Efforts of Federal, State, and Local Agencies and Stakeholders	
• **By January 31, 2000**, the SWRCB and CCC will sign an MOU designed to enhance coordination between these agencies. • **By July 1, 2000**, the SWRCB and CCC will convene the initial meeting of the Interagency Coordinating Committee (IACC). **By September 30, 2000** the CCC and SWRCB will convene the initial meeting of the CCA Committee. • **By July 1, 2000**, the SWRCB and CCC will initiate the development of five-year implementation plans for the California Environmental Protection Agency (Cal/EPA), California Resources Agency (Cal/RA), and other agencies with a goal of completing 50 to 100 percent of these plans by December 31, 2000. • **By July 1, 2000**, the SWRCB and CCC will begin the process to update existing Memorandums of Understanding/Management Agency Agreements (MOUs/MAAs) (e.g., agreements with the State Board of Forestry/Department of Forestry, Department of Pesticide Regulation, and Department of Food and Agriculture) and develop new MOUs/MAAs with other agencies as needed. **By December 31, 2001**, the SWRCB and CCC will prepare a schedule for completing any necessary remaining MOUs/MAAs.	II-E

	Plan section
E. Implement Coordinated Actions • **By July 1999 and each year thereafter**, the SWRCB and RWQCBs will support activities using CWA section 319(h) funds to implement the CAMMPR MMs. • **By February 2001**, the SWRCB will develop guidance to be used by the SWRCB and RWQCBs in establishing the process by which the SWRCB and RWQCBs will enforce their authorities as outlined in this Program Plan (CWC §13369). • **By July 1, 2002**, the State will prepare California MM implementation guidance. Links to existing guidance for implementation of MMs and MPs will be provided on the NPS Program website(s) in the interim (examples of existing guidance used in California include Natural Resources Conservation Service (NRCS) technical guides and Storm Water Quality Task Force Manuals). • Pursuant to the **schedules listed in Appendix C**, the RWQCBs will begin implementation of TMDL implementation plans.	II-F
F. Track and Monitor Results of Implemented Actions • By **November 30, 2000**, the SWRCB will assess and report to the Legislature on the SWRCB's and RWQCBs' current surface water quality monitoring programs for the purpose of designing a proposal for a comprehensive surface water quality monitoring program for the State (as provided for in CWC §13192). • By **January 1, 2001**, the SWRCB will prepare and submit to the Legislature a report that proposes the implementation of a comprehensive program to monitor the quality of State coastal watersheds, bays, estuaries, and coastal waters and their marine resources for pollutants (as provided for in CWC §13181[c]).	II-G
G. Report on Program Results • **By August 1, 2000 and annually thereafter**, the SWRCB will submit to the Legislature and make available to the public, copies of and a summary of information in all SWRCB and RWQCB reports that contain information related to NPS pollution and that the SWRCB or RWQCB are required to prepare in the previous fiscal year pursuant to CWA sections 303, 305(b), and 319 and CZARA section 6217. (CWC §13369[b]) • **By August 1, 2001 and August 1, 2003**, the SWRCB and CCC will complete biennial reports, for evaluation by USEPA and NOAA as well as other agencies and the public, regarding the State's progress in implementing the NPS Program.[*]	II-G

[*] The reports to be produced in 2001 and 2003 will provide details to address questions such as:

1. Have the activities identified in the five-year plans been completed and have the associated performance measures been achieved?
2. Has an MM implementation tracking system been established? Based on that system, what is the extent of MM implementation for all source categories throughout the State?
3. Has the IACC become active and successful in fostering implementation?
4. Has the SWRCB/RWQCBs published NPS enforcement guidance in 2001 as per CWC section 13369(a)(2)(B)?
5. Has the technical assistance to land owners and managers been improved through the issuance of technical guides, information sharing, "field-level" assistance and/or other activities?
6. Have other State and federal agencies and non-governmental entities become involved in implementing the NPS Program? Where necessary, have formal agreements been established to enhance the effectiveness of these partnerships?
7. Has the planning process for the next five-year plan (2003-2008) been established to achieve more specific plans that include measurable objectives and that involve a wide range of key stakeholders?
8. Have adequate efforts been made to identify funding needs and mechanisms to ensure continuing MM implementation and Program Plan success?

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VOLUME I

NONPOINT SOURCE PROGRAM STRATEGY AND IMPLEMENTATION PLAN, 1998-2013 (PROSIP)

I. NONPOINT SOURCE PROGRAM OVERVIEW

A. Vision and Goals

Since 1991, staffs of the State Water Resources Control Board (SWRCB), California Coastal Commission (CCC), and nine Regional Water Quality Control Boards (RWQCBs), in coordination with other agency staffs and the public, have conducted a comprehensive inquiry into the future direction of California's Nonpoint Source Pollution Control Program (Program). This inquiry shows clearly that Californians have invested significant resources to address nonpoint source (NPS) pollution and improve water quality; however, NPSs continue to be a major contributor of pollution to State waters.

The *Plan for California's Nonpoint Source Pollution Control Program* (Program Plan) is intended to focus and expand the State's efforts over the next 15 years to prevent and control NPS pollution. The vision of the NPS Program is to reduce and prevent NPS pollution so that the waters of California support a diversity of biological, educational, recreational, and other beneficial uses. The NPS Program addresses both surface and ground water quality. The goals of California's NPS Program are the following:

Track, Monitor, Assess, and Report Program Activities

- Improve monitoring and assessment of State water quality and the effectiveness of management practices (MPs) that are implemented to prevent and control NPS pollution.
- Ensure consistent, accurate reporting and dissemination of information related to water quality and related environmental data, sources of NPS pollutants, and pollution control and prevention activities.

Target Program Activities

- Manage NPS pollution, where feasible, at the watershed level—including pristine areas and watersheds that contain water bodies on the Clean Water Act (CWA) section 303(d) list—where local stewardship and site-specific MPs can be implemented through comprehensive watershed protection or restoration plans.
- Apply previous experiences to future decisions (e.g., through the use of pilot projects and the incorporation of "lessons learned").

Coordinate with Public and Private Partners in All Aspects of the Program

- Build the NPS Program upon a foundation of public involvement and support and encourage public participation throughout all stages of the NPS Program.
- Encourage innovative approaches to NPS pollution control and prevention through interagency, interdisciplinary, and volunteer activities.

- Strive to make regulatory, planning, and monitoring processes and programs more effective, efficient, and user-friendly and to coordinate related programs to avoid duplication where possible.

Provide Financial and Technical Assistance and Education

- Enhance the leadership roles of the SWRCB, RWQCBs, CCC, and other agencies in providing local governments and the public with technical and financial assistance and educational programs related to NPS pollution control, land use management, and watershed management.
- Support applied research to expand NPS Program implementation (e.g., development of improved, cost-effective MPs, and environmentally friendly products).

Implement Management Measures

- Ensure the protection and restoration of State's water quality, existing and potential beneficial uses, critical coastal areas (CCAs), and pristine areas by implementing management measures (MMs) to prevent and control NPS pollution. All MMs will be implemented, where needed, by 2013.[1] MMs serve as general goals for the control and prevention of polluted runoff. Site-specific MPs are then used to achieve the goals of each MM.
- Target implementation of MMs using a combination of non-regulatory activities and enforceable policies and mechanisms with self-determined cooperation preferred over prescriptive measures.

To ensure that the NPS Program goals are met, the SWRCB, CCC, and RWQCBs have already taken the following steps: (1) developed MMs that are appropriate for implementation in California and (2) prepared an iterative Fifteen-Year Program Strategy (Strategy) and Five-Year Implementation Plan (1998-2003) (Implementation Plan).

Additional steps in California's long-term strategy and initial short-term plan that are needed are:

- Adoption of NPS MMs by the SWRCB and CCC as goals or through a rulemaking process, as necessary, to ensure that they are implemented statewide by the year 2013;
- Establish and enter into the first five-year plan all relevant information for each process element for primary and secondary MMs by July 1, 2000, with the exception of numeric program performance measures. Numeric program performance measures will be established for each primary and secondary MM in the first five-year plan by October 1, 2000. The revised five-year plan will be distributed to the public by November 1, 2000.

[1] MMs are identified in Volume II of this Program Plan: *California's Management Measures for Polluted Runoff* (CAMMPR). CAMMPR identifies MMs for five land-use categories: (1) agriculture, (2) forestry (silviculture), (3) urban areas, (4) marinas and recreational boating, and (5) hydromodification. MMs specific to wetlands, riparian areas, and vegetated treatment systems are also identified. CAMMPR has been reviewed by other agencies with authorities and programs that are critical to addressing NPS pollution. Additional workshops were held in Southern and Northern California to solicit public input.

- Publication of an MMs Guidance document that includes examples of MPs that achieve the goals of each MM;
- Building a foundation for agencies with authorities related to the NPS Program to coordinate and collaborate in problem solving, implementing MMs, monitoring, and assessing program success (e.g., review and revise existing agency agreements or develop new agency agreements; convene an interagency committee or similar working forum);
- Increased funding and enhanced education to foster implementation of MMs statewide; and
- Conducting a workshop and reporting every two years (biennially) on the status of the NPS Program.

B. History

Nonpoint Source Water Quality Issues in California

California is a geomorphologically diverse state with 1,609 miles of shoreline and more than 200,000 miles of rivers and streams; 1.6 million acres of lakes and reservoirs; 645,000 acres of estuaries, harbors, and bays; and 275,000 acres of wetlands. California also contains more than 100 million acres of land, almost half of which (44.6 percent) is owned and/or overseen by the federal government (e.g., the U.S. Forest Service [USFS] and Bureau of Land Management [BLM]).

NPS pollution, also known as polluted runoff, is the leading cause of water quality impairments in California and nationally. NPSs, including natural sources, are the major contributors of pollution to impacted streams, lakes, wetlands, estuaries, marine waters, and ground water basins in California and are important contributors of pollution to harbors and bays (SWRCB, 1998). Unlike pollution from distinct, identifiable point sources (e.g., a discharge pipe), NPS pollution comes from many diffuse sources. It is caused by rainfall, snowmelt, or irrigation water that moves over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants and deposits them into lakes, rivers, wetlands, ground water, and other inland and coastal waters.

Adverse effects of point sources of pollution (e.g., those subject to National Pollutant Discharge Elimination System [NPDES] or Waste Discharge Permits [WDRs]) and NPSs of pollution on coastal areas include closures of beaches and shellfish harvest areas due to contamination (see Table 1). In 1998, causes of California beach closings or advisories included: (1) elevated bacteria levels—1,395 events; (2) sewage spills—1,607 events; and (3) rain related events—2,222 events (rain events include combined sewer overflows, storm water runoff, storm drains, and floods) (Natural Resources Defense Council [NRDC], 1999). Data from the *National Shellfish Register* reveal that in 1995, the most recent year that data are available, shellfish harvesting was prohibited at 9,000 out of 24,000 acres (38 percent) of harvesting areas in California due to water quality concerns (National Oceanic and Atmospheric Administration [NOAA], 1997). Table 2 contains 1995 pollution source data for harvesting waters in the State of California and in the Nation.

TABLE 1. CALIFORNIA BEACH CLOSING AND ADVISORY (C/A) COMPARISONS: 1991-1998 (NRDC, 1999)

Year	Beach days affected by C/A lasting less than 6 weeks	Number of Extended C/A (lasting 6-12 weeks)	Number of Permanent C/A (lasting more than 12 weeks)
1998	at least 3,273	30	12
1997	at least 1,141	1	37
1996	at least 1,061	7	9
1995	at least 1,305	3	11
1994	at least 910	2	6
1993	at least 1,397	2	2
1992	at least 609	2	1
1991	at least 745	1	5

TABLE 2. PRINCIPAL OR CONTRIBUTING FACTORS IN HARVEST-LIMITED SHELLFISH GROWING AREAS NATIONALLY, 1995 (NOAA, 1997)

Type	**%** (total is > 100% as areas can be affected by a combination of sources)
Urban runoff	40
Unidentified sources upstream of coastal watersheds	39
Wildlife	38
Individual waste water treatment systems (e.g., septic tanks)	32
Waste water treatment plants	24
Agricultural runoff	17
Marinas	17
Boating	13
Industrial facilities	9
Combined sewer overflows	7
Direct discharges	4
Feedlots	3

The major sources of NPS pollution in California are related to land use activities that occur throughout watersheds and include: (1) agriculture, (2) forestry (silviculture), (3) urban runoff, (e.g., from construction sites, roads and highways, septic systems), (4) marinas and boats, (5) hydromodification activities, and (6) resource extraction (e.g., mining) (see Table 3). Atmospheric deposition is also a source of NPS pollution. Examples of pollutants associated with specific land use activities include:

- Excess pesticides and fertilizers from agricultural lands, urban lawns, and parks;
- Oil, grease, heavy metals, and chemicals from urban streets, parking lots, and industrial sites;
- Sediment from improperly managed construction sites, crop and forest lands, abandoned roads, and eroding streambanks;
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems; and
- Other pollutants (e.g., salt from irrigation practices, acid from abandoned mines).

Agency Roles in Program Development and Implementation

The NPS Program's roots were established in 1988 when the SWRCB adopted and the U.S. Environmental Protection Agency (USEPA) approved the original plan, the NPS Management Plan, November 1988 (1988 Plan) (SWRCB, 1988), in response to CWA section 319. CWA section 319 required states to develop assessment reports that described the state's NPS problems and to establish an NPS management program to control or prevent the problems. The 1988 Plan identified projected and proposed activities to initiate the NPS Program and both to measurably improve water quality and the implementation of best MPs.

After passage of CWA section 319, Congress determined that additional efforts were needed to protect coastal waters from NPS pollution and subsequently enacted the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA). In passing CZARA, Congress noted the link between coastal water quality and land use activities and directed states to improve state and local efforts to manage land use activities that degrade coastal waters and coastal habitats (USEPA and NOAA, 1993). CZARA section 6217 requires coastal states to: (1) identify land uses which individually or cumulatively may cause or contribute significantly to a degradation of coastal waters; (2) identify "Critical Coastal Areas" and identify and implement additional measures where necessary to achieve and maintain water quality in such areas; (3) identify and adopt MMs to prevent and control NPS pollution; (4) provide technical assistance to local governments and the public to implement the MMs; (5) provide opportunities for public participation in Coastal Nonpoint Source Pollution Control Program (CNPCP) development and implementation; (6) enhance cooperation between the states' land and water use agencies; and (7) identify a program area sufficient to control NPS pollution affecting coastal waters. In addition, CZARA amended section 306 of the Coastal Zone Management Act (CZMA) requiring that " … the management program contains enforceable policies and mechanisms to implement the applicable requirements of the Coastal Nonpoint Pollution Control Program of the State required by section 6217 …." (CZMA section 306[d][16]).

TABLE 3. EXTENT OF CALIFORNIA WATER BODIES AFFECTED BY VARIOUS LAND PRACTICES

	Surface water (SW) bodies (acres)							rivers/ streams (miles)	ground water (square miles)*
	bays/ harbors	estuaries	lakes/ reservoirs	saline lakes	wetlands fresh	wetlands tidal	Total SW bodies		
(Total acres/miles assessed)	(497,000)	(79,000)	(741,000)	(433,000)	(67,000)	(71,000)	(1,889,000)	(17,000)	(64,000)
Agriculture	237,000	59,000	40,000	352,000	51,000	57,000	796,000	4,000	16,875
Forestry	(nd)	(nd)	121,000	(nd)	12,000	(nd)	133,000	1,900	(nd)
Urban Runoff	198,000	58,000	130,000	(nd)	1,300	57,000	444,000	1,800	842
Construction	(nd)	(nd)	149,000	56,000	1,220	(nd)	206,000	800	(nd)
Highways and Roads	(nd)	(nd)	145,000	(nd)	(nd)	(nd)	145,000	300	(nd)
Marinas	(nd)	(nd)	121,000	(nd)	(nd)	(nd)	121,000	(nd)	(nd)
Hydromodification	170,000	56,000	141,000	165,000	27,000	57,000	616,000	1,100	3,418
Resource Extraction	288,000	51,000	109,000	(nd)	(nd)	(nd)	448,000	1,500	8,166
Septage Disposal	(nd)	(nd)	(nd)	(nd)	(nd)	(nd)	(nd)	(nd)	15,436

Source: *1998 California CWA Section 305(b) Report on Water Quality. Extent of SW bodies that are partially or not supporting beneficial uses* (figures rounded to nearest thousand, where appropriate). (nd) = no data or unknown.

*The 1*998 CWA Section 305(b) Report* states that 22,053 of 63,581 square miles of ground water (35 percent) are impaired (note: a ground water basin may be polluted by more than one source).

In February 1994, the SWRCB initiated a comprehensive review of the NPS Program using technical advisory committees (TACs) for ten NPS categories. Over 150 people participated in the TACs as public and private representatives for irrigated agriculture, nutrient application, pesticide application, confined animal facilities, grazing, urban runoff, on-site sewage disposal systems (OSDSs), boating and marinas, hydromodification and wetlands, and abandoned mines. The TACs presented their recommendations to the SWRCB in 1995. Common themes expressed in the TAC Reports include the following:

- Self-determined cooperation is preferred over prescriptive measures;
- Public education should be enhanced so that individuals can take responsibility for preventing and controlling NPS pollution;
- NPS pollution should be managed on a watershed scale where local stewardship and problem-responsive measures can be devised through comprehensive watershed protection plans;
- The State should provide for comprehensive and directed technical assistance to local groups and individuals; and
- Activities of resource management agencies should be better coordinated.

In September 1995, the SWRCB and CCC submitted California's initial response to CZARA to USEPA and NOAA—the lead federal agencies that administer the CWA and CZMA, respectively. California's submittal package included two documents: *California's Coastal Nonpoint Pollution Control Submittal* (SWRCB and CCC, 1995) and *Initiatives in Nonpoint Source Management* (Initiatives Document) (SWRCB, 1995).[2] In July 1998, USEPA and NOAA issued their Final Findings and Conditional Approval for California's submittal.

The SWRCB, RWQCBs, and CCC are committed to enhancing the NPS Program to further protect water quality and to address the federal findings and conditions. The revised NPS Program incorporates MMs into the Program Plan to help coordinate agency and individual actions. Volume II of the Program Plan—*California Management Measures for Polluted Runoff* (CAMMPR)—identifies 61 MMs with related State authorities for NPS pollution prevention and control in California (Table 4).[3] Staffs from the SWRCB, CCC, USEPA, and other agencies held initial meetings to review and refine CAMMPR and to identify actions to implement MMs over the next five to 15 years. Staff workshops to solicit public input were also held in Southern and Northern California in December 1998 and July 1999.

The SWRCB and CCC, in coordination with the nine RWQCBs, are the lead State agencies in California for the development and implementation of the Program Plan.

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[2] *California's Coastal Nonpoint Pollution Control Submittal* (SWRCB and CCC, 1995) details California's existing programs related to the management of NPS pollution. The *Initiatives in Nonpoint Source Management* (SWRCB, 1995), which is based on the TACs' recommendations, recognizes the need to continue and build upon the collaborative work initiated by the TACs.

[3] These MMs are based on the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (g-Guidance) (USEPA, 1993).

TABLE 4. CALIFORNIA NONPOINT SOURCE MANAGEMENT MEASURES

(1) AGRICULTURE

A. Erosion and Sediment Control
B. Confined Animal Facilities Wastewater and Runoff
C. Nutrient Management
D. Pesticide Management
E. Grazing Management
F. Irrigation Water Management
G. Education/Outreach

(2) FORESTRY (SILVICULTURE)

A. Preharvest Planning
B. Streamside Management Areas
C. Road Construction/Reconstruction
D. Road Management
E. Timber Harvesting
F. Site Preparation and Forest Regeneration
G. Fire Management
H. Revegetation of Disturbed Areas
I. Forest Chemical Management
J. Wetlands Forest
K. Postharvest Evaluation
L. Education/Outreach

(3) URBAN AREAS

3.1 Runoff from Developing Areas
A. Watershed Protection
B. Site Development
C. New Development
3.2 Runoff from Construction Sites
A. Construction Site Erosion and Sediment Control
B. Construction Site Chemical Control
3.3 Runoff from Existing Development
A. Existing Development
3.4 On-site Disposal Systems
A. New On-site Disposal Systems
B. Operating On-site Disposal Systems
3.5 Transportation Development: Roads, Highways, and Bridges
A. Planning, Siting, and Developing Roads and Highways
B. Bridges
C. Construction Projects
D. Construction Site Chemical Control
E. Operation and Maintenance
F. Road, Highway, and Bridge Runoff Systems
3.6 Education/Outreach
A. Pollution Prevention/Education--General Sources

(4) MARINAS & RECREATIONAL BOATING

4.1 Assessment, Siting, and Design
A. Water Quality Assessment
B. Marina Flushing
C. Habitat Assessment
D. Shoreline Stabilization
E. Storm Water Runoff
F. Fuel Station Design
G. Sewage Facilities
H. Waste Management Facilities
4.2 Operation and Maintenance
A. Solid Waste Control
B. Fish Waste Control
C. Liquid Material Control
D. Petroleum Control
E. Boat Cleaning and Maintenance
F. Maintenance of Sewage Facilities
G. Boat Operation
4.3 Education/Outreach
A. Public Education

(5) HYDROMODIFICATION

5.1 Channelization and Channel Modification
A. Physical and Chemical Characteristics of Surface Waters
B. Instream and Riparian Habitat Restoration
5.2 Dams
A. Erosion and Sediment Control
B. Chemical and Pollutant Control
C. Protection of Surface Water Quality and Instream and Riparian Habitat
5.3 Streambank and Shoreline Erosion
A. Eroding Streambanks and Shorelines
5.4 Education/Outreach
A. Educational Programs

(6) WETLANDS, RIPARIAN AREAS, AND VEGETATED TREATMENT SYSTEMS

A. Protection of Wetlands and Riparian Areas
B. Restoration of Wetlands and Riparian Areas
C. Vegetated Treatment Systems
D. Education/Outreach

The roles of the SWRCB and CCC are outlined in the Memorandum of Understanding (MOU) between those two agencies. The role of all of the State and federal partners is to:

- Implement the 61 MMs by 2013. Activities to support implementation will be included by the RWQCBs in the WMI chapters and by the State agencies in their five year implementation plans. Implementation of the MMs will also be incorporated into the NPS updates of the basin plans and other enforceable policy tools.
- Track implementation and effectiveness by MM and source category and provide this information to the SWRCB as part of the monitoring and assessment strategy.
- Actively participate in biennial and five-year program reviews, as well as new goal-setting activities, including the development of five-year implementation plans.
- Coordinate with the SWRCB in developing guidance as required by section 13369 of the California Water Code (CWC) to be used by the SWRCB and the RWQCBs to enforce the Program Plan.
- Coordinate NPS-related planning, assessment, and regulatory activities.
- Support statewide initiatives to implement the MMs.

California must enhance the NPS Program to remain eligible for funding for water quality and coastal protection by USEPA and NOAA. Implementation of the NPS Program is primarily supported by grants from USEPA under CWA section 319(h), approximately $10.6 million in Federal Fiscal Year (FFY) 1999. To continue to receive this level of funding--an increase of about $5.3 million from FFY 1998--the State must continue to protect and restore water quality and develop an effective NPS Program that complies with both the CWA and CZMA. Implementation of the Program Plan will occur through 2013 (within 15 years of the July 1998 federal conditional approval by USEPA and NOAA pursuant to CZARA).

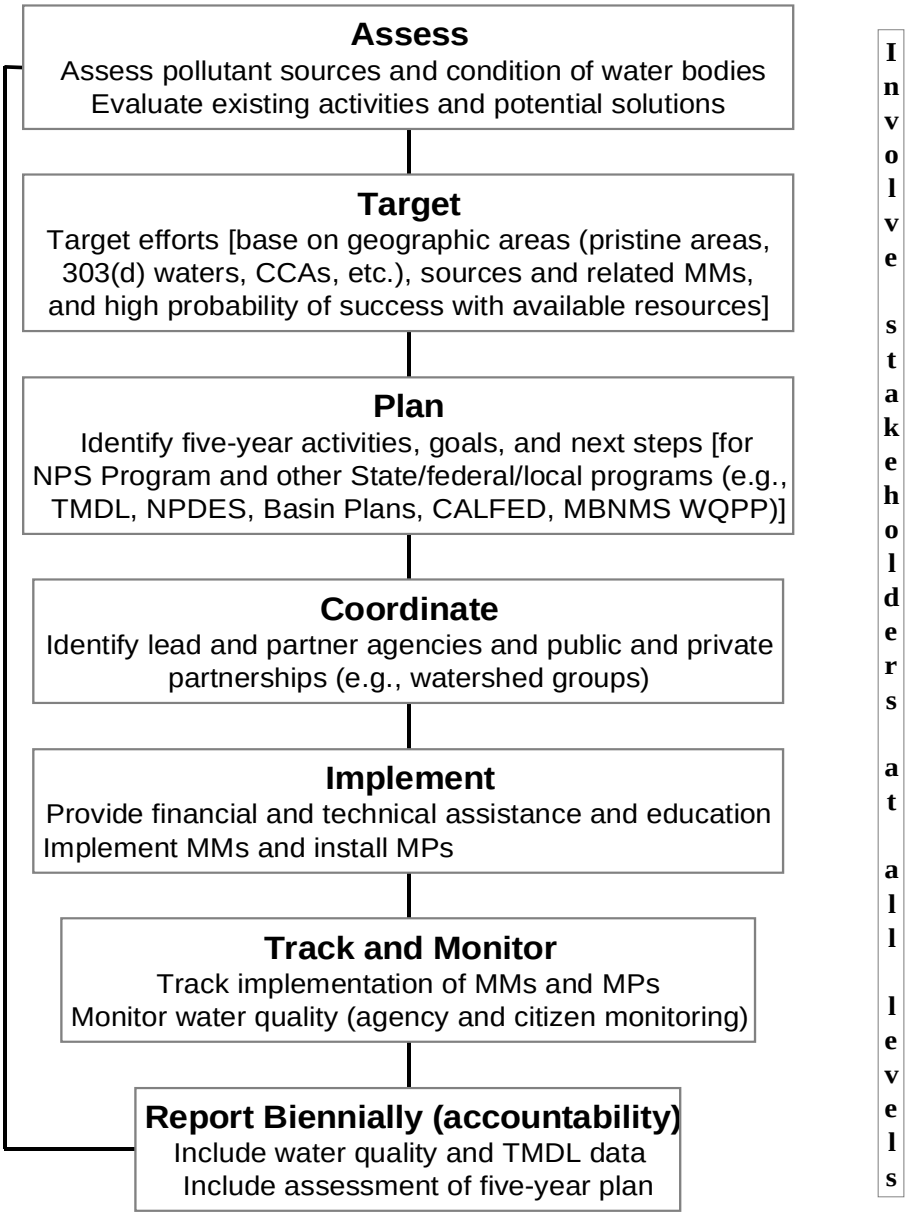
C. Program Infrastructure

Program infrastructure refers to the structure of the program, its components, and how they interact in a systematic process to achieve the program's goals. The Program Plan has three major components: (1) an overall long-term Fifteen-Year Program Strategy (Strategy); (2) three five-year implementation plans nested within the Strategy; and (3) 61 MMs. Running through and connecting these major components is a sequential iterative process that begins with assessing the program, identifying pollutant sources, and determining condition of water bodies and ends with reporting program results. It begins again with assessment activities (see Figure 1). The Program Plan infrastructure is designed to produce a dynamic program that is responsive to changing conditions during its fifteen-year life.

Program Process

For the Program Plan to produce a living, responsive program that is useful throughout its fifteen-year duration, previous experience (e.g., in implementing MMs) must be integrated into present and future planning and implementation efforts. Figure 1 depicts the Program Plan's iterative model. At any time during the fifteen-year life of the

FIGURE 1. NPS PROGRAM PROCESS



Acronyms used above: CCA - Critical Coastal Areas; MMs - Management Measures; MPs-Management Plans; TMDL-Total Maximum Daily Load; NPDES - National Pollution Discharge Elimination System; MBNMS WQPP- Monterey Bay National Marine Sanctuary Water Quality Protection Program

Program Plan, agencies and other stakeholders should be able to: (1) assess the present Program's activities; (2) target efforts; (3) plan future actions based on past and present goals and objectives; (4) coordinate federal, State, and local agencies' and stakeholders' efforts; (5) implement collaborated actions; (6) obtain data on water quality and implementation effectiveness from tracking and assessment documentation, Total Maximum Daily Loads (TMDLs), and other agency and citizen monitoring programs; and (7) return to Step 1 to reassess the NPS Program's progress and effectiveness.

Fifteen-Year Program Strategy

The Strategy, described later in this document, outlines how California will seek to achieve the vision and goals of the NPS Program. Specifically, the State will use the "Three-Tiered Approach" of broad-based local stewardship backed up by regulatory authority under the Porter-Cologne Water Quality Control Act (Porter-Cologne Act) with other local, State, and federal authorities serving as additional enforceable and/or back-up authorities. Recommendations from the TACs and from additional agency and stakeholder meetings convened by the SWRCB and CCC in 1998 and 1999 are a central part of the NPS Program.

The Strategy includes elements prescribed in federal guidance (NOAA and USEPA, 1993 and USEPA, 1996), including:

- A process to implement MMs to help coordinate agency and individual actions rather than focus on individual practices or separate programs;
- Actions related to administrative coordination, technical and financial assistance, public participation, critical coastal areas (CCAs), additional MMs as goals, and monitoring;
- A strategy for and evaluation of back-up authorities;
- A process to track implementing actions to assess Program progress and effectiveness; and
- The "nine key elements" of a dynamic and effective NPS management program. (See Appendix A.)

Five-Year Implementation Plans

Nested within the Strategy are three five-year implementation plans that describe the who, what, where, when and how of Program implementation. In each five-year implementation plan, California will target implementation actions where the NPS Program can make a difference in correcting current and potential problems.

Targeting involves a balance between the need to implement NPS controls broadly and the need to address priority water quality problems in specific watersheds. Targeting also allows the State to use limited resources efficiently and to ensure that actions are tailored to match the diversity of California's climate and land use activities. With climate ranging from rain forest in the north to desert in the south, different approaches are needed to manage NPS pollution in the State. In establishing

targets, the State will address both pollution prevention and water quality improvement goals, including the protection of exceptional inland and coastal areas that are threatened by reasonably predictable increases in pollution loadings from new or expanding NPSs.

Each implementation plan will identify a set of MMs on which to target NPS Program efforts during the five-year time period. The implementation plans will also identify a series of actions related to (1) assessing water quality conditions and/or institutional efforts; (2) targeting implementation based on geographic regions or other criteria; (3) performing planning activities; (4) coordinating public and private efforts; (5) implementing the targeted MMs; and (6) obtaining data on water quality and implementation effectiveness. The Plans will also identify agencies responsible for MM implementation and will include actions, performance measures, and milestones.

Phased Approach to Managing Nonpoint Source Pollution

The State is committed to implementing the 61 NPS MMs by 2013, consistent with Federal Administrative Guidance (USEPA and NOAA, 1998) and the Three-Tiered Approach adopted in the 1988 Plan. The implementing agencies will increase the use of regulatory authorities as necessary to ensure implementation is achieved. In accordance with CWC section 13369, the SWRCB will develop on or before February 1, 2001 guidance to be used by the SWRCB and RWQCBs in establishing the process by which the SWRCB and RWQCBs will enforce their authorities as outlined in this Program Plan.

Initially the State is adopting the 61 MMs contained in CAMMPR as goals. MM implementation will be achieved through a set of activities outlined in each five-year implementation plan and will rely on existing local, State, and federal authorities and private efforts. At the end of each five-year implementation cycle, the State will evaluate and report on the effectiveness of the Program Plan to achieve the stated goals. Success will be determined by (1) the degree to which the performance measures have been met; (2) geographic extent of MM implementation; (3) selected evaluation of MPs used to implement MMs; and (4) analysis of available water quality information in those areas where implementation has occurred. Based on this evaluation, the SWRCB and CCC, in coordination with the RWQCBs and other appropriate agencies, will make public their findings and recommendations for the next five-year cycle. Depending on the degree of success, the State may choose to maintain the in-place efforts, modify, or add MMs and/or actions for each target MM. In cases where adequate progress is clearly not being made, the State will consider rulemaking to ensure successful implementation of specific MMs. Implementation of MMs in additional watersheds and water bodies will also take place as new geographic areas with NPS pollution are identified and targeted.

D. Legal Framework

Introduction

This section describes California's legal framework for implementing the NPS Program. The framework is based on two primary federal laws—the CWA and CZMA—and State and local law. In California, the Porter-Cologne Act is the principal State law governing water quality in California, and it provides the primary back-up authority to implement the NPS MMs. However, other State and local authorities are also critical components of the legal framework that address NPS pollution in California. In addition to the Porter-Cologne Act, this section describes the California Coastal Act (Coastal Act), the California Environmental Quality Act (CEQA), and the California Planning, Zoning and Development Law. Additional details on these and other authorities that are part of this framework are identified in Volume II: CAMMPR. Details on the SWRCB's and CCC's statutory authority for addressing NPSs are included in Appendix B—Legal Opinions.

Federal Laws

The Federal Water Pollution Control Act Amendments of 1972 and 1987, known as the CWA (33 United States Code [USC] §§1251 et seq.), are the principal federal statutes for water quality protection. In California, the SWRCB and nine RWQCBs administer many of the CWA's provisions. The CWA requires the State to adopt water quality standards and to submit those standards for approval by the USEPA. For point source discharges to surface water, the CWA authorizes USEPA or approved states to administer the NPDES Program. CWA section 303(d) requires states to list surface waters not attaining (or not expected to attain) water quality standards after the application of technology-based effluent limits, and states must perform a TMDL for all waters on the CWA section 303(d) list. The CWA also establishes a loan program—the State Revolving (SRF)—for the construction of water quality projects, including NPS projects.

In the 1987 CWA Amendments, Congress added CWA section 319 (33 USC §1329) which required states (1) to develop Assessment Reports that described the states' NPS problems, (2) to establish Management Programs to address these problems, and (3) to provide funding to support implementation of the Programs. California's *Nonpoint Source Management Plan* (SWRCB, 1988) outlined a general approach to address persistent NPS problems using education and outreach, financial and technical assistance, and regulatory authorities when necessary. To enhance activities to address NPS water pollution, states are currently encouraged to upgrade their NPS programs. In 1996, USEPA issued CWA section 319 program guidance that identified "nine key elements" that must be addressed to receive USEPA approval for upgraded NPS Plans (See Appendix A). Pursuant to the 1998 Clean Water Action Plan (CWAP), states with upgraded NPS Programs will receive increased funding based on a federal appropriation for State NPS Programs above $100 million. For California to receive additional funding in FFY 2000 and beyond, USEPA must certify that California's NPS Program has been upgraded consistent with the "nine key elements."

The CZMA of 1972 (16 USC §§1451 et seq.) established a national framework for effective management, protection, development, and beneficial use of the coastal zone. Pursuant to the CZMA, California prepared the California Coastal Management Program (CCMP) which was approved by NOAA. The bulk of California's coast is within the jurisdiction of the CCC pursuant to the Coastal Act of 1976 (Public Resources Code [PRC] §§30000 et seq.), while the San Francisco Bay Conservation and Development Commission (SFBCDC) has jurisdiction in San Francisco Bay (SFB) pursuant to the McAteer-Petris Act (MPA) (Government Code §§66600 et seq.). The State Coastal Conservancy (SCC) is a third partner agency in the CCMP.

Recognizing that the CZMA did not specifically mention water quality, in 1990 Congress amended CZMA section 306(d)(16)(16 USC §1455[d][16]) and added section 6217 (16 USC §1455b) to focus on NPS pollution problems and the protection of coastal waters. CZARA section 6217 requires state coastal zone management (CZM) agencies, in coordination with state water quality agencies, to develop and implement MMs to restore and protect coastal waters from adverse impacts of NPS pollution. Similarly, CZMA section 306(d)(16)(16 USC §1455[d][16]) requires that state CZM programs contain enforceable policies and mechanisms to implement applicable requirements of CZARA section 6217. To achieve these goals, states were directed to coordinate and integrate their existing CZM and water quality plans and programs, including the states' NPS management plans.

Porter-Cologne Water Quality Control Act (Porter-Cologne Act)

The Porter-Cologne Act is the principal law governing water quality regulation in California. It establishes a comprehensive program to protect water quality and the beneficial uses of water. The Porter-Cologne Act applies to surface waters, wetlands, and ground water and to both point and NPSs of pollution. Pursuant to the Porter-Cologne Act (CWC section 13000), it is the policy of the State:

- That the quality of all the waters of the State shall be protected,
- That all activities and factors affecting the quality of water shall be regulated to attain the highest water quality within reason, and
- That the State must be prepared to exercise its full power and jurisdiction to protect the quality of water in the State from degradation.

The Porter-Cologne Act established nine RWQCBs and the SWRCB which are charged with implementing its provisions and which have primary responsibility for protecting water quality in California. The SWRCB provides program guidance and oversight, allocates funds, and reviews RWQCB decisions. In addition, the SWRCB allocates rights to the use of surface water. The RWQCBs have responsibility for individual permitting, inspection, and enforcement actions within each of nine hydrologic regions. The SWRCB and RWQCBs have numerous NPS-related activities, including problem monitoring and assessment, planning, financial assistance, and regulatory and non-regulatory management.

The RWQCBs regulate discharges under the Porter-Cologne Act primarily through issuance of NPDES and WDR permits. Anyone discharging or proposing to discharge

materials that could affect water quality (other than to a community sanitary sewer system regulated by an NPDES permit) must file a report of waste discharge. The SWRCB and the RWQCBs can make their own investigations or may require dischargers to carry out water quality investigations and report on water quality issues. The Porter-Cologne Act provides several options for enforcing WDRs and other orders, including cease and desist orders, cleanup and abatement orders, administrative civil liability orders, civil court actions, and criminal prosecutions.

The Porter-Cologne Act also implements many provisions of the federal CWA, such as the NPDES permitting program. Section 401 of the CWA gives the SWRCB the authority to review any proposed federally permitted or federally licensed activity which may impact water quality and to certify, condition, or deny the activity if it does not comply with State water quality standards. If the SWRCB imposes a condition on its certification, those conditions must be included in the federal permit or license.

Except for dredge and fill activities, injection wells, and solid waste disposal sites, WDRs may not "specify the design, location, type of construction or particular manner in which compliance may be had" (Porter-Cologne Act section 13360). Thus, WDRs ordinarily specify the allowable discharge concentration or load or the resulting condition of the receiving water, rather than the manner by which those results are to be achieved. However, RWQCBs may impose discharge prohibitions and other limitations on the volume, characteristics, area, or timing of discharges and can set discharge limitations such that the only practical way to comply is to use MPs. RWQCBs can also waive WDRs for a specific discharge or category of discharges on the condition that MMs identified in an SWRCB or RWQCB approved water quality management plan are followed.

The Porter-Cologne Act also requires adoption of water quality control plans (WQCPs) which contain the guiding policies of water pollution management in California. There are a number of statewide WQCPs adopted by the SWRCB. In addition, regional WQCPs, commonly referred to as basin plans, have been adopted by each of the RWQCBs. All basin plans identify the existing and potential beneficial uses of waters of the State and establish water quality objectives to protect these uses. The basin plans also contain implementation, surveillance, and monitoring plans. WQCPs include enforceable prohibitions against certain types of discharges, including those that may pertain to NPSs. Basin plans have been adopted for each of the nine RWQCBs as delineated in Table 5.

Table 5. RWQCB Numerical Designations

1	North Coast
2	San Francisco Bay
3	Central Coast
4	Los Angeles
5	Central Valley
6	Lahontan
7	Colorado River Basin
8	Santa Ana
9	San Diego

Portions of WQCPs are also subject to review by USEPA. When approved by USEPA, the water quality objectives and beneficial use designations become water quality standards under the CWA. In most cases, water quality objectives contained in a WQCP are not directly enforceable unless implemented through WDRs or water right permits.

California Coastal Act

The State Legislature enacted the California Coastal Act (PRC §30000 et seq.) (Coastal Act) to provide for the conservation and planned development of the State's coastline. The Coastal Act mandates the protection and restoration of coastal waters pursuant to several sections in the PRC. Mandated activities include:

- To carry out a public education program to promote coastal conservation.
- To maintain, enhance, and, where feasible, restore marine resources.
- To maintain and, where feasible, restore biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes through, among other means, minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.
- To protect against spillage of crude oil, gas, petroleum products, or hazardous wastes.
- To limit the alteration of wetlands, coastal waters, and estuaries and provide for feasible mitigation measures to minimize adverse environmental effects.
- To phase out or upgrade, where feasible, existing marine structures causing water stagnation contributing to pollution problems and fish kills.
- To limit hydromodification of rivers and streams. Channelization, dams, and other substantial alterations of rivers and streams shall incorporate best mitigation measures feasible.
- To protect environmentally sensitive habitat areas (ESHAs). Site and design new development in areas adjacent to ESHAs to prevent significant adverse impacts.
- To protect long-term productivity of soils and timberlands.
- To site and design new development so as to not have significant adverse impacts either individually or cumulatively on coastal resources.
- To minimize alteration of natural landforms.
- To assure that new development is stable, has structural integrity, and does not contribute significantly to erosion.
- To control impacts of dredging in specified port areas.
- To minimize harmful effects to coastal waters, including water quality, from fill within ports.
- To locate, design, and construct port-related development to minimize substantial environmental impacts and protect beneficial uses.

In carrying out the mandates of the Coastal Act, the CCC certifies local coastal programs (LCPs) prepared by local governments (§30500). The CCC also certifies plans prepared by port districts (§30711 et seq.), colleges and universities (§30605), and proponents of public works projects (§30605). In addition, the CCC approves coastal development permits (CDPs), energy projects, and federal (federally approved, conducted, or funded)

projects consistent with the Coastal Act policies. The Coastal Act also contains several means to deter and discipline violators of its provisions. In order to prevent imminent or further damage of coastal resources, the Executive Director of the SWRCB or the CCC can issue a cease and desist order to any party that is undertaking a development without a permit or in a manner inconsistent with the terms of a previously issued permit (§§ 30809 and 30810). The CCC can also order the restoration of a site (§ 30811). Civil liability fines for violations of the Coastal Act are specified in sections 30820, 30821.6, and 30822. In practice, the CCC protects water quality primarily through: (1) managing coastal development that generates runoff or creates spills; (2) assisting local coastal governments and other agencies to address land-use and development activities that may produce NPS pollution; and (3) implementing educational and technical assistance programs.

California Environmental Quality Act (CEQA)

California is one of 20 states with an environmental impact assessment law modeled after the National Environmental Policy Act (NEPA). The SWRCB, RWQCBs, and all State and local government agencies must comply with CEQA. CEQA applies to discretionary activities proposed to be carried out by government agencies, including approval of permits and other entitlements. CEQA has six objectives: (1) to disclose to decision-makers and the public the significant environmental effects of proposed activities; (2) to identify ways to avoid or reduce environmental damage; (3) to prevent environmental damage by requiring implementation of feasible alternatives or mitigation measures; (4) to disclose to the public reasons for agency approvals of projects with significant environmental effects; (5) to foster interagency coordination; and 6) to enhance public participation.

CEQA sets forth procedural requirements to ensure that the objectives are accomplished and also contains substantive provisions requiring agencies to avoid or mitigate, when feasible, impacts disclosed in an Environmental Impact Report (EIR). In addition, CEQA sets forth a series of sweeping policy statements encouraging environmental protection. These policies have led the courts to interpret CEQA "so as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language." (*Friends of Mammoth v. Board of Supervisors [1972] 8 Cal 3d 247, 259, 104 Cal. Rptr. 761.*)

Planning, Zoning, and Development Laws

The legal framework within which California cities and counties exercise local planning and land use functions that can play a critical role in addressing NPS pollution is provided in the California Planning and Zoning Law (Government Code §§65000 et seq.) and the Subdivision Map Act (SbMA) (Government Code §§66410 et seq.), as well as in the Coastal Act.

Under State planning law, each city or county must adopt a comprehensive, long-term general plan for the physical development of the city or county and any land outside its jurisdiction which bears relation to its planning. Pursuant to Government Code section 65302, general plans must contain seven elements: (1) land use, (2) circulation,

(3) housing, (4) conservation, (5) open space, (6) noise, and (7) safety. The following elements are the most relevant to NPS pollution prevention and control:

- Land Use. Designates categories such as housing, industry, and natural resources, including density and intensity of use.
- Conservation. Applies to conservation, development, and use of natural resources (e.g., soils, forests, rivers and other water bodies, and harbors). May also cover watershed protection, land or water reclamation, prevention or control of the pollution of streams and other coastal waters, regulation of land uses along stream channels and in other areas required to implement the conservation plan (e.g., buffer areas), to control or correct soil erosion, and for flood control.
- Open Space. Applies to preservation of natural resources, including fish and wildlife habitat, rivers, streams, bays and estuaries, and open space.
- Circulation. Plans infrastructure, including water, sewage, and storm drainage.

While the general plan is a long-range look at the future of a community, a zoning ordinance spells out the immediate allowable uses for each property in the community. Each property in the community is assigned a "zone" listing the kinds of uses that will be allowed on that land (e.g., single family residential, multi-family residential, neighborhood commercial, light industrial, agricultural, etc.) and setting development standards (e.g., minimum lot size, maximum building height, minimum front-yard depth). The distribution of residential, commercial, industrial, and other zones is based on the pattern of land uses established in the community's general plan. Zoning is adopted by ordinance and carries the weight of local law. All local governments use some form of a permitting process whereby a permit is issued for a specific project and can be conditioned based on conformance with the zoning ordinance.

Subdivision regulation, like zoning, is an exercise of police power and is a principal instrument for implementing a general plan. The SbMA (Government Code §§66410 et seq.) sets forth other mandates that must be followed for subdivision processing.

The local government's corporate and police powers and zoning and subdivision ordinances are tools commonly used to implement general plans. Preferential assessment of real property can also offer landowners an economic incentive for keeping their land in agricultural, timber, or open space uses. This can serve to implement the land use, open space, and conservation elements of a general plan by reserving areas designated for agriculture, timber, open space, scenic resources, and natural resource use.

The Coastal Act also requires cities and counties that are located wholly or partially in the coastal zone to have an "eighth element" (the LCP) for that portion of the local government's jurisdiction in the coastal zone. When an LCP is certified by the CCC as being consistent with the goals and policies of the Coastal Act, coastal permit authority for that area is delegated to the local government. However, development in State tidelands, submerged lands, and public trust lands continues to require a permit from the CCC, and certain types of local government decisions on coastal permits made under certified LCPs may be appealed to the CCC.

SWRCB Antidegradation Policy

A key policy of California's water quality program is the State's Antidegradation Policy. This policy, formally known as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (SWRCB Resolution No. 68-16), restricts degradation of surface and ground waters. In particular, this policy protects water bodies where existing quality is higher than necessary for the protection of beneficial uses.

Under the Antidegradation Policy, any actions that can adversely affect water quality in all surface and ground waters must: (1) be consistent with maximum benefit to the people of the State; (2) not unreasonably affect present and anticipated beneficial use of the water; and (3) not result in water quality less than that prescribed in water quality plans and policies. Furthermore, any actions that can adversely affect surface waters are also subject to the Federal Antidegradation Policy (40 Code of Federal Regulations [CFR], § 131.12) developed under the CWA.

E. Stakeholder Roles in Program Development and Implementation

NPS pollution control is the shared responsibility of both public and private interests. Ultimately all of us—agencies, landowners and land operators, and the general public—contribute to and must help to control NPS pollution.

The CWA and CZARA are the legal foundation for California's current strategy to prevent and control NPS pollution. Therefore, the SWRCB, RWQCBs, and the CCC are the lead agencies for developing the program and coordinating its implementation.

However, the management of land and water uses in California is conducted by numerous local, State, and federal agencies with independent or, in some cases, overlapping authorities and programs. These agencies may be broadly categorized as management agencies, regulatory agencies, land use agencies, or assistance agencies (Table 6). Some agencies' authorities and programs are limited to specific NPS categories (e.g., Department of Boating and Waterways [DBW], Board of Forestry [BOF]); other agencies have broad authority to protect resources (Table 7).

F. Scope and Schedule

California intends to implement a comprehensive statewide program under the CWA and CZMA rather than develop a separate new program for the coastal zone. This will allow the State (1) to protect water quality through a single upgraded NPS program, (2) to use resources more effectively, (3) to eliminate the potential for regulatory inequities that might occur if special zones are created, and (4) to enhance agency coordination. The Strategy is based on implementation of MMs through regulatory and non-regulatory activities including education and outreach, public participation, and technical and financial assistance and the use and coordination of enforceable authorities and programs where self-determined efforts are insufficient to restore and protect State waters.

TABLE 6. CATEGORIES OF IMPLEMENTING AGENCIES

Federal and State Land Management and Regulatory Agencies	This category comprises federal and State agencies that have the authority to implement MPs statewide. Such authority derives either from the agency's management responsibility for publicly owned or controlled land or its regulatory authority. For example, large portions of the State are managed by federal regulators or land and water managers (e.g., USEPA, NOAA, BLM, National Park Service, U.S. Army Corps of Engineers [USACOE], U.S. Fish and Wildlife Service [USFWS], U.S. Forest Service [USFS], and Federal Energy Regulatory Commission[FERC]). When such agencies have the capability to act effectively in their areas of jurisdiction as a lead NPS management agency, the SWRCB may seek formal agreements—e.g., Management Agency Agreements, Memoranda of Agreement (MAA), or MOU—that contain NPS controls.
Federal and State Assistance Agencies	This category comprises agencies that can provide technical or financial assistance to support implementation of MPs. These agencies include the Natural Resources Conservation Service (NRCS), SCC, and University of California Cooperative Extension (UCCE). They assist landowners and land managers to voluntarily implement MPs and help identify appropriate MPs for RWQCB or management agency enforcement. For example, SCC programs are directed at preserving coastal agriculture, resolving coastal land use issues, restoring and enhancing natural resources, developing urban water fronts, acquiring significant coastal sites, providing public access to and along the shoreline, and assisting local governments and nonprofit organizations. One action of the Program is for the SWRCB to seek agreement with these agencies so that they could target technical and financial resources to high priority NPS problems. Currently, the CCC works with the SCC to ensure that the watershed protection work reflects priorities of the Program Plan.
Local Land Use Agencies	This category comprises agencies (e.g., counties, cities, and some special districts) that have the authority to enforce implementation of MPs locally. Local government is the principal land use planning authority in the State. County and city government and special districts often institute the first tier of management requirements for a specific parcel of land. When such agencies have the capability of acting effectively in their jurisdictional areas as lead NPS management agencies, RWQCBs may seek formal agreements that provide for NPS control.
Local Assistance Agencies	This category comprises local agencies and special districts that provide technical or financial assistance to support implementation of MPs. These agencies assist landowners and land managers to voluntarily implement MPs and to help identify appropriate MPs for RWQCB or management agency enforcement. One action of the Program is for the RWQCBs to seek agreements with these agencies so that they can target technical and financial resources to high priority NPS problems.

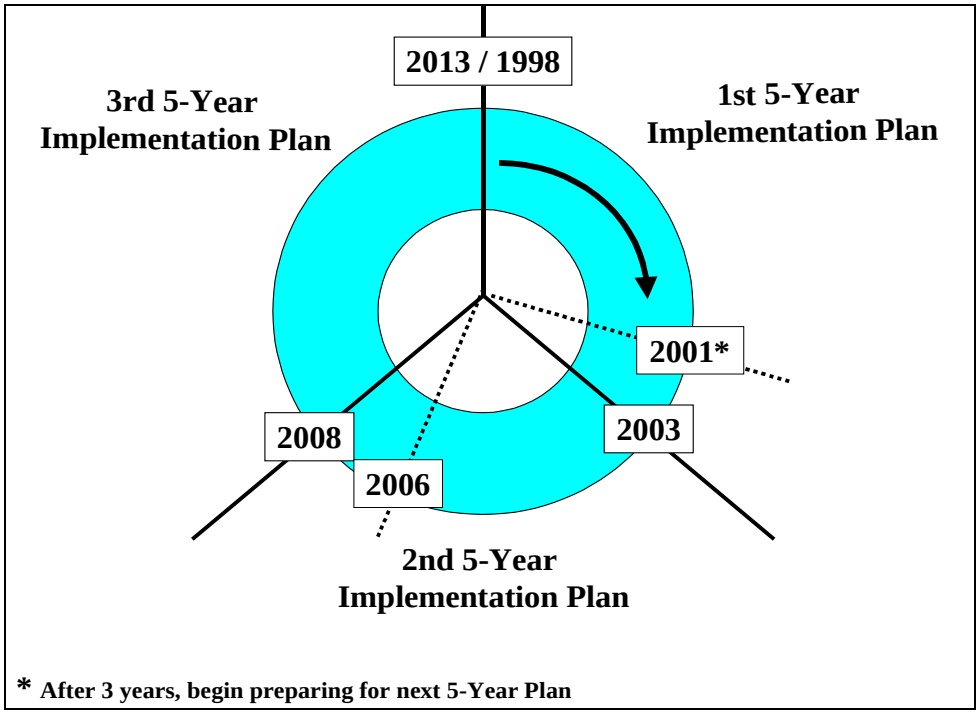
TABLE 7. IMPLEMENTING AGENCIES FOR CALIFORNIA'S NONPOINT SOURCE MANAGEMENT MEASURES

Agencies	Management Measures*					
	AGR	FOR	URB	MAR	HYD	WET
California Environmental Protection Agency (Cal/EPA)						
1. State Water Resources Control Board (SWRCB)	3	3	3	3	3	3
2. Regional Water Quality Control Boards (9) (RWQCB)	3	3	3	3	3	3
3. California Integrated Waste Management Board (CIWMB)			3	3		
4. Department of Pesticide Regulation (CDPR)	3	3	3			
5. Department of Toxic Substances Control (DTSC)			3	3		
California Resources Agency (Cal/RA)						
6. California Coastal Commission (CCC)	3	3	3	3	3	3
7. Delta Protection Commission	3					
8. Department of Boating and Waterways (DBW)				3		
9. Department of Conservation (DOC)	3					
10. Department of Fish and Game (DFG)	3	3	3	3	3	3
11. Department of Forestry and Fire Protection (CDF)		3				
12. Board of Forestry(BOF)		3				
13. Department of Parks and Recreation (DPR)	3	3	3	3	3	3
14. Department of Water Resources (DWR)	3		3		3	3
15. San Francisco Bay Conservation and Development Commission (SFBCDC)			3	3	3	3
16. Santa Monica Mountains Conservancy			3			3
17. State Coastal Conservancy (SCC)					3	3
18. State Lands Commission (SLC)	3	3		3		3
19. Wildlife Conservation Board (WCB)					3	3
Other State, Regional and Local						
20. Department of Food and Agriculture (DFA)	3					
21. Department of Health Services (DHS)	3	3	3	3	3	3
22. Department of Transportation (Cal/Trans)			3			
23. University of California Cooperative Extension (UCCE)	3	3	3	3	3	3
Local Governments	3	3	3	3	3	3
Resource Conservation Districts (RCDs)	3	3	3		3	3
Federal						
Bureau of Land Management (BLM)	3					
National Oceanic and Atmospheric Administration (NOAA)	3	3	3	3	3	3
• Monterey Bay National Marine Sanctuary (MBNMS)	3		3	3	3	3
Natural Resources Conservation Service (NRCS)	3					
U.S. Army Corps of Engineers (USACOE)				3	3	3
U.S. Coast Guard (USCG)				3		
U.S. Environmental Protection Agency (USEPA)	3	3	3	3	3	3
• San Francisco Bay (SFB), Santa Monica Bay (SMB), and Morro Bay National Estuary Programs (NEPs)	3		3	3	3	3
U.S. Forest Service		3				

* In this table, AGR = Agriculture; FOR = Forestry; URB = Urban; MAR = Marinas and Recreational Boating; HYD = Hydromodification; WET = Wetlands and Riparian Areas.

The assessment of implementation efforts conducted pursuant to each five-year implementation plan will occur on a regular basis in three distinct stages, with the SWRCB and CCC reporting on these efforts every two years (biennially). This process is detailed below and shown in Figure 2.

FIGURE 2. CALIFORNIA NPS POLLUTION CONTROL PROGRAM: A FIFTEEN-YEAR STRATEGY WITH THREE FIVE-YEAR IMPLEMENTATION PLANS



First Five-Year Implementation Plan (1998 - 2003) (Implementation Plan)

This document contains the first implementation plan which identifies an initial set of targeted MMs and describes NPS Program activities through June 2003 (five years after the July 1998 USEPA and NOAA Conditional Approval of the State's submittal pursuant to CZARA). In this Implementation Plan, the SWRCB and CCC have developed a plan to implement the MMs and achieve Program goals. In 2001, the SWRCB, RWQCBs, and CCC, in coordination with other agencies and the public, will begin reviewing implementation actions to assess the State's progress and effectiveness. At this time, the State will also start developing the next five-year implementation plan. Achieving designated milestones and meeting identified objectives will serve as a basis for evaluating progress. In 2003, California will report on the State's progress in meeting its milestones and objectives for the first five-year period.

Second Five-Year Implementation Plan (2003 – 2008)

Implementation of the second five-year implementation plan will occur from July 2003 through June 2008. The second five-year implementation plan will: (1) provide for the continued implementation of the initial set of actions and MMs, including increasing use

of regulatory actions if necessary; (2) outline steps to improve and expedite program implementation determined to be appropriate in light of the review and evaluation; (3) target approximately half of the remaining NPS MMs, plus any additional MMs deemed necessary; and (4) include actions and milestones to ensure implementation of these MMs. In 2006, the State will again review and evaluate implementation to assess progress and effectiveness.

Third Five-Year Implementation Plan (2008 – 2013)

Implementation of the third five-year implementation plan is expected to begin in July 2008 and continue through June 2013. The third five-year implementation plan will: (1) provide for continued implementation of actions and NPS MMs as necessary; (2) target the remaining NPS MMs for implementation, plus any additional MMs deemed necessary; and (3) include actions and milestones to ensure implementation of these MMs.

II. FIFTEEN YEAR PROGRAM STRATEGY

A. Introduction

The Strategy describes how the vision and goals of NPS pollution prevention and control will be realized by utilizing the components of the Program process. The Program process begins with "assessing" the impact of NPS pollution on water quality. NPS issues are identified for waters across the State either individually or collectively. A thorough assessment allows the State to proceed to the second component, "targeting" appropriate human, financial, and technical resources into geographic areas and NPS MMs requiring immediate attention.

The State will fully address the NPS issues from multiple fronts. The "planning" component will take advantage of the numerous programs and tools already in place. Use of existing programs reduces duplicative efforts and benefits from the expertise already accumulated at different institutional levels. Based on previous success stories and lessons learned, the State can begin to identify and plan to use new approaches to address remaining NPS problems.

The complexity of the issues makes effective "coordination" of the various activities imperative. The State will therefore foster interagency cooperation and facilitate public participation through the establishment of formal agreements and formation of an Interagency Coordinating Committee (IACC).

Effective "implementation" of NPS MMs will rely on a "three-tiered approach," with an emphasis on self-determined cooperation of the stakeholders. Applicable regulatory programs and authorities will be invoked in the case of persistent NPS water quality problems and/or stakeholder resistance to self-determined implementation of MMs.

The final element of the Program process consists of "tracking" implementation of MMs, "monitoring" MP effectiveness, "assessing" program success, and "reporting" program progress. Again, participation of the stakeholders at this step will ensure the dissemination of lessons learned and will continue program success. These lessons learned will become the backbone of future decisions both within the Strategy and the subsequent five-year implementation plan.

These components make up an evolving and iterative process repeated in each of the three five-year implementation plan cycles. It is expected that by the end of the fifteen year duration of the Program Plan all the identified MMs for the prevention and control of NPS pollution will have been implemented in the appropriate watersheds and will have improved the quality of the State's waters.

B. Assessing the Problem

California will continue to use the State's Water Quality Assessment (WQA) as the primary tool for assessing NPS pollution statewide.[4] Pursuant to CWA section 305(b), this information is reported to USEPA every two years and is used to develop the CWA section 303(d) list of waters that do not meet water quality standards with technology-based pollution controls.[5] Assessment of waters used as drinking water will also be enhanced by the DHS's new Drinking Water Source Assessment and Protection (DWSAP) Program.[6]

These assessment systems support the NPS Program by identifying, individually and collectively, which waters are impacted by NPS pollution. This assists the NPS Program in targeting future actions and determining their effectiveness. To improve the usefulness of these assessment systems, the NPS Program will:

- Ensure that monitoring data from the Program is incorporated into the WQA,
- Support the development and improvement of a geographically-based assessment system, Geo Water Body System (GeoWBS) [7],
- Support efforts to provide consistency in listing impairments,
- Improve consistency in the definitions of specific sources of pollution,
- Promote public access to the WQA and its underlying data, and
- Seek funding to increase the quality and quantity of water quality monitoring.

These assessment systems also will be utilized to monitor and track the effectiveness of the NPS Program and are discussed in that context in subsequent sections of the Strategy (see Part II, Section G—*Track, Monitor, Assess, and Report*).

C. Targeting Efforts

Introduction

High quality water resources are of significant economic, social, and ecological value in California; however, the amount of available public funds is inadequate to address all the

[4] This compilation of water quality information, provided by the RWQCBs, synthesizes the results of monitoring programs conducted by dischargers, landowners, community members, and local, State, and federal agencies. The WQA reports on the degree to which these waters support their beneficial uses, such as municipal drinking water supply, recreational activities, or cold water fisheries.

[5] A total of 1,700 water bodies was assessed in the 1998 CWA section 305(b) Report. Of these, 509 surface waters did not meet water quality standards. The RWQCBs specified 392 water bodies (77 percent) as directly impacted by NPS pollution. The categorical sources (e.g., agriculture, urban, forestry, marinas) of the NPS pollution were identified for 173 surface water bodies. The categorical sources were not identified by the Los Angeles and San Diego RWQCBs. The identification of sources is not required by the CWA when listing waters as impaired.

[6] DHS, as required by the Safe Drinking Water Act Amendment of 1996, recently submitted to USEPA and received approval (April 1999) for the DWSAP Program. DHS will identify and assess all potential sources of contaminants, including NPS pollutants, for public drinking water systems in California. A report outlining the findings will be provided to customers of each system.

[7] The information in the WQA is stored in the SWRCB's GeoWBS database. The GeoWBS database identifies the water body size, the degree to which beneficial uses are supported, the affected beneficial uses, the pollutants, and the pollution sources.

existing water pollution sources all at once at every location in the State. The concept of targeting focuses State resources on specific actions or pollutants within limited geographic regions and improves the likelihood of achieving measurable water quality improvements. Actions that lead to water quality benefits can in turn increase public support of NPS pollution control programs and ensure that the public is more closely attuned to overall water quality goals. Such a change in attitude with a corresponding increase in pollution control knowledge and skill is a primary ingredient of lasting water resource protection.

In order to make the Strategy most effective, efforts must be targeted from both a water resources (e.g., water quality, geographic, or watershed area) and economic resources perspective. To achieve the overall objective to improve water quality, the Program Plan will target efforts towards accomplishing the following goals:

- Coordinate NPS pollution control implementation efforts to target both:
  1. MMs for agriculture, forestry, urban areas, marinas and recreational boating, and hydromodification in riparian corridors and wetlands, and
  2. Geographic regions, with a focus on the most impaired areas, areas most in need of protection, and areas where significant existing efforts or increased stakeholder participation are underway to prevent and control NPS pollution.
- Apply project resources to clearly specified, realistic goals and objectives (e.g., to efforts that will result in a high probability of success with available resources and funding).
- Protect and restore valuable resources from increased NPS pollution associated with changes in land use.

All targeting efforts will coordinate with existing State and federal programs that focus on water resources in general and NPS problems in particular. To increase stakeholder support of the prioritized efforts, public involvement needs to be directly incorporated into the targeting process. The following sources of information were used for targeting resources and priorities within the first five-year plan:

- Stakeholder interpretation of NPS priorities;
- Impaired waters as identified on the CWA section 303(d) list and TMDL priority lists; and
- Delineation of critical coastal areas and identification of additional MMs.

Stakeholder Involvement in Prioritization

In order to receive direct input from stakeholders concerning current and future efforts of the NPS Program, staffs of the SWRCB and the CCC held workshops in December 1998 and July 1999 (each series consisting of one workshop in the northern and southern parts of the State). In addition, a questionnaire was sent to over 200 stakeholders (including the RWQCBs and 17 other State agencies) requesting identification of "priority" MMs and program categories (e.g., administrative coordination, public participation, monitoring, and technical assistance) that need to be addressed during the first five-year

implementation plan. The questionnaire results and comments from these opportunities for stakeholder involvement were used to target the initial activities outlined in the first five-year implementation plan.

The targeting efforts were also supplemented through the use of the reports developed by the NPS TACs (SWRCB, 1994a-i; SWRCB, 1995 a-b). The active involvement of the different representatives in the TACs ensured that priorities were given to the MMs and geographic areas with which those most intimately familiar with the NPS pollution issues, the stakeholders, expressed the most concern. For example, all the identified MMs for agriculture, the single most significant contributor of NPS pollution to the Nation's water bodies, have been targeted for implementation during the first five years. On the other hand, the recommendation for installation of pumpout facilities, during the first implementation cycle, at marinas on the Tomales Bay, an important shellfish production location, demonstrates the Program's focus on protecting areas with critical coastal-dependent industries.

Target Impaired Waters

CWA section 303(d)(1)(A) requires states to identify surface waters within their boundaries where numeric or narrative water quality objectives are not being maintained and/or beneficial uses are not fully protected after application of technology-based controls. Each state is also required to establish a priority ranking for such waters, taking into account the severity of the pollution and the beneficial uses to be made of the waters.

For those surface water bodies identified and prioritized above, section 303(d)(1)(C) requires that each state establish TMDLs for those pollutants identified under CWA section 304(a)(2) as suitable for TMDL development correlated with the achievement of water quality objectives. A TMDL is a numeric target which when achieved will result in attainment of water quality standards. The TMDL includes allocations (e.g., allowable pollutant loading) for both point and NPSs. The loadings are established with consideration given to seasonal variations of pollutant loadings and a margin of safety which takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality.

The CWA section 303(d) and TMDL priority lists are developed biennially on even-numbered years. The RWQCBs first assess available data to develop the list. The assessment includes: (1) re-examining the water bodies previously listed under CWA section 303(d); (2) reviewing existing monitoring information; (3) soliciting additional information from other State and federal agencies; and (4) encouraging public participation. The CWA section 303(d) and TMDL priority lists are approved through a public noticing and hearing process at each RWQCB and the SWRCB. USEPA reviews the State's CWA section 303(d) and TMDL priority lists and either approves or disapproves them. If the lists are disapproved, USEPA proposes a modified list with a 30-day comment period. The USEPA's final list then becomes the State's list for the next two years.

The first five-year implementation plan made extensive use of the CWA section 303(d) list to prioritize its tasks. Several impaired water bodies have been targeted for TMDL development. Examples are abundant in the agriculture and forestry categories. Specifically, 33 water bodies have been targeted for nutrient (agriculture – nutrient management) TMDL development by 2003. The load allocations determined for NPSs at the end of the TMDL development process will help guide the selection of best management practices (BMPs) for implementation in the future to ensure NPS pollution prevention and control.

Critical Coastal Area Designation

Special coastal habitats (e.g., wetlands, tide pools, creeks, and lagoons) continue to be threatened from the impacts to water quality that accompany new and existing development. California recognizes that special coastal resources require special care and attention. The intent of CCA designation, therefore, is to direct needed attention to coastal areas of special biological, social, and environmental significance and to provide an impetus for these areas to receive special support and resources.

Pursuant to federal guidance (NOAA and USEPA, 1993), factors in identifying CCAs include:

- The nature and proximity of contaminant sources to the coastal area;
- Physical and biological characteristics of adjacent lands that will cause NPS problems;
- Important biological features;
- Characteristics of land use changes; and
- Extent to which the above effects can be prevented or reduced by implementation of additional MMs.

Federal guidance provides the states with flexibility in their approach to identifying CCAs.[8] California will use a combination of approaches in delineating CCAs. First, the State will designate special sections within the California coastal zone as CCAs. These include ESHAs currently designated in California's CZM program, as well as areas adjacent to Areas of Special Biological Significance (ASBS), California's National Estuarine Research Reserves (NERRs), NEPs, and National Marine Sanctuaries. Within these areas the CCC will use its existing authority under the CCMP to ensure that all appropriate MMs are implemented and, where appropriate, that additional MMs are

[8] A state can take one or both of the following approaches:

1. A state can establish the CCA as a strip of land along the portion(s) of the shoreline adjacent to threatened or impaired coastal waters. Within this area, special controls such as setbacks and low-density zoning can be employed to protect coastal waters.
2. A state can rely on site specific evaluations to determine the extent of a CCA. Under this approach, states may include broader geographic areas in the CCA designation, starting with shoreline segments adjacent to threatened or impaired coastal waters and extending inland to encompass significant coastal features or resources further inland. These broader areas may include entire watersheds or portions of watersheds adjacent to coastal waters and may encompass significant biological features such as wetlands.

developed to protect these coastal waters. Second, agency and public actions will be coordinated to protect the adjacent portions of the inland watersheds that impact the environmental processes within the coastal zone.

To coordinate the actions within the CCAs, the Program Plan will establish an interagency committee (CCA Committee)--led by the CCC in coordination with the SCC, SWRCB, six coastal RWQCBs, and the public--to identify CCAs and develop additional MMs necessary to protect these areas. The CCC and SWRCB have identified several initial goals for CCA designation and implementation.

First, the CCA Committee will evaluate the need for and the implementation of additional MMs to protect and restore coastal waters within CCAs. The Committee will work closely with appropriate agencies and researchers to develop additional MMs that address the issues that threaten or impact the designated CCAs. For the portions of CCAs within the coastal zone, the CCC will include additional MMs, when appropriate, in future coastal development permits and future Local Coastal Program (LCP) amendments associated with these areas. Further discussion of the development of additional MMs for CCAs is provided in Part II, Section H: *Overall Program Assessment—Refining the Program*.

Second, the CCA Committee will seek to channel appropriate NPS Program and agency resources to areas of special concern that may not fall within the initial stages of the Program Plan's other NPS activities. The Committee will act as an advocate for the prioritization, funding, and implementation of projects that can achieve measurable water quality improvements within and in watershed areas adjacent to CCAs. For example, the CCC will support and coordinate the implementation of additional MMs in the watersheds impacting CCAs by: (1) working directly with the appropriate agencies; (2) identifying and targeting resources for implementation in sensitive coastal habitats that can achieve prescribed water quality goals and in sensitive coastal habitats that are of regional concern but not a priority under other water quality designations (threatened or impaired); and (3) expanding participation in education and restoration programs.

This designation will help the State to protect pristine, threatened, and impaired waters that may be degraded by new or substantially expanding land use near the coastal zone by coordinating additional agencies and initiating special programs. Because CCA designation is a continuing process, sensitive coastal habitats that may become threatened by new or expanding development can be targeted as a priority in the future.

Finally, CCA designation will provide resources to special coastal areas which do not achieve priority ranking within other sections of this plan and will therefore provide solutions to program deficits rather than create an additional designation using the same review criteria.

Results of Targeting Efforts

One of the goals of the Program is to implement all of the MMs over the next fifteen years. Although the Strategy targets specific MMs during each five-year

implementation plan, in any given year efforts will be ongoing for each MM throughout the State. Some of the MMs implemented during the first implementation cycle will undoubtedly require continued attention long past the initial five years. Similarly, sustained NPS pollution prevention and control efforts may be needed for certain geographic areas beyond the first five years. During the assessment processes in 2001 and 2006, these MMs and areas will be identified and incorporated into the subsequent implementation cycle.

In targeting MMs and geographic areas during the first five-year implementation cycle, special consideration was also given to dovetailing with existing programs. For example, in providing technical support to cities in the development of urban runoff plans, the State will build upon and expand upon the use of the Model Urban Runoff Program (MURP). MURP was originally developed for the Cities of Monterey and Santa Cruz. Taking advantage of existing NPS programs such as MURP will avoid duplicative efforts.

Depending on its relative priority, each MM for each five-year implementation cycle was targeted as either primary, secondary, or tertiary. In designating the targeting level for each MM, consideration was given also to the extent that specific actions are currently being implemented to address the NPS source. For example, urban runoff poses a considerable problem in California but was designated at the secondary and tertiary targeting level because of the existing NPDES Stormwater Program. At the conclusion of each five-year implementation cycle, the MMs targeted at the primary level will be evaluated using the following criteria: (1) the degree to which performance measures have been met; (2) geographic extent of MM implementation; (3) selected evaluation of MPs to implement the MMs; and (4) analysis of available water quality information in those areas where implementation has occurred. Depending on the degree of success, the State will determine whether to: (1) maintain the in-place efforts; (2) modify or add MMs and/or actions for each primary level MM; or (3) consider whether rulemaking is necessary to ensure successful implementation. The targeted MMs for the Strategy and each five-year implementation plan are presented in Table 8.

D. Planning

Introduction

To maintain the Program Plan as a working document, it will be continually updated, decisions will be re-evaluated, and priorities will be re-targeted based on updated information, pilot projects, and lessons learned. An important part of the updating process is integrating the Program Plan with existing federal and State plans and programs that impact NPS pollution control. The following sections provide a brief description of these plans and programs and how the Program Plan will integrate with them.

1988 NPS Plan

The CWA was amended in 1987 to include a new section 319 titled “Nonpoint Source Management Program.” CWA section 319 required states to develop a management program describing the measures the State will take to address NPS pollution. Pursuant

TABLE 8 – SUMMARY OF TARGETED MANAGEMENT MEASURES FOR FIFTEEN-YEAR STRATEGY AND FIVE-YEAR IMPLEMENTATION PLANS

Management Measures	Targeting Level for Each Five Year Implementation Plan		
	1998-2003	2003-2008	2008-2013
1. Agriculture			
A. Erosion and Sediment Control	P	P	P
B. Confined Animal Facilities Wastewater and Runoff	P	P	P
C. Nutrient Management	P	P	P
D. Pesticide Management	P	P	P
E. Grazing Management	P	P	P
F. Irrigation Water Management	S	P	P
G. Education/Outreach	P	P	P
2. Forestry (Silviculture)			
A. Preharvest	P	P	P
B. Streamside Management Areas	P	P	P
C. Road Construction/Reconstruction	P	P	P
D. Road Management	P	P	P
E. Timber Harvesting	P	P	P
F. Site Preparation and Forest Regeneration	P	P	P
G. Fire Management	S	P	P
H. Revegetation of Disturbed Areas	P	P	P
I. Forest Chemical Management	S	S	P
J. Wetlands Forest	T	P	P
K. Postharvest Evaluation	P	P	P
L. Education/Outreach	P	P	P
3. Urban Areas			
3.1 Runoff from Developing Areas			
A. Watershed Protection	S*	P	P
B. Site Development	S*	P	P
C. New Development	S*	P	P
3.2 Runoff from Construction Sites			
A. Construction Site Erosion/Sediment Control	T*	S*	P
B. Construction Site Chemical Control	T*	S*	P
3.3 Runoff from Existing Development			
A. Existing Development	S*	P	P
3.4 On-site Disposal Systems			
A. New On-site Disposal	S*	P	P
B. Operating On-site Disposal Systems	S*	P	P
3.5 Transportation Development: Roads, Highways, and Bridges			
A. Planning, Siting, and Developing Roads and Highways	T*	S*	P
B. Bridges	T*	S*	P
C. Construction Projects	T*	S*	P
D. Construction Site Chemical Control	T*	S*	P
E. Operation and Maintenance	T*	S*	P
F. Road, Highway, and Bridge Runoff Systems	T*	S*	P
3.6 Education/Outreach			
A. Pollution Prevention/Education: General Sources	P	P	P

Management Measures	Targeting Level for Each Five Year Implementation Plan		
	1998-2003	2003-2008	2008-2013
4. Marinas and Recreational Boating			
4.1 Assessment, Siting, and Design			
A. Water Quality Assessment	P	P	P
B. Marina Flushing	T	S	P
C. Habitat Assessment	S	P	P
D. Shoreline Stabilization	S	P	P
E. Storm Water Runoff	S	P	P
F. Fuel Station Design	S	P	P
G. Sewage Facilities	P	P	P
H. Waste Management Facilities	P	P	P
4.2 Operations and Maintenance			
A. Solid Waste Control	P	P	P
B. Fish Waste Control	T	S	P
C. Liquid Material Control	S	P	P
D. Petroleum Control	P	P	P
E. Boat Cleaning and Maintenance	P	P	P
F. Maintenance of Sewage Facilities	P	P	P
G. Boat Operation	T	S	P
4.3 Education/Outreach			
A. Public Education	P	P	P
5. Hydromodification			
5.1 Channelization and Channel Modification			
A. Physical and Chemical Characteristics of Surface Waters	S	P	P
B. Instream and Riparian Habitat Restoration	S	P	P
5.2 Dams			
A. Erosion and Sediment Control	T	S	P
B. Chemical and Pollutant Control	T	S	P
C. Protection of Surface Water Quality and Instream and Riparian Habitat	T	S	P
5.3 Streambank and Shoreline Erosion			
A. Eroding Streambanks and Shorelines	S	P	
5.4 Education/Outreach			
A. Educational Programs	P	P	P
6. Wetlands, Riparian Areas and Vegetated Treatment Systems			
A. Protection of Wetlands and Riparian Areas	S	P	P
B. Restoration of Wetlands and Riparian Areas	S	P	P
C. Vegetated Treatment Systems	T	S	P
D. Education/Outreach	P	P	P

Legend:

P – primary
S – secondary
T – tertiary

* The Program Plan will implement the Urban MMs through the coordination and expansion of in-place activities including the Phase I and Phase II Storm Water Programs, the Cal/Trans Stormwater Permit, LCP amendments, CDPs and/or MURP.

to these requirements, the SWRCB developed the 1988 Plan which outlined the steps to initiate systematic management of NPS pollution in California. The 1988 Plan emphasized the following characteristics of an effective management program: (1) developing an explicit long-term commitment by the SWRCB and RWQCBs; (2) coordinating existing SWRCB and RWQCB NPS related programs; (3) using more effectively RWQCB regulatory authorities coupled with non-regulatory programs; (4) improving the linkages among local, State, and federal agencies that have authorities to address NPS pollution; and (5) enhancing funding sources. Key elements of the 1988 Plan were the: (1) development of management options to address NPS pollution (the three-tiered approach); (2) establishment of the NPS Management Information System (NPSMIS); and (3) phased implementation of the 1988 Plan.

The Strategy builds on the lessons learned in the implementation of the 1988 Plan by maintaining and/or expanding those elements that were successful and deleting or altering those that did not achieve the goals of the 1988 Plan. The Strategy maintains the "three-tiered approach" and commits to expanding application of the "tiers" pursuant to the requirements of section 13369(a)(2)(B) of the CWC. The NPSMIS will be expanded through contracts with the University of California at Davis-Information Center for the Environment (UCD-ICE) to develop relational databases and geography-based information systems. The phased implementation program in the 1988 Plan was expanded to include a commitment from the SWRCB to consider adopting the MMs as regulation if clear progress is not being made in their implementation.

Water Quality Control Plans

In California, the RWQCBs and SWRCB are responsible for the development of statewide and regional WQCPs, respectively. Pursuant to section 13240 of the Porter-Cologne Act, each of the State's nine RWQCBs must formulate and adopt regional WQCPs (basin plans) for all surface and ground waters within their respective regions. Porter-Cologne Act section 13170 allows the SWRCB to adopt statewide WQCPs for waters for which water quality standards are required by the CWA. The statewide plans, when adopted, supersede any basin plan requirements for the same waters to the extent of any conflict.

Basin Plans

Section 13241 of the Porter-Cologne Act requires that each basin plan: (1) designate beneficial uses; (2) establish water quality objectives that protect the designated beneficial uses; and (3) provide an implementation plan for achieving the water quality objectives. The implementation plan for achieving water quality objectives must include, but is not limited to: (1) a description of the nature of the actions which are necessary to achieve the water quality objectives; (2) a time schedule for the actions to be taken; and (3) a description of the monitoring and surveillance to be undertaken to determine compliance with objectives.

As part of the "continuing planning process," components of the basin plan are reviewed as new information and data become available or as specific needs arise. Comprehensive updates of the basin plan occur in response to State and federal

legislative requirements and as funding becomes available. All of the RWQCB basin plans were completely updated in 1995. In addition, the basin plan provides consistent long term standards and program guidance for the RWQCB.

Section 13240 of the Porter-Cologne Act directs the SWRCB and the RWQCBs to periodically review and update basin plans. Furthermore, CWA section 303(c) directs states to review water quality standards every three years (triennial review) and, as appropriate, modify and adopt new standards. In the triennial review process, basin planning issues are formally identified and ranked during the public hearing process. These and other modifications to the basin plan are implemented through basin plan amendments which must be reviewed by the RWQCB and the SWRCB in a public review process specified. Following adoption by the RWQCB, basin plan amendments and supporting documents are submitted to the SWRCB for review and approval. All basin plan amendments approved by the SWRCB after June 1, 1992 must also be reviewed by the State Office of Administrative Law (OAL). In addition, the USEPA must review and approve those basin plan amendments that involve changes in State standards for surface water quality to ensure such changes do not conflict with federal regulations.

The basin plans will be one of the most effective instruments for integrating the Program Plan. Many of the critical elements for implementing the NPS Program are required by statute to be incorporated into the basin plan. The SWRCB and RWQCBs can use their planning authority to prevent NPS pollution and implement MMs. Implementation programs within the basin plan can implement MMs through several approaches. The implementation plans can recommend that NPS dischargers carry out specific BMPs in order to achieve water quality standards. The implementation programs can also waive regulation of categories of NPS pollution discharges on condition that the dischargers implement specific MMs or BMPs. Alternatively, an implementation program can prohibit NPS discharges either entirely or partially, in certain areas or under certain conditions. The conditions can include compliance with appropriate MMs and applicable BMPs.

Inland Surface Waters Plan/Enclosed Bays and Estuaries Plan

The SWRCB is in the process of developing a new Inland Surface Waters Plan (ISWP) and Enclosed Bays and Estuaries Plan (EBEP) to reinstate the two plans it rescinded in response to an adverse court ruling in 1994. The SWRCB is generally authorized to adopt WQCPs under the Porter-Cologne Act (§13170) and is specifically mandated to adopt the EBEP (CWC §13391). Once adopted and in effect, the ISWP and EBEP will complement the California Ocean Plan (Ocean Plan) by establishing statewide water quality standards and implementation measures for controlling discharges of toxic pollutants to non-ocean surface waters of the State.

The SWRCB is developing the ISWP and EBEP in two phases. In Phase 1, the SWRCB will adopt the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Policy). The Policy (adopted pursuant to CWC §13140) will establish statewide toxicity requirements and provisions to implement water quality standards for priority toxic pollutants in waste

discharges. The adoption of water quality standards for priority toxic pollutants for all waters of the United States is mandated by federal CWA section 303(c)(2)(B) in accordance with implementing regulations (40 CFR 131). The vast majority of these standards will be promulgated for the State in the USEPA California Toxics Rule (CTR). Together, the CTR and the Policy will be the basis for establishing water quality-based effluent limitations and other permit requirements for priority pollutants and whole effluent toxicity in NPDES permits and other WDRs. Thus, the standards and implementation provisions established by the CTR and the Policy will function as replacements for the ISWP and EBEP until they are established in their entirety in Phase 2. In Phase 2, the SWRCB will combine the Policy provisions with State-adopted water quality standards for priority pollutants and other pollutants of concern to produce a new ISWP and EBEP. Other issues, such as toxicity testing and the evaluation of standards for effluent-dependent and agricultural drainage-dominated water bodies, will also be addressed in the future.

Currently, the USEPA expects to promulgate the CTR in December 1999. In November 1999, the SWRCB released a revised draft of the Policy and supporting documents for a second public review prior to an SWRCB workshop in December 1999. The Policy will be considered for adoption at a SWRCB meeting in early 2000. The Policy will become effective upon approval by the OAL in the spring of 2000. After the ISWP and EBEP are adopted, the plans will be periodically reviewed and, as appropriate, revised (generally every three years) in accordance with CWC section 13240 and CWA section 303(c)(1). These triennial reviews involve public hearings prior to adoption of amendments by the SWRCB.

California Ocean Plan

The 1997 Ocean Plan states that the SWRCB "finds and declares that protection of the quality of the ocean waters for use and enjoyment by the people of the State requires control of the discharge of waste to ocean waters in accordance with the provisions contained" in the Ocean Plan. State law (CWC §13170.2) requires that the Ocean Plan be reviewed at least every three years to guarantee that current standards are adequate and are not allowing degradation to marine species or posing a threat to public health. As defined by the Ocean Plan, "waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge." Section 13170.2 of the CWC requires the SWRCB to adopt and review the Ocean Plan.

The Ocean Plan applies in its entirety to point source discharges to the ocean. NPS discharges are subject to the sections of the Ocean Plan covering beneficial uses, water quality objectives, general requirements, and discharge prohibitions. For NPSs of waste discharge to the ocean, "compliance with water quality objectives, in all cases, shall be determined by direct measurements in the receiving waters." The Ocean Plan is not applicable to discharges to enclosed bays and estuaries, inland waters, vessel wastes, or control of dredging materials. The SWRCB may make exceptions to the Ocean Plan in compliance with CEQA and a public hearing and in concurrence with the USEPA, provided that two conditions are met: (1) the exception will not compromise protection of ocean waters for beneficial uses and (2) the public interest will be served.

The Ocean Plan was established in 1972 and has been amended in 1978, 1983, 1988, 1990, and 1997. Draft amendments were made public in October 1998, public hearings on the draft were held in December 1998, and staff is currently responding to comments made during the hearings. It is anticipated that revised draft amendments will be submitted for SWRCB approval in May 2000. As part of the required review of current standards, a triennial review of the Ocean Plan, public hearings were held in September and October 1998. The public identified 35 specific issues that needed review. Staff subsequently prepared a Triennial Review Workplan, describing 22 high priority issues that the SWRCB approved on July 15, 1999 and submitted to the USEPA. The issue "Regulatory Control of Nonpoint Source Control" was reviewed by staff of the Division of Water Quality's NPS Section prior to SWRCB approval of the Workplan.

Bays and Estuaries Toxic Hot Spot Cleanup Plan

The purpose of this program was to implement the Bay Protection and Toxic Cleanup Program (BPTCP), which was established by the State Legislature in 1989. The BPTCP had four major goals: (1) to provide protection of present and future beneficial uses of the bays and estuarine waters of California; (2) to identify and characterize toxic hot spots; (3) to plan for toxic hot spot cleanup or other remedial or mitigation actions; and (4) to develop prevention and control strategies for toxic pollutants that will prevent creation of new toxic hot spots or the perpetuation of existing toxic hot spots in the bays and estuaries of the State.

The six coastal RWQCBs involved in the BPTCP conducted extensive water and sediment quality monitoring in the enclosed bays and estuaries of the State over a period of eight years. The monitoring data provided information on the chemistry (types and amounts of toxicants), toxicity, and benthic integrity of sediments. An assessment of monitoring data using a weight-of-evidence approach resulted in the designation of 48 toxic hot spots, 22 of which were ranked as high priority based on the guidance developed by the SWRCB. The RWQCBs developed regional toxic hot spot cleanup plans for the high priority hot spots.

The BPTCP concluded in June 1999 with the adoption of the statewide Toxic Hot Spot Cleanup Plan by the SWRCB. The Cleanup Plan includes: (1) a priority listing of all toxic hot spots; (2) description of each toxic hot spot including a characterization of the pollutants present at the site; (3) assessment of the most likely source or sources of pollutants; (4) estimate of the total costs to implement the cleanup plan; (5) estimate of the costs that can be recovered from parties responsible for the discharge of pollutants that have accumulated in sediments; (6) preliminary assessment of the actions required to remedy or restore a toxic hot spot; (7) a two-year expenditure schedule plan; and (8) findings on the need to establish a toxic hot spot cleanup program.

Depending on the source and areal extent of the known hot spot, the actions to remediate the sites include: (1) better characterization of the sites and problem, (2) institutional controls/education, (3) dredging, capping, a combination of dredging and capping, (4) source control watershed management, and (5) implementation of a no-action alternative. In order to prevent the further pollution or creation of known toxic hot spots, the cleanup plan requires RWQCBs to reevaluate WDRs in compliance with CWC section 13395. The re-evaluation consists of: (1) an assessment of whether the discharge may influence the creation or further pollution of the known toxic hot spot, (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot, and (3) a schedule for completion of any WDR modifications deemed appropriate.

Development of Total Maximum Daily Loads

Section 303(d)(1)(C) of the CWA requires the State to establish TMDLs for "303(d) listed water bodies" for those pollutants determined by USEPA to be suitable for TMDL measurement. The TMDL program provides an assessment and planning framework for identifying load reductions or other actions needed to attain water quality standards. The planning process for TMDL development is divided into two parts. Part 1 establishes and apportions the allowable level(s) of pollution in the water body (or watershed) necessary to achieve water quality standards. The recommended methods for achieving the necessary reductions in pollutant loadings are detailed in the second part of this process--the TMDL implementation plan.

Part 1 – Developing the TMDL

This process establishes the maximum allowable amount of pollution (for parameters of concern) and allocates this among the existing and potential sources. The allocation of pollutants is distributed among both point source and NPS discharges. This quantitative assessment includes determining the following components:

- Loading capacity--The greatest amount of loading that a water body can receive without violating water quality standards.
- Load allocation--The portion of a receiving water's loading capacity that is attributed either to one of its existing or future NPSs of pollution or to natural background sources.
- Wasteload allocation--The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution.
- Margin of safety--The portion of a receiving water's loading capacity that accounts for the uncertainty of the relationship between the pollutant loads and the quality of the receiving water.
- Seasonal variation--The influence of seasonally-dependent factors (e.g., flow volume) on the receiving water's loading capacity.
- TMDL--The sum of the individual wasteload allocations for point sources, load allocations for NPSs and natural background, and the margin of safety. The TMDL can be expressed in terms of either mass per time, toxicity, or other appropriate measures that relate to the State's water quality standard. In practice, allocations are not typically assigned on a daily basis but instead are

monthly, seasonal, or annual. In most cases mass load is utilized as the metric for the allocations. In some cases (e.g., pathogen problems), other measurable features are used to express the allowable amount of pollution.

Load allocations for NPS and/or natural background may range from reasonably accurate estimates to gross allotments, depending on the availability of data and the techniques used for predicting the loading. As such, a phased approach to TMDL development is often used where estimates are based on limited information. Using the phased approach provides a TMDL that includes monitoring requirements and a schedule for reassessing TMDL allocations to ensure attainment of water quality standards.

Part 2 – Developing the TMDL Implementation Plan

Once a TMDL or phased TMDL has been established, an implementation plan must be developed. The State (acting through the RWQCB) must implement the TMDL and must incorporate the TMDL into the appropriate basin plan. Section 13242 of the Porter-Cologne Act requires that a plan of implementation be incorporated into the basin plan. The implementation plan must include: (1) a description of the nature of the actions necessary to achieve the water quality objectives, including recommendations for appropriate action by any entity, public or private; (2) a time schedule for the actions to be taken; and (3) a description of the monitoring and surveillance to be undertaken to determine compliance with the objectives. Incorporating the TMDL into the basin plan requires approval by the SWRCB and approval of any regulatory provisions by OAL.

The RWQCBs make use of the NPDES permitting process to limit effluent from point source discharges consistent with the wasteload allocations. In the case of NPSs, the RWQCBs rely on the implementation of NPS controls, such as the MMs and associated MPs, and the application of a wide range of State programs and enforcement authorities.

During the Strategy, the RWQCBs have committed to the development of 500 to 800 TMDLs and their associated implementation plans. Appendix C provides a detailed summary of the TMDLs which the RWQCBs have identified for initial development or completion within the first five years of the Strategy. The commitment of financial and staff resources to this effort will be influential in addressing the State's effectiveness in controlling NPS problems.

In summary, TMDLs are planning tools that will enhance the State's ability to foster implementation of appropriate NPS MMs. By providing watershed-specific information, TMDLs will help target specific sources and corresponding corrective measures and will provide a framework for using more stringent approaches that may be necessary to achieve water quality goals and maintain beneficial uses.

Watershed Management Initiative

The watershed Management Initiative (WMI) was approved in 1995 by the SWRCB as part of its Strategic Plan. It was developed to help the SWRCB meet its goal to provide water resource protection, enhancement, and restoration while balancing economic and environmental impacts. The WMI uses an integrated planning approach to create and implement unique solutions for each watershed that consider all local conditions and pollution sources and rely on the input and involvement of local stakeholders. It is not a regulatory program and has no statutory mandate.

Watersheds are identified and prioritized primarily on the basis of water quality. Watershed management strategies have been developed for over 40 watersheds at the nine RWQCBs. These strategies are contained in the Integrated Plan for implementation of the WMI. This Integrated Plan is updated annually in November to reflect changing priorities and conditions in the State's watersheds. The 1998-99 State budget bill included funding for ten WMI coordinators to carry out the WMI. There is one coordinator at each of the nine RWQCBs and one at the SWRCB. The WMI relies on the existing authority of the SWRCB and RWQCBs, including the Porter-Cologne Act and the Federal CWA.

The WMI is consistent with the overall scheme of the Program Plan. Similar to the CWA section 303(d) list described above, prioritization of the watersheds helps the Program Plan in targeting areas with serious water quality issues. Moreover, the watershed management strategies were developed with considerations for local environmental and economic conditions. Consequently, in accordance with the NPS Plan's emphasis on self-determination and the voluntary approach, stakeholder involvement in the implementation of the management strategies is not only critical but feasible. Future annual updating of the management strategies will incorporate RWQCBs' activities identified in the five year implementation plans to support implementation of the Program Plan and make use of the MMs contained in the CAMMPR document of this Program Plan. Implementation of these strategies in targeted watershed will complement the NPS work being performed under other parts of the Program Plan and ensure the full implementation of all MMs in 15 years.

Community-Based Watershed Plans

Community-based watershed plans refer to a wide range of plans and activities that are being undertaken throughout California. These plans and activities are focused on specific geographic areas and involve strong local leadership and diverse stakeholders. Community-based watershed plans have as their premise that many water quality and ecosystem problems are best solved at the watershed level rather than at a statewide or individual discharger level.

Community-based watershed plans are a key component to implementing the MMs. Many of the community-based watershed plans and activities that are underway address NPS pollution. The SWRCB and RWQCBs have supported these plans through financial and technical assistance. Currently, several State agencies, in conjunction with the California Biodiversity Council (CBC) and the Cal/RA, are considering how to

establish a statewide framework to more fully support community-based watershed plans and activities.

The SWRCB and the RWQCBs will continue to support watershed plans to foster implementation of the MMs. This is consistent with the federal CWAP that directs new CWA section 319(h) funding to supporting watershed restoration action strategies (WRASs). The intent of this requirement is to ensure that the activities supported by these funds are part of a comprehensive effort that has the community and technical support necessary to achieve significant environmental results. A wide range of community-based watershed plans will be considered to qualify as WRASs. For example, a local watershed stewardship plan, a Coordinated Resource Management and Planning Program (CRMP), or a Comprehensive Conservation and Management Plan prepared under section 320 of the CWA will all be considered to qualify as a WRAS.

Coastal CPR Plan

The CCC's *Plan for Controlling Polluted Runoff* (Coastal CPR Plan) outlines the CCC's authorities to address polluted runoff and identifies actions with timelines and milestones to achieve the CCC's objective to reduce polluted runoff. The Coastal CPR Plan specifies the CCC's role in addressing polluted runoff within the confines of existing budgets, staffing, and statutory authority. The four program enhancements that comprise the Coastal CPR Plan are developed from the CCC's existing and newly developed tools and programs related to the management of polluted runoff. They include: (1) implementation of MMs through planning, regulation, and technical assistance; (2) administrative coordination; (3) public participation and education; and (4) funding. Implementation of the Coastal CPR Plan helps to direct CCC staff efforts to prevent and control polluted runoff, thus leading to improved coastal water quality and enhanced coastal resources and uses.

Many of the actions identified in the Coastal CPR Plan are incorporated into the Program Plan. These actions are expected to help facilitate implementation of the NPS Program, as well as to improve the coastal program's overall treatment of water quality-related issues.

General Plans

The general plan is a local government's basic planning document. Under State planning law, each city or county must adopt a comprehensive, long-term general plan for the physical development of the city or county and any land outside its jurisdiction that bears relation to its planning. General plans must contain seven elements: (1) land use, (2) circulation, (3) housing, (4) conservation, (5) open space, (6) noise, and (7) safety. The following elements are the most relevant to NPS pollution prevention and control:

1. Land Use--Designates categories such as housing, industry, and natural resources, including density and intensity of use.
2. Conservation--Applies to conservation, development, and use of natural resources (e.g., soils, forests, rivers and other water bodies, and harbors). May also cover watershed protection, land or water reclamation, prevention or control of the

pollution of streams and other coastal waters, regulation of land uses along stream channels and in other areas required to implement the conservation plan (e.g., buffer areas), control or correction of soil erosion, and flood control.

3. Open Space--Applies to preservation of natural resources, including fish and wildlife habitat, rivers, streams, bays and estuaries, and open space.
4. Circulation--Plans infrastructure, including water, sewage, and storm drainage.

Local Coastal Programs

In carrying out its objectives and policies, the Coastal Act (PRC §§30000 et seq.) delegates to local governments specified authority to regulate coastal development.[9] The Coastal Act directs each of the 73 cities and counties lying wholly or partly within the coastal zone to prepare for review and certification by the CCC an LCP for the local government's portion of the coastal zone. Through LCP development, the Coastal Act provides a means to manage coastal resources of State, regional, and national significance in ways that respect special circumstances in each locality. The CCC works with local governments to tailor LCPs to reflect local issues and concerns while simultaneously meeting the statewide goals and policies of the Coastal Act.

An LCP consists of a local government's land use plans (LUPs), zoning ordinances, zoning district maps, and, within sensitive coastal resource areas, other implementing actions which, when taken together, meet the requirements of and implement the provisions and policies of the Coastal Act at the local level (PRC §30108.6). The LUP is the relevant portion of a local government's general plan or local coastal element which is sufficiently detailed to indicate the kinds, location, and intensity of land uses, the applicable resource protection and development policies, and, where necessary, a listing of implementing actions (PRC §30108.5). Most key land use and policy decisions are made in the LUP stage. The standard of review of the LCP Implementation Plan is that it conforms with and is adequate to carry out the certified LUP.

Upon LCP certification, a local government can issue permits for such development in the coastal zone as is consistent with LCP policies; alternatively, a local government conditionally approves or denies a coastal development permit application if the proposed development is inconsistent with the LCP. However, certain actions taken by a local government on a CDP application may be appealed to the CCC. The CCC hears appeals, and the standard of review is the certified LCP and the public access policies of the Coastal Act. And, because a CDP is either approved or denied depending on its conformity to a certified LCP, it is imperative that all appropriate NPS MMs are identified and included in the certification process.

The CCC water quality staff will update the in-house *Procedural Guidance Manual: Addressing Polluted Runoff in the California Coastal Zone* to reflect the newest development in NPS MMs. This manual is extensively utilized by the CCC staff in

[9] The Coastal Act declares that "to achieve maximum responsiveness to local conditions, accountability, and public accessibility, it is necessary to rely heavily on local government and local land use planning procedures and enforcement" (PRC §30004).

reviewing LCPs and CDP applications. The CCC's water quality staff will also conduct training of its planners in use of the manual and in screening for NPS components in LCPs, Local Coastal Program Amendments (LCPAs), and CDPs. The initial training will be conducted by December 2000, with a refresher training every year thereafter. Currently, the CCC staff are routinely requesting applicants of development permits not already subject to NPDES permit requirements to submit Erosion & Sediment and Chemical Control Plans for the construction phase when appropriate. In addition, a polluted runoff control plan with regular BMP maintenance and inspection is required of most development proposals as well. These efforts will achieve tangible water quality benefits in the field.

Coastal Act section 30519.5 requires the CCC to conduct periodic reviews of certified LCPs to evaluate whether or not the LCPs are being implemented by the local governments in a manner that conforms to the Coastal Act. The periodic reviews also provide a means to ensure that the LCPs reflect new information (such as new MMs) and changing conditions regarding NPS pollution prevention and control and help local governments respond to post-certification NPS issues that develop over time in targeted areas.

Lastly, the CCC can also effect implementation of the NPS Program through either:
(1) the regular LCP amendment process initiated by the local governments or
(2) providing grant incentives to encourage appropriate NPS-related amendments to LCPs.

In short, the CCC will review all new LCPs, LCPAs, and CDP applications brought before it for appropriate NPS pollution prevention and control activities.

Annual Workplans

Each year since 1990, the SWRCB and RWQCBs have developed detailed annual workplans as part of the grant application to USEPA for CWA section 319(h) funding. In addition to satisfying federal funding requirements, the plans served as short-term planning and budgeting tools for the SWRCB and RWQCBs. Annual workplans are detailed, tasked-oriented documents. This Program Plan is not intended to replace annual workplans. In fact, good annual workplans are more important than ever if California is to achieve the goals and objectives set forth in the Program Plan. Annual workplans will continue to be used to plan, coordinate, budget, track, and report on each year's NPS-related work.

Beginning with Fiscal Year 2000 (July 1, 2000), the SWRCB, RWQCBs, and CCC will begin jointly developing a single annual workplan that focuses on implementing MMs. The workplan will detail all major tasks proposed for the coming year including those that support activities outlined in the State NPS Plan. Annual workplans will cover all federal and State (including bond funds) funding sources, fees, and any other sources including private commitments. Other State agencies and private entities will be encouraged to join in the process. This widespread participation is crucial if the State is

to accurately evaluate and report the large number of efforts underway dealing with NPS pollution.

The State is faced with mounting annual, biennial, and five-year State and federal reporting requirements. To simplify reporting efforts, the SWRCB and CCC will develop a single, standardized report format (Figure 3) for use by all participants. The form will need to satisfy federal grant program requirements, be consistent with the five-year plans, and provide sufficient information so that information is usable in a program tracking database such as the one currently under development at UCD ICE. Another consideration is that it has an Internet-compatible file format to ensure electronic sharing over and posting on the Internet. One of the most important functions of the standardized report format is to simplify the task and thereby improve the State's ability to document and report its yearly progress in managing NPS pollution.

Regulatory Plans (National Pollution Discharge Elimination System)

While different legal authorities may apply to different situations, the goals of the NPS Program are complementary to the goals of the storm water regulatory programs that address urban runoff.[10] The two-phased program under CWA section 402(p) requires NPDES permits for storm water discharges. In California, the federal NPDES Program is administered by the SWRCB and the RWQCBs. Since 1990, Phase I regulations have required NPDES permits for storm water discharges from:

1. Municipal separate storm sewer systems serving populations greater than 100,000,
2. Specific industrial activities, and
3. Construction activities disturbing land of five or more acres.

Phase I requires that individual NPDES permits be issued for municipalities greater than 100,000ff In practice, the RWQCBs include many municipalities in urbanized areas with populations less than 100,000 in the Phase I programs. Individual municipal NPDES permits require implementation of structural and nonstructural control measures to reduce pollutant loads from industrial, commercial, and residential areas. The SWRCB elected to adopt a statewide NPDES General Permit requiring the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) for all construction and certain industry-related discharges.

Implementation of the NPDES Phase II Program will expand the existing program to include all municipalities within urbanized areas and small municipalities outside of urbanized areas with a population of at least 10,000 and a population density of at least 1,000 persons per square mile. The program will also expand to include construction sites that disturb between one and five acres. All activities under Phase I and II of the NPDES permit regulations will be required to prepare a SWPPP to demonstrate how MMs will be used to protect water quality degradation.

[10] The 1987 CWA Amendments, which added section 319 related to NPS programs, also expanded the application of regulatory authority under CWA section 402 to prevent and control NPS pollution from certain urban areas and industrial activities. CZARA section 6217 also requires states to implement MMs to control NPS pollution, including urban runoff, to coastal waters.

FIGURE 3. STANDARDIZED REPORT FORM

DRAFT SAMPLE

California Nonpoint Source Pollution Control Program
Annual Workplan for FY 1999

Agency: *Cal/EPA* **Department/Board:** *SWRCB*

Division/Program: *DWQ/NPS*

Contact:

Management Measure Category: *3.5 Transportation Development*

Management Measure Title: *3.5A Planning, Siting, and Developing Roads and Highways*

Process Element: *Assess Problem*

Actions/Statements: *Conduct a consistency analysis of Cal/Trans' statewide storm water permit.*

Geographic Area: *Statewide*

Funding Sources and Amount: *CWA 319(h) and General Fund*

Performance Measures: *Upgrade NPDES permit.*

Annual Progress Report: *The SWRCB approved a statewide storm water permit for CalTrans in August 1999 that includes management measures consistent with the Program Plan.*

Involve Stakeholders in Planning Process (Public Participation)

The Program Plan identifies numerous mechanisms for stakeholder participation in the planning and implementation of Tier 1 activities. To ensure that stakeholders have both the representation and buy-in necessary for Tier 1 to truly be effective, the State recognizes the need for public participation in every step of the planning and implementation process. Public input will be included in plan development, targeting resources, planning five-year activities, coordinating partnerships, implementing MMs, and monitoring success. This coordination will be achieved from direct comments provided by the public during the decision making and planning process. The most effective first step will be to establish the IACC and include a public representative on the Assessment TAC to participate in problem solving activities. In addition, the Program Plan has to establish a role for public participation in, among others, the State WQA (statewide citizen monitoring network), CCAs designation and implementation, specific work groups (e.g., CRMP), tracking MM implementation and effectiveness, and in developing additional MMs.

The first five-year review period will be a critical point for stakeholder involvement and public comments. The public will be invited to participate in the review of the first five-year plan assessment and in the development of future priorities and objectives. This process will be obtained best through the establishment of review committees (identified by the TACs) to review the Program Plan's effectiveness as outlined in the five-year report. From these comments, the State hopes to increase MM implementation and streamline Tier 1 activities.

E. Coordinating with Agencies and Key Stakeholders

Building cooperative partnerships among agencies at every institutional level, as well as with stakeholders, is essential to the success of a sustainable effort to protect and restore the quality and environment of the State's waters. In order for the NPS Program to be successful, we need to ensure that the roles and responsibilities of stakeholders and agencies with authorities to implement the MMs are clarified and executed. Specific objectives include:

- Establishing coordination mechanisms to enhance implementation of the five-year implementation plans,
- Fostering effective partnerships and collaboration among State, regional, and local agencies and non-governmental organizations (NGOs)—including CRMPs, officials responsible for habitat protection, land use programs and permitting, water quality permitting and enforcement, and public health and safety—to implement all appropriate MMs, and
- Making available for public review and comment by January 1, 2001, a draft of the enforcement guidance required pursuant to Porter-Cologne Act section 13369.

We will use the example of marina and boating activities to illustrate the complex partnerships required in implementing the appropriate MMs. In addition to the CCC and SWRCB, numerous agencies have regulatory jurisdiction and non-regulatory oversight of California's water quality management efforts related to marina and boating activities (Table 9). Although agency jurisdiction overlaps in many cases, the goal of these agencies is to prevent NPS pollution before it happens. (For a more complete list of

agency authorities related to the various NPS categories, the reader is referred to Volume II-CAMMPR of the Program Plan.)

For example, the RWQCBs, DFG, DHS, DTSC, and USCG all play an important role in regulating both the amount and type of wastes that enter California's waterways. The RWQCBs are the primary State agencies with water quality authority, which ranges from water quality planning to issuing permits for discharges of pollutants to State waters. Most RWQCBs use voluntary/cooperative management efforts for marina and boater NPS pollution control, although boat yards are regulated under a permit system. The DFG also has broad water quality authority and in addition to the USCG is the

TABLE 9 AGENCY PARTICIPATION IN MARINA AND BOATING ACTIVITIES

	Sewage	Bottom Paints/ Cleaning Material	Hazardous Waste	Oil/Fuel	Debris/ Solid Waste	Storm Water Runoff	Education
RWQCBs	X	X	X	X	X	X	
CCC				X	X		X
CIWMB				X	X		
DBW	X						X
DFG	X	X	X	X	X		
DHS	X		X	X	X	X	
DTSC		X	X	X			
UCCE		X	X	X			X
MBNMS (NOAA)	X	X	X	X	X	X	X
NEPs (USEPA)	X	X	X	X	X	X	X
USCG	X		X	X	X		X

agency most likely to be on site at a marina. Its focus is on preventing pollution that harms fish and wildlife resources, especially discharges of oil and petroleum products. The DFG Office of Spill Prevention and Response (OSPR) is charged with oil spill prevention and response. The DHS also regulates the discharge of sewage, other waste, or effluent, while the DTSC regulates the storage, transport, and disposal of all hazardous wastes. The USCG implements federal laws related to garbage and sewage disposal.

In addition to the agencies listed above, DPR, SLC, SFBCDC, and CCC have leasing or permitting authority over many marinas. CCC, DBW, CIWMB, UCCE, MBNMS, and San Francisco Bay and Santa Monica Bay NEPs provide various levels of technical, financial, and/or educational assistance.

Many efforts related to marinas and recreational boating are coordinated through interagency and public committees, such as the California Clean Boating Network (CCBN) for Northern and Southern California (except San Diego County) and the Boating Safety and Environment Education Committee in San Diego. In 1995, a number

of pollution educators, including agency, industry, and environmental representatives, came together to create the CCBN as a result of a recommendation by the Marina and Recreational Boating TAC (SWRCB, 1994e) and to assist boaters and marina managers. The purpose of the CCBN is to promote environmentally sound boating education efforts and to improve communication and coordination between marina and boating pollution educators in California. Examples of CCBN activities to support this purpose include, but are not limited to:

- Sharing information and developing expertise on current environmentally sound boating issues;
- Identifying funding sources for marina and boater pollution education projects;
- Providing a forum to allow cooperation on funding source proposals;
- Assisting in the dissemination of materials;
- Providing feedback on draft materials;
- Providing a forum for feedback on the impact that education is having on the identified audience;
- Sharing methodology for education, outreach, and the evaluation of materials;
- Reviewing existing programs and identifying where additional effort is needed; and
- Developing a strategy to implement the additional efforts.

While the CCBN supports the efforts of its member organizations by sharing information, networking, and providing expertise, the CCBN has lost its program funding to conduct education regarding environmentally sound boating practices. In fact, educational efforts in the State regarding environmentally sound boating are largely funded by short-term grants. No State agency has assumed programmatic responsibility for a permanent education and outreach effort akin to the boating safety education program of the DBW.

As the CCC is now completing a three-year statewide grant, funded by the CIWMB, to promote environmentally sound boating, the CCC acknowledges the need for a permanent boater education program to be implemented by an appropriate State agency. The CCC will work with the DBW, SWRCB, and RWQCBs to identify the appropriate agency for implementing a permanent education program as outlined in the Implementation Plan. Once an appropriate agency is identified, the State will work to develop a long-term funding structure and implementation strategies.

Formal Coordination through Memoranda of Understanding and Management Agency Agreements[11]

The State will formalize connections between the lead and enforcing agencies through the letter from Cal/EPA and Cal/RA, asking each agency, department, State boards, and RWQCBs to prepare a five-year implementation plan (see Appendix D). The State will

[11] Under the CWA and the State's Porter-Cologne Act, the SWRCB is given the authority and responsibility to develop and certify water quality management plans (including BMPs, implementation procedures, and management agency implementation responsibilities), to designate management agencies for plan implementation, and to execute MAAs setting forth management agency commitments to its implementation responsibilities. SWRCB encourages this management agency approach where it offers a viable alternative to direct SWRCB/RWQCB regulation in controlling NPS pollution and achieving compliance with the State's water quality standards. Where reasonably implemented by the management agency, the SWRCB will typically waive direct regulation under its own authority.

also enhance coordination by developing a formal agreement (MOU) between the lead agencies (SWRCB and CCC) responsible for the Program Plan's implementation. While the key elements of the NPS Program have been developed through a cooperative partnership without a formal agreement, an MOU would serve to clarify roles and responsibilities of each agency over the next 15 years. This MOU will be submitted with the Program Plan for approval by the SWRCB and CCC (see Appendix E).

The State will ensure that agencies with the ability to implement aspects of the Program Plan are effectively linked with the lead agencies by developing (or revising) MOUs or MAAs. MOUs and MAAs between the lead agencies and several implementing agencies already exist (Table 10). Additional MOUs/MAAs will be encouraged as a mechanism for officially designating other agencies with the responsibility and authority to implement aspects of the Program Plan. The State will revise existing or add additional MOUs/MAAs that support the implementation of MMs in accordance with the MMs' priorities. This approach is consistent with the Program Plan's phased approach and recognizes resource limitations.

TABLE 10. SUMMARY OF EXISTING MAAS AND MOUS

TYPE OF DOCUMENT	SIGNATORY AGENCY	GENERAL PURPOSE	DATE SIGNED
MOU	California Association of Resource Conservation Districts (CARCD)	Coordination of erosion control and water quality protection	1984
	Soil Conservation Service (SCS) (renamed NRCS)	Planning/technical assistance for water quality policies and activities	1990
	U.S. Bureau of Reclamation (USBR), USFWS, SCS (renamed NRCS), USGS, DWR, DFG, DFA	Implementation of San Joaquin Valley Drain Program	1991
	NOAA, USEPA, Association of Monterey Bay Area Governments (AMBAG), Cal/EPA, SWRCB, CCC, RWQCB 2 and 3	Develop and implement the MBNMS WQPP	1992
	BLM	Coordination of NPS policies and activities	1993
	DFA	Regulation of fertilizer and soil amendments	1998
Water Quality Management Plan (WQMP)/MAA	USFS	Control of NPS activities and pollution on National Forest System Lands	1981
	BOF, CDF	Control of NPS pollution from timber operations on nonfederal lands	1988
	CDPR	Control of pesticide pollution	1997
WQMP	None; cooperative program with technical assistance by UCCE and NRCS, support by CARCD, industry/professional associations	NPS control on private rangeland	1995
"Partnership Agreement" of CA Dairy Quality Assurance Program	14 dairy industry organizations, and state and federal agencies	Coordinated environmental stewardship for dairy waste management	1998

The SWRCB and CCC are committed to formalizing interagency agreements. In 2000-2001, the SWRCB and CCC will initiate reviews of existing MOUs/MAAs and will work with other agencies to identify opportunities for new agreements. The review will address such issues as existing limitations related to Program implementation and will determine the appropriate mechanisms for correcting concerns. The SWRCB and CCC will subsequently develop those MOUs/MAAs that are identified as being feasible and necessary to ensure the implementation of the priority measures identified in the first five-year plan. Specifically, the SWRCB and CCC will update existing or develop new MOUs/MAAs with the BLM, CDPR, and NRCS by December 31, 2001. In addition, by December 31, 2001, the SWRCB and CCC will develop a schedule for updating or developing additional MOUs/MAAs that are necessary to fulfill the goals and objectives of the Program Plan.

For example, beginning in 2000, the SWRCB will work with the USFS to revise the USFS WQMP called for under the MAA between the SWRCB and the USFS[12]. The USFS has recently undertaken a significant review of its BMPs. These new BMPs adequately implement the MMs of the Program Plan. The USFS has initiated a collaborative effort to incorporate new information into national forest management of the Sierra Nevada National Forests. This effort, known as the Sierra Nevada Framework for Conservation and Collaboration, includes updates to forest plans to address problems in aquatic, riparian, and meadow systems, among other ecosystems. An Aquatic Conservation Strategy has been proposed to maintain and restore the ecological integrity of these systems. The WQMP for National Forest System Lands and the MAA between the USFS and the SWRCB should be modified to: (1) include the Aquatic Conservation Strategy; (2) improve the coordination and collaboration of restoration projects in these systems; and (3) include performance measures that can be used to track project/program effectiveness.

The SWRCB and the CDPR will revise their MAA so that the WQMP includes commitments to implement MMs for which CDPR has regulatory authority.

The SWRCB and the BLM are working to finalize a WQMP and MAA. In 1992, the SWRCB and BLM entered into an MOU (SWRCB Resolution No. 92-26) and agreed to pursue development of an MAA for NPS pollution control program on BLM lands. While that MAA is not yet in place, during the last year, BLM has shown renewed interest in completing the work. This effort should be completed prior to the year 2003. The WQMP with BLM should focus on (1) implementation and adaptive management of the rangeland standards and guidelines; (2) development and certification of BMPs and implementation measures for other NPSs of pollution on BLM lands; (3) evaluation and review of rangeland MPs; and (4) an annual assessment process with environmental and operational measures of success.

[12] Currently, the only federal agency with management agency status in California is the USFS. In 1981, the SWRCB certified a WQMP for National Forest System Lands, designated USFS as management agency for plan implementation, and executed an MAA with USFS. The WQMP and MAA currently provide for: (1) development and implementation of SWRCB-certified BMPs; (2) early State involvement in review of USFS projects; (3) monitoring and adaptive management of BMP effectiveness and implementation; and (4) annual meetings to maintain coordination and communication.

BLM and the SWRCB have worked together to avoid and reduce NPS pollution from BLM–owned land. BLM controls domestic livestock grazing on public lands through designated grazing allotments. In 1998 BLM developed standards for rangeland health and guidelines for livestock management. SWRCB worked with BLM to ensure that these rangeland standards and guidelines would (1) comprise BMPs; (2) conform with the (g) guidance MMs and the BMPs set forth in the SWRCB's 1995 Rangeland WQMP for private rangelands; and (3) achieve compliance with California's water quality standards. Implementation of the BLM standards and guidelines began earlier in 1999.

Strong stewardship by landowners is a critical mechanism for implementing MMs, and the NRCS is a key agency providing financial and technical assistance to those landowners. The SWRCB and NRCS staffs have agreed that an MOU between the agencies would greatly improve the technical assistance aspects of the NPS Program. NRCS (formerly the Soil Conservation Service) and the SWRCB have an existing MOU dated July 31, 1990, outlining planning and technical assistance related to water quality policies and activities. This MOU will be updated to address NRCS's role in the Program Plan (e.g., assisting landowners in voluntarily implementing Resource Management Systems [RMS] or MMs) and to affirm the SWRCB's commitment to work through a self-determined approach (Tier 1) as a valuable step in achieving clean water goals. The new MOU will also address the use of NRCS technical guidance materials (e.g., Field Office Technical Guide[FOTG]) in planning and installing resource MMs.

The SWRCB and the CCC are leading an effort to develop MOUs/MAAs among the agencies in Cal/EPA and Cal/RA. The purpose of these formal agreements is to develop commitments to implement MMs (e.g., develop five-year implementation plans for their agencies or establish NPS pollution control elements to existing workplans). The SWRCB has contracted with the CCC to facilitate the completion of these agency-specific five-year implementation plans. The SWRCB has authority to require agencies to provide technical reports (Porter-Cologne Act §13165), and this authority could be used if cooperative approaches are ineffectual. The five-year implementation plans would contain components such as:

1. Implementation of all identified NPS MMs for which they have authorities and are targeted in the Program Plan by 2013;
2. Tracking of implementation and effectiveness by MM and source category and providing this information to the SWRCB as part of the monitoring and assessment strategy; and
3. Participation in regular program reviews as well as new goal-setting activities, including development of the five-year implementation plans and coordination of planning, assessment, and regulation activities with the SWRCB, CCC, and RWQCBs.

Coordination Through Interagency Forums

In addition to using formal agreements to establish coordination, the SWRCB and CCC will establish an IACC to provide a regular working forum to collaborate in implementation and problem solving. We currently envision several roles for the IACC. First, where programmatic or policy conditions present problems for watershed

management, the SWRCB and CCC, through the IACC, will act as a conduit for addressing and resolving those problems. The IACC will also be asked to evaluate agency functions and to recommend improvements that can benefit water quality on a statewide basis for various categories of activities. The IACC will be the primary forum for coordinating program activities of the lead and implementing agencies. Second, SWRCB and CCC staffs will work with the IACC to identify those agencies willing to become partners in interagency technical assistance teams. For these teams to function optimally, they must have broad-based support. Allowing agencies to assist with and utilize the functions of the teams will provide a powerful mechanism for improving coordination. Third, the SWRCB and CCC staffs will request the IACC to establish TACs in four major issue areas--assessment, technical assistance, education, and regulation. The role of these committees will be to identify opportunities for improved coordination and instances where impediments to effective management occur and to devise responses to move toward enhanced performance and management. Staff will work with the committees to ensure that the problems facing watershed groups are clearly understood and to provide a vehicle for implementing changes in State activities.

The lead agencies will work with the CBC to define the appropriate complementary roles of the CBC and the IACC. The CBC is comprised of 15 State agencies, the University of California (UC), CARCDs, and nine regional associations of county supervisors. The CBC was formed to improve coordination and cooperation among the various resource management and environmental protection agencies at federal, State, and local levels.

Interagency Initiatives and Public/Private Partnerships

Because stewardship is a fundamental principle upon which the NPS Program is based, we need to encourage collaborative relationships that include a broad range of groups. SWRCB, RWQCB, and CCC staffs will work with watershed groups and CRMPs to promote coordinated resource management and planning through the active participation of all stakeholders in a given watershed. The lead agencies encourage the participation of all relevant agencies and stakeholders in watershed management. There are a number of collaborative efforts in which the lead agencies are either currently active or will become active. As part of the effort to improve coordination, staff will work with the following efforts:

- Federal CWAP.
- CBC—Watersheds and Resource Assessment Initiatives.
- Implementation of Farm Bill Conservation Programs (including USDA, NRCS Locally-Led Conservation, Stream Corridor Restoration, Conservation Buffers, Salmon Restoration, and Air Quality Initiatives).
- The Environmental Stewardship component of the California Dairy Quality Assurance Program. This partnership among 14 entities including various State and federal agencies, UC, and representatives of the California dairy industry develops a voluntary, cooperative government and industry education and certification program. The program core components include: (1) education workshops for producers; (2) the creation of Environmental Stewardship Farm Management Plans specific to each dairy; and (3) on-site evaluation by a third party.
- The Range Management Advisory Committee of the BOF.

- Cal/RA's effort to inventory wetland and riparian areas statewide and to maintain data on projects subject to CWA section 401 certification.
- Cal/RA's efforts to establish a definition for riparian areas in consultation with other affected agencies.
- The California Aquatic Bioassessment Workgroup, chaired by staff from the DFG. SWRCB and RWQCB staffs have: (1) trained community members in bioassessment; (2) designed regional bioassessment monitoring programs; and (3) participated in the development and review of bioassessment methods and metrics.
- The California Watershed Project Inventory (Project Inventory) at UCD ICE. The SWRCB has provided significant financial support to this database of watershed projects. Currently, the SWRCB and UCD ICE are expanding the database to link MMs, agencies, and authorities to the Project Inventory.
- Certified Crop Advisor Program.
- CRMP groups throughout California.
- CALWATER watershed mapping initiative.
- CALFED Bay Delta Initiative/Program.
- Lake Tahoe Initiative.
- MBNMS WQPP.
- Southern California Beach Water Quality Workgroup.
- Southern California Coastal Water Research Project.

Review of Federal Projects and Programs

CWA section 319 authorizes and requires each state to review federal activities to ensure consistency with the state's NPS management program. The CWA also directs federal agencies to accommodate the concerns of each state. [13] While the 1988 Plan noted that federal consistency[14] would focus on the actions of three federal agencies (USACOE, USBR, and FERC), the SWRCB, and RWQCBs routinely review: (1) financial and technical assistance programs; (2) development activities; (3) environmental impact statements; and (4) monitoring programs from numerous federal agencies. The CCC has a similar federal consistency process under the CZMA (see Appendix B). The State Clearinghouse acts as the coordinating and notification agency for routing projects to appropriate State agencies. Many federal agencies directly notify State agencies of appropriate federal projects and programs through periodic NEPA reporting procedures or regional collaborative efforts.

The federal programs requiring review for NPS issues are listed in Table 11. The primary lead agency that reviews projects with statewide impact will be the SWRCB.

[13] This requirement is spelled out in Executive Order 12372 of July 14, 1982 (Federal Register Vol. 47, No. 137).

[14] The general process for review of federal projects, as outlined in this Executive Order, is: (1) State develops a list of federal assistance programs and development projects it will review; (2) State clearinghouse routes federal project information to appropriate State agency for review; (3) State agency reviews projects and provides timely comments to the federal agency; (4) federal agency reviews comments and accommodates concerns where possible; and (5) if concerns cannot be addressed, a timely explanation will be provided. Where the State cannot resolve federal consistency issues to its satisfaction, it requests USEPA assistance to help resolve the issues.

TABLE 11. LIST OF FEDERAL AGENCIES' PROGRAMS AND PROJECTS SUBJECT TO STATE REVIEW

U.S. BUREAU OF LAND MANAGEMENT
Watershed Projects
Mineral Exploration and Development
Oil and Gas Leasing
ORV Activities
Timber Activities
Grazing Allotment/Grazing Management/Permits Issuance
Chemicals/Pesticides
Area Analysis/Cumulative Impacts
Wetlands Protection
Riparian Management Plans
Hydrologic Modifications
Transportation Plans
U.S. DEPARTMENT OF DEFENSE
Natural Resource Management Plans and Projects
Military Construction Projects
Facilities Development Plans and Projects
Land and Water-Based Military Training Plans and Exercises
Environmental Restoration Projects
Spoil Disposal
Open Water Disposal Sites
FEDERAL ENERGY REGULATORY COMMISSION
Dam Relicensing
U.S. FOREST SERVICE
Forest Management Plans
Timber Sales
Grazing Allotments
NATIONAL MARINE FISHERIES SERVICE
Fisheries Management Plan
Habitat Conservation Plans
NATURAL RESOURCE CONSERVATION SERVICE
Environmental Quality Incentives Program (EQIP)
Wetland Reserves Program
Wetland Conservation
Forestry Incentives Program
NATIONAL PARK SERVICE
National Park Seashore Management and Proposed Acquisitions
Wildlife Management
Grazing Management
Abandoned Mines Management
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Coastal Management Programs
U.S. BUREAU OF RECLAMATION
Irrigation Development
U.S. ARMY CORPS OF ENGINEERS
Permits for Dredged or Fill Material
U.S. FISH AND WILDLIFE SERVICE
Management of National Wildlife Refuges and Proposed Acquisitions
Habitat Conservation Plans

The appropriate RWQCBs will review local and regional projects. The CCC will also review programs in the coastal zone as defined in the Coastal Act. These State agencies will work with USEPA staffs who are liaisons with these federal agencies to ensure compliance with the CWA.

When project-by-project review and intervention by USEPA staff are insufficient to abate NPS pollution, the lead agencies will negotiate revisions to existing formal agreements or develop new agreements. If formal agreements are ineffectual, the SWRCB or RWQCBs can require federal agencies to provide NPS pollution prevention reports under their authority (Porter-Cologne Act §13267).

F. Implement Actions

The Three-Tiered Approach Overview

Originally adopted in the 1988 Plan , the "three-tiered approach" remains a cornerstone of the NPS Program. The "three-tiered approach" utilizes three different options of enforceable policies and mechanisms under the Porter-Cologne Act to ensure water quality objectives are achieved. The options are presented in order of increasing stringency. Through the "three-tiered approach," the NPS Program recognizes that many NPS problems are best addressed through the self-determined cooperation of stakeholders (Tier 1). However, persistent NPS water quality problems not effectively resolved through self-determined actions will be addressed through applicable regulatory programs and authorities (Tier 2 and Tier 3).

In general, which option is used depends on factors such as:

- Persistence of water quality impairments;
- Whether timely implementation of MMs and MPs is being achieved; or
- Whether the Tier 1 approach is being utilized effectively.

In practice, the RWQCBs will determine which or what combination of the three options will be used to address any given NPS problem. Sequential movement through the tiers (e.g., Tier 1 to Tier 2 to Tier 3) is not required of the RWQCBs. Depending on the water quality impacts and severity of the NPS problem, the RWQCBs may move directly to the enforcement actions specified in Tier 3. Pursuant to CWC section 13369(a)(2)(B), the SWRCB will develop, by February 1, 2001, guidance to be used by the SWRCB and RWQCBs for moving through the "three-tiered" process.

All three options implement BMPs. BMPs include, but are not limited to, structural and nonstructural controls and operation and maintenance procedures. BMPs can be applied before, during, and after pollution producing activities to reduce or eliminate the introduction of pollutants into receiving waters. BMPs are means of achieving certain MMs. For example, seeding and mulching of steep slopes at a construction site would be structural BMPs for achieving the MM of erosion control.

Tier One: Self-Determined Implementation of Management Practices

Since its inception in 1988, the "self-determined" or "voluntary approach" to the implementation of BMPs has been central to discussions of the NPS Program. The terms "voluntary" and the "voluntary approach" have been a popular concept grounded in the historic notions of autonomy and self-determination. The definition

of "autonomy" also refers to the concept of "moral independence," implying that autonomy also carries with it responsibility and accountability. This is especially critical in situations where individual actions may conflict with the public good.

As a concept the term "voluntary approach" is as important for what it does not mean as for what it does. Compliance with the CWA, CZARA, CWC, and the Porter-Cologne Act is not a voluntary choice. It is the responsibility of the SWRCB and the RWQCBs to see that these laws are enforced. The concept of "self-determined implementation" of NPS control measures was developed to acknowledge the potential capability of landowners and resource managers to develop and implement workable solutions to NPS pollution control and to afford them the opportunity to solve their own problems before more stringent regulatory actions are taken.

Property owners and/or managers may implement BMPs through their own initiative or self-determination. Implementation could occur for economic reasons and/or through awareness of environmental benefits. Self-determined implementation can be encouraged through education, training, financial assistance, technical assistance, and demonstration projects. A self-determined approach would take advantage of the expertise and incentives offered by a variety of existing local, State, and federal programs that are geared to promoting private actions which could have water quality benefits. Lead agencies for these programs include the DOC NRCS, Farm Services Agency (FSA), RCDs, and the UCCE.

Tier Two: Regulatory-Based Encouragement of Management Practices

In general, the Porter-Cologne Act constrains RWQCBs from specifying the manner of compliance with water quality standards. However, RWQCBs have two ways to use their regulatory authorities to encourage implementation of BMPs.

First, RWQCBs may encourage the use of BMPs by waiving adoption of WDRs on condition that dischargers comply with this requirement. Alternatively, the SWRCB and the RWQCBs may enforce BMPs indirectly by entering into MAAs with other agencies that have the authority to enforce BMPs. Such authority derives either from the agency's regulatory authority or its management responsibility for publicly owned or controlled land. MAAs will include (or reference) specific, acceptable BMPs and their means of implementation. Both the SWRCB and the RWQCBs may enter into MAAs. The SWRCB will develop MAAs, where appropriate, with State and federal agencies having statewide jurisdiction, such as the BLM or Cal/Trans. For example,

the SWRCB has existing MAAs with the USFS and with the BOF and CDF. SWRCB MAAs will specify acceptable BMPs and how they will be implemented. Formal agreements between the SWRCB and other agencies pertaining to the prevention and abatement of NPS pollution will be referenced in RWQCB basin plans and will become the primary basis for RWQCB determination of compliance with State requirements. RWQCBs will seek agreements, where appropriate, with local agencies, such as cities and counties. For example, RWQCBs have existing MAAs with counties concerning regulation of on-site wastewater disposal systems. RWQCB MAAs may also reference BMPs that have been adopted into basin plans.

RWQCBs will generally refrain from imposing effluent requirements on dischargers who are implementing BMPs in accordance with a waiver of WDRs, an approved MAA, or other SWRCB or RWQCB formal action. Once the SWRCB or RWQCB has formally approved BMPs, they will become the primary mechanism for meeting water quality standards. While compliance with BMP requirements cannot excuse a violation of water quality standards, the RWQCBs may rely on their implementation of BMPs to demonstrate compliance with standards.

Implementation of BMPs will normally include: (1) specific site conditions; (2) monitoring to assure that practices are properly applied and are effective; (3) immediate mitigation of a problem where the practices are not effective (including regulatory action, if necessary); and (4) improvement of an approved BMP or implementation of additional BMPs when needed to resolve a deficiency.

RWQCBs have discretion in deciding what BMPs to encourage through conditional waiver of WDRs or inclusion in RWQCB MAAs. RWQCBs need not adopt BMPs into basin plans for these purposes but may do so to facilitate regionwide application. The SWRCB will encourage reasonable consistency among the RWQCBs in choosing BMPs by: (1) transferring information among RWQCBs on effective (or ineffective) practices; (2) reviewing amendments to basin plans; and (3) making determinations as the appeal agency for RWQCB decisions.

Tier Three: Effluent Limitations and Enforcement

RWQCBs can enforce requirements on any proposed or existing waste discharge, including NPS discharges. Although RWQCBs cannot specify the manner of compliance with waste discharge limitations (with certain exceptions), in appropriate cases the RWQCBs can set limitations at a level that, in practice, requires implementation of BMPs.

While many of the NPS Program activities support and promote self-determined implementation, the SWRCB and RWQCBs have a wide array of enforcement mechanisms at their disposal that also will be utilized. Enforcement actions may be considered to address many circumstances including, but not limited to, the following: (1) violation of an effluent limit, receiving water limit, or discharge prohibition contained in an order or basin plan adopted by the SWRCB or an RWQCB; (2) an unauthorized spill, leak, fill, or other discharge; and (3) failure to perform an action

required by the SWRCB or an RWQCB, such as submittal of a self-monitoring or technical report or completion of a clean-up task by a specified deadline.

It is important to note that enforcement of State water quality statutes is not solely the purview of the SWRCB and RWQCBs and their staffs. State law allows members of the public to petition the SWRCB to review permitting and enforcement actions or inactions by the RWQCB. In addition, the CWC provides for public participation in the issuance of orders, policies, and WQCPs.

The SWRCB and RWQCBs have a variety of enforcement tools to use in response to noncompliance by dischargers. An enforcement action is any formal or informal action taken to address an incidence of actual or threatened noncompliance with existing regulations or provisions designed to protect water quality.

Formal Enforcement: Formal enforcement actions fall into two basic categories: those that direct future actions by dischargers and those that address past violations. Actions that generally direct future action include notices to comply, imposition of time schedules, and issuance of cease and desist orders (CDOs) and cleanup and abatement orders (CAOs). Actions taken to address past violations can also include CAOs, rescission of WDRs, administrative civil liability (ACL), and referral to the attorney general (AG) or district attorney (DA). In some instances, both types are used concurrently to deal with a specific violation (e.g., discharger has had past violations but has not yet corrected the problem).

Any person adversely affected by an action or failure to act by an RWQCB may petition the SWRCB to review the decision. The petition must be received by the SWRCB within 30 days of the RWQCB action or refusal to act or 60 days after a request has been made to the RWQCB to act. In addition, the SWRCB may review, at any time and on its own motion, any action or failure to act by an RWQCB, including planning actions.

Informal Enforcement: For minor violations, the first step is usually informal enforcement action. The discharger is informed of the specific violations and is provided information as to how and why the violations occurred and how and when the discharge must come back into compliance. This step can be deleted for significant violations, such as repeated or intentional illegal discharges and falsified reports.

The notice of violation (NOV) letter is also an informal enforcement action. The purpose of a NOV letter is to bring a violation to the discharger's attention and to give the discharger an opportunity to correct the violation before formal enforcement actions are taken. Continued noncompliance should trigger formal enforcement action. An NOV letter is signed by the RWQCB Executive Officer and covers the following points: (1) description of specific violations; (2) summary of applicable enforcement options (including maximum ACL); and (3) a request for a written response.

Time Schedule Order: Pursuant to CWC section 13300, actual or threatened discharges of waste in violation of requirements can result in imposition of a time schedule which sets forth the actions a discharger shall take to correct or prevent the violation.

Cease and Desist Orders: CDOs are adopted pursuant to CWC sections 13301-13303. They are normally issued to dischargers regulated by WDRs and often remain in force for years. CDOs are typically issued to regulate dischargers with chronic non-compliance problems. These problems are rarely amenable to a short-term solution. Often, compliance involves extensive capital improvements or operational changes. The CDO will usually set a compliance schedule, including interim deadlines (if appropriate), interim effluent limits (if appropriate), and a final compliance date. CDOs may also include restrictions on additional service connections (referred to as a "connection ban") to community sewer systems. These have been applied to sanitary sewer systems but can be applied to storm sewer systems as well. Violations of CDOs should trigger further enforcement in the form of an ACL or referral to the AG for injunctive relief or monetary remedies.

Cleanup and Abatement Orders (CAO): CAOs are adopted pursuant to CWC section 13304. They are generally issued to dischargers that are not being regulated by WDRs. With the exception of ground water cleanup, CAOs are typically short-lived enforcement orders. CAOs are issued through an RWQCB action or by the Executive Officer under delegation from the RWQCB Members pursuant to CWC section 13223. Executive Officer-issued CAOs should be used when speed is important, such as when a major spill or treatment plant upset has occurred and waiting until the RWQCB can meet to approve a CAO would be inappropriate. Violations of CAOs should trigger further enforcement in the form of an ACL or referral to the AG for injunctive relief or monetary remedies.

Prohibitions: Basin plans may set forth appropriate prohibitions for various categories of NPS pollution. In some cases, these prohibitions are written to allow application of the prohibition to be waived during planning and permitting of projects or activities covered by a water quality management plan. A prohibition allows an RWQCB to take direct and immediate enforcement action through issuance of CAOs, even in the absence of WDRs. Therefore, it allows RWQCBs to respond in a timely manner where NPS pollution generated by certain activities is creating an emergency or a problem which is not otherwise being remedied in an adequate or timely manner.

Modification or Rescission of Waste Discharge Requirements: In accordance with the provisions of the CWC, and in the case of NPDES permits, the RWQCB may modify or rescind WDRs in response to violations. Rescission of WDRs generally is not an appropriate enforcement response where the discharger is unable to prevent the discharge as in the case of a wastewater treatment plant.

Referrals to the Attorney General or District Attorney: The RWQCB can refer violations to the AG or ask the appropriate county DA to seek civil or criminal penalties. In either case, a Superior Court judge will be asked to impose civil or criminal penalties. In some cases, the RWQCB may find it appropriate to request the U.S. Attorney's Office to review potential violations of federal environmental statutes, including the CWA, Migratory Bird Treaty Act, or the Resource Conservation and Recovery Act (RCRA). Enforcement actions taken by the RWQCB are civil actions. In cases where there is reason to believe that specific individuals or entities have engaged in criminal conduct, the RWQCB or Executive Officer may request that the DA pursue criminal actions. Under criminal law, individual persons, as well as responsible parties in public agencies and business entities, may be subject to fines or imprisonment.

Administrative Civil Liability

ACL means monetary assessments imposed by an RWQCB. These actions are intended to address past violations. If the underlying problem has not been corrected, the ACL action should be accompanied by an RWQCB order to compel future work by the discharger (e.g., CAO or CDO). The CWC authorizes ACLs in several circumstances, summarized in Table 12:

TABLE 12. POTENTIAL MONETARY ASSESSMENTS IMPOSED BY AN RWQCB

CWC Section	Type of Violation
13261	Failure to furnish report of waste discharge or to pay required fees.
13265	Unauthorized discharge of waste.
13268	Failure to furnish technical report.
13308	Failure to comply with time schedule.
13350	Intentional or negligent violation of CDO or CAO; violation of WDRs; or RWQCB prohibition which results in pollution or unauthorized release of any petroleum product.
13385	Violation of NPDES Permit, Basin Plan Prohibition, etc.

A summary of the "three-tiered approach," including practical examples of its application in California, is presented in Table 13.

Implement TMDLs

The development and implementation of TMDLs for NPS impaired water bodies are expected to enhance our ability to address NPS problems, consistent with the three-tiered approach described above. Along with the TMDL, the State will develop implementation plans that describe specific measures needed to achieve the point and nonpoint allocations established by the TMDL. For point sources, the allocations will be implemented through NPDES permits while NPS allocations are implemented through a wider range of authorities and programs, including the use of applicable State enforcement authorities. Therefore, TMDLs are expected to promote the

implementation of the appropriate MMs that will achieve timely water quality improvements that have not been achieved through the other approaches.

TMDLs will provide a more detailed approach to ensuring the implementation of the appropriate NPS MMs and will provide a better framework for "triggering" more stringent implementation. For example, TMDLs will (1) establish goals to judge the performance of management programs; (2) create the ability to better assess the effectiveness and appropriateness of MPs individually and collectively; (3) provide a basis for determining when to use more stringent management options (e.g., WDRs or other enforcement authorities); and (4) assist in prioritizing State's staff and financial resources when pursuing corrective actions.

Implement MMs in Regulation

NPDES – Storm Water

The two-phased program under CWA section 402(p) requires NPDES permits for storm water discharges. In California, the federal NPDES Program is administered by the SWRCB through the nine RWQCBs. Since 1990, Phase I regulations have required NPDES permits for storm water discharges for:

- Municipal separate storm sewer systems serving populations greater than 100,000,
- Specific industrial activities, and
- Construction activities disturbing land of five or more acres.

Phase I requires that individual NPDES permits be issued for municipalities greater than 100,000 (in practice, the RWQCBs include many municipalities in urbanized areas with populations less than 100,000 in the Phase I programs). Individual municipal NPDES permits require implementation of structural and nonstructural control measures to reduce pollutant loads from industrial, commercial, and residential areas. Implementation of the NPDES Phase II Program will expand the existing program to include all municipalities within urbanized areas and small municipalities outside of urbanized areas with a population of at least 10,000 and a population density of at least 1,000 persons per square mile. The program will also expand to include construction sites that disturb between one and five acres.

California's current and developing approaches to addressing urban runoff are and will be consistent with both the NPDES and NPS Programs. In the interest of consistency and comprehensiveness, the SWRCB and RWQCBs will ensure the implementation of urban MMs in areas and activities currently regulated by the NPDES Phase I Permit Program by incorporating the MMs into existing NPDES permits as the permits are renewed (at five-year intervals). Similarly, the SWRCB and RWQCBs will ensure that the NPDES Phase II permits will serve as the enforceable authorities to implement the urban MMs in areas and activities covered under Phase II. As lead agencies for the NPS Program, the SWRCB, RWQCBs, and CCC will ensure that all NPS MMs not covered by the NPDES Phase I or Phase II permits are implemented through other mechanisms identified within the NPS Program Plan.

TABLE 13. DESCRIPTION AND USE OF THE THREE-TIERED APPROACH

Tier	Description of Approach	Examples of the Three-Tiered Approach in Action
Tier One: Self-determined Implementation of Best Management Practices	Landowners and resource managers implement MMs/BMPs to achieve water quality standards. The RWQCBs may rely on implementation of MMs and BMPs to demonstrate compliance with, but cannot excuse violation of, water quality standards. Self-determined implementation is encouraged through incentives and technical assistance offered by State and federal programs that promote resource stewardship to achieve water quality benefits and to comply with statutory requirements. Agencies that provide such programs include the SWRCB, RWQCBs, DOC, NRCS, FSA, RCDs, and UCCE. Self-determined implementation is encouraged through the recognition by landowners and resource managers that this tier allows the discharger more "self-determination" in complying with statutory requirements than the more-stringent Tiers Two and Three.	• Financial support for local watershed stewardship projects (CWA §319) • EQIP cost-share for implementation • Sacramento Watershed Program fostering stewardship • Urban pesticide committee education efforts • Workshops promoting the Rangeland WQMP
Tier Two: Regulatory- Based Encouragement of Management Practices	There are two ways that RWQCBs can use their regulatory authorities provided by the Porter-Cologne Act to encourage implementation of MMs/MPs. First, RWQCBs may work with landowners and resource managers to waive the adoption of WDRs or a waste discharge prohibition on the condition that MMs and BMPs will be implemented to correct or prevent NPS pollutant(s) of concern. Second, the SWRCB and RWQCBs may enforce MMs and BMPs by entering into MAAs with other agencies that have authority to enforce the implementation of appropriate MMs and BMPs.	• MAAs with BOF/CDF, USFS, and CDPR • Marin County Stormwater Program (RWQCB-2) • Channel Islands National Park – improved grazing practices (RWQCB-3) • Required submittal of agricultural drainage operation plans (RWQCB-5) • Agricultural Nutrient Management Plans-Newport Bay (RWQCB-8)
Tier Three Effluent Limitations and Enforcement	RWQCBs can adopt and enforce requirements on any proposed or existing waste discharge, including discharges from NPSs. Although RWQCBs are generally precluded from specifying the manner of compliance with waste discharge limitations, in appropriate cases limitations may be set at a level which, in practice, requires implementation of MMs and BMPs. In addition, the SWRCB and RWQCBs have a variety of enforcement tools—such as CDOs and ACLs—that can be used in response to noncompliance.	• WDRs for commercial nurseries – Newport Bay (RWQCB-8) • WDR for selenium for San Joaquin River (RWQCB-5) • Permitted storm water programs • Erosion Control – Lake Tahoe (RWQCB-6) • WDRs for dairies

Provide Financial and Technical Assistance

Introduction

Strong stewardship by local stakeholders is critical to ensuring the successful implementation of the MMs identified in the five-year plans. Self-determined implementation can be encouraged through technical assistance provided by both State and local entities. A priority in the Implementation Plan is for the SWRCB and CCC to provide comprehensive technical assistance to local groups and landowners. The State will identify additional agencies and develop agreements (MOUs) to significantly increase the ease of acquiring and disseminating the most accurate and current information possible. A goal of the SWRCB and CCC is to provide each stakeholder with the information they require by coordinating efforts throughout the State.

Funding (Financial Assistance)

The Program will depend largely on funding received through the CWA section 319(h), State appropriations, and the contributions of other entities, including local governments, nongovernmental organizations, and private individuals. Unless additional funds are made available, it is possible that some of the activities contained within this Program Plan will not be completed as proposed. It is anticipated that implementation difficulties related to funding limitations will be identified and addressed as provided for through periodic program reviews.

Available Program funding will be directed at supporting activities that implement the MMs as identified in CAMMPR. Projects and staff positions at the SWRCB and RWQCBs funded under the CWA section 319(h) must support the implementation of MMs. This change will be included in the next CWA section 319(h) grant cycle (FFY 2000).

Federal Funding

USEPA provides annual funding to the SWRCB for implementation of the NPS program, pursuant to the CWA section 319. Since section 319 was established by the reauthorization of the CWA in 1987, California has received over $40 million to support the State's NPS program. In 1999, the federal allocation to support State NPS programs under CWA section 319(h) was significantly increased in recognition that many of the most serious remaining water quality problems are associated with NPS pollution. California's CWA section 319(h) funding level was increased from $5.7 million in 1998 to $10.3 million in 1999.

In California, the CWA section 319(h) funds have generally been divided between supporting State staff activities at the RWQCBs and the SWRCB and funding NPS implementation projects. As the lead water quality agency in California, the SWRCB receives the CWA section 319(h) funding from USEPA through a cooperative agreement. The SWRCB and the RWQCBs prepare annual workplans for USEPA approval to specify the activities that

will be supported through these CWA section 319(h) funds. CWA section 319(h) funding is primarily for implementation activities; therefore, at least 80 percent of all CWA section 319(h) funds must be spent on implementation, while no more than 20 percent may be allocated to planning and program development activities.

NPS projects have been selected based on a competitive process administered by the SWRCB and RWQCBs. Generally, an annual Request for Proposals (RFP) is issued for projects that will reduce or prevent NPS pollution to ground and surface waters. Eligible projects include the implementation of MPs, TMDL implementation, technology transfer, demonstration projects, pollution prevention, technical assistance, volunteer monitoring, and public education. Nonprofit organizations, local government agencies, including special districts (e.g., RCDs or water districts), and educational institutions are the recipients of these funds.

Another important source of funding for NPS projects is the SRF. The SRF is a low interest loan program established by the CWA to fund a wide range of water quality projects, including the same types of projects that are eligible for section 319(h) funding. Traditionally, the SRF and its predecessor, the Clean Water Grant Program, have been used to fund publicly-owned treatment works (POTWs) for sanitary sewer systems. However, the amendments to the CWA that established the SRF allowed for expanded uses of the SRF beyond the traditional POTW project. Capitalization for the SRF comes from an annual federal appropriation, 20 percent of State matching funds and loan repayments that revolve back into the SRF. Current assets (loans and cash) in California exceed $1 billion. The utilization of these assets offers one of the best avenues for funding the implementation of NPS MMs and related watershed implementation efforts.

To date, California has been a national leader in using the SRF to fund a wide variety of expanded use projects. Examples of types of expanded use projects that have been funded include:

- Stream restoration,
- Irrigated agricultural BMPs (improved methods of irrigation to reduce salt and selenium loads to the receiving water),
- Animal feeding operation BMPs (on-site improvements at small dairies that do not meet the USEPA definition of a point source),
- A vineyard to demonstrate BMPs and sustainable viticulture,
- Forestry BMPs (removal of dead and dying trees in the Lake Tahoe Basin),
- On-site septic system rehabilitation,
- Storm water treatment (including wetlands treatment),
- Wetlands preservation,
- Marina education and improvements,

- Water quality enhancements to flood control, and
- Estuary enhancement.

Using the fund to address all types of water quality issues regardless of whether it is a POTW, NPS, etc., is beneficial. In so doing, the SRF will help to foster the watershed approach. The SWRCB (who administers the SRF) is currently developing a formal policy regarding the funding of expanded use projects, including NPS projects. Once this policy is adopted, the expanded use projects will be given appropriate consideration in comparison to the traditional POTW projects.

State Funding

State funds have been earmarked for NPS Program development and implementation. These funds support SWRCB staff to develop MMs, the Strategy, and the Implementation Plan; develop and oversee formal agreements and informal partnerships; provide technical assistance; and provide public participation, education, and outreach. Additional funds are earmarked to develop and implement a program to track the effectiveness of MMs.

Currently, State monies fund NPS pollution prevention and reduction efforts at the SWRCB and RWQCBs in four of the six management categories: agriculture, forestry, hydromodification, and wetlands/riparian areas. Through State General Funds, the SWRCB and the RWQCBs update and revise basin plans regarding the effects of subsurface agricultural drainage on the State's waters. Staff also review forestry activities to ensure control of NPS pollution. Primary activities include: (1) the review of timber harvest plans, (2) consultation with federal agencies on silviculture, mining and grazing on forest lands, (3) evaluation of corrective actions, (4) development of water quality criteria and guidelines for treatment and disposal, (5) regulatory actions, (6) laboratory quality assurance, and (7) coordination of data management. The SWRCB and the RWQCBs administer the water quality certification program authorized through the CWA section 401. CWA section 401 requires that any applicant for a federal license or permit to conduct any activity which may result in a discharge to navigable waters obtain a certification from the State that the discharge will comply with the applicable provisions of CWA sections 1311, 1312, 1313, 1316, and 1317 (essentially State water quality standards). Generally speaking, CWA section 401 applies to dredge and/or fill permits issued by the USACOE, pursuant to CWA section 404 or hydropower generation facility licenses issued by the FERC.

Starting in 1999, the baseline allocation of the SWRCB has been augmented by $3.9 million to develop TMDLs, a necessary first step in reducing NPS pollution in impaired watersheds. While these funds will not support implementation of TMDLs, SWRCB and RWQCB staffs will participate in

stewardship groups and assist community-based watershed monitoring programs.

Funds are also provided to on-the-ground pollution prevention and reduction activities through two funding sources: the Delta Tributary Watershed Program and the Agricultural Drainage Management Program (ADMP) authorized under Proposition 204. The Delta Tributary Watershed Program was awarded, on a one-time basis, $14.5 million for rehabilitation projects in the watersheds tributary to the Sacramento-San Joaquin Rivers Delta or the Trinity River. Most of these projects will begin in 1999 or early 2000. Of the $30 million set aside for the ADMP, $27.5 million was for low interest loans and $2.5 million was for the nonfederal share of a project specific to the Salton Sea. The loan fund can be used for the treatment, storage, conveyance, reduction, or disposal of agricultural drainage water that if discharged untreated would pollute California's waters.

Request for Proposals

Each year the SWRCB and USEPA release RFPs for watershed planning and implementation projects to reduce, eliminate, or prevent water pollution and to enhance water quality. The RFP contains information concerning project requirements, anticipated funding levels, the review process, and selection criteria, and an application form is included that serves as the proposal. Funds made available are typically offered under the authority of Federal CWA section 205(j) Water Quality Planning and Assessment or CWA section 319(h) NPS Implementation Programs. However, in 1997 and 1998, the SWRCB offered $15 million made available through Proposition 204, the 1996 Bond Act.

The SWRCB and RWQCBs view the funding of projects consistent with priorities identified in the RFPs as an important tool in managing NPS pollution. Beginning with the calendar year 2000, RFP projects must implement actions that achieve NPS MMs goals and objectives to receive funding.

The funds contracted out under the RFPs represent half of the federal NPS funds California receives. The Program recognized several years ago the need to better track and evaluate the effectiveness of these projects. Working with UCD ICE, the State is working (1) to promote information exchange and coordination among watershed groups; (2) to geographically track the implementation of MMs; and (3) to determine the effectiveness of CWA section 205(j) and 319(h) projects in protecting beneficial uses and improving water quality. Effective with the 1999 RFP, all selected projects' contractors must complete a one page contract summary (format provided by SWRCB) within three months of the contract execution. The SWRCB will make the summaries available to the public, including posting them on the SWRCB's NPS web site. At the completion of each funded project prior to final

payment, all projects must complete a project survey form supplied by the SWRCB. At the same time, SWRCB and RWQCB staffs may survey project location and aerial extent using global position equipment. The information gathered will be entered into an internet-accessible geographic information system (GIS) and be provided as part of the required annual, biennial, and five-year cycle reports. In addition, information concerning each CWA section 319(h) funded project is being entered into a USEPA mandated tracking system known as the Grants Reporting and Tracking System (GRTS) to further aid in fiscal management, accountability, and the exchange of information.

Through these RFPs, the SWRCB, RWQCBs, and USEPA, Region 9, are encouraging watershed management as a means to ensure high quality waters, maximize the use of limited resources, and develop partnerships among all stakeholders of watersheds to address water quality issues. In this respect, grants offered through RFPs are being integrated under the SWRCB's and RWQCB's WMI to ensure the most efficient use of the funds. Local stewardship and partnerships among governmental agencies and private interests are vital parts of the type of watershed management envisioned. Involvement of stakeholders throughout a watershed is a critical feature of watershed management that will provide for sustained, long-term improvements in the beneficial uses of water and water quality. Implementation activities identified in a watershed management plan or similar comprehensive efforts to achieve sustained improvements in water quality and natural resources are a priority. CWA section 205(j) provides water quality planning funds, and CWA section 319(h) provides NPS implementation funds. The funds provided via RFPs are not intended to be used as the sole or principal source of support for local resource management.

Other Agencies Sources

Collaboration with the MBNMS

The CCC and MBNMS WQPP are working to develop coordinated grants among numerous nonprofit organizations improving water quality and restoration. This coordination of funding is intended to help nonprofit organizations obtain grant assistance, coordinate the expertise of the numerous groups working on NPS pollution, and identify a regional framework to guide future projects.

Technical Assistance

Introduction

The SWRCB, RWQCBs, and CCC recognize that individuals, watershed groups, and communities have varying levels of technical and financial capabilities related to water quality protection and restoration and the protection of beneficial uses. In particular, the level of expertise available at the local and/or watershed level during project planning, design, and

implementation can have a significant effect on the time and effort needed to implement practices to address NPS pollution. Technical and financial assistance is needed for those who plan and manage resources (e.g., planners, forest managers, public works staff, harbor masters, watershed groups) and those whose activities alter the landscape or affect the water column (e.g., farmers, road builders, boat hull cleaners).

Types of technical assistance include MP manuals, training, assistance in developing ordinances and regulations, modeling to predict and assess the effectiveness of any additional NPS MMs, and the development and management of databases to track implementation of MMs, monitoring data, and land use changes. Technical assistance also includes demonstration projects and other innovations to protect water quality and designated uses. Financial assistance includes both grants and low-interest loans.

Goals

A priority goal of the NPS Program is to provide technical and financial assistance to local governments and the public in assessing watershed conditions and implementing applicable MMs to address identified problems. The NPS management agencies will also work with other federal, State, and local agencies, as well as other private experts where feasible, and will encourage them to use their expertise. Specific objectives include:

- Conducting an ongoing assessment of training and technical and financial assistance needs;
- Providing for the transfer of information on technical and financial assistance including available tools, training courses, grant and loan opportunities, and contact information;
- Improving technical tools;
- Providing technical training for resource managers, landowners and land operators, and the public; and
- Providing financial assistance for on-the-ground implementation of MMs and MPs for each land use sector (i.e., agriculture, forestry, urban, marinas, hydromodification, and wetlands).

The NPS Program will also support technical and financial assistance efforts within other agencies. Examples of existing technical assistance efforts include:

- UCCE and NRCS currently provide technical assistance to the livestock industry and rangeland owners and managers through the California Rangeland Water Quality Management Program (CRWQMP);
- The California Stormwater Quality Task Force (SWQTF) provides assistance to municipal agencies and other dischargers subject to existing storm water permits, while the MURP has been developed to help smaller municipalities (less than 100,000 in population) develop runoff control

programs to protect water quality and prepare for pending storm water permits;

- The MURP has been developed to help smaller municipalities (less than 100,000 in population) develop runoff control programs to protect water quality and prepare for pending storm water permits;
- The CCBN and San Diego Safe Boating and Environment Coalition are devoted to identifying education and technical assistance needs regarding environmentally sound boating and to providing networking opportunities;
- The SWRCB TMDL Program is focusing technical assistance efforts on assessing water conditions and, to the maximum extent practicable, on working with local interests on the collaborative identification of: (1) watershed problems, (2) desired future conditions, (3) numeric targets, (4) allocations of allowable pollution, and (5) implementation.
- The CCC is committed to make available and provide training for use of its Watershed Analysis Tool for Environmental Review (WATER). WATER is a GIS-based analysis tool that connects land use information to water quality in watersheds of the Monterey Bay area, and thus enabling selection of the appropriate MMs for implementation in those particular watersheds. The CCC's permit tracking system also provides a valuable tool for tracking land use activities.
- The NPS Program's future efforts in identifying and mapping CCAs will allow the implementing agencies to direct their resources to coastal areas faced with water quality threats that accompany new and existing development.

Actions

The SWRCB, RWQCBs, and CCC are committed to providing technical and financial assistance through 2013. New and changing needs and opportunities will be identified annually and outlined in each five-year implementation plan. Beginning in State FY 1999-2000, the SWRCB and RWQCBs will provide CWA section 319(h) grants for projects that implement NPS MMs and/or provide for watershed restoration. In State FY 1999-2000, the CCC approved $500,000 in local assistance grants to LCP work programs for eight coastal cities and counties, all of which include NPS requirements or guidelines.

In the short term, the SWRCB has identified the provision of technical assistance as a priority objective in the 1999 CWA section 319(h) RFP. The CCC identified technical and financial assistance as a priority for the State FY 1999-2000 CZMA grants workplan (the CCC is providing funding for projects that develop technical assistance tools, such as technical guidance and model ordinances). The SWRCB and USEPA are also investigating using the Clean Water SRF—a permanent source of low-interest funding for high-priority water quality projects—for addressing a variety of other NPS and estuary water quality issues. Other actions are identified in the Implementation Plan.

G. Track, Monitor, Assess, and Report

The NPS Program must establish mechanisms to determine success in achieving short- and long-term goals. We must:

- Track MM implementation,
- Monitor the program's effectiveness in controlling pollution,
- Assess success in achieving our objectives and milestones, and
- Report on program effectiveness.

Our efforts to demonstrate program effectiveness are guided by existing federal and State requirements. Section 319(b) of the CWA specifies the minimum contents of State NPS management programs including "*(viii) A description of the monitoring and other evaluation programs that the State will conduct to help determine short- and long-term program effectiveness.*" Federal guidance also requires the states to periodically review and evaluate NPS management programs using environmental and functional measures of success and to revise NPS assessment and management programs at least every five years[15]. Section 6217 of CZARA requires monitoring techniques to evaluate the success of the MMs in reducing pollution loads and improving water quality.[16] A monitoring program will also help fulfill the legislative mandate of the Comprehensive Coastal Monitoring Strategy required by Assembly Bill (AB) 1429. It stated, in part: "Sound water quality management decisions require a solid base of information collected from a variety of sources … improved monitoring, or in some cases improved coordination of existing programs, will be necessary for the State of California to achieve a systematic understanding of NPS pollution and to measure the effect of efforts to reduce this water pollution source."

A comprehensive monitoring strategy for the NPS program will soon be complete. This strategy will be designed to provide objective, quantified answers to broad management questions. These questions are then refined into more discrete monitoring objectives that will shape the design of specific monitoring programs. The monitoring strategy will focus primarily on answering the first two questions posed below while coordinating with other monitoring programs to effectively answer all questions.

1. *Are MPs to reduce polluted runoff being implemented (Tracking or Implementation Monitoring[17])?* Our efforts will focus on tracking MM implementation and determine

[15] In 1996, USEPA released a CWA section 319(h) guidance document requiring states to upgrade their NPS programs consistent with nine key elements in order to achieve "*Enhanced Benefit Status.*" In a January 1999 memorandum, J. Charles Fox, USEPA Assistant Administrator, reiterated the requirement and outlined the process for approval of upgraded NPS Programs.

[16] NOAA and USEPA in accordance with these statutory mandates provide additional specifics for the monitoring and tracking of MMs in their January 1993 Coastal Nonpoint Pollution Control Program – Program Development and Approval Guidance.

[17] Implementation monitoring assesses whether activities were carried out as planned. It does not necessarily include water quality measurements. Our efforts to track whether BMPs were performed follow under this type of monitoring.

whether practices are implemented in accordance with relevant standards and specifications.

2. *Are the MPs effective in avoiding or minimizing pollution generation (Effectiveness Monitoring[18], Compliance Monitoring[19])?* We will develop a monitoring strategy that measures the effectiveness of MPs for agriculture, forestry, urban sources, and marinas.

3. *Is water quality being protected and are narrative and numerical water quality criteria being achieved (Baseline Monitoring[20], Compliance Monitoring)?* We will coordinate with ongoing regional monitoring efforts and point-source compliance monitoring to identify impairments and determine the extent, causes, and sources of impairment.

4. *Is reasonable progress being made toward reducing NPS polluted runoff?* We will review tracking and monitoring information through external review committees and TACs and assess the state of the Program.

Implementation of the MMs through MPs can be considered a "technology-based" approach to NPS pollution control. Application of MPs will reduce NPS pollutant loadings and improve water quality. As such, tracking the extent of MM implementation (and the associated MPs) will provide the initial measure of NPS Program success. Due to the areal extent and scale of NPS problems, improvements in water quality will take time. Ultimately, however, the long-term success of the NPS Program must be measured by corresponding improvements in water quality. This water quality-based approach to assessing success will be accomplished through the SWRCB's development of a comprehensive surface water quality program, to the extent that funds are available, by January 1, 2001, pursuant to section 13181(c)(1) of the Porter-Cologne Act. The comprehensive water quality program will address, among other issues, the following:

- To the extent possible, a determination regarding the extent to which existing water quality objectives are being met;
- To the extent possible, a determination regarding the sources of pollution in areas where objectives, standards, and guidelines are not being met; and
- Methods for determining the degree of improvement or degradation in coastal water quality over time.

Prior to development of the comprehensive monitoring program, the SWRCB will, pursuant to section 13192 of the Porter-Cologne Act, on or before November 30, 2000, assess and report on the SWRCB's and RWQCBs' current surface water quality monitoring programs. Important elements to be considered in this report include, but are not limited to, the following:

[18] Effective monitoring evaluates whether the specified activities (e.g., individual management practices, timber sale, construction project) had the desired effect. Monitoring definitions are described further in USEPA (1991).

[19] Compliance monitoring evaluates whether a water quality standard is being met.

[20] Baseline monitoring characterizes existing water quality conditions and establishes a database for planning or future comparisons. Continued baseline monitoring may become trend monitoring.

- The physical, chemical, biological, and other parameters that a comprehensive water quality monitoring program should collect and evaluate in order to determine ambient water quality; and
- A strategy for assessing and characterizing discharges from NPS pollution.

In addition, the SWRCB, pursuant to Porter-Cologne Act section 13181(b)(1), will prepare and complete an inventory of existing water quality and monitoring activities within State coastal watersheds, bays, estuaries, and coastal waters, by January 1, 2000, to the extent that funds are available for this purpose.

Tracking Management Measure Implementation

Tracking MM implementation is the simpler, more straightforward component of the monitoring strategy. The MMs are directly implemented on ground via MPs. MPs are implemented by the landowner or user because of their stewardship approach to land use; it makes business sense; or it is in response to regulatory pressures or requirements, such as to meet waste discharge or other permit requirements.

This tracking program will be broad-based and inclusive of all MM categories and water bodies in California. A tracking program is currently being designed to identify:

- What MMs are implemented,
- Where MMs are implemented,
- Who is implementing them,
- When they are implemented,
- Why they are being implemented (e.g., because of self-interest, regulatory-encouragement, or regulation), and
- Which agencies and programs are supporting implementation?

The tracking program will also include specific performance measures and goals that can be used at the end of the five-year period to determine the scope and extent of MM implementation. Combined with the effectiveness monitoring (described below), it will allow us to gauge the success of program implementation efforts. An example of a performance measure would be "the number of approved farm plans which implement relevant agricultural measures." Examples of performance goals would be (1) "to have in place approved farm plans for 80 percent of the farms in each watershed" or (2) "implement agricultural MMs or MPs on 80 percent of farm lands in each watershed." The five-year review will be comprehensive in scope, addressing all of the measures and broken out on a watershed basis, to the extent possible. The measures and goals will be developed through an interagency effort which will include public involvement, such as the IACC and the Assessment TAC.

The State recognized several years ago the need to better track and evaluate the effectiveness of these projects. Through contracts with UCD ICE, the State is working to: (1) promote information exchange and coordination among watershed groups;

(2) geographically track the implementation of MMs; and (3) determine the effectiveness of CWA sections 205(j) and 319(h) projects in protecting beneficial uses and improving water quality. All selected projects must complete a one-page contract summary which the SWRCB will make available to the public. At the completion of each funded project, all projects must complete a project survey form and agency staff may survey the project location and determine the aerial extent of MM implementation. The information gathered will be entered into an internet-accessible GIS and be provided as part of the required annual, biennial, and five-year cycle reports.

This MM information will augment information already collected for watershed projects in California. Data on the over 1,000 conservation, mitigation, and restoration projects being developed and implemented throughout California resides on-line in the Natural Resource Project Inventory (NRPI). NRPI is a cooperative data-collection effort of environmental scientists at the UCD-ICE and over 30 private, State, federal, and international organizations interested in environmental protection[21]. The goal of NRPI is to make project and group information accessible to anyone who wants to review current activities in their region or statewide.

NRPI is an expansion of previous inventories such as the California Watershed Projects Inventory (CWPI) supported by the USEPA, the SWRCB, and Cal/RA and the California Ecological Restoration Projects Inventory (CERPI) supported by the USEPA, the Society for Ecological Restoration, and DOC. NRPI also integrates newer efforts, such as the Biological Resource Division's Mendocino Coast Metadata Inventory and the California Interagency Noxious Weeds Coordinating Committee's Noxious Weeds Projects Inventory. Environmental planning activities and agreements such as Habitat Conservation Plans, Natural Community Conservation Plans, and other resource-based plans will also be candidates for the NRPI database[22]. Beginning with the 1998 CWA sections 205 (j) and 319 (h) grant projects, all project contractors are now required, prior to final payment, to complete a post-project survey form that the SWRCB will provide to ICE for inclusion in NRPI.

Because of ICE's long history of developing and applying natural resource science to environmental issues, computer resource infrastructure, and the synergistic effect of so many participating agencies, the SWRCB has committed to use NRPI as the primary means to track implementation of MMs. In the spring of 1999, the SWRCB executed a contract with ICE to modify NRPI's data structure and to redesign the reporting form used to inventory projects to capture information specific to the implementation of the MMs and to further populate the database. Information collected from all participating

[21] NRPI is supported by the CBC whose 37 members include nine regional associations of county supervisors, 15 State agencies, UC, and the CARCD. Each of these members has designated one expert to bring in data from his or her respective agency. This information is then entered into the NRPI database/web page designed and hosted by the ICE. Participation by the CBC signatories is augmented by a growing list of data contributors including UCCE, the CRMP Council, and the Klamath Watershed Coordination Group.

[22] The NRPI structure will allow core searches of all underlying inventories at the same time. Each NRPI record points to the separate underlying inventory for more detailed information. The inventories also exist separately and can be searched independently. Each dataset will also be referenced spatially in a GIS, allowing the creation of dynamic maps of projects, groups, and datasets.

entities will include such items as implementing programs, authorities, MMs, and graphic coordinates. Modifications will also include a link to the SWRCB's GeoWBS which contains the CWA section 303(d) Impaired Water Body List.

Besides the NRPI, the CCC also has a system for tracking permitted land use activities. Currently, there is a wetland-specific component contained in the more general Permit Tracking System. The CCC is prepared to develop similar runoff-specific tracking elements to allow for the tracking of MM implementation for preventing and controlling NPS pollution.

Monitoring the Effectiveness of Management Practices

With the tracking system underway, the next component of the monitoring strategy is documenting and evaluating the effectiveness of the NPS pollution control practices. Establishing the effectiveness of the State's efforts to control NPS pollution will be a long-term, complicated, and expensive commitment for the following reasons:

- Nature of the NPSs of pollution are typically diffuse and difficult to define.
- NPS pollutants are varied and include sediment, nutrients, pathogens, salts, toxic substances, petroleum products, and pesticides.
- NPS pollution is extensive and spread over the entire State (155,000 square miles) and is not limited to specific outfalls. There are over 4,000 water bodies listed in the SWRCB's GeoWBS, of which 480 are listed as impaired.
- Watersheds are complex, and multiple sources within a watershed may contribute to the same pollutant.
- There is usually a substantial lag time between implementation of MPs and response in the watershed.
- The need for water quality monitoring, both qualitative and quantitative, is extensive.
- There are limited resources for water quality assessment.
- Regulatory authority is complex. Over 31 State agencies have NPS regulatory authorities and programs.

However, determining MM effectiveness is critical to understanding how MPs avoid pollution generation and improve water quality. The lead agencies are currently designing this component of the monitoring strategy. In the spring of 1999, the SWRCB executed a contract with UCD to develop a comprehensive monitoring program to assess the functioning of MPs. The comprehensive monitoring program will:

- Establish criteria to assess the functioning of MPs;
- Monitor practices in each major pollution source category (i.e., agriculture, forestry, urban sources, marinas, and hydromodification);
- Monitor long-term at least one watershed within the jurisdiction of each of the nine RWQCBs;
- Integrate NPS monitoring with other monitoring programs, including citizen monitoring programs; and
- Report monitoring information to all interested parties.

The Program Plan's monitoring will focus primarily on the on-site evaluation of MP effectiveness and their ability to avoid pollution generation. Pollution control success criteria will be developed for each major pollution source category (i.e., agriculture, forestry, urban sources, marinas, and hydromodification). These criteria will be grounded in simple, empirical observations of the effectiveness of MMs performed by landowners or community members. UCD will review potential indicators and develop a preliminary list of criteria. These criteria will be reviewed by panels of agency, industry, and community members. A suite of candidate measures will be tested in the field during the pilot phase of the monitoring program (year 2000). This pilot phase, called the Functioning Assessment Criteria Test (FACT), will be implemented by UCD with the support of community volunteers, landowners, and qualified monitoring experts. From FACT's success we will develop a broader effectiveness-monitoring program that will evaluate all MM sectors by the year 2013.

The RWQCBs are currently targeting two impaired water bodies per year in each region for developing TMDLs. Following TMDL development and adoption into the basin plan, the RWQCBs will begin TMDL implementation. We will target our NPS monitoring in those watersheds where NPS pollution is a significant contributor to water quality impairment. Monitoring will need to continue in these watersheds over many years to accurately document changes in pollutant loads and the effectiveness of MPs. The lead agencies will work with other agencies, key stakeholders, and citizen monitoring programs to craft a long-term monitoring strategy. At a minimum, the strategy should be designed to implement base-line monitoring one watershed per region per year for ten years.

Various effectiveness-monitoring programs are ongoing and will be evaluated during the pilot phase (FACT) so that the most beneficial comprehensive strategy can be developed. Furthermore, these monitoring programs will be augmented rather than replaced. This is particularly true in the forestry arena where the proper implementation and effectiveness of forestry MPs is being evaluated by the Monitoring Study Group (MSG). This MSG was created by the California BOF to determine how effective the Forest Practice Rules (FPR) are in protecting water quality. The CDF implemented hillslope monitoring in 1996 on 50 randomly selected Timber Harvesting Plans (THPs) in Humboldt and Mendocino Counties to provide information on forest practices within the range of Coho salmon. The program expanded in 1997 and 1998 to evaluate THPs throughout the State. Evaluation of 150 THPs occurred in areas with the greatest risk to water quality—roads, skid trails, landings, watercourse crossings, and watercourse and

lake protection zones (WLPZs). In total, approximately 150 FPR requirements were evaluated. From this monitoring study, forestry regulators will determine whether erosion problems on hillslopes were due to improperly implemented FPRs or the inadequacy of the FPRs.

In the agricultural arena, the Dairy Quality Assurance Project has developed a method for measuring the effectiveness of dairy nutrient MPs. The crux of the method is dairy inspections by certified third party inspectors. The method of inspections is under development and will be assessed for possible use in evaluating other MMs.

Since our effectiveness monitoring will focus primarily on the on-site evaluation of MPs, we must coordinate with other monitoring programs to ensure an accurate assessment of the effects of NPS pollution on aquatic resources. A blend of monitoring programs to achieve multiple objectives will be the most effective long-term monitoring strategy. This blending of objectives can only occur through active program coordination. First, a subcommittee of the IACC will focus on assessment to improve interagency coordination of monitoring programs. Second, the SWRCB and RWQCB staffs will continue intra-agency coordination through the Monitoring and Assessment Team. Third, SWRCB and RWQCB staffs will continue to work on existing monitoring programs such as: (1) the Comprehensive Coastal Monitoring Strategy; (2) CALFED's Comprehensive Monitoring, Assessment, and Research program on the San Francisco Bay-Delta; (3) the Regional Monitoring Program of the San Francisco Bay; (4) the Central Coast Regional Monitoring Program; (5) the Sacramento River Toxic Pollutant Control Program; (6) the Southern California Bight Program; (7) U.S. Geological Survey's (USGS) National Water Quality Assessment Program (NAWQA); and (8) USGS's National Irrigation Water Quality Program.

An example of specific questions being posed for State monitoring include measuring the effectiveness of MPs to reduce contamination of surface and ground waters by synthetic pesticides and fertilizers. The State will work with CDPR, U.S. Department of Agriculture (USDA) (NRCS, USFS, FSA, and RCD), the agricultural community, agricultural producers, researchers, and other public interests to design a set of trials to compare movement of nutrients and pesticides both before and after implementation.

Because of the emphasis in the NPS Program on self-determined pollution prevention, landowners, farmers, ranchers, boat owners, and community members will often monitor the effectiveness of their own practices, interpret the results, and, if necessary, modify their practices. In the next 15 years, SWRCB and RWQCB staffs will improve community-based watershed monitoring efforts by: (1) developing and reviewing new methods for monitoring MM implementation and effectiveness; (2) disseminating quality assurance requirements; and (3) increasing training opportunities. Technical resources will be developed and distributed statewide. These include standard monitoring protocols, quality assurance plans, guidance on how to start a community-based monitoring program, and data storage and retrieval mechanisms. Monitoring protocols will be designed to evaluate MP effectiveness and optimize data comparability between watersheds. However, efforts will be made to tailor protocols to stakeholder needs and geographical diversity. Guidance on quality assurance will identify the data

quality needs of important programs such as TMDLs. Training in monitoring design, monitoring techniques, data interpretation, quality assurance, and database management will continue. The SWRCB and RWQCB staffs will continue to support regional steering committees that foster partnerships among local, State, and federal governments and business, industry, and volunteer groups. If funding permits, the SWRCB will develop a statewide small grants program to support volunteer monitoring efforts.

The SWRCB and RWQCBs will work to resolve concerns about confidentiality of data collected voluntarily by landowners on their own practices. Sharing data will be beneficial in transferring knowledge about the success of certain practices. However, landowners may fear that regulators may use data to require additional monitoring or permit MPs. These concerns should be aired and addressed through discussions with agency staff, landowners, and appropriate industry representatives. Hopefully, successful solutions, such as the third party inspections developed in the Dairy Quality Assurance Project, can be achieved.

Resource needs identified by this work will form the basis for future resource requests to the State. SWRCB and RWQCB resources are inadequate for statewide comprehensive water quality monitoring. SWRCB is working to procure funding for those currently unfunded monitoring and assessment activities that are of central importance to the SWRCB's programs. The funding strategy will seek to fund key activities that meet multiple program mandates. This selection of the activities to be funded is based on overlapping needs for data that can best be addressed by an integrated monitoring and assessment effort. One of the key activities identified by management is to develop a compliance-monitoring program for NPS pollutants. We will seek a broad base of funding support from federal, State, and local government sources.

Assessing Internal Program

Evaluating the success of the NPS Program will include the elements of tracking and monitoring noted above. However, it will also include a systematic evaluation of whether we have achieved the short- and long-term goals of the program. To do this, staffs from the SWRCB, CCC, and other agencies will participate in the Assessment TAC to conduct biennial reviews and report on issues such as:

1. Completion of the activities identified in the five-year implementation plans and the attainment of their associated performance measures;
2. Performance of the system(s) (e.g., NRPI and the CCC's permit tracking system) used to track the implementation of MMs;
3. Effectiveness of the implemented MMs;
4. Involvement of the appropriate federal and State agencies in implementing the Program Plan and the mechanisms of agency participation (e.g., MOUs/MAAs [see Table 10]);
5. Public participation;
6. Coordination of agency and public activities via the IACC;
7. Identification of additional needs for public education and technical assistance;

8. Evaluation of the overall program performance and the program's ability to stay on schedule for full implementation of all identified MMs by 2013; and
9. Recommendations for program improvement.

In addition, the biennial review/workshop will discuss funding for implementation of the Program Plan. Issues to be discussed will include, but are not limited to, the following: (1) significant funding needs integral to the success of the Program Plan; (2) an analysis of funding mechanisms that can be used to continue needed MM development and research; (3) monitoring activities; and (4) long-term funding such as CWA section 319(h) grants, the State budget process, and statewide initiatives.

Reporting Program Effectiveness

The monitoring data will need to be routinely interpreted, assessed, and reported to the community of resource managers, landowners, farmers, ranchers, industry, and environmentalists who are interested in NPS pollution prevention. In this way, the reviewing audience can use the information on effectiveness of MMs to redesign and retest those practices.

Three separate reporting efforts are integral to the NPS Program. First, SWRCB and the CCC will provide biennial reports of its progress in meeting its objectives and performance measures. These reports will assess program success and recommend modifications to MMs and their implementation. These reports will be available to the public, implementing agencies, the Legislature, USEPA, and NOAA. Second, the SWRCB and RWQCBs provide a performance report semi-annually to USEPA. This performance report covers NPS activities funded by CWA section 319(h) funds. The report lists major accomplishments, describes progress towards future accomplishments, and accounts for tasks that are behind schedule. The third report is the annual progress report on NPS programs and projects funded by CWA section 319(h). This report, authored by SWRCB and RWQCBs, focuses on the progress made in meeting milestones identified in the annual CWA section 319(h) workplan.

The State will improve the on-line inventories of watershed projects (e.g., NRPI, CWPI) and monitoring programs. Efforts will ensure that the NPS monitoring program data are integrated into the comprehensive, user-friendly water quality database system called "System for Water Information Management" (SWIM) that is being developed by the SWRCB. The ultimate goal of SWIM is an on-line accessible database of real monitoring results. These data will be accessible for public and agency use and will enable participants to have equal use of data in developing comments and revising strategies.

H. Overall Program Assessment - Refining the Program

Making the Program information available for external review not only bestows a certain degree of credibility to the Program, it also enables public participation in the periodic assessment and refinement processes. Public involvement is encouraged through the Assessment TAC created by the IACC. The Assessment TAC will then cooperate with

the other TACs (Technical Assistance, Education, and Regulation) to propose modifications to the NPS Program which may include:

- Shifts in Program efforts (e.g., additional target watersheds and additional MMs),
- Strengthening individual NPS-related programs (e.g., expediting MM implementation and increasing enforcement, when appropriate),
- Improving agency coordination,
- Increasing public education and participation, and
- Increasing funding.

Modifying and Adding Additional Management Measures

One of the biggest challenges facing the NPS Program is providing for the implementation of "additional MMs" where water quality is impaired or threatened even after the implementation of California's MM goals. It is important for California to identify waters that are not attaining or maintaining applicable water quality standards and to identify and develop additional MMs to address persistent water quality problems.

Goals

Our overall goal is to develop a continuing process for identifying and implementing additional MMs that include milestones for implementation, evaluation, and, as necessary, revision. These additional MMs will be developed when needed to attain and maintain water quality standards.

New Management Measures

In developing the Program Plan, California identified the following additional MMs:

- Education MMs for Agriculture, Forestry, Hydromodification, and Wetlands. California added Education/Outreach MMs to reflect the State's intention to promote public awareness and involvement in controlling NPS pollution (the g-Guidance included education MMs for the urban and marinas sectors only). Nearly all of the TACs recommended that California enhance public education so that individuals can take responsibility and make the cooperative approach work.
- Post-Harvest Evaluation for Forestry. The post-harvest evaluation for forestry will help evaluate the successful implementation of the State's forest practice requirements. From this evaluation, appropriate changes to or oversight of the requirements can be developed. This evaluation of the forest practice requirements has been initiated and is described in the Monitoring Section.
- Marina Solid Waste Facilities. In addition to operating and maintaining these facilities, there is a need to support the installation of waste management facilities.

Process for Developing Additional Management Measures

California will conduct the following activities related to additional MMs:

- Ensure agency and public participation in developing and implementing the additional MMs.

- Coordinate review of CZARA section 6217(g) MMs and identify an initial set of additional MMs that are applicable for implementation in California.
- Involve the Assessment and/or Technical Assistance TACs, created by the IACC, to identify and recommend additional MMs.
- Develop a process for identifying and implementing additional MMs to address "additional" pollutant sources (e.g., resource extraction and abandoned mines, pitch canker [forestry], water conservation, and aerial deposition).
- Implement additional MMs in next five-year implementation plan.
- Track MM and MP implementation and review and assess effectiveness.
- Implement a long-term strategy for addressing pollution from active and inactive mines. (Active and abandoned mines are a significant source of NPS pollution as shown in Table 3 and discussed below.)

Abandoned Mines

Introduction

The SWRCB is the lead agency for control of water pollution by any source, including abandoned mines. However, there is no specific, comprehensive program at either a State or federal level for cleaning up abandoned and inactive non-coal mines. Rather, abandoned and inactive mine cleanup is carried out under a variety of State, federal, and local programs.

Over a century of mining since 1849 has left California with literally tens of thousands of small abandoned "hardrock" mines. Although not significant polluters individually, they often contribute cumulatively to chronic toxicity in affected watersheds via metals loading. Similarly, abandoned hydraulic placer gold mines and abandoned aggregate mines degrade aquatic habitat via excessive sediment loading. Again, the most serious sites are usually handled directly (e.g., Malakoff Diggings State Park, a historic hydraulic mining site, is under WDRs for sediment discharge), but the cumulative effects of smaller sites are not even addressed.

A few mine cleanups have been carried out under the Federal Superfund Program pursuant to California's Title 27 Program, which regulates waste discharges to land, and California's Surface Mining and Reclamation Program. For the most part, the worst abandoned mines are being cleaned up under the Federal Superfund Program. USEPA is also considering listing additional abandoned mines on the National Priority List in the future, but these would be sites that cause serious environmental problems or pose a substantial threat to human health. In a few instances, RWQCBs have tried to affect cleanup of abandoned mines by placing them under WDRs pursuant to Title 27.

The main barrier to a comprehensive program for abandoned mines is liability. Under the federal CWA, a third party can sue an agency or private party that

performs abatement work at an abandoned mine if the discharge from the mine continues to violate the CWA (refer to the Penn Mine lawsuit). California recently passed legislation that provides protection for "Good Samaritan" cleanup under State law. Efforts over the last few years to amend federal law to provide similar protection have failed (although these efforts continue). Thus, liability is the main barrier to a comprehensive program for cleaning up abandoned mines.

Goals

- Continue to regulate the most prodigiously polluting abandoned mines under the appropriate programs.
- Support efforts to resolve the liability issue, the main impediment to a coordinated effort to clean up abandoned mines.
- Develop strategies and measures for abating chronic toxicity and habitat degradation from the cumulative effects of numerous small sites.

Actions – Characterization and Cleanup

The SWRCB and RWQCBs have identified approximately 40 mines that cause serious water quality problems resulting from acid mine drainage and acute mercury loading. Additionally, within the last year, State and federal agencies have realized that drainage structures and sluices associated with abandoned hydraulic gold mines are a potential source of mercury to waters of the State. Mercury from these abandoned mines poses a serious potential threat to coastal waters because mercury transported from these sites may bioaccumulate in fish. To that end, State and federal agencies are collaborating with local entities to investigate mercury loading from abandoned hydraulic mine sites in the Bear and South Fork Yuba watersheds. This effort is being supported by State funds (Proposition 204 Grant, bond money) as well as by federal and local matching funds. The investigation could serve as a model for additional investigations of watersheds affected by hydraulic mining.

The DOC is inventorying abandoned mines statewide and is anticipating that there will be at least 20,000 sites. To manage this inventory, DOC developed a relational database that records the salient features found at abandoned mines. Because the SWRCB participated in developing the database, features that contribute to water quality degradation are incorporated into the database. DOC is incorporating existing inventory information and is coordinating data gathering efforts with other State and federal agencies. DOC intends to distribute the database and supporting software to State and federal agencies that are responsible for regulating abandoned mines. When that distribution occurs, the SWRCB and RWQCBs will have a powerful new tool for tracking work performed at abandoned mines, evaluating regional clean-up efforts in affected watersheds, and evaluating the impact abandoned mines have on watersheds.

As a land-managing agency, the USFS also has a rigorous abandoned mine reclamation program. The program includes: (1) a regionwide inventory of abandoned mines; (2) documentation of location; (3) types of environmental and/or resource problems evident; (4) rehabilitation measures required; and (5) potential sources of funding. The USFS has worked with various RWQCBs on numerous occasions in the rehabilitation of old mine sites. Restoration funding has come from appropriated USFS funds, the Comprehensive Environmental Response and Compensation Liability Act (CERCLA), and RCRA sources. In addition, BLM has begun formulating an abandoned mine reclamation program.

Actions - Water Quality Standards for Abandoned Mine Cleanup

The SWRCB has undertaken various efforts to manage the quality of the State's waters. The goal of CWC section 13000 is " … to attain the highest water quality that is reasonable, considering all demands being made and to be made ... and the total values involved ... ." Similarly, the Federal Water Pollution Control Act, United States Code (USC) Title A3, section 1251, aims, among other goals, to restore and maintain chemical, physical, and biological integrity of the Nation's waters by eliminating the discharge of pollutants. Such goals are fairly general and pragmatic.

Assuming that the liability issues are resolved soon, applying these general goals to both prodigiously polluting abandoned and inactive mines (which tend to be large sites) and watersheds affected by numerous small abandoned and inactive mines would be a major challenge for the following reasons. First, agreement must be reached on what is the highest water quality that is reasonable. This requires a statement on what natural conditions may have existed before mining to serve as a general guide in restoring the chemical, physical, and biological integrity of the affected waters. Second, the total values involved must be determined, recognizing that large abandoned mines are inherently costly to clean up and that the State's fiscal resources are limited.

Projects for restoring grossly polluting sites should have specific clean-up objectives and water quality goals. These site-specific goals for each site will differ depending on the magnitude of the pollution problem, clean-up technology, and cost of abatement.

Efforts for restoring watersheds affected by numerous small sites must take a different tack because it is unlikely that small sites would ever be evaluated individually by regulating agencies. Agreement on water quality and beneficial uses of an affected watershed would have to be reached first. Next, the contribution of similar pollutants from other sources would have to be considered in the context of how much benefit would be gained by cleaning up small abandoned mines. Last, it would be unrealistic to expect restoration

efforts at small sites to meet specific water quality goals because most efforts would likely be limited to "low-tech" earth moving and revegetation projects.

The measure of success for such efforts would necessarily be an overall improvement of the targeted watershed. That would necessitate a carefully thought out watershed monitoring program.

It is important to keep in mind that reclamation goals for both individual abandoned mines and watersheds affected by numerous abandoned mines must be established pragmatically to ensure that the best possible improvement in overall basin water quality is achieved for a given expenditure. All interested parties must be willing to accept that this may not necessarily achieve background conditions.

Resource Extraction

Introduction

Resource extraction (i.e., aggregate and metal mining) operations are regulated locally by State administered programs and by State and federal programs when they occur on federal land (although State programs have primacy). Extraction operations become water quality concerns when they:

- Have discharges that could impair water quality (e.g., cyanide heap leach gold mines); or
- Could impair beneficial uses (e.g., water quality, habitat) resulting from extracting resources (usually aggregate) from within or nearby stream channels.

All active mining projects must comply with the Surface Mining and Reclamation Act (SMARA). The goal of SMARA is to have mined lands "reclaimed" to a beneficial end use. Local Enforcement Agencies (LEAs), usually counties, implement SMARA. The DOC's Office of Mine Reclamation provides technical support to LEAs and has limited enforcement authority.

Mining projects that could impair water quality and/or beneficial uses of waters of the State may also be subject to regulations administered by RWQCBs (Title 27 of the California Code of Regulations [CCR], NPDES and Stormwater) or subject to conditions under the CWA section 401 Water Quality Certification Program (WQCrP) administered by the RWQCBs and initiated when there is a federal permit or license required (such as the USACOE's section 404 Program).

On the federal level, both the BLM and USFS have reclamation programs. The objectives of the federal programs are to minimize the environmental impacts resulting from mining activities and to ensure that disturbed lands are returned to uses consistent with long-term forest land and resource

management plans. Reclamation is an integral part of Plans of Operation submitted by proponents of mining on public domain lands that propose surface disturbances. The reclamation requirements included in the Plans of Operation include measurable performance standards. Reclamation bonds, sureties, or other financial guarantees are commonly required for all mineral activity requiring a Plan of Operation. All lands disturbed by mineral activities must be reclaimed to a condition consistent with resource management plans, including State air and water quality requirements.

Traditionally, each State regulatory program functions independently of one another even though some have overlapping regulatory authority. State agencies are beginning to recognize, however, that conflicts often arise when resource extraction operations are regulated by independently functioning programs with overlapping authority. Moreover, agencies are beginning to realize that the cumulative effects of multiple resource extraction operations within a given area cannot be anticipated when regulatory programs address each project individually. For example, the cumulative effects on beneficial uses of four or five instream aggregate operations in the same stream might be detrimental even though each individual operation is complying with conditions of their permit. Clearly, as society's demand for resources such as aggregate grows, the cumulative effects of these operations must be taken into account.

Goals

- Continue to regulate extraction operations for active resources under current programs.
- Work toward coordinating better among local, State, and federal entities that implement regulatory programs so that the regulatory goals of each applicable program are met.
- Begin evaluating extraction operations that occur within or near active stream courses in the context of their cumulative effect on their watershed.
- Develop MPs for alleviating cumulative detrimental effects of multiple resource extraction operations.

Actions

Agencies are making greater efforts to avoid conflicts stemming from overlapping regulatory programs. For example, DOC acted on a recommendation from the SWRCB that SWRCB and RWQCB staffs be invited to SMARA workshops. These workshops provide an opportunity for DOC, SWRCB, and RWQCB staffs to learn where areas of conflict are likely to arise. SWRCB and RWQCB staffs regularly meet with USFS staff to ensure that resource extraction operations comply with State programs.

Cumulative effects of resource extraction operations are also beginning to be addressed on a watershed basis. Although the reason for these efforts vary (e.g., a concern that threatened species listing will force onerous regulations on landowners, efforts to preserve fragile or unique habitats), the result is that extraction activities are beginning to be evaluated within the larger context of their watershed effects.

As the cumulative effects of multiple resource extraction operations are determined, SWRCB and RWQCB will work with local, private, and federal interests to formulate MPs for protecting the overall health of a watershed. Projecting into the future, we can anticipate that these MPs likely will be based on site-specific studies sponsored by State and federal agencies via grants.

Critical Coastal Areas Management Measures

The primary goal of CCA designation is to channel program resources to protect special coastal habitats from NPS pollution degradation through the implementation of additional MMs. CCAs will be designated in areas of the California coastal zone (1) in which new or substantially expanding land uses may cause or contribute to the impairment of coastal water quality and (2) that contain or are adjacent to threatened or impaired coastal waters.[23]

Where appropriate, additional MMs will be developed that address these site-specific concerns and which protect and restore the habitats for which the CCA designation was established.

The CCA Committee will first identify MMs within CAMMPR for immediate implementation in the CCAs. This will be accomplished through utilizing lessons learned, the existing monitoring programs, and the understanding of site-specific concerns and the threat of new development. For example, the CCA Committee could use the CCC's Permit Tracking System (PTS) for analyzing the cause-and-effect relationship between land use MPs and water quality. This would allow for the identification of the most effective MMs for immediate implementation in the CCAs. The anticipated development of runoff-specific tracking elements for the CCC's PTS would further accelerate and facilitate the MM identification process. Moreover, the statewide NPS Program's efforts in developing an effectiveness monitoring program will also assist in identifying and channeling appropriate resources to the implementation of appropriate MMs in the CCAs.

New and innovative MMs will be developed when needed to provide additional protection for the CCAs from NPS pollution degradation. The CCA Committee will work with appropriate agencies and researchers to develop these additional MMs with special considerations for the physical and biological characteristics of the CCAs and the nature of contamination in the adjacent threatened or impaired coastal waters.

[23] For federal approval of its NPS Program, California must identify and map CCAs to protect against current and anticipated NPS pollution problems (CZARA section 6217[b][2]).

Determining Need for Additional Regulations

During program assessment, it may be determined that current efforts to prevent and control NPS pollution are not sufficient to protect water quality and safeguard beneficial uses. Additional regulations may therefore be necessary to reinforce the implementing agencies' abilities in fully implementing NPS MMs and enforcing against NPS violations. In considering additional regulations, the Regulation TAC, in cooperation with the Assessment and Technical TACs, will perform the following activities:

- Invite the involvement of experts and all agencies with jurisdictions over NPS issues;
- Encourage public participation and input;
- Review all existing applicable regulations of the agencies to avoid duplicative regulations;
- Conduct research on lessons learned and other states' experiences;
- Create technologically-defensible and economically-feasible regulations that will accomplish the objective of preventing and controlling NPS pollution; and
- Ensure regulation adoption by the lead agencies and approval by OAL.

III. FIVE-YEAR IMPLEMENTATION PLAN

A. Introduction/Structure

The Implementation Plan describes in detail the actions to be taken for the period of 1998 to 2003. Specific MMs within the six identified NPS categories (Agriculture, Forestry, Urban Areas, Marinas and Recreational Boating Activities, Hydromodification, and Wetlands/Riparian Areas/Vegetated Treatment Systems), CCAs, and Program monitoring are identified.

Based on past agency experiences, the CWA section 303(d) and TMDL priority lists, a survey of the stakeholders, and recommendations from the previous NPS TACs, the lead agencies have targeted specific geographic areas and NPS MMs for implementation in this first five-year cycle. The areas selected either have the most impaired water bodies or face immediate water quality threats from new and/or expanding development. Depending on their relative priority, the MMs were targeted as either primary, secondary, or tertiary. The Implementation Plan only addresses those MMs targeted at the primary and secondary level for the first five-year cycle. The MMs chosen are those determined to be the most effective and appropriate for California. The CCAs will be addressed based on a year to year review of potential environmental degradation of sensitive coastal resources such as those previously identified as ESHAs and special areas including California's NERRs, NEPs, and National Marine Sanctuaries (NMSs).

Seven process elements are prescribed for each of the MM categories. They are to: (1) assess problems; (2) target resources; (3) plan activities; (4) coordinate with agencies and the public; (5) implement MMs; (6) track and monitor actions; and (7) report on the effectiveness of the Program Plan. These steps are essential to ensuring effective and efficient implementation of the MMs which will enable the Strategy to achieve the defined goals of preventing and controlling NPS pollution. The Implementation Plan also identifies parties/agencies responsible for performing the activities. Funding sources and milestones to be achieved by the end of the five-year period are identified as well. The implementation timelines are realistic estimates but may change due to changes in agency coordination, funding, new information, and public cooperation.

Certain process elements for some of the targeted MM categories have not been completed due to the lack of information at this time. All relevant information for each process element for each primary and secondary MM will be established and entered into the first five-year plan by July 1, 2000, with the exception of numeric program performance measures. Numeric program performance measures will be established for each primary and secondary MM in the first five-year plan by October 1, 2000. If more data, another agency commitment, or some other piece of information is needed in order to fill in a particular piece of the matrix, the steps that will be taken to fill in that missing information will be described. The revised five-year plan will be distributed to the public (as an addendum to the Program Plan) by November 1, 2000.

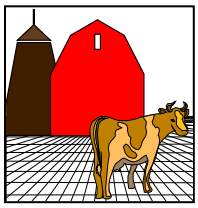
Beginning in 2001, biennial reports will be completed for evaluation by the USEPA and NOAA, as well as other agencies and the public regarding the State's progress in

implementing the NPS Program. The reports to be produced in 2001 and 2003 will provide details to address questions such as:

1. Have the activities identified in the five-year plans been completed and have the associated performance measures been achieved?
2. Has an MM implementation tracking system been established? Based on that system, what is the extent of MM implementation for all source categories throughout the State?
3. Has the IACC become active and successful in fostering implementation?
4. Has the SWRCB/RWQCBs published NPS enforcement guidance in 2001 as per CWC section 13369(a)(2)(B)?
5. Has the technical assistance to landowners and managers been improved through the issuance of technical guides, information sharing, "field-level" assistance and/or other activities?
6. Have other State and federal agencies and non-governmental entities become involved in implementing the NPS Program? Where necessary, have formal agreements been established to enhance the effectiveness of these partnerships?
7. Has the planning process for the next five-year plan (2003-2008) been established to achieve more specific plans that include measurable objectives and that involve a wide range of key stakeholders?
8. Have adequate efforts been made to identify funding needs and mechanisms to ensure continuing MM implementation and Program Plan success?

In 2001, the SWRCB, RWQCBs, and CCC, in coordination with the new TACs to be established by the IACC, will begin developing the next five-year implementation plan. The five-year implementation plan for 2003 to 2008 will outline: (1) strategies to complete the unfinished tasks from the first five years; (2) rectify the NPS program's shortfalls identified in the assessment process; (3) implement an additional set of MMs; and (4) expand the geographic coverage of the NPS Program.

B. Agriculture



The SWRCB, CCC, and other State agencies have identified seven MMs to address agricultural NPSs of pollution that affect State waters. The agricultural MMs include practices and plans installed under various NPS programs in California, including systems of practices commonly used and recommended by the USDA as components of RMS, WQMPs, and Agricultural Waste Management Systems. These RMSs are planned by individual farmers and ranchers using an objective-driven planning process outlined in the NRCS National Planning Procedures Handbook. The RMSs are designed to achieve sustainable use of the different natural resource areas—soil, water, air, plants, animals, and human considerations.

California's MMs to address agricultural sources of NPS pollution in California:

1A. Erosion and Sediment Control
1B. Facility Wastewater and Runoff from Confined Animal Facilities
1C. Nutrient Management
1D. Pesticide Management
1E. Grazing Management
1F. Irrigation Water Management
1G. Education/Outreach

According to USEPA (1993), agriculture contributes more than half of the pollution entering the Nation's water bodies; recent studies have identified it as the greatest source of water pollution in the United States. The primary agricultural NPS pollutants are nutrients, sediment, animal wastes, pesticides, and salts. Agricultural activities may also affect habitat through physical disturbances caused by livestock or equipment or through the management of water.

Management Measures:

Erosion and Sediment Control. MM 1A addresses NPS problems associated with soil erosion and sedimentation. Where erosion and sedimentation from agricultural lands affect coastal waters and/or State's inland water bodies, landowners shall design and install or shall apply a combination of practices to reduce solids and associated pollutants in runoff during all but the larger storms. Alternatively, landowners may apply the erosion component of an RMS as defined in the NRCS FOTG. The NRCS FOTG contains standards and specifications for installing these practices.

Facility Wastewater and Runoff from Confined Animal Facilities. Pursuant to MM 1B, facility wastewater and contaminated runoff from confined animal facilities must be contained at all times. Storage facilities should be of adequate capacity to allow for proper wastewater use and should be constructed so they prevent seepage to ground water, and stored runoff and accumulated solids from the facility shall be managed through a waste use system that is consistent with MM 1C or shall be removed from the site.

Nutrient Management. MM 1C addresses the development and implementation of comprehensive nutrient management plans for areas where nutrient runoff is a problem affecting coastal waters and/or water bodies listed as impaired by nutrients. Such plans would include: (1) a plant tissue analysis to determine crop nutrient needs; (2) crop nutrient budget; (3) identification of the types, amounts, and timing of nutrients necessary to produce a crop based on realistic crop yield expectations; (4) identification of hazards to the site and adjacent environment; (5) soil sampling and tests to determine crop nutrient needs; and (6) proper calibration of nutrient equipment. When manure from confined animal facilities is to be used as a soil amendment and/or is disposed of on land, the plan shall discuss steps to assure that subsequent irrigation of that land does not leach excess nutrients to surface or ground water.

Pesticide Management. Implementation of MM 1D is intended to reduce contamination of surface water and ground water from pesticides. Implementation of this measure will primarily occur through cooperation with the CDPR as provided in a MAA with the SWRCB. Elements of this measure include: (1) development and adoption of reduced risk pest management strategies (including reductions in pesticide use); (2) evaluation of pest, crop, and field factors; (3) use of Integrated Pest Management (IPM); (4) consideration of environmental impacts in choice of pesticides; (5) calibration of equipment; and (6) use of anti-backflow devices. IPM is a key component of pest control. IPM strategies include evaluating pest problems in relation to cropping history and previous pest control measures and applying pesticides only when an economic benefit will be achieved. When used, pesticides should be selected based on their effectiveness to control target pests and environmental impacts such as their persistence, toxicity, and leaching potential.

Grazing Management. MM 1E is intended to protect sensitive areas (including streambanks, lakes, wetlands, estuaries, and riparian zones) by reducing direct loadings of animal wastes and sediment. This may include restricting or rotationally grazing livestock in sensitive areas by providing fencing, livestock stream crossings, and locating salt, shade, and alternative drinking sources away from sensitive areas. Upland erosion can be reduced by, among other methods: (1) maintaining the land consistent with the California Rangeland WQMP or BLM and Forest Service activity plans or (2) applying the range and pasture components of an RMS (NRCS FOTG). This may include prescribed grazing, seeding, gully erosion control, such as grade stabilization structures and ponds, and other critical area treatment.

Irrigation Water Management. MM 1F promotes effective irrigation while reducing pollutant delivery to surface and ground waters. Pursuant to this measure, irrigation water would be applied uniformly based on an accurate measurement of crop water needs and the volume of irrigation water applied, considering limitations raised by such issues as water rights, pollutant concentrations, water delivery restrictions, salt control, wetland, water supply, and frost/freeze temperature management. Additional precautions would apply when chemicals are applied through irrigation.

Education/Outreach. The goals of MM 1G are to implement pollution prevention and education programs to reduce NPS pollutants generated from the following activities where applicable:

1. Activities that cause erosion and loss of sediment on agricultural land and land that is converted from other land uses to agricultural land;
2. Activities that cause discharge from confined animal facilities to surface waters;
3. Activities that cause excess delivery of nutrients and/or leaching of nutrients;
4. Activities that cause contamination of surface water and ground water from pesticides;
5. Grazing activities that cause physical disturbance to sensitive areas and the discharge of sediment, animal waste, nutrients, and chemicals to surface waters;
6. Irrigation activities that cause NPS pollution of surface and ground waters.

Management Measure Category: Agriculture

Management Measure Title: 1A – Erosion and Sediment Control

Management Measures Targeting Level: Primary

Objectives:

1. By the year 2002, develop MAA and WQMP with BLM.
2. By the year 2003, sediment/erosion control guidelines for six watersheds. Begin implementation of those guidelines.
3. By the year 2003, implement interagency streamlined permit process in 50 watersheds.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure.										
Target	To be completed as specified in Part III.A. – Introduction /Structure.										
Plan	Develop resource management plans.	RWQCB 3, County Farm Bureau	RWQCB 3	CWA §319, USDA EQIP, California Farm Bureau (CFB), and partner's funds		x	x	x	x	x	
	Direct grant funds and cost sharing opportunities to projects that implement MPs.	RWQCB 3 RWQCB 7	Lands in irrigated agriculture and grazing throughout the Regions 3 and 7	CWA §319	Implementation of at least one new project each year	x	x	x	x	x	
Plan	Develop TMDLs for CWA §303(d) listed waters.	RWQCB 3 RWQCB 7 RWQCB 8	Lower Salinas River, Lower Pajaro River, Morro Bay Watershed, Salton Sea Transboundary Watershed, Newport Bay Watershed	CWA §319, CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Adopted TMDL according to established schedule; implementation of practices per the TMDL	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Quantify measures to reduce impacts from erosion and sedimentation.	NRCS, RWQCB 4	Ventura County	CWA §319 TMDL	Agreement of stakeholders on top ten measures that should be implemented			x	x	x	As needed-rotate between watersheds with agricultural issues. Coordinate with TMDLs
	Work with stakeholders to develop watershed management plan (includes erosion control element)	RWQCB 5	Cache Creek	NPS, CALFED, other				x	x		
		RWQCB 5, local agency	West side tribs. Sacramento R.	CWA §319; Prop. 204	Educational workshops and public meetings						
	Develop MAA and WQMP with BLM.	SWRCB BLM	Statewide	Agency baseline	MAA and WQMP		x	x	x		
Coordinate	Promote interagency coordination to improve information transfer and to provide a singular agency perspective.	RWQCB 1	Russian, Gualala, Garcia, and Navarro Rivers	CWA §319	Number of interagency network sessions, outreach--see Outreach and Education		x	x	x		
	Participate in TACs for Cottonwood Creek	RWQCB 5; local agency	West side tribs. Sacramento R.	CWA §319	Attendance at meetings	x	x	x			
Coordinate	Coordinate stakeholders for implementation of MMs.	RWQCB 4	Ventura County	CWA §319 TMDL	Number of meetings for consensus of stakeholders, MOUs/MAAs	x	x	x	x	x	As needed-rotate between watersheds with agricultural issues Coordinate with TMDLs

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Participation at interagency and watershed group meetings	RWQCB 3, Farm Bureaus, NRCS, local Conservation Districts, MBNMS WQPP, UCCE	Lands with irrigated agriculture and grazing throughout the region	CWA §319, USDA, EQIP, CFB, Guadalupe oil field settlement funds	Development and implementation of plans on recorded number of acres.		x	x	x	x	
Implement	Implement resource management plans.	RWQCB 3, County Farm Bureau (CFB), MBNMS WQPP, UCCE	Lands in irrigated agriculture and grazing throughout RWQCB 3	CWA §319, USDA EQIP, CFB, and partner's funds			x	x	x	x	
	.	RWQCB 3, RWQCB 2, CFB, MBNMS-WQPP, NRCS	Lower Salinas River, Lower Pajaro River, Pescadero and lands in irrigated agriculture and grazing throughout RWQCB 3	CWA §319, USDA-EQIP, CFB, and MBNMS			x	x	x	x	
Implement	Implement strategies for protection of resources from agricultural pollution, including erosion, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS CCC SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plans by summer 1999 and begin implementation.	x	x	x	x	x	Ongoing activity Includes all NPSs impacting MBNMS watersheds
	Implement CFB's NPS Initiative pilot projects	RWQCB 7, CFB, NRCS	Lands in irrigated agriculture and grazing throughout RWQCB 7	CWA §319, USDA-EQIP, and CFB,			x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Implement TMDLs for CWA §303(d) listed waters.	RWQCB 3 RWQCB 7	Lower Salinas River, Lower Pajaro River, Morro Bay Watershed, Salton Sea Transboundary Watershed	CWA §319, CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Adopted TMDL according to established schedule; implementation of practices per the TMDL	x	x	x	x	x	
	Implement Erosion and Sediment (E&S) Control Plans to protect water quality standards.	NRCS RWQCB 4	Ventura County	CWA §319 TMDL	Number of Erosion and Sediment Control Plans implemented				x	x	As needed-rotate between watersheds with agricultural issues. Coordinate with TMDLs
	Promote hillside vineyard management practices to reduce erosion/sedimentation and improve riparian function and fish habitat.	RWQCB 1	Russian, Gualala, Garcia, and Navarro Rivers	CWA §319	Number of interagency network sessions, outreach--see Outreach and Education		x	x	x		
	Participate in implementation of CFB NPS Initiative pilot projects.	RWQCB 7, CFB, NRCS	Salton Sea Transboundary Watershed	CWA §319 EQIP, CFB		x	x	x	x	x	
	Implement BMPs for flood and sediment control	RWQCB 5	Salt and Sand Creek	NPS	Implementation of projects, field days	x	x				
Implement	Implement sediment and erosion control demonstration program	RWQCB 5, local agency	Cache Creek	Prop. 204	Construction of gravel bar(s)		x	x	x		
	Prepare education and outreach material for erosion control techniques	RWQCB 5, local agency	Cache Creek	Prop. 204	Preparation and distribution booklet; field tours		x	x	x		

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Implement model, interagency streamlined permit process piloted in Elkhorn Slough in other watersheds Statewide.	NRCS, DFG, RWQCBs, CCC, Sustainable Conservation, MBNMS WQPP	Elkhorn Slough, Morro Bay, Salinas River watersheds	Various sources	50 projects in five years	x	x	x	x	x	In 1998, 20 projects were implemented in Elkhorn Slough, Morro Bay, and Salinas River. Projects are scheduled to begin in FY 99-00.
	Implement management measures/practices to reduce sedimentation.	RWQCB 5, local agency	Panoche and Silver Creek, Arroyo Passajero	CWA §319				x	x	x	
Track and Monitor	Monitor long-term sediment management strategies	RWQCB 5, local agency	Union School Slough	CWA §319, CALFED			x	x	x	x	
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure.										

Management Measure Category: Agriculture

Management Measure Title: 1B – Facility Wastewater and Runoff from Confined Animal Facilities (all units)

Management Measure Targeting Level: Primary

Objectives:

1. By the year 2000, develop statewide strategy for Animal Feeding Operations (AFO).
2. By the year 2002, complete dairy waste management training for 50 percent of dairy produces in RWQCBs 1 and 5.
3. By the year 2003, inspect all AFO facilities in the RWQCB 5-Central Valley and RWQCB 8-Chino Basin.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Conduct surface and ground water quality monitoring to assess current and historic dairy waste impacts.	RWQCB 8	Chino Basin, Lake Elsinore/San Jacinto watershed		Database	x	x	x	x		
Target	To be completed as specified in Part III.A. – Introduction /Structure.										
Plan	Quantify nutrient load and propose reductions.	USEPA, SWRCB, RWQCB 4	RWQCB 4	Basin Planning , CWA §104 and §106 TMDL funds	Technical TMDLs			x	x	x	TMDLs for nutrients are scheduled for different watersheds each year
	Update nutrient reduction goals of RWQCB 4 Basin Plan.	RWQCB 4	RWQCB 4		Update plan by 7/2001		x	x	x		Triennial review and TMDL implementation, as required
	Foster grant program for NPS control on dairies.	RWQCB 1	Humboldt WMA	CWA §319	Number of projects		x	x	x	x	
	Develop manure removal strategies.	Local dairy agencies, RWQCB 8, Orange County Sanitation District (OCWD)	Chino Basin, San Jacinto Watershed		Reduction in manure remaining in Chino Basin	x	x	x			

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan	Work with USEPA and NRCS on development of the joint unified AFO National Strategy. Target EQIP funding to needed projects through participation on the State Technical Committee.	NRCS SWRCB USEPA RWQCBs	Statewide	Current staff, EQIP	Annual list of priority areas, number of plans produced	x	x	x	x	x	Ongoing activity
	Develop statewide strategy for AFO.	SWRCB	Statewide	Baseline	Statewide strategy		x	x			
Coordinate	Coordinate statewide and regional dairy waste management activities to develop more cohesive regulatory framework through monthly Interagency Confined Animal Coordination Group meetings and quarterly RWQCB roundtable meetings.	SWRCB	Statewide	CWA §319 Current staff	Monthly meeting summaries	x	x	x	x	x	Ongoing activity.-most significant impacts are in the San Joaquin Valley and Chino Basin
	Support and participate in Sonoma-Marin Animal Waste Committee, Dairy Waste Management Partnership Agreement (California Dairy Quality Assurance Program), and producer training through UC.	SWRCB	Statewide with emphasis on Regions 1 and 5	TSCA grant CWA §319 Current staff	Under the Partnership Agreement, complete dairy waste management training for 50 percent of producers in two years. Perform 1,000 independent evaluations in four years.	x	x	x	x	x	On going activity Also supports process element of implementation
Implement	Work with USEPA and NRCS on implementation of the joint unified AFOs National Strategy. Target EQIP funding to needed projects through participation on the State Technical Committee.	NRCS SWRCB EPA RWQCBs	Statewide	Current staff, EQIP	Annual list of priority areas, number of plans developed	x	x	x	x	x	Ongoing activity Also supports process element of implementation
	Implement updated dairy general NPDES permit.	RWQCB 8	RWQCB 8		Implement updated permit	x	x	x	x	x	
	Educate dairy industry on NPS impacts and control, foster stewardship ethic, develop self-regulatory body	RWQCB 1	Humboldt WMA	CWA §319	No. of participants, No. of projects, strategy with corrective actions		x	x	x	x	
	Address known dischargers in violation of water quality standards through increased use of regulatory authorities: - more inspections - increase number of inspections - consider issuing a general WDR in Central Valley.	SWRCB RWQCBs	Central Valley, Chino Basin, San Jacinto Watershed	General Fund, NPDES/WDR permit funds	Inspect 25 percent of all facilities annually		x	x	x	x	Ongoing activity

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98 99 00 01 02	Notes
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure.						
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure.						

Management Measure Category: Agriculture

Management Measure Title: 1C – Nutrient Management

Management Measure Targeting Level: Primary

Objectives:

1. By the year 2003, develop regional numeric nutrient criteria and incorporate into Basin Plans.
2. By the year 2003, develop and implement standards for heavy metals in organic and inorganic fertilizers.
3. By the year 2003, develop nutrient management guidelines in nine watersheds. Begin implementation of those guidelines.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Thirty-five (35) water bodies listed for nutrients with agricultural sources of sediment on CWA §303(d) list.	RWQCBs	Statewide	Current staff	CWA §303(d) list	x					
	For watersheds with limited information, inspect irrigated agriculture and grazing areas for nutrient discharges.	RWQCB 3	Lands with irrigated agriculture or grazing uses	New	Number of watersheds inspected per year	x	x		x	x	
Target	Thirty-three (33) water bodies targeted for nutrient TMDLs by year 2003.	SWRCB	Statewide	Current staff	TMDL schedule						
	Identify additional high quality water bodies in need of protection.										
Plan	Develop regional numeric nutrient criteria in cooperation with USEPA, RWQCBs, and Nutrient Criteria Team.	USEPA, SWRCB, RWQCBs	Statewide	CWA §319(h) grant	Develop regional criteria by 2000. Incorporate into basin plans by 2003	x	x	x	x	x	
	Evaluate and modify as appropriate for incorporation into basin plans.										
	Develop standards for heavy metals in organic and inorganic fertilizers.	DFA and SWRCB	Statewide		Standards	x	x	x			
	Develop TMDLs and associated implementation plans for CWA §303(d) listed water bodies.	RWQCB 1	Laguna de Santa Rosa, Scott River, Shasta River, Stemple Creek		TMDLs, implementation plans	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan		RWQCB 3	L. Pajaro River, L. Salinas River, Monterey Bay and Morro Bay watersheds		TMDLs, implementation plans	x	x	x	x	x	
		RWQCB 5	Stockton and SJ Delta	State and federal TMDL funds	Validation of dissolved oxygen (DO) model; definition biochemical oxygen demand (BOD) and nutrient sources; determination of sediment load			x	x	x	TMDL for DO
	Develop nutrient management plans	RWQCB 8, Orange Cnty. Farm Bureau (OCFB), UCCE	Newport Bay watershed	CWA §319(h) funds	No. of nutrient management plans		x	x	x	x	Requirement of Newport Bay TMDL
Coordinate	Develop MOU or MAA with other regulatory agencies to control nutrients.	SWRCB, RWQCBs, NRCS	Statewide	Current							
	Coordinate with CFB, NRCD, agricultural groups, and educational institutions about appropriate level of nutrient applications for specific crops.	RWQCB 4	Ventura County	New	Guidance document on nutrient application rates						
	Coordination with stakeholders occurs during all phases of program.	See lead agency per process	Statewide	Current staff		x	x	x	x	x	
Implement	Regulate fertilizer materials and soil amendments pursuant to interagency MOU.	DFA DTSC CIWMB SWRCB	Statewide	Baseline	Measures specified in MOU	x	x	x	x	x	
	Implement CFB's NPS Initiative pilot projects	RWQCB 3, CFB, MBNMS-WQPP, NRCS	Upper and Lower Salinas River, Lower Pajaro River, and lands irrigated by agriculture and grazing throughout RWQCB 3	CWA §319, USDA-EQIP, CFB, and MBNMS			x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Implement strategies for protection of resources from agricultural pollution, including nutrients, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS CCC SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plan by summer 1999 and begin implementation.	x	x	x	x	x	Ongoing activity Includes all NPSs impacting MBNMS watersheds
	Implement plans and specific MPs.										
	Implement TMDLs for CWA §303(d) listed water bodies.	RWQCB 1	Laguna de Santa Rosa, Scott River, Shasta River, Stemple Creek			x	x	x	x	x	
		RWQCB 3	L. Pajaro River, L. Salinas River, Monterey Bay and Morro Bay watersheds			x	x	x	x	x	
	Implement nutrient management plans	RWQCB 8, OCFB, UCCE	Newport Bay watershed	CWA §319(h) funds	Nutrient reduction from agr. lands to meet load locations		x	x	x	x	Requirement of Newport Bay TMDL
	Update WDRs for commercial nurseries	RWQCB 8	Newport Bay watershed	?	Updated WDRs for commercial nurseries		x	x	x	x	Requirement of Newport Bay TMDL
	Conduct research, outreach, and education for the regulated community through the Fertilizer Research and Education Program.	CDFA	Statewide	CWA §319(h)	Number of workshops; Number of publications		x	x	x	x	Ongoing activity
	Restore riparian areas – replace orchard with riparian vegetation	RWQB 5, local agencies	Phelan Island	CWA §319(h)	Replacement of orchards	x	x	x			
	Program for alternative practices for prunes	RWQB 5, local agencies	Phelan Island	CWA §319(h)	Education workshops; field meetings	x	x	x			
Track and Monitor	See monitoring and tracking sections of Fifteen-Year Strategy and Five-Year Plan.					x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Track and Monitor	Implement nutrient monitoring program to evaluate TMDL compliance.	RWQCBs	See list of TMDL implemented water bodies (above)			x	x	x	x	x	
	Develop and implement nutrient monitoring program	RWQCB 8	Newport Bay watershed	CWA §319(h)	Comprehensive nutrient monitoring program for evaluation of TMDL compliance		x	x	x	x	Requirement of Newport Bay TMDL
Report Biennially	See effectiveness and reporting sections of Fifteen-Year Strategy and Five-Year Plan.				Biannual NPS Report				x		

Management Measure Category: Agriculture

Management Measure Title: 1D – Pesticide Management

Management Measures Targeting Level: Primary

Objectives:

1. By the year 2000, complete and begin implementation of a WQPP for agricultural pesticides in the MBNMS.
2. By the year 2002, develop and begin implementation of effective pesticide control program in Newport Bay Watershed as part of TMDL.
3. By the year 2003, develop a total of six TMDLs for pesticides in RWQCB 5.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure.										
Target	To be completed as specified in Part III.A. – Introduction /Structure.										
Plan	Develop strategies for protection of resources from agricultural pollution, including pesticides, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS CCC SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plan by summer 1999 and begin implementation.	x	x	x	x	x	Ongoing activity. Includes all NPSs impacting sanctuary watersheds
	Identify pesticide impairment to beneficial uses/water quality; develop effective pesticide control program through TMDL development and implementation.	RWQCB 8, local agencies	Newport Bay watershed	To be determined	Toxics TMDL	x	x	x	x		Toxics TMDL to be approved by the State by January 2002
	Analyze irrigation return water.	RWQCB 4	Ventura County		Collect and analyze as necessary for pesticide TMDLs			x	x	x	
	Coordinate with WMI and TMDL units to document levels of pesticides in receiving waters.	RWQCB 4 CDPR	RWQCB 4		Number of watersheds reviewed. Summary of findings		x	x	x	x	
Plan	Participate in the Sacramento River Watershed program to develop an organophosphate pesticide management strategy.	RWQCB 5S CDPR	Sacramento River Watershed	Sacramento River Watershed Project, CWA §319	Determine diazinon loading and toxicity evaluation	x	x	x			May extend to 2002. Will help TMDL development for diazinon.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Develop TMDL for diazinon.	RWQCB 5S CDPR	Delta, Sacramento River, and San Joaquin River	Federal, CALFED	TMDL	x	x	x	x	x	
	Develop TMDL for chlorpyrifos.	RWQCB 5S CDPR	Delta and San Joaquin River	Federal, CALFED	TMDL	x	x	x	x	x	
	Develop water quality objectives for rice pesticides.	RWQCB 5S CDPR	Sacramento River	To be determined.	Water quality objectives						While work is a high priority, work cannot proceed without funding.
Coordinate	Prevent and mitigate threats to water quality from pesticides through coordination with the RWQCBs and implementation of the MAA and Pesticide WQMP with the CDPR.	SWRCB RWQCBs CDPR	Statewide	CWA §319	Conduct semi-annual technical briefings with CDPR and RWQCB staffs	x	x	x	x	x	Ongoing activity – RWQCB and CDPR staff work together as needed on indiv. pesticide TMDLs
	Review the control/eradication program for red imported fire ants (RIFA) in southern California in coordination with DFA, CDPR, and the RWQCBs.	CDPR, SWRCB, RWQCB 8, local agencies	Statewide Newport Bay Watershed	CWA §319	Comprehensive monitoring program for evaluation of impacts from RIFA eradication program	x	x	x	x		This may be an ongoing activity if eradication is not effective.
	Minimize/avoid NPS pollution in pest eradication programs. Consult with RWQCBs and SWRCB when developing programs.	DFA	Statewide		Consultation	x	x	x	x	x	
Implement	Implement strategies for protection of resources from agricultural pollution, including pesticides, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS CCC SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plan by summer 1999 and begin implementation.	x	x	x	x	x	Ongoing activity. Includes all NPSs impacting sanctuary watersheds.
Implement	Enforce water quality standards.	RWQCB 4	RWQCB 4		Number of Enforcement Actions	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Prevent aquatic toxicity from organophosphate pesticide residues through voluntary efforts to monitor for compliance with water quality standards.	CDPR, RWQCB 5, RWQCB 8	Sacramento River and San Joaquin River Watersheds; Newport Bay watershed	CDPR Regulation Fund, General Fund	Monitoring data		x	x	x	x	If by the year 2001-2002 use-season aquatic toxicity persists, CDPR will impose regulatory controls to lower dormant spray residues to acceptable levels.
	Reduce pesticides in both agricultural and urban surface water through local outreach to promote MPs that reduce pesticide runoff and through CDPR's registration process. Fund and assist in pesticide control applicator and grower training promoting pesticide management. Mitigate impacts through self-regulation as well as regulatory authorities of CDPR, SWRCB, and RWQCB.	CDPR, RWQCB 5, RWQCB 8, SWRCB	Statewide, with initial emphasis beginning with the San Joaquin River, Orestimba Creek, Sacramento River, Sacramento Slough, Wadsworth Canal, Colusa Basin Drain, Butte Slough; Newport Bay watershed	CALFED, CDPR Regulation Fund, General Fund, and Environmental License Fund	Number of pesticides evaluated in the registration process Number of pesticide control applicators and growers trained Decreases in OP pesticides use as reported in CDPR's pesticide use report database and corresponding increases in the use of lower risk pesticide control products. Descreases in surface water toxicity due to OP pesticides.		x	x	x	x	
Implement	Prevent pesticide contamination of ground water through education, modeling, and monitoring. Components include voluntary wellhead protection stewardship programs with the County Agricultural Commissioners; CDPR's registration process in which potential adverse effects to ground water quality are evaluated; and creation of Pesticide Management Zones (PMZs) which restrict or prohibit use when criteria are met.	CDPR, County Agriculture Commission	Statewide	CDPR Regulation Fund, General Fund	Number of pesticides evaluated in the registration process Number of PMZs created		x	x	x	x	Ongoing program

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Form alliances with the regulated community to jointly focus on reducing environmental risks while providing pest management solutions using IPM applied research, demonstration, implementation, and outreach.	CDPR	Statewide	CDPR Regulation Fund	Number of alliances		x	x	x	x	
	Provide grants for applied research focused on IPM practices and technologies.	CDPR	Statewide	Food Safety Fund	Number of grants Amount of grants		x	x	x	x	
	Reduce rice pesticide loading in the Sacramento and San Joaquin Rivers by managing water in treated fields so that discharges of pesticides into surface waters do not impair beneficial uses.	CDPR, SWRCB, RWQCB 5	Sacramento River and San Joaquin River Watersheds	CDPR Regulation Fund, General Fund	Documentation of loadings		x	x	x	x	
Track and Monitor	Coordinate water quality sampling program for RIFA program.	CDPR, SWRCB, RWQCB 8, local agencies	Statewide, Newport Bay Watershed	CWA §319	Comprehensive monitoring program for evaluation of impacts from RIFA eradication program	x	x	x	x		This may be an ongoing activity if eradication is not effective
	Work with CDPR and RWQCBs to target funds for monitoring for TMDL development.	CDPR, SWRCB, RWQCBs	Statewide	CDPR	Monitoring agreements		x	x	x	x	CDPR has received approximately $800,000 per year to do this monitoring.
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure.										

Management Measure Category: Agriculture

Management Measure Title: 1E – Grazing Management

Management Measure Targeting Level: **Primary**

Objectives:

1. By the year 2000, develop MAA or MOU between SWRCB and BLM to implement CWA section 319 consistency review.
2. By the year 2003, complete rangeland WQMPs for two million acres throughout California.
3. By the year 2003, develop TMDLs with rangeland load allocation and implementation plans in two watersheds in RWQCB 1 and three watersheds in RWQCB 3.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure.										
Target	To be completed as specified in Part III.A. – Introduction /Structure.										
Plan	Provide financial support for rangeland water quality workshops held by UC.	UCD Range and Agronomy, SWRCB	Statewide	CWA §319	Complete rangeland WQMPs for 500,000 acres each year.	x	x	x	x	x	Ongoing activity
	Participate in the MBNMS WQPP to develop strategies for protection of MBNMS resources from agricultural pollution, including rangeland.	RWQCB 3, MBNMS, CCC, SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plan by summer of 1999 and begin implementation	x	x	x	x	x	Ongoing activity, includes all NPSs impacting MBNMS watersheds
	Develop TMDLs for CWA §303(d) listed waters.	RWQCB 3	Lower Salinas River, Lower Pajaro River, Morro Bay Watershed	CWA §319, CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Adopted TMDL according to established schedule Implementation of practices per the TMDL	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Participate in the Range Management Advisory Committee to the BOF.	BOF/CDF, SWRCB	Statewide			x	x	x	x	x	Ongoing activity
	Implement CWA §319 consistency review in cooperation with BLM and other federal agencies.	BLM, SWRCB	Statewide	CWA §319	MAA or MOU	x	x	x			Includes all NPSs impacting BLM lands
	Participate on stakeholder technical advisory committee	RWQCB 5	Upper Pit River	NPS Program			x	x			
Implement	Participate in implementation of CFB NPS Initiative pilot projects, MBNMS WQPP Action Plan for Agriculture.	RWQCB 3, CFB, MBNMS, NRCS	Upper and Lower Salinas River, Lower Pajaro River	CWA §319, EQIP, Farm Bureau, MBNMS		x	x	x	x	x	
	Direct grant funds and cost sharing opportunities to projects that implement MPs.	RWQCB 3	Lands in irrigated agriculture and grazing throughout RWQCB 3	CWA §319	Implementation of at least one new project each year	x	x	x	x	x	
		RWQCB 5	Central Valley				x	x	x	x	
	Inspect areas with irrigated agriculture and grazing for sediment discharges and recommend or require abatement or new practices as appropriate.	RWQCB 3	Lands in irrigated agriculture and grazing throughout RWQCB 3	CWA §319, General Funds (funding not secure)	Number of inspections each year; number of inspection reports; implementation recommendations made in reports	x	x	x	x	x	
	Implement TMDLs for 303(d) listed waters.	RWQCB 1	Humboldt WMA Garcia River Watershed	CWA §319	Number of ranch plans per acres, monitoring plan, Number of sites monitored, data report		x	x	x	x	
		RWQCB 3	Lower Salinas River, Lower Pajaro River, Morro Bay Watershed	CWA §319, CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Adopted TMDL according to established schedule Implementation of practices per the TMDL	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Participate in the MBNMS WQPP to implement strategies for protection of MBNMS resources from agricultural pollution, including rangeland.	RWQCB 3 MBNMS CCC SWRCB	Central Coast	CWA §319	Complete final WQPP agriculture plan by summer 1999 and begin implementation.	x	x	x	x	x	Ongoing activity. Includes all NPSs impacting MBNMS watersheds
	Provide technical assistance to implement NPS Program for livestock grazing	RWQCB 5	Central Valley	NPS Program	Organized talk, field tours, individual meetings		x	x			
	Restoration project relying on BMP implementation (e.g. livestock enclosure fencing, stream channel erosion control measures, riparian revegetation)	RWQCB 5	Upper Pit River	NPS Program	Implementation of BMPs		x	x			
	Program for schools to initiate a watershed education program	RWCB5	Upper Pit River	NPS Program	Establish “river center”		x	x			Only partially funded
Track and Monitor	Resurvey participants in rangeland water quality workshops to determine extent of implementation of ranch water quality MPs.	UCCE	Statewide	CWA §319	Annual summary of level of implementation		x	x	x	x	
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure.										

Management Measure Category: Agriculture

Management Measure Title: 1F – Irrigation Water Management

Management Measure Targeting Level: Secondary

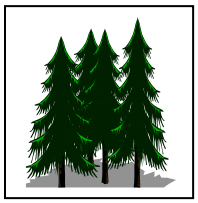
Objectives:

1. By the year 2003, implement MMs to mitigate or reduce impacts from irrigation waters and drainage discharges.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Coordinate with WMI and TMDL units to document levels of use and associated impacts to beneficial uses.	RWQCB 4	RWQCB 4		Basin Plan updates/TMDL assessments		x	x	x	x	
	Coordinate TMDL unit work with stakeholders to document levels of use and associated impacts to beneficial uses.	RWQCB 8	Newport Bay watershed				x	x	x	x	
Target	To be completed as specified in Part III.A. – Introduction /Structure.										
Implement	Coordinate with CFB, NRCS, agricultural groups, and educational institutions to promote appropriate irrigation techniques.	NRCS RWQCB	Ventura County	CWA §319	Number of stakeholder meetings		x	x	x	x	
	Quantify measures to reduce impacts from irrigation waters.	Agriculture groups	Ventura County; Newport Bay watershed	CWA §319	Documentation of selected (preferred) measures			x	x	x	RWQCB will coordinate as necessary for completion of TMDLs.
Plan	Develop methods and practices to manage and reduce toxic elements in drainage water.	DWR, DFA, SWRCB	San Joaquin Valley	Proposition 204 funds transfer	Documentation of feasible methods		x	x	x	x	Six-year program with funding under Proposition 204
	Conduct environmental planning for San Luis Drain.	SWRCB, Westlands Water District, USBR	San Joaquin Valley	Agricultural stakeholders	MOU, environmental documentation, discharge permit		x	x	x	x	
	Develop Basin Plan amendment for salt and boron for lower San Joaquin River	RWQCB 5	San Joaquin River	NPS Program	Basin Plan amendment		x	x			

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan	Develop TMDL for salt and boron in San Joaquin River	RWQCB 5	San Joaquin River	NPS Program				x	x		
	Administer grant to evaluate implementation of economic incentives	RWQCB 5	San Joaquin River	NPS Program	Meetings; final report	x	x	x			
	Develop TMDL for selenium in San Joaquin River	RWQCB 5	San Joaquin River	NPS Program				x	x		
Coordinate	Hold bimonthly RWQCB Irrigated Agriculture Roundtable for information and strategy exchange.	SWRCB	RWQCBs 3, 5, 7	Baseline	Recommendations to SWRCB for NPS management of irrigated agriculture		x	x	x	x	Ongoing
	Participate in the San Joaquin Valley Drainage Implementation Program (SJVDIP).	DWR	San Joaquin Valley	Proposition 204 funds transfer	Revised drainage MP		x	x			
	Participate in stakeholder meetings on salt and boron implementation control plan	RWQCB 5	San Joaquin River	NPS Program	Meeting attendance		x	x	x	x	
Implement	Implement salt and boron control program	RWQCB 5	San Joaquin River	NPS Program				x	x	x	
	Real time management of salt in San Joaquin River	RWQCB 5	San Joaquin River	CALFED			x	x	x	x	
Track and Monitor	Perform effectiveness monitoring for salt and boron control program	RWQCB 5	San Joaquin River	NPS Program	Prepare and issue monitoring orders; receive and review monitoring reports			x	x	x	
	Real time management of salt in San Joaquin River	RWQCB 5	San Joaquin River	CALFED			x	x	x	x	
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure.										

C. Forestry



There are 12 MMs to address various phases of forestry operations relevant to controlling NPSs of pollution that affect State waters. The forestry MMs are for the most part a system of practices used and recommended by the BOF and CDF in rules or guidance.

Silviculture contributes pollution to 17 percent of the polluted rivers and 21 percent of the polluted lakes in California (SWRCB, 1996). Without adequate controls, forestry operations may degrade the characteristics of waters that receive drainage from forest lands. For example (1) sediment concentrations can increase due to accelerated erosion, (2) water temperatures can increase due to removal of over-story riparian shade, (3) dissolved oxygen can be depleted due to the accumulation of slash and other organic debris, and (4) concentrations of organic and inorganic chemicals can increase due to harvesting and fertilizers and pesticides.

California's MMs to address silvicultural sources of nonpoint pollution:

2A. Preharvest Planning
2B. Streamside Management Areas
2C. Road Construction/Reconstruction
2D. Road Management
2E. Timber Harvesting
2F. Site Preparation/Forest Regeneration
2G. Fire Management
2H. Revegetation of Disturbed Areas
2I. Forest Chemical Management
2J. Wetlands Forest
2K. Postharvest Evaluation
2L. Education/Outreach

Management Measures:

Preharvest Planning. Silvicultural activities shall be planned to reduce potential delivery of pollutants to surface waters. Components of MM 2A address aspects of forestry operations, including: the timing, location, and design of harvesting and road construction; site preparation; identification of sensitive or high-erosion risk areas; and the potential for cumulative water quality impacts.

Streamside Management Areas (SMAs). SMAs protect against soil disturbance and reduce sediment and nutrient delivery to waters from upland activities. MM 2B is intended to safeguard vegetated buffer areas along surface waters to protect the water quality of adjacent streams.

Road Construction/Reconstruction. MM 2C requires that road construction/reconstruction shall be conducted so as to reduce sediment generation and delivery. This can be accomplished by following, among other means, preharvest plan layouts and designs for road systems, incorporating adequate drainage structures, properly installing stream crossings, avoiding road construction in SMAs, removing debris from streams, and stabilizing areas of disturbed soil such as road fills.

Road Management. MM 2D describes how to manage roads to prevent sedimentation, minimize erosion, maintain stability, and reduce the risk that drainage structures and stream crossings will fail or become less effective. Components of this measure include inspections and maintenance actions to prevent erosion of road surfaces and to ensure the effectiveness of stream-crossing structures. The measure also addresses appropriate methods for closing roads that are no longer in use.

Timber Harvesting. MM 2E addresses skid trail location and drainage, management of debris and petroleum, and proper harvesting in SMAs. Timber harvesting practices that protect water quality and soil productivity also have economic benefits by reducing the length of roads and skid trails, reducing equipment and road maintenance costs, and providing better road protection.

Site Preparation and Forest Regeneration. Impacts of mechanical site preparation and regeneration operations—particularly in areas that have steep slopes or highly erodible soils or where the site is located in close proximity to a water body—can be reduced by confining runoff on site. MM 2F addresses keeping slash material out of drainageways, operating machinery on contours, timing of activities, and protecting ground cover in ephemeral drainage areas and SMAs. Careful regeneration of harvested forest lands is important in protecting water quality from disturbed soils.

Fire Management. MM 2G requires that prescribed fire practices for site preparation and methods to suppress wildfires should be conducted as feasible in a manner that limits loss of soil organic matter and litter and that reduces the potential for runoff and erosion. Prescribed fires on steep slopes or adjacent to streams and that remove forest litter down to mineral soil are most likely to impact water quality.

Revegetation of Disturbed Areas. MM 2H addresses the rapid revegetation of areas disturbed during timber harvesting and road construction—particularly areas within harvest units or road systems where mineral soil is exposed or agitated (e.g., road cuts, fill slopes, landing surfaces, cable corridors, or skid trails) with special priority for SMAs and steep slopes near drainageways.

Forest Chemical Management. Application of pesticides, fertilizers, and other chemicals used in forest management should not lead to surface water contamination. Pesticides must be properly mixed, transported, loaded, and applied; and their containers must be disposed of properly. Fertilizers must also be properly handled and applied since they also may be toxic depending on concentration and exposure. Components of MM 2I include applications by skilled workers according to label instructions, careful prescription of the type and amount of chemical to be applied, use of buffer areas for surface waters to prevent direct application or deposition, and spill contingency planning.

Wetland Forest Management. Forested wetlands provide many beneficial water quality functions and provide habitat for aquatic life. Under MM 2J, activities in wetland forests shall be conducted to protect the aquatic functions of forested wetlands.

Postharvest Evaluation. The goals of MM 2K are to incorporate postharvest monitoring, including: (a) implementation monitoring to determine if the operation was conducted according to specifications and (b) effectiveness monitoring after at least one winter period to determine if the specified operation prevented or minimized discharges.

Education/Outreach. The goals of MM 2L are to implement pollution prevention and education programs to reduce NPS pollutants generated from applicable silvicultural activities.

Management Measure Category: Forestry

Management Measure Title: Applicable to all MMs

Management Measure Targeting Level: All MMs are designated at the primary level, except for 2G-Fire Management and 2I-Forest Chemical Management which are at the secondary level and 2J-Wetlands Forest which is at the tertiary level.

Objectives:

1. By year 2001, adopt FPR to address watercourse and lake protection zones, roads and landings, exempt and emergency timber operations, mass wasting, and cumulative watershed effects.
2. By year 2003, increase agency staffing, broaden enforcement authority, increase review of THPs, and monitor effectiveness of MPs.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	A number of water bodies are identified on the CWA §303(d) list as having silvicultural activities that contribute to water quality impairments.	RWQCBs (excluding RWQCB 8)	Statewide	Current Staff	CWA §303(d) list	x		x		x	
Target	Of the impaired waters noted above, a number of water bodies are targeted for TMDL development by year 2003.	RWQCBs (excluding RWQCB 8)	Statewide	Current Staff	TMDL schedule	x		x		x	
Plan	Review the following issues and prepare recommendations that amend FPR: • Watersheds with ESA or CWA §303(d) listings, • Mass wasting, • Cumulative effects, • Scientific validity of rules for protection of ESA-listed salmonids, • Methodology for watershed assessment and cumulative effects assessment.	CDF, CDMG UC	Statewide, especially North Coast	State	Set of FPR amendments sent to BOF Amendments to CDF administrative manual	x	x				
	Propose modifications of the FPR to the BOF to address TMDLs and requirements of CZARA.	SWRCB RWQCB	Statewide	Budget Change Proposal (BCP) 99-00	Submit proposed FPR package to BOF	x	x	x			

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Adopt FPR amendments.	BOF	Statewide	State	FPR adopted by BOF FPR approved by OAL FPR become effective		x	x x x	x x x	 x	Rules cannot become effective until calendar year following OAL approval.
	Prepare and adopt watershed assessment and MP for Jackson State Forest.	CDF RWQCB 1	North Coast	State	Watershed assessment and MP	x	x				Coordinate with Noyo River TMDL.
Coordinate	Ongoing activity as part of FPR adoption	BOF	Statewide	State		x	x	x	x		
	Public review of proposed FPR amendments.	BOF	Statewide	State	Public comments	x	x	x			
Implement	Prepare budget for additional State agency staff to implement and enforce FPR.	CDF DFG RWQCB 1	Statewide, especially North Coast	State	Budgets submitted and approved Additional staff hired and trained	x	 x			x	Enhanced MMs implementation
	Implement amended FPR.	CDF	Statewide	State						x	
	Support legislation giving CDF civil administrative authority and substantial penalties to enforce FPR.	SWRCB CDF	Statewide	State	New statues enacted		x				Enhanced MMs enforcement.
	Implement watershed assessment and MP for Jackson State Forest.	CDF RWQCB 1	North Coast	State	Implementation of MP			x			
	Implement projects to reduce fuel loads	RWQCB 5, local agencies	Willow and Stockton Creek watersheds; American River Watershed	Prop 204			x	x	x		
Track and Monitor	Conduct statewide implementation/ effectiveness monitoring program.	CDF	Statewide	State	Monitor 50 sites per year Provide biennial reports to BOF	x x	x	x x	x	x x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
	Develop and implement administrative and repeated monitoring components.	BOF	Statewide	State	Develop new components Implement new components		x	x	x	x	Administrate = how well did planning evaluate potential impact? Repeated = re-monitor sites after stressing events
	Monitor implementation of MP in Jackson State Forest.	CDF RWQCB 1	North Coast	State	Monitoring of management plan, including instream trend and project monitoring			x	x	x	Instream monitoring component supplements hillslope component
	Monitor effects of hand application herbicides on surface water.	RWQCB 1	North Coast	General Fund	Monitor ten sites per year		x	x	x		
	Increase review of THPs.	RWQCB 1	North Coast	BCP 99-00	25 percent of THPs will be reviewed		x	x	x	x	
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

D. Urban Areas

The SWRCB, CCC, and other State agencies have identified 15 MMs to address urban NPSs of pollution that affect State waters. With approximately 80 percent of the nation's population living in coastal areas, controlling polluted runoff in urban areas is a challenge. Negative impacts of urbanization on coastal and estuarine waters are well documented in a number of sources, including California's CWA section 305(b) and section 319 reports and the Nationwide Urban Runoff Program.

Major pollutants found in runoff from urban areas include sediment, nutrients, oxygen-demanding substances, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. Suspended sediments constitute the largest mass of pollutant loadings to receiving waters from urban areas. Construction is a major source of sediment erosion. Petroleum hydrocarbons result mostly from automobile sources. Nutrient and bacterial sources include garden fertilizers, leaves, grass clippings, pet wastes, and faulty septic tanks. As population densities increase, a corresponding increase occurs in pollutant loadings generated from human activities. Many of these pollutants enter surface waters via runoff without undergoing treatment.

Urban runoff management requires that several objectives be pursued simultaneously. These objectives include the following (American Public Works Association, 1981):

- Protection and restoration of surface waters by the minimization of pollutant loadings and negative impacts resulting from urbanization;
- Protection of environmental quality and social well-being;
- Protection of natural resources, e.g., wetlands and other important aquatic and terrestrial ecosystems;
- Minimization of soil erosion and sedimentation problems;
- Maintenance of the predevelopment hydrologic conditions;
- Protection of ground water resources;
- Control and management of runoff to reduce or prevent flooding; and
- Management of aquatic and riparian resources for active and passive.

California's MMs to address urban sources of nonpoint pollution:

- 3.1 Runoff from Developing Areas
  - A. Watershed Protection
  - B. Site Development
  - C. New Development
- 3.2 Runoff from Construction Sites
  - A. Construction Site Erosion and Sediment Control
  - B. Construction Site Chemical Control
- 3.3 Runoff from Existing Development
  - A. Existing Development
- 3.4 On-site Disposal Systems (OSDSs)
  - A. New OSDSs
  - B. Operating OSDSs
- 3.5 Transportation Development (Roads, Highways, and Bridges)
  - A. Planning, Siting, and Developing Roads and Highways
  - B. Bridges
  - C. Construction Projects
  - D. Chemical Control
  - E. Operation and Maintenance
  - F. Road, Highway, and Bridge Runoff Systems
- 3.6 Education/Outreach
  - A. Pollution Prevention/Education: General Sources

Management Measures:

The control of urban NPS pollution requires the use of two primary strategies: (1) the prevention of pollutant loadings and (2) the treatment of unavoidable loadings. California's urban MMs are organized to parallel the land use development process in order to address the prevention and treatment of NPS pollution loadings during all phases of urbanization. This strategy relies primarily on the watershed approach, which focuses on pollution prevention and source reduction practices. Emphasizing pollution prevention and source reduction practices over treatment practices is favored because conducting education practices and incorporating pollution prevention practices into project planning and design activities are generally more effective, require less maintenance, and are more cost-effective in the long term than treatment strategies. Treatment strategies should only be used to address unavoidable loadings or where they are truly cost-effective.

The major opportunities to control NPS loadings occur during the following three stages of development: (1) the siting and design phase, (2) the construction phase, and (3) the post-development phase. Before development occurs, land in a watershed is available for a number of pollution prevention and treatment options, such as setbacks, buffers, or open space requirements, as well as wet ponds or constructed urban runoff wetlands that can provide treatment of the inevitable runoff and associated pollutants. In addition, siting requirements and restrictions and other land use ordinances, which can be highly effective, are more easily implemented during this period. After development occurs, these options may no longer be practicable or cost-effective. MMs 3.1A through 3.1C address the strategies and practices that can be used during the initial phase of the urbanization process.

The control of construction-related sediment loadings is critical to maintaining water quality. The implementation of proper erosion and sediment control practices during the construction stage can significantly reduce sediment loadings to surface waters. MMs 3.2A and 3.2B address construction-related practices.

After development has occurred, lack of available land severely limits the implementation of cost-effective treatment options. MM 3.6A focuses on improving controls for existing surface water runoff through pollution prevention to mitigate NPSs of pollution generated from on-going domestic and commercial activities.

Management Measure Category: 3.1 – Urban Areas

Management Measure Title: 3.1 – Runoff from Developing Areas; 3.1A - Watershed Protection; 3.1B - Site Development; and 3.1C - New Development

Management Measure Targeting Level: Secondary

Objectives:

1. Provide general goals for State and local agencies to use in developing comprehensive watershed protection programs for guiding future development and land use activities in a manner that will prevent and mitigate the effects of NPS pollution.
2. Reduce the generation of NPS pollutants and mitigate the impacts of urban runoff and associated pollutants that result from new development or redevelopment.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Develop watershed task forces and coordinate task force efforts with RWQCB programs.	RWQCB 4	Los Angeles Region		• Quarterly meetings • WMI Chapters		x	x	x	x	As needed for WMI and TMDL development and implementation
	Conduct more intensive site-specific evaluations of impacts of Cal/Trans and local government road maintenance practices.	RWQCB 6	Regionwide		Inspections	x	x	x	x	x	
Target	Target applicable MMs through the WMI implementation plans.	SWRCB RWQCBs	Statewide	Current staff	Include MMs in WMI implementation plans	x	x	x	x	x	
	Support the Urban Pesticide Committee (UPC) in its role in coordinating activities of the SF Bay Area and Central Valley agencies and other entities interested in OP pesticides in urban creeks	RWQCB 2, RWQCB 5	Urban areas in SF Bay Area and Central Valley	NPS Program, TMDL funding, and BCPs	Funding of RWQCB staff to conduct UPC meetings and coordinate agency activities			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan	Promote watershed planning and the development of regional watershed MPs that include MMs, and foster implementation of these plans.	SWRCB, SCC, CCC, local and regional entities, RCDs, Governor's Office of Planning and Research	Regional Watersheds	CWA §§205j and 319 SB 271 DOC Division Of Land Resources Protection grant program	Development of at least five watershed plans that include MMs and provide for their implementation by 2002. Upgrade CEQA checklist and General Plan guidelines and provide training to local government staffs. Include CAMMPR in the Office of Planning and Research: A Guide to Planning in California. Integrate MMs into Basin Plans as needed.	x	x	x	x	x	
	Review project plans for road construction and maintenance.	RWQCB 6	Region wide		Inspections	x	x	x	x	x	
Coordinate	Provide technical support to cities in development of Urban Runoff Plans using the Model Urban Runoff Program (MURP).	SWRCB, RWQCBs (excluding RWQCB 8), CCC	Statewide (watershed based)	CWA 319 Local governments	Distribute MURP to all Phase II NPDES cities and other local governments on request Develop a CAMMPR guidance module for USEPA sponsored NPDES permit writers conference Host a MURP seminar at the League of Cities Planners Institute	x	x	x	x	x	
	Work with municipalities to develop appropriate grading ordinances aimed at controlling impacts from new development.	RWQCB 3, CCC, MBNMS WQPP in Central Coast RWQCB 6	MBNMS Regionwide	NPDES Storm Water—Non Chapter 15	Grading ordinances	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Coordinate with developer and regulatory agencies, erosion standards for development.	Local planning agencies, RWQCB 4	Los Angeles Region		Reduction in number of erosion and sedimentation complaints by 50 percent	x	x	x	x	x	
	Conduct BMP workshops for local developers	RWQCB 6, RWQCB 8	Regionwide	NPDES Storm Water—Non Chapter 15	Workshops	x	x	x	x	x	
Implement	Incorporate applicable MMs into NPDES permits that come up for review	SWRCB, RWQCBs, SWQTF	Statewide (watershed based)	NPDES	Incorporation of MMs into NPDES permits that come up for renewal Develop a CAMMPR guidance module for USEPA-sponsored NPDES permit writer's conference.	x	x	x	x	x	
	Review new LCPs, LCPAs, and CDP applications brought before it for appropriate NPS pollution prevention and control.	CCC	Coastal Zone	BCPs		x	x	x	x	x	
	Implement Water Quality Protection Program for Monterey Bay National Marine Sanctuary.	MBNMS WQPP CCC RWQCBs 2 and 3	MBNMS	BCPs CWA §319 NOAA	WQPP Structural and nonstructural controls pilot program (to include elements such as erosion and sedimentation controls, regional urban runoff management strategy, technical training, and public education)		x	x	x	x	
	Work with cities and counties to implement MURP.	CCC, RWQCB 2 and 3, MBNMS WQPP	MBNMS and region wide	BCPs, CWA §319, Local governments	MURP implementation in three new cities or counties			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Enforce sites where erosion and sedimentation are uncontrolled.	RWQCB 4	Los Angeles Region			x	x	x	x	x	
	Citizen's Monitoring Program	RWQCB 5	Sacramento River Watershed	NPS Program	Convening workshops		x	x	x		
	Through the UPC, assist municipalities in addressing OP pesticide TMDLs by coordinating work needed to be performed as part of TMDL elements (e.g., source identification, implementation). Work with CDPR through the UPC and in developing urban OP pesticide TMDLs.	RWQCB 2, RWQCB 3	Urban areas in SF Bay Area and Central Valley	NPS Program, TMDL funding	Active participation of CDPR, municipalities and other interested entities (e.g., pesticide registrants, UC Departments) in UPC			x	x	x	
Track and Monitor	Incorporate applicable MMs into Urban TMDL development strategies and implementation plans.	RWQCBs	Watershed Management Areas (WMAs) CWA §303(d) listed water bodies	State and Federal	To be determined			x	x	x	
	Permit tracking five-year review.	RWQCBs (excluding RWQCB 8), CCC	Statewide by Region	State and one-time grant	Increased use of MM and number of WQ issues reviewed in permits					x	To complete performance measures review, one-time funding will be necessary.
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Urban Areas

Management Measure Title: 3.4 – On-site Disposal Systems; 3.4A – New On-site Disposal Systems; and 3.4B – Operating On-site Disposal Systems

Management Measure Targeting Level: Secondary

Objectives:

1. Improve coordination among State agencies and between State and local agencies in all matters dealing with OSDS.
2. Develop a consistent statewide and/or regional approach to policy interpretation, regulation, implementation, and development of standards for OSDS to support regional and/or local regulation.
3. Provide financial, technical, and educational assistance to help ensure that OSDSs are located, designed, installed, operated, inspected, and maintained to prevent the discharge of pollutants onto surface water and into ground water.
4. Provide financial and technical assistance for and educational information on "alternative" OSDS technologies (i.e., other than conventional gravity septic tank-leachfield systems).

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure										
Target	Provide loans or grants to counties for upgrades to individual systems.	SWRCB, local municipalities	Statewide	SRF loans	Loans provided and individual systems upgraded				x	x	OSDS TAC Recommendation
Plan	Establish uniform statewide standards for minimum criteria for OSDS siting and design (appropriate additional criteria will depend on local geographical and topographical conditions and level of protection required for regional beneficial uses).	SWRCB	Statewide	Proposed BCP	Minimum criteria						OSDS TAC Recommendation
	Review local OSDS-related policies and ordinances of local governments within one or more regions (e.g., within the MBNMS) and evaluate these planning and implementation mechanisms for regional consistency and effectiveness.	CCC in coordination with SWRCB, RWQCBs, and others (excluding. RWQCB 8)	Identified CCAs (e.g., the MBNMS)	CZMA or CWA grants	Matrix and analysis of ordinances, policies, criteria, etc.		x				Modeled after similar recommended action in MBNMS (WQPP) Urban Action Plan

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Assign or redirect SWRCB and/or RWQCB staffs to support OSDS activities.	SWRCB, RWQCBs in coordination with other agencies that have related/ overlapping authority	Statewide	BCPs or redirection of staff; MOUs with other agencies	New OSDS Unit at the SWRCB	x	x	x	x	x	Recommendation in NPS Initiatives Report and OSDS TAC Report
	Develop a Memorandum of Agreement (MOA) between public agencies that operate facilities that use OSDS (e.g., Cal/Trans, DPR, Dept. of Corrections) and the SWRCB, RWQCBs, and local health departments to ensure that the public facilities meet the same technical standards and achieve the same level of scrutiny as other OSDSs.	SWRCB	Statewide	General Funds	MOA		x				Pointed out as a problem in the OSDS TAC report
	Establish a State and/or regional center for the coordination and advancement of OSDS research and development to provide education and training to educators, designers, installers, and regulators of OSDS.	Sea Grant or NEP	Statewide; begin in pilot project area (e.g., CCA or NEP such as SMB NEP)	General Fund appropriated through new legislation	Facility with training materials and website					x	Model after program in Buzzards Bay Project National Estuary Program See also OSDS TAC Report Stakeholder recommendation (Heal the Bay [HTB])
	Develop a program to provide homeowner education and to encourage or require appropriate system operation and maintenance.	Nonprofit in coordination with SWRCB, RWQCBs, (excluding RWQCB 8) local municipalities	Statewide	CWA §319	HomeASyst program developed and used in a reported number of homes.					x	OSDS TAC Recommendation (Can model after the “HomeASyst” program for OSDSs that is implemented in North Carolina and other states)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Provide assistance to local developers in achieving the stated OSDS MM objectives.	SWRCB, RWQCBs (excluding RWQCB 8) in coordination with other agencies that have related/ overlapping authority	Statewide	BCPs or redirection of staff; MOUs with other agencies	New OSDS Unit at the SWRCB	x	x	x	x	x	Recommendation in NPS Initiatives Report and OSDS TAC Report
	Prepare clear and formal guidance concerning the application of existing SWRCB policies as they relate to OSDS.	SWRCB	Statewide	General Funds BCP	Guidance memorandum Update the Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems by including non-standard systems		x				Recommendation in NPS Initiatives Report and OSDS TAC Report Refers to SWRCB Resolutions No. 68-16 and 88-63 RWQCB 2 suggestion
	Provide technical assistance and oversight on siting and proper application of alternative technology.	SWRCB and RWQCBs	Statewide	General funds	Distribution and Implementation of California On-Site Sewage Disposal System Ordinance, 3/99			x		x	Recommendation in NPS Initiatives Report and OSDS TAC Report
	Adopt statewide performance standards for all OSDSs within the coastal zone by January 2001.	DHS with SWRCB, CCC	Statewide	General Funds	Standards for WDRs			x			See potential requirements in AB 885
	Achieve compliance with above standards within 3 years after adoption of OSDS performance standards.	SWRCB	Statewide	General Funds	Use of 3-tier authority or enforcement actions					x	See potential requirements in AB 885
	Provide technical assistance for assessing cumulative impacts of OSDS and aid local agencies in the development of procedures for addressing cumulative impacts.	SWRCB, RWQCBs, and CCC in coordination with a local government	Pilot project in a critical coastal area (MBNMS or San Luis Obispo County?)	NOAA funds	Development of watershed modeling and cumulative assessment tools (GIS, etc.)			x	x		Recommendation in NPS Initiatives Report and OSDS TAC Report Coordinate with CCC ReCAP Project?

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Develop a uniform standard of practice for the inspection of OSDS and pumping of tanks if necessary during real estate transfers or property refinancing.	SWRCB, RWQCB (excluding RWQCB 8)	Statewide							x	OSDS TAC Recommendation
	Establish a State and/or regional center for the coordination and advancement of OSDS research and development (including alternative systems).	Sea Grant or NEP	Statewide; begin in pilot project area (e.g., CCA or NEP such as SMB NEP)	General Fund appropriated through new legislation	Facility with training materials and website					x	Model after program in Buzzards Bay Project NEP See also OSDS TAC Report Stakeholder recommendation (HTB)
	Develop consistent inspection and reporting protocols and certification of inspection forms for septic tank pumpers.	SWRCB, RWQCB (excluding RQWCB 8)	Statewide							x	OSDS TAC recommendation
	Develop data management systems to provide better tracking of inspection, maintenance, and performance information for OSDSs.	SWRCB, RWQCB (excluding RQWCB 8)	Statewide							x	OSDS TAC recommendation
	Provide technical assistance for siting new on-site systems to ensure that (1) suitable septage disposal facilities are available for existing and proposed OSDSs and (2) construction standards were met during and after installation.	SWRCB, RWQCB (excluding RQWCB 8), CCC	Statewide			x	x	x	x	x	
	Develop and implement a program for annual inspection and certification of on-site system compliance to determine that the systems are operating in a manner that protects water quality.	SWRCB, RWQCB	Statewide			x	x	x	x	x	Trigger if other actions do not occur Stakeholder recommendation (HTB)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Review and update the waiver resolutions.	RWQCB 2	Marin, Alameda, Contra Costa, San Mateo, Napa, Solano, Sonoma, Santa Clara Counties	BCP	Update two waiver resolutions per year for eight counties						
	Develop requirements for OSDS-maintenance-related activities (e.g., septic tank pump, switching of leachfields), where appropriate, based on occupancy patterns.	SWRCB, RWQCB (excluding RQWCB 8)	Statewide	Current staff	Guidelines	x		x		x	Stakeholder recommendation (HTB)
Track and Monitor	Support the development of improved OSDS inspection and maintenance practices.										OSDS TAC recommendation
	Evaluate the adequacy of local oversight programs which have been under waiver resolutions with the RWQCB.	RWQCB 2	Marin, Alameda, Contra Costa, San Mateo, Napa, Solano, Sonoma, Santa Clara Counties	BCP	Produce two Evaluation Reports per year for eight counties with findings and recommendations		x	x	x	x	RWQCB 2 suggestion
	Develop a mechanism to track effectiveness and implementation of urban BMPs for OSDSs and sediment/erosion control.	SWQTF	Regional	Contract staff					x		SWQTF subcommittee
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Urban Area

Management Measure Title: 3.6A - Education and Outreach

Management Measure Targeting Level: Primary

Objectives:

1. Implement educational programs to provide greater understanding of watersheds.
2. Raise awareness of and increase the use of applicable urban MMs and MPs where needed to control and prevent adverse impacts to surface and ground water.
3. Involve the general public in coastal and watershed protection programs.
4. Improve watershed education in public schools.
5. Improve NPS practitioners' ability to support community-based watershed management.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure										
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	Develop urban pesticide control education program.	Local agencies, RWQCBs 2, 4, and 8	Newport Bay, SFB, Los Angeles County	CWA §319	Pesticide control program Household pesticide media campaign			x	x	x	RWQCB 8 suggestion SWQTF/Public Information Public Participation (PIPP) Committee
	Develop and implement a watershed and polluted runoff component into the Adopt-A-Highway Program.	Cal/Trans	Statewide	Cal/Trans	Pollution prevention information given to every Adopt-A-Highway participant			x	x	x	Adopt-A-Highway is currently a Coastal Cleanup Coordinating partner

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan	Outreach and education under WMI—stakeholder meetings and workshops.	RWQCB 6	WMI target watersheds (Truckee, Upper Truckee, Carson, Owens, Mojave River watersheds)	CWA §§104/106, 319 Program Cost Account (PCA) 111 (WMI)		x	x	x	x	x	
	Public education—plan and participate in activities such as Air Faire, Truckee River Days, Earth Day, National Wetlands Month; place educational exhibits and make presentations at public schools and in other public places.	RWQCB 6 local agencies	Regionwide	CWA §§104/106, 319 PCA 111 (WMI)		x	x	x	x	x	
Coordinate	Coordinate and participate in training sessions, workshops, and community events.	SWRCB, RWQCBs, CCC	Regional	Current staff	List of events participated in	x	x	x	x	x	RWQCB 3 suggestion
	Integrate watershed and polluted runoff information into public information provided by the CCC's General Education Program.	CCC	Statewide	Current staff	Information on the CCC web page, including links to education and water quality programs, and list of contacts	x	x				
				CCC license plate	Chapter(s) in Coastal Resources Guide and/or Coastal Access Guide(s)					x	CCC's Coastal CPR Plan
	Provide watershed and polluted runoff information at coastal access points—such as State Parks, piers, beaches locations.	DPR, CCC	Statewide	State Parks current staff SCC CCC license plate	Posting of information in existing displays and, where feasible, installation of additional displays Conduct talks with park visitors Conduct special community education events at parks	x	x	x	x	x	CCC's Coastal CPR Plan DPR suggestion
Implement	Implement education component of MURP—a joint project by the City of Watsonville, MBNMS, and CCC.	MBNMS, CCC	Monterey Bay	Cal/RA, CCC current staff	Local education program		x	x			CCC's Coastal CPR Plan
	In public schools, participate in Adopt-a-Watershed and other watershed-awareness activities.	RWQCB 6, local agencies	Regionwide with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)		x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement		RWQCB 8, local agencies	Regionwide with focus in WMI target watersheds	CWA §§104/106, 319 PCA 436 (NPS)		x	x	x	x	x	
	Use the RWQCB's table top watershed model to demonstrate the water quality impacts from development activities.	RWQCB 6	Regionwide with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)		x	x	x	x	x	
	Prepare newspaper articles and press releases to increase public awareness of watershed issues.	RWQCB 6	Regionwide with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)		x	x	x	x	x	
	Integrate watershed and polluted runoff information into the CCC's General Education Programs and applicable publications.	CCC	Statewide	CCC license plate	Chapter in Save Our Seas Program and SEA Camp curriculum(s)	x	x	x	x	x	CCC's Coastal CPR Plan
	Integrate watershed and polluted runoff information into the CCCs General Education Programs and applicable publications.	CCC	Statewide	CCC license plate	Field monitoring guide for Adopt-A-Beach programs Integrate watershed and polluted runoff messages into Coastal Cleanup media		x	x	x	x	CCC's Coastal CPR Plan
	Distribute a Polluted Runoff Edition of the SCC's magazine *Coast & Ocean*.	SCC	Statewide	SCC	An edition of *Coast & Ocean*			x			Suggested at meeting with SCC
	Support financially the development, distribution, and implementation of K-12 watershed education curriculum.	SWRCB	Statewide	CWA §319	Complete K-12 Watershed Curriculum	x	x	x	x	x	Urban TAC recommendation
	Provide training in use of watershed curricula and development of watershed education programs to teachers and administrators.	SWRCB through Adopt-A-Watershed	Statewide	SRF loan CWA §319	Training for 300 teachers or administrators per year	x	x	x	x	x	Urban TAC recommendation
	Distribute watershed/water quality K-12 appropriate curricula.	SWRCB via Adopt-A-Watershed	Statewide	SRF loan CWA §319	2500 copies per year	x	x	x	x	x	Urban TAC recommendation
	Sacramento River Watershed Program, Public Outreach and Education Subcommittee.	RWQCB 5	Northern Central Valley	Congressional Appropriations	Workshops Technical documents Watershed brochure		x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Conduct Placer County RCD bioassessment and training seminars and related activities.	Placer County RWQCB 5	Northern Central Valley	CWA §319(h)	Conduct bioassessment training Conduct seminars on sedimentation		x	x			See grant for details.
	Assess watershed and polluted runoff educational programs in California, including public awareness baseline and follow-up surveys and evaluate their effectiveness	CCC	Statewide	CWA §319 CCC License Plate funds Other government or corporate grants	Guide to programs and effectiveness Marine and Coastal Educational Resources Directory		x	x	x	x	CCC's Coastal CPR Plan
Track and Monitor	Assess watershed and polluted runoff educational programs in California, including public awareness baseline and follow-up surveys and evaluate their effectiveness.	CCC	Statewide	California Department of Education Cal/RA	Compendium of State agency programs related to NPS/CZARA Program				x		Most NPS/CZARA State agency partners are involved in California Environmental Education Interagency Network (CEEIN)
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

E. Marinas and Recreational Boating Management Measures[24]

Recreational boating and marinas are increasingly popular uses of coastal areas and inland surface water bodies (e.g., lakes and delta). And, they are an important means of public access, and California must balance the need for protecting the environment and the need to provide adequate public access (USEPA, 1993). Because marinas and boats are located at the water's edge, pollutants generated from these sources are less likely to be buffered or filtered by natural processes. When boating and adjunct activities (e.g., marinas and boat maintenance areas) are poorly planned or managed, they may pose a threat to water quality and the health of aquatic systems and may pose other environmental hazards. Sources of pollution associated with marinas and boating include:

- Poorly flushed waterways;
- Pollutants discharged from boats (recreational boats, commercial boats, and "live-aboards");
- Pollutants carried in storm water runoff;
- Physical alteration of wetlands and of shellfish/ other benthic communities during construction of marinas, ramps, and related facilities;
- Pollutants generated from boat maintenance activities on land and in the water.

There are 16 MMs to address marina and boating sources of nonpoint pollution. Effective implementation of these MMs can (1) avoid impacts associated with siting marinas and boat maintenance areas, (2) ensure the best available design and construction practices (for new and expanding facilities), (3) ensure appropriate operation and maintenance practices to prevent and/or reduce the delivery of NPS pollutants to State waters, and (4) encourage the development and use of effective pollution control and education efforts. The MMs cover the following operations and facilities:

- Any facility that contains ten or more slips, piers where ten or more boats may tie up, or any facility where a boat for hire is docked;
- Any residential or planned community marina with ten or more slips;
- Any mooring field where ten or more boats are moored;
- Public or commercial boat ramps;
- Boat maintenance or repair yards that are adjacent to the water and any federal, State, or local facility that involves recreational boat maintenance or repair on or adjacent to the water.

California's marina and recreational boating MMs:

4.1 Assessment, Siting and Design
- A. Water Quality Assessment
- B. Marina Flushing
- C. Habitat Assessment
- D. Shoreline Stabilization
- E. Storm Water Runoff
- F. Fueling Station Design
- G. Sewage Facilities
- H. Waste Management Facilities

4.2 Operation and Maintenance
- A. Solid Waste Control
- B. Fish Waste Control
- C. Liquid Material Control
- D. Petroleum Control
- E. Boat Cleaning and Maintenance
- F. Maintenance of Sewage Facilities
- G. Boat Operation

4.3 Education/Outreach
- A. Public Education

The Implementation Plan involves targeting implementation of six of the 16 marina and boating MMs, specifically those measures for water quality assessment, sewage facilities, boat cleaning and maintenance, hazardous waste

[24] Commercial and military ports are not targeted in this Program Plan because they are subject to the storm water NPDES permits regulating industrial and construction activities. Commercial ports are also required to submit a port master plan (PMP) for certification by the CCC. The PMP must include the conditions contained in Coastal Act section 30711. An NPS-related condition is "an estimate of the effect of development on habitat areas and the marine environment, a review of existing water quality, habitat areas, and quantitative and qualitative biological inventories, and proposals to minimize and mitigate any substantial adverse impact." Section 30711 further states that, "each city, county, or city and county which has a port within its jurisdiction shall incorporate the certified [PMP] in its [LCP]." In addition, activities in military ports are subject to federal consistency review by the CCC, affording the State an opportunity to ensure that appropriate NPS pollution prevention and control measures are in place. Ports located in the San Francisco Bay are under the jurisdiction of SFBCDC and subject to regulations of the MPA.

management, and public education. These MMs and related actions were identified by representatives of the marina and boating community at four meetings held between December 1998 and April 1999 and by the SWRCB, RWQCBs, and CCC. The 1994 Marina TAC Report provided additional recommendations. The 16 MMs are summarized below.

Assessment, Siting, And Design Management Measures:

41.A **Water Quality Assessment.** Consider impacts to water quality in siting and designing new and expanding marinas.

41.B **Marina Flushing.** Site and design marinas to provide for maximum flushing and circulation of surface waters, which can reduce the potential for water stagnation, maintain biological productivity, and reduce the potential for toxic accumulation in bottom sediment.

41.C **Habitat Assessment.** Site and design marinas to protect against adverse impacts on fish and shellfish, aquatic vegetation, and important locally, State, or federally designated habitat areas.

41.D **Shoreline Stabilization.** Stabilize shorelines where shoreline erosion is a pollution problem.

41.E **Storm Water Runoff.** Implement runoff control strategies to remove at least 80 percent of suspended solids from storm water runoff coming from boat maintenance areas (some boatyards may conform to this provision through NPDES permits).

41.F **Fueling Station Design.** Locate and design fueling stations to contain accidental fuel spills in a limited area; and provide fuel containment equipment and spill contingency plans to ensure quick spill response.

41.G **Sewage Facilities.** Install pump out, pump station, and restroom facilities at new and expanding marinas where needed to prevent sewage discharges directly to State waters.

41.H **Waste Management Facilities.** Install facilities at new and expanding marinas where needed for the proper recycling or disposal of solid wastes (e.g., oil filters, lead acid batteries, used absorbent pads, spent zinc anodes, and fish waste as applicable) and liquid materials (e.g., fuel, oil, solvents, antifreeze, and paints).

Operation And Maintenance Management Measures:

4.2A **Solid Waste Control.** Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of these wastes to surface waters.

4.2B **Fish Waste Control.** Promote sound fish waste management where fish waste is an NPS problem through a combination of fish cleaning restrictions, education, and proper disposal.

4.2C **Liquid Material Control.** Provide and maintain the appropriate storage, transfer, containment, and disposal facilities for liquid materials commonly used in boat maintenance; and encourage recycling of these materials.

4.2D **Petroleum Control.** Reduce the amount of fuel and oil that leaks from fuel tanks and tank air vents during the refueling and operation of boats.

4.2E **Boat Cleaning and Maintenance.** Minimize the use of potentially harmful hull cleaners and bottom paints and prohibit discharges of these substances to State waters.

4.2F **Maintenance of Sewage Facilities.** Maintain pumpout facilities in operational condition and encourage their use so as to prevent and control untreated sewage discharges to surface waters.

4.2G **Boat Operation.** Prevent turbidity and physical destruction of shallow-water habitat resulting from boat wakes and prop wash.

Education and Outreach Management Measures:

4.3A **Public Education.** Institute public education, outreach, and training programs to prevent and control improper disposal of pollutants into State waters.

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.1A--Water Quality Assessment

Management Measure Targeting Level: Primary

Objectives:

1. By the year 2003, determine baseline water quality conditions in at least 50 percent of California's marinas in targeted geographical regions.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Inventory existing data on water quality conditions at marinas to identify levels and potential sources of priority pollutants/stressors such as metals (e.g., copper, lead, tributyltin [TBT]), pathogens/high coliform counts, and other pollutants associated with boat discharges/vessel wastes and other recreational boating-related operations).	CCC, RWQCBs	Statewide	CWA §319 or CZMA §6217	Compilation of data from 1998 CWA §303(d) list, §305(b) report, and other sources.		x				Marina TAC and attendees of 1998-1999 stakeholder meetings identified the need for State to provide baseline data to aid in assessing the effectiveness of implementing MPs.
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	To be completed as specified in Part III.A. – Introduction /Structure										
Coordinate	Provide water quality data to marinas (port captains, harbor masters, lessors, marina owners, etc.) and the public to help identify baseline conditions.	RWQCBs, SWRCB	MBNMS and San Francisco, Tomales, Morro, Santa Monica, and San Diego Bays, Anaheim Bay and Hunting-ton Harbor Marin County (as pilot project in RWQCB 2).	To be determined. BCP	Water quality assessment reports developed and provided to marina operators and for the boating community						Sources of data may include NPDES permits, CWA §401 certifications, CEQA reports, State Mussel Watch Program, and regional surveys (e.g., Coordinated Monitoring Program of the Comprehensive Management Plan for San Diego Bay)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Establish baseline water quality data at marinas.	RWQCBs, SWRCB	MBNMS and San Francisco, Tomales, Morro, Santa Monica, and San Diego Bays	To be determined.	See above Plans to establish baseline data at marinas		x		x x	x x	
		RWQCB 8 with SWRCB, SCCWRP, DFG (Mussel Watch data), and other entities	Lower Newport Bay and Anaheim/ Huntington Harbor	SWRCB BCP for additional funding SWRCB grant to SCC Wetlands Restoration Project (WRP) Current funds	On-line searchable water quality database	x	x	x	x	x	Limited data are available from BPTCP program; need to update and conduct additional monitoring
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure										
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.1G and 4.2F--Sewage Facilities Siting, Design, and Maintenance

Management Measure Targeting Level: Primary

Objectives:

1. By the year 2003, establish regional standards for the minimum number of sewage facilities (e.g., fixed, mobile, and/or floating pump outs, dump stations, and restrooms) per recreational vessel in the MBNMS, San Francisco, Tomales, Morro, Santa Monica, and San Diego Bays, and SFB Delta.
2. Provide for the installation and maintenance of an adequate number of sewage facilities in the above-listed regions, and increase accessibility to and use of all facilities.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years					Notes
						98	99	00	01	02	
Assess	Identify water bodies on CWA §303(d) list that are listed for bacteria (or other indicators related to vessel sewage) and that are potentially affected by discharges at marinas.	SWRCB	Statewide assessment		Data provided to marina operators (port captains, harbormasters, lessors, marina owners, etc.) and public		x				See also actions for water quality assessment (MM 4.1A)
	Assess effectiveness of current vessel sewage waste programs in selected regions.	MBNMS WQPP	MBNMS		Assessment and recom-mendations for changes to current program						
		San Francisco Estuary Project (SFEP)	SFB								
		Morro Bay NEP	Morro Bay								
		SMB NEP	Santa Monica Bay								
		Orange County, City of Newport Beach, RWQCB 8	Lower Newport Bay				x	x			Requirement of Newport Bay fecal coliform TMDL
	Assess whether or not adequate enforcement powers exist for and are being implemented by federal, State, and/or local enforcement personnel.	SWRCB, RWQCBs, DBW	Statewide by region	CWA §319	Assessment and recommendations for new laws if needed			x			Recommendation from 2/99 CCBN meeting

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years					Notes
						98	99	00	01	02	
Target	Expand educational programs aimed at marina operators to (a) promote a better understanding of the need to construct and maintain vessel sewage pump out facilities, (b) get commitment to construct new pump outs; and (c) provide assistance in applying for Clean Vessel Act (CVA) grant funds.	DBW	Statewide by region	CVA	Workshops and education materials	x	x	x	x	x	Recommendation in SFEP letter (1/99)
	Identify future sources of funding for installation of sewage pump out facilities pending reauthorization of CVA.	DBW	Statewide	Current staff	Support for funding in CVA reauthorization		x				
Plan	Establish minimum standards defining what constitutes an "adequate" number of pump outs, dump stations, and/or restroom facilities.	RWQCBs (excluding RWQCB 8) and DBW (coordinate with permit and leasing agencies and regional entities [e.g., MBNMS and NEPs])	Statewide by region (e.g., MBNMS, Santa Monica Bay, Morro Bay, and SFB NEPs, San Diego Bay)	CVA, CWA §319	MOA among SWRCB, RWQCBs, and DBW establishing minimum standards for regions		x	x			Recommendation in 1/19/99 letter from SFEP DBW guidelines are one station per 300 boats—California currently has 125 stations for 85,000+ boats (or less than one station per 680 boats)
Coordinate	Establish agreements regarding the lead or shared responsibility for inspection of pump out facilities.	RWQCBs (excluding RWQCB 8) and local health departments	Statewide by region	Agency General Funds	MAAs or MOUs with appropriate agencies		x	x	x		Recommendation in Marina TAC and Initiatives in NPS Mgmt.
	Establish clear lines of authority for enforcement of violations	RWQCBs and local governments	Statewide by region	Agency General Funds	MAAs by region			x			Recommendation in SFEP letter (1/99)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years					Notes
						98	99	00	01	02	
Coordinate	Develop and regularly maintain a vessel sewage information clearinghouse to include: • BMPs; • Guidance on how to comply with federal, State, and local laws and regulations; • Examples of effective pump out operations currently used around the State; • Referrals to sources of reliable information.	DBW	Statewide	CVA, CWA §319, and other grants as applicable	Internet web site with information and links to other sites (DBW, UC Sea Grant, USCG Auxiliary, etc.)	x	x	x	x	x	Marina TAC recommendation
Implement	Meet minimum standards through: (a) Financial incentives (e.g., grants to marinas; launch ramp grants to provide dump stations);	DBW	Statewide by region	CVA, CWA §319	Meet standards in target regions by 2003		x	x	x	x	Marina TAC recommendation
	(b) Permit and lease conditions through permit issuance and renewal as appropriate.	City and county government, and other permit and lessor agencies (e.g., CCC, BCDC, SLC, DPR)	Statewide by region	Agency General Funds			x	x	x	x	Marina TAC recommendation
	(c) Recommend or require as necessary that commercial entities install pump out facilities.	RWQCB 2, Marin County Parks and Recreation Department, DPR, and National Park Service	Tomales Bay, Marin County	BCP	Assist commercial entities in applying for CVA grants Install pump out facilities			x x	x x	x x	
	(d) Instigate enforcement program and effectively enforce violations	RWQCBs and local gov’ts	Statewide by region	Agency General Funds		x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years					Notes
						98	99	00	01	02	
Track and Monitor	Pursue a water quality indicator test specific for human pathogens (e.g., evaluate utility of switching from total and fecal coliform indicators to enterococcus as an indicator of public health risk related to vessel sewage).	SWRCB (Ocean Plan Unit staff)	Statewide	Current staff	Address issue in Ocean Plan Triennial Review			x			Marina TAC recommendation
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.2E--Boat Cleaning and Maintenance

Management Measure Targeting Level: Primary

Objectives:

1. By the year 2003, develop and establish programs to implement BMPs for underwater hull cleaning and maintenance in 50 percent of marinas in the MBNMS and San Francisco, Morro, Santa Monica, and San Diego Bays.
2. Increase the availability and promote the use of financially feasible hull paints and cleaning materials whose contents are less toxic or that break down to non-toxic levels quickly within the marine environment, and decrease the use and release to State waters of toxic recreational boating hull paints (e.g., TBT and copper-based paints).

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Identify water bodies on CWA §303(d) list that are listed for copper, tributyltin, detergents (or other indicators related to boat cleaning and maintenance) and that are potentially affected by discharges at marinas.	SWRCB	Statewide assessment		Data provided to marina operators (port captains, harbormasters, lessors, marina owners, etc.) and public		x				See also actions for water quality assessment (MM 4.1A)
Target	Develop education program where divers who clean boats inform boat owners that they work in the water so please do not pollute, and divers provide information about less toxic bottom paints.	Dive groups	Statewide	CWA §319	Educational materials		x	x	x	x	Recommendations from Marina TAC and 12/98 marina stakeholder meeting
Plan	To be completed as specified in Part III.A. – Introduction /Structure										
Coordinate	Develop model ordinances and provide training for local enforcement personnel.	CCC	Statewide by region	To be determined	Training component for local enforcement personnel			x	x	x	Recommendation from 2/99 CCBN meeting
	Develop and regularly maintain a "clearinghouse" of boat cleaning and maintenance information such as: • Boat cleaning and maintenance BMPs; • A shopping guide for non-toxic paints, cleaners, solvents, etc.; • Guidance on how to comply with local, State, and federal laws and regulations; • Referrals to other sources of reliable information.	CCC (coordinate with CCBN)	Statewide	CCC general funds; CWA §319 and other grants as applicable	Internet web site with information and links to other sites (DBW, UC Sea Grant, USCG Auxiliary, etc.)		x			x	Marina TAC recommendation (The CCBN web page provides information at http://ceres.ca.gov/coastalcomm/ccbn/ccbndx.html)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Implement short-course hull-cleaning training and certification programs and policies using a 2-tier program based on: Tier 1: Self-certification program approved by SWRCB and CCC with specific targets (e.g., 75 percent of boat cleanings in region done by certified divers after four years); Tier 2: Regional certification (trigger to develop regional certification would be if self-certification program fails to meet identified targets).	RWQCBs (excluding RWQCB 8) or regional entity such as the MBNMS WQPP (coordinate with diver trade associations)	Regionally in State, beginning in San Diego, MBNMS, and SFB NEP	CWA §319 Federal dollars passed through NMSs or NEPs	Training and certification program initiated in 1+ regions 95 percent of marinas in above regions certify divers 75 percent of boat cleanings in region done by certified divers			x x	 x		Recommended by Marina TAC, 12/98 marina stakeholder meeting, and MBNMS WQPP. In addition, a strategy in WQPP Action Plan III (Marinas & Boating) is to initiate a regional certification program.
	Promote the use of non-toxic products and target toxic products: (a) Hold a conference addressing recreational boating hull paints;	UC San Diego Cooperative Extension Sea Grant	Statewide	CWA §319, Sea Grant	Conference, with recom-mendations added to five-year plan		x	x			Recommendation from 12/98 marina stakeholder meeting
	(b) Work with manufacturers, distributors and USEPA to increase research and development and speed up the review and release to market of financially-feasible, non-toxic marine products;	SWRCB and DTSC (coordinate with NMMA)	Statewide	To be determined.	50 percent increase in alternative products in stores		x	x	x		Recommendation from 12/98 marina stakeholder meeting
	(c) Compile a list of options for less toxic products and distribute them through marinas, boatyards, and marine products stores;	CCBN	Statewide	CWA §319, Sea Grant	List of options		x	x	x	x	Strategy in MBNMS WQPP Action Plan III (Marinas and Boating)
	(d) Phase out of the use of toxic hull paints on State and local agency- owned vessels regardless of size;	Cal/RA and Cal/EPA	Statewide	General funds	Certifications by agencies		x	x	x	x	Recommendation from 12/98 marina stakeholder meeting
	(e) Recommend measures to reduce the transport of toxics into State waters from boats that have TBT or other toxic hull paints applied out-of-State;	SWRCB USEPA	California-Mexico border issue	To be determined	Recommendations added to five-year plan		x	x	x	x	Marina TAC recommendation

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	(f) Assess and promote stripping and refinishing technologies that reduce emissions and discharges, as well as regional guidelines for hull paint preparation to reduce premature detachment from hulls;	Port captains and harbor masters, boatyards	MBNMS pilot project and Statewide	To be determined	Clean technologies manual and guidelines		x	x	x	x	Strategy in MBNMS WQPP Action Plan III (Marinas & Boating)
	(g) Develop legislation that prohibits the sale and use of toxic hull paints, as necessary after a thorough analysis of situation.	SWRCB SCC	Statewide	To be determined	Passage of new legislation					x	Trigger, if toxic paints still widely applied and financially feasible alternatives are available
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure										
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.1H, 4.2A, and 4.2C--Hazardous and Toxic Materials Management

Management Measure Targeting Level: Primary for 4.1H-Waste Management Facilities and 4.2A-Solid Waste Control

Secondary for 4.2C-Liquid Material Control

Objectives:

1. Resolve potential regulatory and liability issues that currently discourage many harbor districts and marinas from taking a more active role in hazardous waste management.
2. Develop convenient disposal options for boaters that allow for the drop off and collection of hazardous wastes in marinas and harbors.
3. By the year 2003, develop and implement one or more pilot Temporary Waste Collection Program(s) where 100 percent of marinas in the pilot region(s) are included as collection points during the regular recruitment of common household hazardous wastes by municipalities and counties.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Assess existing hazardous waste disposal and used oil recycling services available to California boaters in order to identify gaps in service.	CCC, SFEP, and Santa Monica Bay Restoration Project	Statewide by region	CIWMB	Report to CIWMB and public	x	x	x			A survey of marinas in Northern and Southern California has been conducted by the CCC's BCGC.
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	To be completed as specified in Part III.A. – Introduction /Structure										
Coordinate	To be completed as specified in Part III.A. – Introduction /Structure										
Implement	Resolve issues discouraging harbors and marinas from temporarily storing hazardous and toxic materials generated by boaters (such as waste oil, batteries, paints, solvents, antifreeze, detergents, and contaminated fuels) until pickup and/or recycling by local waste management agencies. (For example, investigate the possibility of obtaining categorical exemptions for harbors for periodic collection and/or transport of small quantities of hazardous materials.)	DTSC, City and County Household Hazardous Waste (HHW) agencies	MBNMS pilot project and Statewide	CWA §319	MOA (e.g., between DTSC, HHW agencies, RWQCBs, SWRCB, and Port Captains and Harbor Masters Association) or new legislation			x			Recommendations from Marina TAC, 12/98 and 1/99 marina stakeholder meetings, and MBNMS WQPP Action Plan III (Marinas & Boating)

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Coordinate waste disposal and recycling programs to include marinas as a collection point during the regular recruitment of common household hazardous wastes. Key steps may include: • Plan development of temporary waste collection program that includes recycling programs for waste oil and batteries; • Obtain funding; • Develop sites; • Establish procedures to handle materials at collection points within designated harbors and marinas; • Implement pickup services program; and • Implement education programs.	City and County Environ-mental Health and HHW Departments (coordinate with waste management districts and port captains and harbor masters; in MBNMS coordinate with WQPP)	MBNMS pilot project and Statewide	SWRCB, DTSC, and/or CIWMB grants			x	x	x	x	Marina TAC recommendation (Marina TAC identified waste oil and batteries as the two most voluminous hazardous wastes) See also Strategy M.4 in MBNMS WQPP Action Plan III (Marinas & Boating)
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure										
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.3--Education/Outreach

Management Measure Targeting Level: Primary

Objectives:

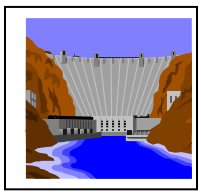
1. Communicate to boaters and owners/operators of marinas and boatyards the environmental and economic impacts of pollution; identify and increase the awareness and use of MMs and BMPs where needed to prevent and control adverse impacts associated with marinas and boats.
2. Enhance and coordinate State educational, technical and financial assistance, and enforcement programs to assist the boating community's efforts to implement MMs to prevent and control polluted runoff from marinas, boat yards, and boating activities.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Assess existing pollution prevention and control programs regionally and/or statewide.	DBW CCC	Statewide								
	Assess existing efforts to develop coordinated regional or watershed-based public education and outreach programs related to marina and boat-related activities; identify educational/outreach program needs statewide and expand and build upon effective efforts.	CCBN	Statewide by region	CIWMB, CWA §319, CVA funds, CCC license plate funds, UC Coop. Ext., and other sources		x	x	x	x	x	Marina TAC recommendation. The CCBN is comprised of agency, public and private members.
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	To be completed as specified in Part III.A. – Introduction /Structure										
Coordinate	Continue implementation of the CCC's BCGC, which includes the facilitation of the California CCBN as a forum to conduct public outreach, manage marina and boating impacts, and participate in the development and implementation of NPS MMs and NPS Program strategies and action plans.	CCC	Statewide	CIWMB	Conduct BCGC; develop action plan for the future	x	x				The CCC's BCGC is currently funded through April 2000 only.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement		CCC	Statewide	CIWMB	Marina and Boater education materials including: • 60,000 California Boater kits • Pollution Solutions binders • Catalog of Marina and Boater education materials	x	x	x			To date 30,000 California Boater kits have been developed and are being distributed at boat shows, in dock walking programs, and through marine dealerships. The kits contain a "Quick Reference Clean Green Boating" placard and other materials on environmentally sound boating practices.
		CCC	Statewide	CIWMB	Volunteer "Dockwalking" training in Northern and Southern California		x	x			Focuses on training trainers. Approximately 100 people attended an April 1999 dock walking training in SFB area. An additional training in San Diego/ Los Angeles regions is planned in 1999.
		CCC	Statewide	CIWMB	Conferences	x	x	x	x	x	Partnering with local agencies, the CCC co-hosted two conferences in 1998 addressing boat pollution reduction strategies

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement		CCC	Southern California	CIWMB	Research of target groups in Southern California		x				
	Conduct education workshop.	SFEP, RWQCB 2	Marin County	BCP	Education brochure and workshop		x				
	Post-educational information at boat ramps and other areas.	DPR, DBW, CCC, Santa Monica Bay Restoration Project	Statewide	CIWMB, SCC, CCC license plate	Posting of information in existing displays; installation of new displays	x	x				To date, CCC has installed more than 250 signs around the State to date.
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure										
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

F. Hydromodification Management Measures



The SWRCB, CCC, and other State agencies have identified seven MMs to address hydromodification sources of nonpoint pollution affecting State waters. Hydromodification includes modification of stream and river channels, dams and water impoundments, and streambank/shoreline erosion.

California's MMs to address sources of nonpoint pollution related to hydromodification activities:

- 5.1 Channelization/Channel Modification
  - A. Physical and Chemical Characteristics of Surface Waters
  - B. Instream and Riparian Habitat Restoration
- 5.2 Dams
  - A. Erosion and Sediment Control
  - B. Chemical and Pollutant Control
  - C. Protection of Surface Water Quality & Instream and Riparian Habitat
- 5.3 Streambank and Shoreline Erosion
  - A. Eroding Streambanks & Shorelines
- 5.4 Education/Outreach
  - A. Educational Programs

Channel modification activities are undertaken in rivers or streams to straighten, enlarge, deepen, or relocate the channel. These activities can affect water temperature, change the natural supply of fresh water to a water body, and alter rates and paths of sediment erosion, transport, and deposition. Hardening the banks of waterways with shoreline protection or armor also accelerates the movement of surface water and pollutants from the upper reaches of watersheds into coastal waters. Channelization can also reduce the suitability of instream and streamside habitat for fish and wildlife by depriving wetlands and estuarine shorelines of enriching sediments, affecting the ability of natural systems to filter pollutants, and interrupting the life stages of aquatic organisms (USEPA, 1993).

Dams can adversely impact hydrology and the quality of surface waters and riparian habitat in the waterways where the dams are located. A variety of impacts can result from the siting, construction, and operation of these facilities. For example, improper siting of dams can inundate both upstream and downstream areas of a waterway. Dams reduce downstream flows, thus depriving wetlands and riparian areas of water. During dam construction, removal of vegetation and disturbance of underlying sediments can increase turbidity and cause excessive sedimentation in the waterway.

The erosion of shorelines and streambanks is a natural process that can have either beneficial or adverse impacts on riparian habitat. Excessively high sediment loads resulting from erosion can smother submerged aquatic vegetation, cover shellfish beds and tidal flats, fill in riffle pools, and contribute to increased levels of turbidity and nutrients.

Management Measures:

Channelization/Channel Modification. California's MMs for channelization and channel modification promote the evaluation of channelization and channel modification projects. Channels should be evaluated as a part of the watershed planning and design processes, including watershed changes from new development in urban areas, agricultural drainage, or forest clearing. The purpose of the evaluation is to determine whether resulting NPS changes to surface water quality or instream and riparian habitat can be expected and whether these changes will have a detrimental (or negative) impact. Existing channelization and channel modification projects can be evaluated to determine the NPS impacts and benefits associated with the projects. Modifications to existing projects, including operation and maintenance or management, can also be evaluated to determine the possibility of improving some or all of the impacts without changing the existing benefits or creating additional problems. In both new and existing channelization and channel modification projects, evaluation of benefits and/or problems will be site specific.

Dams. The second category of MMs addresses NPS pollution associated with dams. Dams are defined as constructed impoundments that are either: (1) 25 feet or more in height *and* greater than 15 acre-feet in capacity or (2) six feet or more in height *and* greater than 50 acre-feet in capacity. MMs 5.2A and 5.2B address two problems associated with dam construction: (1) increases in sediment delivery downstream resulting from construction and operation activities and (2) spillage of chemicals and other pollutants to the waterway during construction and operation. MM 5.2C addresses the impacts of reservoir releases on the quality of surface waters and instream and riparian habitat downstream.

Streambank and Shoreline Erosion. The third category of hydromodification measures addresses the stabilization of eroding streambanks and shorelines in areas where streambank and shoreline erosion creates a polluted runoff problem. Bioengineering methods such as marsh creation and vegetative bank stabilization are preferred. Streambank and shoreline features that have the potential to reduce polluted runoff shall be protected from impacts, including erosion and sedimentation resulting from uses of uplands or adjacent surface waters. This MM does not imply that all shoreline and streambank erosion must be controlled; the measure applies to eroding shorelines and streambanks that constitute an NPS problem in surface waters.

Education/Outreach. MMs 5.4A focuses on the development and implementation of pollution prevention and education programs for agency staffs and the public, as well as the promotion of assistance tools that emphasize restoration and low-impact development. Education, technical assistance, incentives, and other means can be used to promote projects that: (1) reduce NPS pollutants, (2) retain or reestablish natural hydrologic functions (e.g., channel restoration projects and low-impact development projects), and/or (3) prevent and restore adverse effects of hydromodification activities.

Management Measure Category: Hydromodification

Management Measure Titles: 5.1 – Channelization/Channel Modification; 5.3 – Streambank and Shoreline Erosion; and 5.4-Education/Outreach (Hydromodification)

Management Measure Targeting Level: Primary for MM 5.4-Education/Outreach and secondary for all others.

Objectives:

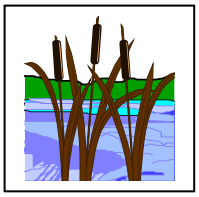
1. By the year 2001, implement CWA §401 certification program regulations to delegate program authority to the RWQCBs.
2. By the year 2002, develop a technical assistance manual that will assist local governments and small businesses with guidelines for designing projects to avoid wetlands and riparian areas.
3. By the year 2001, adopt general WDRs that prescribe channel maintenance activities with minimal threat to water quality.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure										
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	Ensure compliance with CEQA and Porter-Cologne Act when certifying nationwide permits.	USACOE/ SWRCB	Statewide	State Fee	Certification of selected activities	x	x	x	x	x	
	Develop regulations that delegate CWA §401 authority to RWQCBs.	SWRCB	Statewide	State Fee, Grants, BCP	Implementation	x	x	x			
	Develop CEQA guidelines for wetlands and watershed analysis (e.g. an appendix to CEQA guidelines).	SWRCB, CCC, Office of Planning and Research	Statewide	State Fee, Grants, BCP	Modified CEQA guidelines	x	x	x	x	x	
	Develop a technical assistance program for project design that will include guidelines for designing projects to avoid wetlands and riparian areas.	SWRCB	Statewide	State Fee	Guidance to RWQCBs and local government on MPs, model ordinance provisions, methods of establishing setbacks	x	x	x	x		
	Participate in regional floodplain planning activities, such as Bay Area Wetlands Planning Group (BAWPG).	Various	Regional	CWA §319	Statewide application of regional initiatives	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Plan	• Develop a framework linking stream, hydrological, and ecological functions to beneficial uses, • Develop criteria for protecting ecological functions and other beneficial uses of streams, • Prepare staff report for Basin Plan Amendment • Draft Stream Protection Policy	RWQCB 2	Regionwide		• A report linking beneficial uses to stream functions specific to the Bay Area • Outline criteria for protecting beneficial uses of streams specific to the Bay Area • Draft staff report to initiate Basin Planning process • Draft Stream Protection Policy	x x x x	x x x x	x x x x	x x x x	x x x x	
Coordinate	Establish formal agreements between agencies on program-level issues in order to streamline the permitting process and better protect resources.	SWRCB, RWQCBs, DFG, CCC, USACOE, USEPA, USFWS	Statewide	State Fee, Grants, BCP	Joint application forms, consolidated permits, MOUs or MAAs	x	x	x	x	x	
	Participate in USEPA Floodplain Management Group to develop guidance on floodplain management.	USEPA	Statewide	CWA §319	Guidance	x	x	x	x	x	
	Work cooperatively with USACOE on modifying and improving emergency permits.	USACOE/ SWRCB	Statewide	State Fee	Certification of Emergency Permits	x	x	x	x	x	
	Coordinate wetlands-related projects in southern California with the work of the wetlands recovery project.	SCC, RWQCB 8	Southern California	?	Include projects in WRP database	x	x	x	x	x	
	Conduct stakeholder workshops.				Convene a technical forum and summary of comments from workshops	x	x	x	x	x	
Implement	Education (see actions under Urban, Education MM)					x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Implement	Assist entities engaged in hydromodification activities by disseminating up-to-date technical information on: flood management methods which preserve natural riparian values; construction and long-term maintenance costs of traditional and alternative flood management approaches; setbacks in floodplains and designating floodways; examples of existing ordinances and policies which minimize the need for channelization and channel hardening.	SWRCB	Statewide	State Fee, Grants, BCP	Technical Documents	x	x	x	x	x	
	a) Adopt general WDRs that prescribe MPs for various channel maintenance activities that pose minimal threat to water quality. b) Initiate enforcement actions when necessary.	RWQCB 2, SWRCB, Bay Area Storm Water Management Agencies Association (BASMAA), USACOE	Regionwide	CWA §319, CWA §104	a. Attend monthly meetings to identify MPs with associated channel maintenance activities b. Adopt general WDRs by RWQCB 2	x	x	x			
	Construct wetlands improvements	RWQCB 5 and local agencies	Cache Creek	Prop. 204			x	x	x		
Track and Monitor	Monitor for water quality improvement resulting from wetlands improvements	RWQCB 5 and local agencies	Cache Creek	Prop. 204			x	x	x		
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

G. Wetlands, Riparian Areas, and Vegetated Treatment Systems



The SWRCB, CCC, and other State agencies have identified four MMs to promote the protection and restoration of wetlands and riparian areas and the use of vegetated treatment systems as means to control NPSs of pollution. Wetlands and riparian areas reduce polluted runoff by filtering out runoff-related contaminants, such as sediment, nitrogen, and phosphorus, thus maintaining the water quality benefits of these areas is important. These areas also help to attenuate flows from higher-than-average storm events. This protects downstream areas from adverse impacts, such as channel scour, erosion, and temperature and chemical fluctuations. Changes in hydrology, substrate, geochemistry, or species composition can impair the ability of wetland or riparian areas to filter out excess sediment and nutrients and therefore can result in deteriorated water quality. The following activities can cause such impairment: drainage of wetlands for cropland, overgrazing, hydromodification, highway construction, deposition of dredged material, and excavation for ports and marinas.

California's MMs to protect and restore wetlands and riparian areas and use vegetated treatment systems as means to control pollution from nonpoint sources:

6A. Protection of Wetlands & Riparian Areas

6B. Restoration of Wetlands & Riparian Areas

6C. Vegetated Treatment Systems

6D. Education/Outreach

Management Measures:

6A **Protection of Wetlands/Riparian Areas.** Implementation of MM 6A is intended to protect the existing water quality improvement functions of wetlands and riparian areas as a component of NPS Programs.

6B **Restoration of Wetlands/Riparian Areas.** Restoration of wetlands and riparian areas (MM 6B) refers to the recovery of a range of functions that existed previously by reestablishing hydrology, vegetation, and structure characteristics. Damaged or destroyed wetland and riparian areas should be restored where restoration of such systems will significantly abate polluted runoff.

6C **Vegetated Treatment Systems.** MM 6C promotes the installation of vegetated treatment systems (e.g., artificial or constructed wetlands) in areas where these systems will serve a polluted runoff-abatement function. Vegetated filter strips and engineered wetlands remove sediment and other pollutants from runoff and wastewater and prevent pollutants from entering adjacent water bodies. Removal typically occurs through filtration, deposition, infiltration, absorption, adsorption, decomposition, and volatilization.

6D **Education/Outreach.** MM 6D promotes the establishment of programs to develop and disseminate scientific information on wetlands and riparian areas and to develop greater public and agency staff understanding of natural hydrologic systems—including their functions and values, how they are lost, and the choices associated with their protection and restoration.

Wetlands, Riparian Areas, and Vegetated Treatment Systems

Management Measure Titles: 6A - Protection of Wetlands and Riparian Areas; 6B - Restoration of Wetlands and Riparian Areas; and 6D - Education/Outreach (Wetlands)

Management Measure Target Level: Primary for MM 6D and secondary for all others.

Objectives:

1. By the year 2001, implement CWA§401 certification program regulations to delegate program authority to the RWQCBs.
2. By the year 2002, develop a technical assistance manual that will assist local governments and small business with guidelines for designing projects to avoid wetlands and riparian areas.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	To be completed as specified in Part III.A. – Introduction /Structure										
Target	To be completed as specified in Part III.A. – Introduction /Structure										
Plan	Ensure compliance with CEQA and Porter-Cologne Act when certifying nationwide permits.	USACOE/ SWRCB	Statewide	State Fee	Certification of selected activities	x	x	x	x	x	
	Develop regulations that delegate CWA §401 authority to RWQCBs.	SWRCB	Statewide	State Fee, Grants, BCP	Implementation	x	x	x	x	x	
	Develop CEQA guidelines for wetlands and watershed analysis (e.g., an appendix to CEQA guidelines).	SWRCB, CCC, Office of Planning and Research	Statewide	State Fee, Grants, BCP	Modified CEQA guidelines	x	x	x			
	Develop a technical assistance program for project design that will include guidelines for designing projects to avoid wetlands and riparian areas.	SWRCB	Statewide	State Fee	Guidance to RWQCBs and local government on MPs, model ordinance provisions, methods of establishing setbacks	x	x	x	x		
	Participate in regional floodplain planning activities, such as BAWPG.	Various	Regional	CWA §319	Statewide application of regional initiatives	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Establish formal agreements between agencies on program-level issues in order to streamline the permitting process and better protect resources.	SWRCB, RWQCBs, DFG, CCC, USACOE, USEPA, U.S. Fish and Wildlife Service (USFWS)	Statewide	State Fee, Grants, BCP	Joint application forms, consolidated permits, MOUs or MAAs	x	x	x	x	x	
	Participate in USEPA Floodplain Management Group to develop guidance on floodplain management.	USEPA	Statewide	CWA §319	Guidance	x	x	x	x	x	
	Coordinate wetlands-related projects in Southern California with the work of the wetlands recovery project.	SCC	Southern California	?	Include projects in WRP database	x	x	x	x	x	
Implement	Education (see actions under Urban, Education MM)					x	x	x	x	x	
	Provide financial assistance to encourage environmentally friendly floodplain management.	SWRCB	Statewide	SRF	Various	x	x	x	x	x	
	Provide incentives for flood management approaches that minimize the need for channelization and channel hardening.	SWRCB	Statewide	State Fee, Grants, BCP	Regulatory flexibility, expedited permit review, and waived or reduced fees			x	x	x	
Track and Monitor	To be completed as specified in Part III.A. – Introduction /Structure										
Report Biennially	To be completed as specified in Part III.A. – Introduction /Structure										

H. Critical Coastal Area

Actions

An initial task in the Strategy and the Implementation Plan is to create the CCA Interagency Committee to complete a list of criteria and methods for CCA designation. The Committee will consider the factors listed in the Strategy, as well as other criteria used by other programs to identify sensitive coastal areas. While CCA delineation will be based on special water quality concerns and may deviate from other classifications, the final CCA recommendation to be used by the CCC and SWRCB will fully consider other existing programs. Other programs that will be used to help designate CCAs include the ASBS, NERRs, the MBNMS WQPP, university research programs, TMDLs, and regional monitoring efforts. CCA designation will provide resources to special coastal areas which do not achieve priority ranking within other sections of this plan and will therefore provide solutions to program deficits.

In addition to creating a committee to identify CCA criteria, the Implementation Plan will include these specific actions:

1. Identify and map CCAs using newly developed criteria.
2. Dedicate funding and other resources to areas in which new or substantially expanding land uses may cause or contribute to the impairment of water quality within CCAs.
3. Increase public interest in protecting special coastal habitats by implementing additional MMs, supporting public education and outreach, and continuing local watershed restoration and research efforts within the CCAs.

CCA Coordination

The renewed emphasis by local governments and stakeholders on watershed-scale resource management (including the offshore marine component of watersheds) has provided California with initial information to help identify CCAs and apply additional MMs to these areas. Related programs from which to gain information include:

- The SWRCB has designated CWA section 319(h) funds for restoration efforts in watersheds with impaired water quality or impaired aquatic communities.
- The SWRCB, through the WQCP for the Ocean Plan, designates ASBS in State tidelands and submerged lands and can limit or prohibit discharges in their general proximity.
- The SWRCB BPTCP (CWC §§13390-13396) has identified numerous toxic coastal sediment deposits from urban and agricultural runoff.
- The CCC, RWQCB 4, and other entities are developing a long-term MP for the dredging and disposal of contaminated sediments for coastal waters adjacent to Los Angeles County. This plan must include components for watershed management and source reduction.
- The Cal/RA is leading a statewide work group to identify and coordinate offshore Marine Management Areas, which may be linked to adjacent CCAs.
- The MBNMS WQPP is developing a water quality plan that, when completed, may provide a mechanism to apply additional MMs to CCAs within watersheds draining to Monterey Bay.
- If a TMDL is completed within a designated CCA, the TMDL and CCA activities will be coordinated to help determine if additional MMs are needed.

Critical Coastal Areas

Objectives:

1. Identify and map initial list of CCAs.
2. Develop an ongoing process to identify CCAs and additional NPS MMs to implement as necessary in CCAs.
3. Provide information on CCAs (areas adjacent to impaired, threatened, and/or pristine coastal waters, including ocean waters that fail to attain or maintain Ocean Plan water quality standards) to local, State, and regional decision makers and the public.
4. Review water quality and land use data every two years as part of the CWA §305(b) WQAP.
5. Review the effectiveness of existing MM implementation in CCAs and identify and implement additional MMs as needed to protect and restore CCAs.
6. Update CCA list, maps, and watershed information at least every two years and report on implementation efforts at public hearings every two years.

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Convene a workgroup or use existing interagency forums, whose mission is to develop a process to identify CCAs and to identify and provide for the implementation of additional MMs in CCAs.	CCC SWRCB	Statewide	Current Staff (CZARA)	Workgroup meetings and process		x		x		The State will provide opportunities for public participation in the development of this process.
	Review the effectiveness of existing MMs in CCAs.	CCC, RWQCBs	Regional	Special Grants Mitigation Funds	Regional assessment of CCA WQ issues.		x	x		x	

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Target	Identify and map CCA watersheds, including corresponding: • Areas of regional significance. • Special coastal habitats not a priority within other sections of this plan. • Coastal and ocean waters threatened by reasonably foreseeable increases in pollution loading. • Coastal and ocean waters not meeting water quality standards. • Coastal and ocean waters designated to prohibit degradation of water quality. • Pristine coastal waters.	CCC and SWRCB with RWQCBs	Watersheds that classify as CCAs pursuant to CZARA §6217(b)(2)	Current Staff (CZARA)	CCA list with maps available on Internet Review of CCA list and updates as needed		x		x x		As conditioned in the USEPA/NOAA Findings, CCAs include areas within the MBNMS and areas covered by NPDES storm water permits. The SWRCB and CCC will review lists and maps at public hearings.
Plan	Identify and implement applicable MMs to protect or restore water quality in coastal and ocean waters adjacent to CCAs.	CCC RWQCBs	CCAs	CZARA CWA §319	Implementation strategies and reports on status of implementation.				x	x	
Coordinate	Create CCA work groups to identify available resources and future needs.	CCC, RWQCBs	Coastal California	Current agency resources	Regional and site specific coordination agreements and resource allocation.			x	x		
	Identify key nonprofit and community groups for collaboration on regional CCA classification and review.	CCC CCA Committee	Regional	Current Staff	Number of participating nonprofit/community groups		x	x	x		

Process Element	Actions/ Statements	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Convene public review of CCA implementation projects.	CCC RWQCBs	Regional	Current Staff Implementation Grants	Public Comments					x	
Implement	Work with local researchers and agencies to develop Additional MMs.	CCC CCA Committee	Regional and statewide	Special Grants	Modified and New MMs			x	x	x	
	Support funding of additional MM implementation.	CCC SWRCB	CCAs	Special Grants	Additional MM implementation		x	x	x	x	
Track and Monitor	Provide summaries of water quality and land use information for each identified CCA.	RWQCBs, CCC.	CCAs	Current Staff Special Grants	Summaries with data/maps			x		x	
Report Biennially	Provide information on CCA efforts to local, State, and regional decision-makers, regional review committee, and the public.	CCC RWQCBs	Statewide	Current Staff	Meeting presentations			x		x	
	Update CCA list, maps, and watershed information at least every two years, and report on implementation efforts and committee meetings.	CCC, RWQCBs	Statewide	Current Staff (CZARA)	Updated CCA lists and maps Reports of implementation on web site			x		x	

I. Monitoring

Objectives

A. Evaluate the effectiveness of specific MMs or BMPs in improving water quality or achieving water quality standards.
B. Maximize usefulness of monitoring by coordinating effectiveness monitoring with other monitoring programs.
C. Improve usefulness of community-based watershed monitoring efforts by developing and reviewing new methods for ambient and effectiveness monitoring, disseminating quality assurance requirements, and increasing training opportunities.
D. Improve data acquisition, evaluation, and access.

Objective		Actions	Lead Agency	Geographic Area	Potential Funding	Performance Measures	Years: 98	99	00	01	02	Notes
MONITORING EFFECTIVENESS OF BEST MANAGEMENT PRACTICES												
A	1.	Design and implement a monitoring strategy to evaluate effectiveness of BMPs statewide that will:										
		a. Create criteria to assess functioning of BMPs used to reduce pollution from agriculture, forestry, urban practices, and marinas.	SWRCB UCD	Statewide	State	Functioning assessment criteria		x	x			
		b. Develop protocols and quality assurance methods for BMP functioning assessment criteria.	SWRCB UCD	Statewide	State	Written protocols, QA Plan		x				
		c. Monitor functioning of one BMP per sector (agriculture, forestry, urban practices, and marinas) in at least two watersheds.	SWRCB UCD	Statewide	State	Monitoring data		x				
		d. Develop database on BMP effectiveness.	SWRCB UCD	Statewide	State	Database		x				
		e. Develop and implement a monitoring strategy to monitor effectiveness of BMPs in reducing NPS pollution. Design a strategy that links to regional/local ambient or project monitoring.	SWRCB, RWQCBs, UCD	Statewide	State	Monitoring strategy, Monitor 9 key watersheds statewide, Report on effectiveness of BMPs			x			
		f. Evaluate and report effectiveness of rangeland BMPs.	RWQCB 3	Morro Bay	CWA §319 National Monitoring Program	Report						
		g Disseminate statewide knowledge of BMP effectiveness.	RWQCB 3	Morro Bay	CWA §319 National Monitoring Program	National Conference					x	

COORDINATION OF MONITORING PROGRAMS												
B	2.	Coordinate BMP effectiveness monitoring with existing monitoring programs (e.g. Mussel Watch, Toxic Substances Monitoring Program, TMDL monitoring, CALFED, USGS, DWR, MBNMS) to better assess reductions in NPS pollution.	SWRCB, RWQCBs (Monitoring Team) UC Davis	Statewide	Current Staff	Regional or watershed-based monitoring strategies		x	x	x	x	Initiatives recommendation
		a. Pilot monitoring strategy in nine key watersheds statewide.	SWRCB, RWQCBs	Statewide	Current Staff CWA §319	Nine monitoring programs				x	x	
	3.	Design and implement ambient monitoring and data evaluation efforts:										
		a. Implement coastal monitoring plan in Central Coast Region.	RWQCB 3	Central Coast Region	Current Staff, State	Monitoring report	x	x	x	x	x	
		b. Coordinate and assist SCC WRP coastal monitoring activities.	Local agencies, RWQCB 4, RWQCB 8 RWQCB 9, USEPA	Southern Coastal areas	To be determined	Coastal monitoring data	x	x	x	x		
		c. Develop and implement watershed-monitoring programs for support of CWA §§305(b) and 303(d) assessments using community partnerships.	RWQCBs	Statewide	To be determined	Monitoring programs, water quality data	x	x	x	x	x	Selected watersheds every two years
		d. Monitor pathogens weekly at popular beaches with summertime urban runoff inputs.	DHS, County Health Departments	Beaches with flowing storm drains and high visitor use	State General Fund	All beaches with flowing storm drains and high visitor use monitored	x	x	x	x	x	Funding secure for FY 98-99 only
	4.	Improve knowledge of NPS contributions to impaired water bodies:										
		a. Monitor pathogens in shellfish areas and upland watersheds to determine sources of contamination.	RWQCBs	Humboldt Bay, Morro Bay, Tomales Bay, North San Diego County	State	Monitoring reports	x	x	x			Funding secure for FY 98-99, FY 99-00 only
		b. Implement monitoring program for TMDL development.	RWQCB 8	Lake Elsinore, Big Bear Lake	To be determined	TMDLs		x	x	x		
		c. Review TMDL compliance monitoring data.	RWQCB 8	Newport Bay	CWA §104/106	Evaluation of TMDL compliance	x	x	x	x	x	Nutrient TMDL, sediment TMDL and fecal coliform TMDL

B, C, D	5.	Improve understanding of the effects of NPS pollution on the biological integrity of streams:											
		a. Use DFG's Bioassessment Protocols to assess and evaluate water quality and establish baseline water quality and trend information. Link to GIS layers.	SWRCB and DFG	Statewide	BCP, CWA §319	Baseline agency monitoring and trend data on GIS layers Web accessible	x	x	x	x	x	Statewide coordination of program needed.
		b. Provide a California bioassessment lab to serve as a source of reference information for bioassessments, including internet and web site.	SWRCB	Statewide	BCP, CWA §319	Reference information available online and at California bioassessment lab Provide information for development of biological criteria	x	x	x	x	x	
B, C, D	6.	Train community members in bioassessment procedures and sedimentation issues.	RWQCBs, RCDs, nonprofit groups	Statewide	CWA §319 grants, e.g. Placer County RCD	# of trainings	x	x	x			
COMMUNITY-BASED WATERSHED MONITORING													
C	7.	Establish a Technical Advisory Council to review and recommend monitoring protocols and quality assurance measures.	SWRCB, CARCDs, volunteer monitoring organizations	Statewide	CWA §319	Written review of protocols	x	x	x	x	x	
	8.	Develop and disseminate revised monitoring protocols for community-based monitoring methods. Focus on methods that track implementation or effectiveness of MMs.	SWRCB, UCD, DFG	Statewide	Current Staff, CWA §319	Monitoring protocols, Specialized regional keys for bioassessment.	x	x	x	x	x	
	9.	Develop generic quality assurance plans for monitoring methods.	SWRCB	Statewide	Current staff, BCP	QA plans	x	x	x	x	x	
C, D	10.	Establish regional watershed assessment and monitoring resource centers. Provide technical support, information, and training to NPS practitioners, landowners, and community groups.	Numerous	SFB area, Sacramento watershed, Los Angeles Basin, San Diego, Lake Tahoe	CWA §319 funds, municipal storm water programs, private foundations	Ten trainings per year	x	x	x	x	x	

C, D	11.	Train landowners, community groups, and RCD staff in appropriate watershed monitoring methods.	SWRCB, CARCDs, volunteer monitoring organizations	Statewide	CWA §319	Three trainings per year	x	x	x	x	x	
B, C, D	12.	Establish Sanctuary Citizen Watershed Monitoring Network to link 15 existing monitoring groups; provide standardized training and data sharing.	RWQCB 3, MBNMS WQPP, SWRCB, nonprofit groups	MBNMS	CWA §319	Regional protocols and guidebook; two trainings per year, shared data and equipment	x	x	x	x	x	
	13.	Direct, facilitate, and support technical development and application of citizen monitoring data.	SWRCB, volunteer monitoring organizations	Statewide	BCP, CWA §319	Baseline citizen biological monitoring and trend data with Quality Assessment Quality Control (QAQC).	x	x	x	x	x	
DATA ACCESS												
D	14.	Populate the statewide SWIM with data from NPS watershed assessments and community-based monitoring.	SWRCB (Information Management Team) RWQCBs	Statewide	State staff	Ten monitoring projects per year		x	x	x	x	
	15.	Enable public access to SWIM.	SWRCB (Information Management. Team) RWQCBs	Statewide	State staff, EMPACT	On-line database of discharger, agency and community-based monitoring data				x	x	
D	16.	Populate existing on-line databases (e.g., California Coastal Water Quality Monitoring Inventory, 305b, Surf Your Watershed) with data.	SWRCB, RWQCBs	Statewide	State staff, EMPACT	Up-to-date meta-data for major monitoring programs, Two on-line databases linked to SWIM					x	

APPENDICES

APPENDIX A. MEETING FEDERAL REQUIREMENTS

Federal Requirements Under Section 319 Of CWA
Check List on Nine Key Elements

Index for the Nine Key Elements of an Effective NPS Program as described in the USEPA NPS Program and Grants Guidance for Fiscal Years 1997 and Future Years (May 1996)

1. ***The State program contains explicit short- and long-term goals, objectives, and strategies to protect surface and ground water.***

a.	The California program includes a Vision Statement.	1
b.	California has specified MMs as long-term goals to be implemented by 2013 directed toward the expeditious achievement and maintenance of beneficial uses of water.	CAMMPR, 1
c.	Short-term (e.g., 1-5 year) objectives and activities have been specified for implementing the MMs that are linked to the vision statement.	87
d.	The California program addresses both surface and ground water.	1
e.	California has identified performance measures that will be used to assess the State's success in achieving its goals and objectives.	87
f.	Implementation strategies have been prepared that identify activities and the expected effects of those activities on water resources.	87, WMI Chapters

2. ***The State strengthens its working partnerships and linkages with appropriate State, Tribal, regional, and local entities (including conservation flood control districts), private sector groups, citizens groups, industry groups, and Federal agencies.***

a.	The State relies on several statewide partnerships to provide for input and recommendations from representatives of federal, State, Tribal, and local agencies, private sector groups, and citizens groups, regarding NPS program direction, project selection, and other similar aspects of program administration.	46
b.	These partnerships meet regularly and promote collaborative and inclusive decision making.	51
c.	The State program specifies procedures to provide for periodic public input into the program.	46
d.	California's program actively supports broad-based local watershed efforts that incorporate a variety of organizations and interests into the implementation of NPS activities.	40
e.	The State uses its partnerships effectively to promote comprehensive solutions that avoid the transfer of problems among environmental media.	52

3. ***The State uses a balanced approach that emphasizes both statewide NPS programs and on-the-ground management of individual watersheds where waters are impaired and threatened.***

a.	The SWRCB and RWQCBs' WMI document is a multi-year work plan that contains NPS implementation actions directed at both specific priority watersheds and activities of a statewide nature.	40
b.	The SWRCB/RWQCBs prepare annual work plans for CWA Section 319 funding, consistent with the WMI document that contains NPS implementation actions directed at both specific priority watersheds and activities of a statewide nature.	43
c.	The CCC has prepared a Polluted Run-off Strategy that is a multi-year work plan that contains NPS implementation actions directed at both specific priority watersheds and activities of a wider scope, consistent with its jurisdiction.	41
d.	State tracks both statewide activities and watershed projects.	72
e.	State has institutionalized its program beyond the annual implementation of CWA section 319 funded activities and projects.	Vol. I
f.	State uses an integrated watershed approach for assessment, protection, and remediation that is well integrated with other water or natural resource programs.	25
g.	Each of the nine RWQCBs adopt Basin Plans that identify existing and potential beneficial uses, establish basin specific water quality objectives, contain implementation, surveillance and monitoring plans, and include enforceable prohibitions against certain types of discharges.	34

4. ***The State program (a) abates known water quality impairments from NPS pollution and (b) prevents significant threats to water quality from present and future activities.***

a.	State has comprehensively characterized water quality impairments and threats throughout the State which are caused or significantly contributed to by NPSs.	26
b.	State program addresses all significant NPS categories and subcategories and promotes pollution prevention through the implementation of appropriate MMs.	CAMMPR
c.	State program has identified specific programs to abate pollution from categories of NPSs which cause or substantially contribute to the impairments identified in its assessments.	CAMMPR
d.	State has identified specific programs to prevent future water quality impairments and threats that are likely to be caused by NPS pollution.	19 CAMMPR

5. ***The State program identifies waters and their watersheds impaired by NPS pollution and identifies important unimpaired waters that are threatened or otherwise at risk. Further, the State establishes a process to progressively address these identified waters by conducting more detailed watershed assessments and developing watershed implementation plans, and then by implementing the plans.***

a.	State water quality assessments (including those performed under CWA sections 305[b], 319[a], 303[d], 314, and others), along with the California Unified Watershed Assessment, form the basis for the identification of the State's planned NPS activities and projects.	26
b.	State activities focus on remediating the identified impairments and threats and on protecting the identified at-risk waters.	26
c.	State has provided for public participation in the overall identification of problems to be addressed in the State program and in the establishment of a process to progressively address these problems.	19, 27
d.	State NPS priorities are communicated to, consistent with, and reflected in program planning and implementation activities by other water resource management agencies operating within the State.	46
e.	State revises its identification of waters and revisits its process for progressively addressing these problems periodically (e.g., once every five years).	9

6. ***The State reviews, upgrades, and implements all program components required by section 319(b) of the CWA, and establishes flexible, targeted, and iterative approaches to achieve and maintain beneficial uses of water as expeditiously as practicable. The State programs include:***
   - ***A mix of water quality-based and/or technology-based programs designed to achieve and maintain beneficial uses of water; and***
   - ***A mix of regulatory, nonregulatory, financial, and technical assistance as needed to achieve and maintain beneficial uses of water as expeditiously as practicable.***

a. The State program identifies MMs to control NPSs of pollution focusing on measures which will be effective to address the most prevalent types of NPS pollution.	CAMMPR
b. Identification of regulatory and nonregulatory programs to achieve implementation of the measures.	25
c. Processes used to coordinate and, where appropriate, integrate various programs used to implement NPS controls in the State.	46
d. Five-year implementation plans with goals, objectives, and milestones for program implementation and a process to revise these implementation plans twice by 2013.	87
e. A legal opinion describing the State authorities available for implementing the MMs.	Appendix: Legal opinion
f. Sources of funding from federal (other than CWA section 319), State, local, and private sources.	63
g. Monitoring and other evaluation programs to help determine short- and long-term program effectiveness.	70
h. The State program also incorporates/coordinates with existing baseline requirements established by other applicable federal or State laws to the extent that they are relevant.	31, 46 CAMMPR

7. ***The State identifies federal lands and activities which are not managed consistently with State NPS program objectives. Where appropriate, the State seeks USEPA assistance to help resolve issues.***

a. The State works with federal agencies to resolve potential inconsistencies among federal programs and activities and the State programs.	53
b. Where the State cannot resolve federal consistency issues to its satisfaction, it requests USEPA assistance to help resolve the issues.	53
c. The State coordinates with federal agencies to promote consistent activities and programs and to develop and implement joint or complementary activities and programs.	48

8. ***The State manages and implements its NPS Program efficiently and effectively, including necessary financial management.***

a. The State fosters plans for watershed projects and statewide activities that are well-designed with sufficient detail to assure effective implementation.	66
b. The State's watershed projects focus on the critical areas and critical sources within those areas that are contributing to NPS problems.	66
c. State implements its activities and projects, including all tasks and outputs, in a timely manner.	70
d. State has established systems to assure that the State meets its reporting obligations.	78
e. State utilizes the GRTS effectively.	66
f. State has developed and uses a fiscal accounting system capable of tracking expenditures of both CWA section 319 funds and nonfederal matching funds.	43
g. NPS projects include appropriate monitoring and/or environmental indicators to gauge effectiveness.	66

9. ***The State periodically reviews and evaluates its NPS management program using environmental and functional measures of success and revises its NPS assessment and its management program at least every five years.***

	Page #
a. The State has and uses a process to periodically assess both improvements in water quality and new impairments or threats.	70
b. The State uses a feedback loop based on monitoring and other evaluative information to assess the effectiveness of the program in meeting its goals and objectives, revises its activities, and tailors its annual workplans, as appropriate, in light of its review.	9
c. The State's annual report successfully portrays the State's progress in meeting milestones, implementing BMPs, and achieving water quality goals.	78

Federal Requirements Under Section 6217 Of CZARA
Check List On Conditions

Index for the section 6217 CZARA Conditions for Program Approval for the California Coastal NPS Program as described in the Program Findings and Conditions issued by USEPA/NOAA, July 1998.

1. Include NPS MMs in conformity with the Guidance Specifying MMs for Sources of Nonpoint Pollution in Coastal Waters (EPA, January 1993), issued under the authority of Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990.

	Page #
a. MMs have been adopted by the SWRCB and CCC for agriculture, forestry, urban areas, marinas and recreational boating, hydromodification, and wetlands and riparian areas.	CAMMPR
b. The State Porter-Cologne Act provides authorities that will be used, as necessary, to implement the MMs, in conformity with CZARA requirements for enforceable policies and mechanisms (see #2 below).	CAMMPR
c. The State and local authorities and programs being used to implement the MMs are clearly described.	CAMMPR, 25
d. Implementation strategies have been developed to implement the MMs statewide by 2013.	25

2. Identify authorities that can be used to prevent nonpoint pollution and require management measure implementation, as necessary.

	Page #
a. The Chief Counsels of the SWRCB and the CCC have prepared legal opinions concerning their respective authorities to implement the MMs for each of the appropriate source categories.	Appendix: Legal Opinions
b. For each of the source categories, the NPS Plan provides a description of the voluntary or incentive-based programs, including the methods for tracking implementation of MMs and evaluating those programs that the State will use to encourage implementation of the MMs.	CAMMPR CZARA Submittal (1995)
c. A description of the mechanisms or processes that link the implementing agencies for each of the source categories with the enforcement agencies and a commitment to use the existing enforcement authorities, where necessary, is included in the State program.	Appendix

3. Prepare a fifteen-year program strategy that briefly describes the State's overall approach and schedule to ensure implementation of the MMs and improve water quality within 15 years of the date of conditional approval.

	Page #
a. California's NPS Program Plan has been "upgraded" to include a Strategy.	25
b. The goal of the NPS Program is to implement the MMs by 2013 (within 15 years of the date of federal conditional approval pursuant to CZARA).	1
c. The program has a process whereby the State will determine the need to use a backup authority and/or to adopt additional enforceable policies and mechanisms to ensure implementation of the MMs within 15 years.	55, 86

4. Nested within the longer-term Strategy, prepare a five-year implementation plan that provides more specifics for achieving full implementation of the MMs.

	Page #
a. The Implementation Plan is more specific than and nested within the longer term Strategy for achieving full implementation of the MMs.	87
b. The Implementation Plan describes when, where, and how program implementation will occur, including mechanisms for tracking and monitoring implementation.	160
c. The Implementation Plan contains interim milestones and benchmarks, including a time frame; and will be updated, as necessary, but at least every five years. Achieving the milestones and benchmarks of these plans will serve as a basis for evaluating progress in achieving program implementation goals.	87
d. The Implementation Plan is designed to ensure adequate progress in achieving the Strategy and is integrated and consolidated with other federal and State water quality programs.	87

5. Common program elements required by CZARA (technical assistance, critical coastal areas, additional MMs, administrative coordination, and monitoring) should be included in the 15-Year Program Strategy and Implementation Plan.

	Page #
a. The program includes mechanisms for ensuring coordination among State agencies and between State and local officials with a role in the implementation of the MMs.	46
b. The program includes activities to provide technical assistance to local governments and the public for implementing MMs.	63
c. A process has been developed to provide for the identification of critical coastal areas.	29
d. The program includes an additional management measure process for developing and revising MMs to be applied in critical coastal areas and in areas where necessary to attain and maintain water quality standards. In addition, the State has described a process to identify additional MMs for forestry necessary to attain and maintain water quality standards.	79, 112
e. California includes in its program a monitoring element to enable the State to assess over time the extent to which implementation of MMs is reducing pollution loads and improving water quality.	70

APPENDIX B. LEGAL OPINIONS

STATE WATER RESOURCES CONTROL BOARD
CHIEF COUNSEL'S STATEMENT
FOR THE
CALIFORNIA'S NONPOINT SOURCE POLLUTION CONTROL PROGRAM

NOVEMBER 1999

CHIEF COUNSEL'S STATEMENT

I hereby certify that in my opinion the State of California can use the Porter-Cologne Water Quality Control Act[25] as a backup authority in the California's NPS Pollution Control Program to prevent nonpoint source pollution and to ensure management measure implementation. This authority can be used to address nonpoint source pollution due to agricultural operations, urban sources, marinas, hydromodification activities and wetlands. This authority is described below.

I. INTRODUCTION

In 1990 Congress enacted legislation requiring states with approved coastal zone management programs to prepare and submit a coastal nonpoint pollution control program to the United States Environmental Protection Agency (EPA) and the National Oceanic and Atmospheric Administration (NOAA) for approval.[26] The program's purpose was to restore and protect coastal waters through the implementation of management measures for nonpoint pollution sources. To further this effort, EPA was directed to develop management measure guidance.[27] State programs had to provide for implementation of management measures in conformity with this guidance, referred to as the (g) guidance.[28]

In September 1995, California submitted its program, a joint effort of the California Coastal Commission and the State Water Resources Control Board (State Water Board), to EPA and NOAA. For five nonpoint pollution sources, agricultural operations, urban sources, marinas, hydromodification activities and wetlands, the state proposed voluntary or incentive-based programs to implement the (g) guidance management measures. The state identified the Porter-Cologne Water Quality Control Act (Porter-Cologne) as a backup enforcement authority to ensure management measure implementation.[29]

In 1998 EPA and NOAA conditionally approved California's program.[30] For final program approval, EPA and NOAA require a legal opinion from the State Water Board's

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[25] Wat. Code §13000 et seq.

[26] Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA), 16 U.S.C. §1455b.

[27] *Id*. §6217(g), 16 U.S.C. §1455b(g).

[28] *Id*. §6217(b), 16 U.S.C. §1455b(b). See Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters, EPA, 840-B-92-002 (January 1993) (Management Measure Guidance).

[29] The state also identified Porter-Cologne as a backup authority to implement the forestry management measures. EPA and NOAA found that California's program includes management measures for forestry activities in conformity with the (g) guidance and enforceable policies and mechanisms for implementation. However, the state program needs more management measures. See *infra*, fn. 6.

[30] Letter, dated June 30, 1998, to Rusty Areias, Chairman, California Coastal Commission, and John Caffrey, former Chairman, State Water Board, from Jeffrey R. Benoit, Director, Office of Ocean and Coastal Resource Management, NOAA, and Felicia Marcus, Regional Administrator, EPA Region 9, transmitting Findings for the California Coastal Nonpoint Program.

Chief Counsel that Porter-Cologne can be used as a backup authority to prevent nonpoint pollution and to ensure management measure implementation[31] for these five sources.[32]

The following discussion addresses this issue. The discussion begins with an overview of Porter-Cologne. It then addresses three specific questions raised by EPA and NOAA regarding Porter-Cologne's use as a backup authority.

II. OVERVIEW OF PORTER-COLOGNE

Porter-Cologne is the primary water quality control law for California. In addition, the act authorizes the state to implement the federal Clean Water Act.[33] Porter-Cologne applies broadly to all state waters, including surface waters, wetlands, and groundwater.[34] Its provisions reflect the legislative intent that activities and factors that could affect the quality of state waters "be regulated to attain the highest water quality that is reasonable . . . ."[35] Porter-Cologne applies to both point and nonpoint sources.[36]

Porter-Cologne is administered regionally, within a framework of statewide coordination and policy.[37] The state is divided into nine regions, each governed by a regional water quality control board (Regional Water Board).[38] The State Water Board oversees and guides the Regional Water Boards through several activities. The State Water Board adopts state policy for water quality control, statewide water quality control plans, and regulations that are binding on the Regional Water Boards.[39] In addition, the State Water Board must approve regional water

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[31] The state program has identified 61 management measures for six categories, including agriculture, forestry, urban areas, marinas, hydromodification, and wetlands. These measures are nearly identical to the (g) guidance management measures. The state measures are included in a draft document, dated June 3, 1999, entitled California's Nonpoint Source Pollution Control Program, Vol. II: California Management Measures for Polluted Runoff.

[32] See Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for section 6217 of [CZARA] (Oct. 1998). This document states that NOAA and EPA will approve those program elements for which the states have proposed voluntary or incentive-based programs, backed by existing state enforcement authority, if the states provide a legal opinion that such authorities can be used to prevent nonpoint pollution and require management measure implementation. The states must also describe the voluntary or incentive-based programs, including the methods for tracking those programs, and the processes that link the implementing agency with the enforcement agency.

[33] 33 U.S.C. §1251 et seq.; see Wat. Code §§13160, 13160.1, 13170, 13370-13389.

[34] See Wat. Code §§13000, 13050(e).

[35] *Id*. §13000.

[36] See *Lake Madrone Water District* v. *State Water Resources Control Board* (1989) 209 Cal.App.3d 163, 171-175, 256 Cal.Rptr. 894 (*Lake Madrone)*; *Tahoe-Sierra Preservation Council* v. *State Water Resources Control Board* (1989) 210 Cal.App.3d 1421, 1435, 259 Cal.Rptr. 132; 63 Ops.Cal.Atty.Gen. 51, 53-359 (1980) *(Tahoe-Sierra).*

[37] See Wat. Code §13000.

[38] *Id*. §§13200, 13201.

[39] See *id*. §§1058, 13140-13147, 13170.

quality control plans before they become effective.[40] The State Water Board also adopts statewide general permits.[41] They review Regional Water Board decisions on petitions for review.[42] Finally, the State Water Board exercises budgetary control over the Regional Water Boards and provides centralized legal services to the Regional Water Boards.[43]

A. Planning

Porter-Cologne addresses two primary functions - planning and waste discharge regulation. Porter-Cologne's planning authority extends to any activity or factor which may affect water quality.[44] These factors include, for example, not only waste discharges, but also saline intrusion, reduction of waste assimilative capacity caused by reduction in water quantity, hydrogeologic modifications, and watershed management projects.[45]

Both the State and the Regional Water Boards plan for water quality control. The State Water Board is charged with adopting state policy for water quality control.[46] These policies contain principles and guidelines for long range resource planning, including ground and surface water management.[47] They also contain water quality objectives at key locations for planning and operation of water resource development projects and for water quality control activities.[48] Since 1968 the State Water Board has adopted 13 policies.[49]

In addition to the State Water Board-adopted policies, Porter-Cologne establishes state policy for the coastal marine environment.[50] This policy states that wastewater discharges must be treated to protect present and future beneficial uses, and, where feasible, to restore past

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[40] *Id*. §13245.

[41] See *id*. §§13263(I), 13377; 40 C.F.R. §122.28; Cal. Code Regs., tit. 23, §2235.2.

[42] See Wat. Code §13320; Cal. Code Regs., tit. 23, §§2050-2068.

[43] See Wat. Code §§186, 13168.

[44] See *id.* §13000, 13050(I), 13140, 13142, 13241.

[45] See discussion in Chief Counsel's Statement for the State Nonpoint Source Management Program Administered by the [State Water Board] and the [Regional Water Boards] (October 1988), pp. C-1 through C-2.

[46] Wat. Code §§13140-13142.

[47] *Id.* §13142.

[48] *Ibid.*

[49] These policies cover enclosed bays and estuaries, the use and disposal of inland waters used for powerplant cooling, water quality control, maintaining high quality waters, water reclamation, shredder waste disposal, the underground storage tank pilot program, sources of drinking water, enforcement, investigation and cleanup and abatement of discharges under Water Code section 13304, municipal solid waste, guidance on development of regional toxic hot spot cleanup plans, and pollutant policy for the San Francisco Bay-Delta.

[50] Wat. Code §13142.5.

beneficial uses of the receiving waters.[51] Highest priority must be given to improving or eliminating discharges that adversely affect wetlands, estuaries, and other biologically sensitive areas, important water contact areas, shellfish areas, and ocean areas subject to massive waste discharge.[52]

The State Water Board can also adopt water quality control plans for waters requiring water quality standards under the Clean Water Act (essentially surface waters)[53] and must adopt a water quality control plan for ocean waters and for enclosed bays and estuaries.[54] Water quality control plans designate beneficial uses of water, establish water quality objectives to protect those uses, and contain a program to implement the objectives.[55] The beneficial use designations and water quality objectives together constitute water quality standards for purposes of the Clean Water Act.[56] The program of implementation must describe the nature of actions that are necessary to meet the objectives, including recommendations for action by both private and public entities.[57] The program also includes a time schedule and describes proposed surveillance activities to assess compliance with objectives.[58]

Water quality control plans can prohibit the discharge of waste, or certain types of waste, in specified areas or under certain conditions.[59] The Ocean Plan,[60] for example, prohibits the discharge of waste to 34 coastal "areas of special biological significance".[61]

In addition to the Ocean Plan, current State Water Board-adopted plans include the Thermal Plan,[62] which addresses temperature control in coastal, interstate, estuarine and bay waters, and the Delta Plan,[63] covering San Francisco Bay and the Sacramento-San Joaquin Delta.

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[51] *Ibid.*

[52] *Ibid.*

[53] See 33 U.S.C. §§1313, 1362.

[54] Wat. Code §§13170, 13170.2, 13391. The State Water Board has adopted an ocean plan, entitled Water Quality Control Plan, Ocean Waters of California (1997) (Ocean Plan). The State Water Board adopted a plan for enclosed bays and estuaries in 1991. This plan was rescinded in 1991 in response to an adverse ruling in litigation filed to invalidate the plan. See State Water Board Res. No. 94-87.

[55] Wat. Code §13050(j).

[56] See 40 C.F.R. §131.3(i).

[57] Wat. Code §13242.

[58] *Ibid.*

[59] *Id*. §13243.

[60] See *supra*, fn. 27.

[61] Ocean Plan, *supra*, fn. 30, ch. V, B; see State Water Board publication entitled "Areas of Special Biological Significance", August, 1998.

[62] Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (September 18, 1975).

[63] Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (May 22, 1995).

Plans adopted by the State Water Board supersede any Regional Water Board-adopted plans to the extent of any conflict.[64]

Each Regional Water Board must adopt a water quality control plan for waters within the region.[65] The regional plans must conform with state policy for water quality control,[66] and they must be approved by the State Water Board.[67]

Both state policy for water quality control and state and regional water quality control plans are binding on other state agencies, departments, and boards, unless they are otherwise directed or authorized by statute.[68] In the latter case, they must notify the State or Regional Water Board of their authority for not complying.[69]

B. Waste Discharge Control

1. Permitting

Porter-Cologne also establishes a program to regulate waste discharges that could affect water quality.[70] This program is the principal way that state water quality control policies and plans are implemented. The program covers waste discharges to land as well as to surface and groundwaters.[71] Any person discharging or proposing to discharge waste that could affect water quality must file a report of waste discharge with the Regional Water Board, unless the Regional Water Board waives the filing.[72] A report is also required if the discharger proposes a material change in the character, volume, or location of a discharge.[73] The Regional Water Board must then issue waste discharge requirements to the discharger, unless requirements are waived.[74] The requirements must implement applicable state policies and state and regional water quality control plans.[75] The requirements can also prohibit the discharge of waste or certain types of waste, either under certain conditions or in specified areas.[76]

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[64] Wat. Code §13170.

[65] *Id*. §§13240-13247.

[66] *Id*. §13240.

[67] *Id*. §§13245, 13246.

[68] *Id*. §§13146, 13247.

[69] *Ibid.*

[70] See *id*. §§13260-13274; 13376-13384.

[71] See *id*., §§13050(e), 13260(a), 13263(a).

[72] See *id*. §§13260, 13269, 13376. Persons discharging into a community sewer system are excepted from this requirement.

[73] See *id*. §13264.

[74] See *id*. §§13263, 13269, 13377.

[75] *Id*. §§13263, 13377; see id. §13240.

[76] *Id*. §13243.

The activities subject to regulation under waste discharge requirements include both point and nonpoint source discharges. Under the Clean Water Act, the point source discharge of pollutants to surface waters must be regulated under a National Pollutant Discharge Elimination System (NPDES) permit.[77] A point source is a discernible, confined and discrete conveyance, such as a pipe, ditch, or channel, but excluding irrigated agricultural return flows and agricultural storm water discharges.[78] Waste discharge requirements for point source pollutant discharges to surface waters serve as NPDES permits for purposes of the Clean Water Act.[79]

Nonpoint pollution sources generally are sources that don't meet the definition of a point source. Nonpoint source pollution typically results from land runoff, precipitation, atmospheric deposition, drainage, seepage, or hydrologic modification.[80] The term "discharge of waste" in Porter-Cologne covers nonpoint, as well as point, sources of pollution.[81]

"Waste" is broadly defined in Porter-Cologne to include sewage and "any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation . . . ." This definition includes all Attorney General interpretations of the terms "sewage", "industrial waste", and "other wastes" under Porter-Cologne's predecessor legislation.[82] The Attorney General had interpreted the latter terms to include wastes from a variety of activities typically considered nonpoint, such as:

° drainage, flow, or seepage containing debris or eroded earth from logging operations;[83]

° garbage disposal;[84]

° drainage, flow or seepage containing garbage, ashes, mixed refuse, or solid industrial waste from inactive or closed dumps;[85]

° return irrigation or drainage water from agricultural operations;[86]

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[77] See 33 U.S.C. §§1311, 1342.

[78] *Id*. §1362(14).

[79] Wat. Code §13374.

[80] See Management Measure Guidance, *supra*, fn. 4, p. 1-1.

[81] See *supra*, fn. 11.

[82] *Lake Madrone, supra*, fn. 11, 209 Cal.App. 3d at 169, 256 Cal.Rptr. 894; see Recommended Changes in Water Quality Control, Final Report of the Study Panel to the California State Water Resources Control Board, Study Project, Water Quality Control Program (1969) (Final Report), App. A, p. 23.

[83] 27 Ops.Cal.Atty.Gen. 182, 184 (1956).

[84] 16 Ops.Cal.Atty.Gen. 125, 126-30 (1950).

[85] 27 Ops.Cal.Atty.Gen. 182, 184 (1956).

[86] *Ibid*.

° pesticides improperly applied to waters of the state, or which find their way into waters of the state after application;[87]

° changes in the physical or chemical characteristics of receiving waters caused by extraction of minerals from a streambed;[88] and

° dumping of earth moved from construction operations, or drainage of wastewater from construction sites.[89]

These examples indicate that discharges of waste are not limited to waste disposal but also include releases of pollutants as part of other activities.[90] Hydrological or hydrogeological modifications, for example, that cause the release of wastes into state waters may be regulated under waste discharge requirements.

On the other hand, the Attorney General has concluded that salt water intrusion and reductions in waste assimilative capacity caused by diversions which reduce water quantity are not discharges of waste.[91] These activities may, however, be addressed in state policy for water quality control and state or regional water quality control plans, which are binding on other state agencies.[92]

The Regional Water Boards are primarily responsible for issuing waste discharge requirements and NPDES permits. Waste discharge requirements may be either individual or general, for a category of discharges.[93] The Regional Water Boards may, likewise, adopt either individual or general NPDES permits.[94]

The State Water Board can issue or modify Regional Water Board-adopted waste discharge requirements in response to a petition for review of the requirements.[95] The State Water Board can also issue general waste discharge requirements.[96] The State Water Board has used this authority, for example, to adopt general requirements for small domestic wastewater

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[87] 43 Ops. Cal.Atty.Gen. 302, 304 (1964).

[88] 32 Ops.Cal.Atty.Gen. 139, 140-41 (1958).

[89] 16 Ops.Cal.Atty.Gen. 125, 130-31 (1950).

[90] See e.g., *Lake Madrone*, *supra*, fn. 11 (release of accumulated sediment from a dam held a discharge of waste). See also discussion in Sawyer, *State Regulation of Groundwater Pollution Caused by Changes in Groundwater Quantity or Flow* (1988) Pacific L.J. 1267, 1273-1275.

[91] See 44 Ops.Cal.Atty.Gen. 126, 128 (1964).

[92] See *id*. at 128-130.

[93] See Wat. Code §13263(a) & (i).

[94] See 40 C.F.R. §122.28; *id*. §13377; Cal. Code Regs., tit. 14, §§2235.l & 2235.2.

[95] See Wat. Code §13320(c).

[96] See Wat. Code §13263(i). See also section 13274, which requires the State Water Board or a Regional Water Board to adopt general waste discharge requirements for sewage sludge and other biological solids.

systems.[97] Like the Regional Water Boards, the State Water Board has independent authority to issue individual and general NPDES permits. The State Water Board has issued several general NPDES permits, including two covering stormwater discharges from industrial sources[98] and construction sites,[99] respectively.

2. Investigations

Both the State and Regional Water Boards have broad powers to investigate water quality.[100] They can investigate water quality in connection with any action authorized or required under Porter-Cologne, including the development or review of water quality control plans or waste discharge requirements.[101] Their investigative powers include the authority to conduct sampling; inspect facilities, records, and monitoring equipment; and issue subpoenas for the production of evidence.[102]

The State and Regional Water Boards can require state and local agencies to investigate and report on any technical factors involved in water quality control.[103] In addition, they can require any person who has discharged, discharges, proposes to discharge or is suspected of discharging waste, whether from a point or a nonpoint source, to monitor and report information.[104]

The Regional Water Boards are primarily responsible for inspecting regulated facilities.[105] The State Water Board can enter and inspect a non-NPDES facility in response to a petition for review.[106] The State Water Board also has independent authority to enter and inspect facilities covered under the NPDES permit program.[107]

Recent amendments to Porter-Cologne impose specific responsibilities on the State Water Board with respect to investigating coastal water quality.[108] Subject to the availability of funds, the State Water Board must prepare a report for the Legislature that proposes implementing a

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[97] See General Waste Discharge Requirements for Discharges to Land by Small Domestic Wastewater Treatment Systems, Water Quality Order No. 97-10 DWQ.

[98] Waste Discharge Requirements (WDRS) for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, NPDES General Permit No. CAS000001, Water Quality Order No. 97-03-DWQ.

[99] Waste Discharge Requirements (WDRS) for Discharges of Storm Water Runoff Associated with Construction Activity, NPDES General Permit No. CAS000002, Order No. 92-08 DWQ.

[100] See Wat. Code §§183, 186, 13163, 13267(a),. 13383.

[101] See *ibid.*

[102] See *id.* §§183, 186, 1080, 13221, 13267, 13383.

[103] See *id.* §§13165 & 13225(c).

[104] See *id.* §§13267 & 13383.

[105] See *ibid.*

[106] See *id.* §13320(c).

[107] See *id.* §13383.

[108] *Id.* §13181, added by Stats. 1997, c. 899, §2.

comprehensive program to monitor the quality of coastal watersheds, bays, estuaries, and their marine resources. The pollutants targeted for monitoring include, at a minimum, bacteria and viruses, petroleum hydrocarbons, heavy metals, and pesticides.[109] The program must include an identification of pollution sources and estimates of total pollutant discharges, to the extent possible, recommended actions that should be undertaken to maintain and improve coastal water quality, and other information.[110]

3. Enforcement

The Regional Water Boards also have primary authority for enforcement. They may choose from a variety of enforcement options.[111] These include notices to comply for minor violations,[112] time schedule orders,[113] cleanup and abatement orders,[114] cease and desist orders,[115] administrative civil liability orders,[116] and referrals to the Attorney General for injunctive relief and civil and criminal penalties.[117] The Regional Water Boards can use their enforcement authority to respond to unauthorized discharges, discharges in violation of waste discharge requirements or prohibitions, discharges that cause or threaten to cause pollution or nuisance, and violations of monitoring or reporting requirements.[118]

The State Water Board is authorized to take enforcement action in certain instances, although the State Water Board normally defers to the appropriate Regional Water Board. The State Water Board can take enforcement action in the first instance for NPDES-related violations.[119] For non-NPDES violations, the State Water Board can use the same enforcement tools as the Regional Water Boards in response to a petition for review of a Regional Water Board action.[120] The State Water Board can also issue notices to comply for minor violations.[121]

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[109] *Ibid*.

[110] *Ibid*. The State Water Board is in the process of contracting with the Southern California Coastal Water Research Project to prepare the report.

[111] See generally Water Quality Enforcement Policy and implementing guidance, State Water Board Res. No. 96-030, as amended by Resolution No. 97-085.

[112] Wat. Code §§13399-13399.2.

[113] *Id.* §§13300, 13308.

[114] *Id*. §13304.

[115] *Id*. §13301.

[116] *Id*. §§13261, 13265, 13268, 13323-13327, 13350, 13385, 13399.33.

[117] *Id*. §§13261, 13264, 13265, 13268, 13271, 13272, 13304, 13331, 13340, 13350, 13385-13387.

[118] *Ibid*.

[119] See *id*. §§13385 & 13386.

[120] See *id*. §13320(c).

[121] See *id*. §13399.2.

C. Other Programs

In addition to the specific planning and waste discharge control provisions discussed above, Porter-Cologne contains other water quality control programs. Chapter 5.6 establishes a program to identify and cleanup toxic hot spots in the state's bays, estuaries, and coastal waters.[122] Toxic hot spots include sites impaired by nonpoint, as well as point, sources of toxic pollution.[123] Plans to remediate these sites can include, in addition to remedial actions, measures to prevent toxic pollution, such as best management practices to address nonpoint pollution sources.

Porter-Cologne addresses a variety of other subjects, including: onsite, subsurface disposal systems;[124] drainage from abandoned mines;[125] storm water enforcement;[126] discharges of methyl tertiary-butyl ether (MTBE) to drinking water sources;[127] regulation of the use of recycled water;[128] waste discharges from houseboats;[129] and the construction and abandonment of water wells, cathodic protection wells and groundwater monitoring wells.[130] Porter-Cologne also contains several programs to provide grants or loans for water quality facilities and programs.[131]

D. Clean Water Act Authority

The State Water Board is "the state water pollution control agency" for all purposes stated in the Clean Water Act.[132] Thus, the State Water Board is authorized to fulfill the state's responsibilities to adopt water quality standards for surface waters, to develop a nonpoint source management program, and to establish total maximum daily loads (TMDLs) for impaired waterbodies.[133]

While the Regional Water Boards typically adopt water quality control plans for waters within their regions, Porter-Cologne specifically authorizes the State Water Board to adopt plans for surface waters that supersede any conflicting regional plans. In addition, the State Water

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[122] See *id*. §§13390-13396.5.

[123] See *id*. §13391.5(e); State Water Board's Water Quality Control Policy for Guidance on the Development of Regional Toxic Hot Spot Cleanup Plans (1998).

[124] See Wat. Code §§13280-13284.

[125] See *id.* §§13397-13398.9.

[126] See *id*. §§13399.25-13399.43.

[127] See *id*. §13285.

[128] See *id*. §§13500-13554.3.

[129] See *id*. §§13800-13806.

[130] See *id*. §§13900-13908.

[131] See *id*. §§13400-13433, 13475-13485.

[132] *Id*. §13160.

[133] See 33 U.S.C. §§1313, 1329; Wat. Code §§13170, 13170.2, 13240-13247.

Board can issue water quality certifications under section 401[134] of the act.[135] The State Water Board can accept federal capitalization grants for a state/federal revolving fund loan program to finance construction of publicly owned sewage treatment works,[136] implement the state's nonpoint source management program under section 319,[137] and develop and implement the national estuary program under section 320[138] of the Clean Water Act.[139]

Chapter 5.5 of Porter-Cologne authorizes the State and Regional Water Boards to carry out the NPDES permit program.[140] Chapter 5.5 applies to point source discharges to surface waters, introduction of pollutants into publicly owned treatment works, use and disposal of sewage sludge, and disposal of pollutants into wells.[141]

III. QUESTIONS

A. Question: Can Porter-Cologne be used to (1) prevent nonpoint source pollution and (2) require the implementation of management measures?

Response: Yes, Porter-Cologne can be used to generally prevent nonpoint source pollution and to specifically implement, either directly or indirectly, the (g) guidance management measures. The following discussion describes the State and Regional Water Boards' authority to prevent pollution, methods that they can use to both prevent pollution and require management measure implementation, and the potential impacts of Water Code section 13360.

l. Authority to Prevent Pollution

Porter-Cologne can unquestionably be used to prevent nonpoint source pollution. Under the Dickey Act,[142] the predecessor to Porter-Cologne, the Regional Water Boards' jurisdiction to regulate waste discharges, depended, in part, on whether the discharge created or threatened to create a "condition of pollution".[143] "Pollution" meant a water quality impairment that "does not create an actual hazard to the public health" but that does "adversely and unreasonably affect

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134 33 U.S.C. §1341.

135 *Ibid*.; see Cal. Code Regs., tit. 14, §§3855-3859.

136 See 33 U.S.C. §§1381-1387.

137 *Id*. §1329.

138 *Id*. §1330.

139 See Wat. Code §§13475-13485.

140 See *id*. §§13370-13388.

141 See *id*. §§13370, 13370.5, 13373, 13376, 13377, 13382, 13383.

142 Stats. 1949, ch. 1549, as amended. The Dickey Act, originally called the "Water Pollution Control Act", became the "Water Quality Control Act" in 1965. Stats. 1965, ch. 1657.

143 See 48 Ops.Cal.Atty.Gen. 30, 33-34 (1966), construing former Water Code §13053.

such waters" for beneficial use, or that "adversely and unreasonably affect[s] the ocean waters and bays of the state devoted to public recreation."[144]

The Regional Water Boards'[145] jurisdiction to regulate waste discharges under Porter-Cologne is much broader. The Regional Water Boards do not have to find that a discharge, if unregulated, would create or threaten to create pollution. They can regulate any actual or proposed waste discharge that "could affect" the quality of state waters.[146] Further, they do not have to authorize use of the full waste assimilation capacities of the receiving waters.[147] Rather, they can maintain a margin of safety in waste discharge requirements to assure protection of all beneficial uses.[148]

2. Methods

The State and Regional Water Boards can use Porter-Cologne to generally prevent nonpoint source pollution and to specifically require management measure implementation. There are several ways that this can be done.

(a) Nonpoint Source Management Plan

Under its Porter-Cologne authority, the State Water Board has adopted a Nonpoint Source Management Plan (1988) (NPS Plan). The plan describes a three-tiered management approach to address nonpoint source pollution. The plan focuses on implementation of best management practices as the primary way to meet water quality standards.

The first management tier relies on the dischargers' voluntary implementation of best management practices. The second tier is regulatory encouragement of best management practices. "Encouragement" is through two mechanisms. The State and Regional Water Boards can waive waste discharge requirements on condition that dischargers comply with best management practices. Alternatively, where other agencies can require implementation of best management practices, the boards can enter into agreements with those agencies in which the agencies agree to exercise their authority. In the third tier, the State and Regional Water Boards adopt waste discharge requirements.

The NPS Plan's intent is to prevent nonpoint source pollution through the three-tiered approach. The plan can be used to directly implement the (g) guidance management measures in

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144 Former Wat. Code §13005, Stats. 1919, ch. 1549, as amended.

145 References to the Regional Water Boards in Part III of this statement include the State Water Board, where appropriate. See Part II of this statement for a discussion of the respective authorities of the State and Regional Water Boards.

146 See Wat. Code §§13260, 13263.

147 See *id*. §13263(b).

148 Final Report, *supra*, fn. 58, App. A, p. 59.

the first and second tiers. The third tier, likewise, can be used to directly or indirectly implement the measures.

To the extent authorized by Water Code section 13360, as discussed below, waste discharge requirements can directly require implementation of the management measures if the management measures implement applicable water quality standards. Waste discharge requirements can also indirectly implement the measures by prohibiting or regulating a nonpoint source activity in such a manner that the discharger must implement the management measures in order to comply. Additionally, waste discharge requirements can, in lieu of establishing effluent limitations, require a discharger to develop and implement a plan, such as a stormwater pollution prevention plan, containing best management practices or other measures, to ensure compliance with applicable water quality standards. The requirements can mandate that the discharger consider the (g) guidance management measures, along with other relevant material, in developing the plan.

(b) Waste Discharge Requirements

Waste discharge requirements issued under Porter-Cologne prevent pollution by implementing applicable water quality control plans and policies. Under Porter-Cologne, "pollution" is an alteration of water quality by waste that unreasonably affects the waters for beneficial uses.[149] Waste discharge requirements must implement the applicable water quality control plan, including the designated beneficial uses and the water quality objectives required to protect those uses.[150] Thus, a discharge that complies with waste discharge requirements should not alter water quality in a manner that causes pollution.

Nonpoint source discharges can be regulated under waste discharge requirements, either individually or as a group. The requirements can directly or indirectly implement the (g) guidance management measures, as described in the above discussion on the NPS Plan.

(c) Waivers

The Regional Water Boards can also use their waiver authority to prevent pollution and implement the management measures. The Regional Water Boards can waive regulation of nonpoint source discharges, either on an individual basis or for a category of discharges.[151] A waiver must be in the public interest, and it is conditional and may be terminated at any time.[152] The Regional Water Boards can waive waste discharge requirements for nonpoint source discharges, either individually or as a group, on condition that the dischargers comply with

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[149] See Wat. Code §13050(l)(1). "Pollution" also includes water quality alterations that unreasonably affect facilities that serve beneficial uses.

[150] *Id* §13263(a).

[151] *Id*. §13269(a).

[152] *Ibid.*

specified best management practices designed to achieve water quality standards. In particular, a waiver for a nonpoint source category could be conditioned on compliance with the applicable (g) guidance management measures, provided that the management measures implemented applicable water quality standards.

(d) Water Quality Certification

The State Water Board certifies activities requiring a water quality certification under section 401 of the Clean Water Act. This section requires applicants for federal licenses or permits to obtain state certification that any discharge of pollutants to surface waters from a proposed activity will comply with the Clean Water Act, including applicable water quality standards. As long as an activity will result in a discharge to surface waters, the State Water Board can use its certification authority to prevent nonpoint source pollution associated with the activity. The State Water Board can include conditions on the entire activity to protect water quality standards, including beneficial uses.[153] In particular, in appropriate cases the State Water Board can condition a section 401 certification on compliance with management measures implementing water quality standards.

(e) Plans and Policies

In addition, the State Water Board and Regional Water Boards can use their planning authority to prevent nonpoint source pollution and to implement the management measures. The State Water Board can adopt state policy for water quality control, and both the State and Regional Water Boards can adopt water quality control plans that address this type of pollution. Both policies and plans are binding on other state agencies.

Water quality control plans must include an implementation program to achieve water quality objectives. Implementation programs can prevent nonpoint source pollution and implement the management measures through several approaches. The programs can recommend that nonpoint source dischargers carry out specific best management practices, including the management measures, in order to achieve water quality standards. The programs can also waive regulation of categories of nonpoint source discharges on condition that the dischargers implement specific best management practices, such as the measures. Alternatively, an implementation program can prohibit nonpoint source discharges, either entirely or partially, in certain areas or under certain conditions. The conditions can include compliance with appropriate best management practices, including the applicable management measures.

[153] See *PUD No. 1 of Jefferson County v. Washington Dept. of Ecology* (1994) 511 U.S. 700, 114 S. Ct. 1900.

(f) Investigatory Powers

The State and Regional Water Boards can use their broad investigatory authority to foster nonpoint source pollution prevention. Both the State and Regional Water Boards can investigate the scope, causes, and sources of nonpoint source pollution, and potential practices or control measures to prevent it. They can also require that state or local agencies or dischargers conduct this type of investigation. The State and Regional Water Boards can use information obtained from these investigations to, for example, encourage voluntary implementation of best management practices by dischargers, to encourage state or local agencies that regulate nonpoint source activities to require best management practices, or to develop appropriate planning or regulatory programs addressing nonpoint source pollution.

In addition, the State and Regional Water Boards can use their investigatory powers to directly require implementation of several of the management measures. As discussed below, some management measures requires plans, such as erosion control plans.

(g) Enforcement Authority

The Regional Water Boards can use their enforcement authority to require cleanup, abatement, and remediation of sites adversely impacted by nonpoint source pollution, including wetlands and riparian areas.[154] They can also impose administrative civil liability on this basis.[155] The Regional Water Boards can encourage dischargers to consider, as environmental credit projects reducing an administrative civil liability assessment, projects that protect and restore sensitive areas, such as wetlands and riparian areas.[156]

(h) Regulations

As an additional tool, the State Water Board can adopt regulations covering categories of nonpoint source discharges. The State Water Board, for example, has adopted regulations covering waste discharges from confined animal facilities[157] and mining activities.[158] To the extent authorized by Water Code section 13360, as discussed below, the State Water Board can adopt regulations for categories of nonpoint source dischargers, requiring implementation of measures that are appropriate to implement applicable water quality standards.

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[154] See *id*. §13304.

[155] See *id*. §§13350, 13385.

[156] See Guidance to Implement the Water Quality Enforcement Policy, State Water Board (April 1996), pp. 22-23.

[157] See Cal. Code Regs., tit. 27, §§22560 - 22565.

[158] See *id*., §§22470-22510.

(i) Other programs

Finally, Porter-Cologne is currently being used to prevent or to remediate nonpoint source pollution in two specific programs. The Regional Water Boards are developing TMDLs for impaired waterbodies within their regions. Many of the TMDLs address ongoing nonpoint source pollution, and these TMDLs include implementation programs to bring the nonpoint source dischargers into compliance with water quality standards. The North Coast Regional Water Board, for example, adopted a sediment TMDL that prohibits the discharge of controllable sources of sediment unless the discharger agrees to implement certain best management practices, to monitor, and to comply with other requirements. In appropriate cases, a TMDL could require that affected nonpoint source dischargers implement applicable management measures in order to achieve water quality standards.

The Bay Protection and Toxic Cleanup Program also addresses nonpoint, as well as point, source pollution. Some of the Regional Water Boards have proposed best management practices as the recommended action to remediate ongoing nonpoint source pollution. The Regional Water Boards could implement the (g) guidance management measures in appropriate cases under this program.

3. Water Code section 13360

(1) Section 13360

Under certain circumstances, Porter-Cologne restricts the State and Regional Water Boards' ability to require dischargers to implement specific practices. Under Water Code section 13360, the boards may not "specify the design, location, type of construction, or particular manner" of compliance with waste discharge requirements or other orders, and dischargers can comply "in any lawful manner."[159] This restriction "is a shield against unwarranted interference with the ingenuity of the party subject to waste discharge requirements", who can "elect between available strategies to comply with the standard."[160]

On the other hand, section 13360 is not violated if, under present technology and the laws of nature, there is only one way to comply with the standard.[161] Thus, for example, a water quality control plan could legally prohibit surface runoff from new development in amounts

[159] Wat. Code §13360.

[160] *Tahoe-Sierra , supra*, fn. 11, 210 Cal.App.3d at 1438-1439, 259 Cal.Rptr. 132.

[161] *Ibid*.; see *Pacific Water Conditioning assn., Inc. v. City Council* (1977) 73 Cal.App.3d 546, 554, 140 Cal.Rptr. 812, 816-17.

exceeding the runoff that would occur if certain impervious coverage limitations were met.[162] It did not matter that the only practical way to comply with the prohibition was to comply with the coverage limitations.[163]

Water Code section 13360 also contains several exceptions. It does not apply to discharges of waste to injection wells.[164] Likewise, the restrictions do not apply to the discharge of solid waste to disposal sites. Waste discharge requirements for these sites can require the construction of dikes, installation of drainage facilities, and other similar measures.[165]

(2) Application to Management Measures

Water Code section 13360 does not restrict management measure implementation. The extent of its applicability depends on the type of measure in question. The management measures fall into several categories. They range from measures requiring plans on how to control nonpoint source pollution to measures that are more prescriptive.

Some management measures require plans. For example, nutrient management plans are required for agricultural activities and erosion and sediment control plans and chemical control plans for construction sites less than 5 acres.[166] Water Code section 13360's restrictions do not apply to this type of management measure. The measures do not dictate the manner of compliance with waste discharge requirements or other board orders, but rather require dischargers to submit plans addressing specific pollution problems. The Regional Water Boards can directly implement this type of management measure under their investigative authority. As discussed previously,[167] they can require anyone who has discharged, discharges, proposes to discharge, or is suspected of discharging waste to file technical or monitoring program reports. They can also require state and local agencies to submit technical reports on water quality control, even though those entities are not waste dischargers. The only restriction is that the burden of preparing the reports bear a reasonable relationship to the need for and the benefits to be obtained from the reports.[168]

Some management measures specify an end result to be achieved. To illustrate, an urban management measure for new development requires that, after construction is completed and a site is permanently stabilized, average annual total suspended solids (TSS) loadings be reduced

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[162] *Tahoe-Sierra*, *supra*, fn. 11.

[163] *Ibid.*

[164] Wat. Code §13360(a)(2).

[165] *Id.* §13360(a)(1).

[166] Management Measure Guidance, *supra*, fn. 4, pp. 2-52, 4-63, 4-83.

[167] See Part II, B.2 of this Statement.

[168] Wat. Code §§13165, 13225(c), 13267(b).

by 80 percent or to a level no greater than predevelopment loadings.[169] This can be accomplished by either design or performance. The Regional Water Boards can ensure that this type of management measure is implemented without violating Water Code section 13360 because the measure dictates the end result but leaves the method of compliance up to the site developer.

Other management measures prescribe both the end result and the means of achieving it. This is typified by the agricultural management measure for grazing.[170] Part of this measure seeks to protect sensitive areas, such as streambanks and wetlands, from physical disturbance and direct loading of animal wastes and sediment, by one or more of five options. These include excluding livestock, providing stream crossings or hardened watering access for drinking, and others. The Regional Water Boards can require implementation of this measure, by adding a sixth option allowing a discharger to demonstrate that some other alternative would achieve the same end result, i.e. protection of sensitive areas from adverse, water quality-related, grazing impacts. Alternatively, the Regional Water Boards could indirectly ensure implementation of the management measure by adopting a prohibition against waste discharge in sensitive areas.

Still other management measures require development of watershed protection programs. For example, an urban management measure requires development of a watershed protection program for new development.[171] The program aims at avoiding the conversion, to the extent practicable, of areas particularly susceptible to erosion and sediment loss, preserving areas that provide important water quality benefits, and siting development to protect, to the extent practicable, the natural integrity of waterbodies and natural drainage systems. This type of management measure does not violate Water Code section 13360. It dictates only the end result, e.g., a watershed protection program that achieves several goals. Also, the State and Regional Water Boards would likely implement this management measure by promoting local or regional watershed efforts. Alternatively, the State Water Board could adopt state policy or the State and Regional Water Board could adopt water quality control plan provisions implementing this management measure. Water Code section 13360, on the other hand, only applies to waste discharge requirements or orders issued to waste dischargers.[172]

B. Question: Please describe any other aspect of state law, either contained in Porter-Cologne or in other authorities, that would limit or preclude the use of Porter-Cologne to regulate nonpoint source pollution. Is Porter-Cologne limited in its application to particular sources or geographic areas? Is it otherwise limited?

Response: The nonpoint sources for which California seeks to use Porter-Cologne as a backup authority are subject to Porter-Cologne. Porter-Cologne is not limited in its application,

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[169] Management Measure Guidance, *supra*, fn. 4, p. 4-12.

[170] *Id*. at p. 2-73.

[171] *Id*. at p. 4-36.

[172] See *People v. Barry* (1987) , 194 Cal.App.3d 158, 180-181, 239 Cal.Rptr. 349, 363-364.

geographically or otherwise, to these sources. Under Porter-Cologne, the State and Regional Water Boards can regulate any activity that results in a waste discharge that can affect water quality. Activities that affect water quality, but that do not involve a waste discharge, can be addressed under the State and Regional Water Board's broad planning authority. The five nonpoint sources for which the state intends to use Porter-Cologne as a backup authority are discussed below.

(1) Agricultural Activities

The (g) guidance lists pollutants that cause agricultural nonpoint source pollution. These include: nutrients, sediments, animal wastes, salts, pesticides, and habitat impacts due to grazing.[173] The Regional Water Boards can clearly regulate the discharge of pollutants from agricultural activities, including those listed, that can affect water quality. Likewise, the Regional Water Boards can regulate grazing or other agricultural activities that directly or indirectly cause the release of pollutants, such as sediments or animal wastes, that can affect water quality.

Porter-Cologne's legislative history indicates that the act was not meant to limit the Regional Water Boards' preexisting authority under the Dickey Act to regulate the discharge of agricultural wastes.[174] Further, "waste" for purposes of regulation under Porter-Cologne was meant to include all materials that the Attorney General had concluded were "waste" under the Dickey Act.[175] These materials included irrigation return flows and drainage water from agricultural activities, pesticides, herbicides, and other agricultural chemicals. The legislative history also indicates that, while these wastes are clearly subject to regulation, the Regional Water Boards can choose to waive waste discharge requirements, either with or without conditions, for agricultural operations where a waiver is not against the public interest.[176]

In addition to regulating waste discharges, the State and Regional Water Boards can address any activity or factor affecting water quality in their planning capacities.[177] They are not restricted to addressing only the impacts of waste discharge. State agencies, departments, and boards must comply with state policy for water quality control and statewide and regional water quality control plans, unless otherwise directed by statute. In addition, water quality control plans can contain recommendations for action by any entity, public or private. Before implementing any agricultural water quality control plan, however, the Regional Water Boards have to indicate an estimate of the total cost of the program and identify potential sources of financing.[178]

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[173] Management Measure Guidance, *supra*, fn. 4, pp. 2-4 through 2-11.

[174] Journal of the California Assembly 2679 (Reg. Sess. 1969).

[175] See discussion in Section II. B. 1. of this statement.

[176] See fn. 150, *supra*.

[177] See discussion in Section II.A. of this statement.

[178] Wat. Code §13141.

(2) Urban Sources

The (g) guidance addresses six major categories of urban nonpoint pollution.[179] These include runoff from developing areas, construction sites, and existing development. Onsite disposal systems; general sources, such as households, commercial sites and landscaping; and roads, highways and bridges are also included. The principal pollutants found in urban runoff are sediments, nutrients, oxygen-demanding substances, pathogens, salts, hydrocarbons, heavy metals, and toxic substances.[180]

Urban runoff containing wastes, such as those listed, is clearly subject to regulation under Porter-Cologne. "Waste" is broadly defined in Porter-Cologne, and the term has specifically been construed to include these types of waste.[181] The State and Regional Water Boards have already adopted NPDES permits for some types of urban runoff; and the State Water Board has adopted general waste discharge requirements for small domestic wastewater systems.

In addition, the State and Regional Water Boards can use their planning authority to address urban runoff on a watershed basis. This authority has been used, for example, to regulate activities causing erosion that add silt to Lake Tahoe and its tributaries.[182]

(3) Marinas

The (g) guidance also contains management measures for nonpoint source pollution from marinas and recreational boating.[183] Nonpoint source pollution identified with this category includes water column toxicity, low dissolved oxygen, metals and petroleum hydrocarbons, as well as disruption of sediment and habitat, and shoaling and shoreline erosion.[184]

As stated previously, the Porter-Cologne definition of "waste" is broad. It would include any pollutants from marinas that enter surface waters through boat discharges, spills, or storm water runoff.[185] Shoreline erosion caused by the construction or expansion of a marina is also

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[179] Management Measure Guidance, *supra*, fn. 4, pp. 4-1 through 4-2.

[180] *Id*. at 4-7 through 4-9.

[181] See discussion in Section II.B.1 of this statement. See also *Lake Madrone*, *supra*, fn. 11, 209 Cal.App.3d at 168-171, 256 Cal.Rptr. 894 (concentrated silt and sediment associated with human habitation); 16 Ops.Cal.Atty.Gen. 112 (1950) (sewage from privately-operated sewage disposal devices, such as septic tanks and cesspools); 16 Ops.Cal.Atty.Gen. 125 (1950) (drainage of wastewater from construction sites); 27 Ops.Cal.Atty.Gen. 182 (1956) (drainage, flow, or seepage into surface waters of materials from completed operations).

[182] See *Tahoe-Sierra*, *supra*, fn. 11.

[183] Porter-Cologne is not listed as a backup authority for the boat operation management measure.

[184] Management Measure Guidance, *supra*, fn. 4, pp. 5-3 through 5-7.

[185] See discussion in Section II.B.1 of this Statement.

subject to regulation as a waste discharge because the activity causes the release of sediments. Additionally, if marina construction requires a federal permit, such as a dredge and fill permit under section 404 of the Clean Water Act,[186] the applicant will have to obtain a section 401 certificate from the state. The State Water Board can condition a certification, if appropriate, to address both the point and nonpoint source impacts of the project.

In addition, state law specifically authorizes the Regional Water Boards to require marinas to install vessel pumpout facilities.[187] State law also requires that vessel pumpout facilities be operated and maintained to prevent sewage discharges to state waters.[188] They must be maintained in good working order and regularly cleaned.[189]

In addition to regulating waste discharges, the State and Regional Water Boards can address any marina or boating activities that affect water quality but that do not involve a waste discharge under their planning authority.[190] For example, they could address the marina flushing management measure in a water quality control plan and include recommendations for appropriate action by affected agencies.

(4) Hydromodification

The hydromodification management measure addresses nonpoint source pollution from channelization and channel modifications, dams, and streambank and shoreline erosion.[191] The state has identified Porter-Cologne as a backup authority for channelization and channel modification and streambank and shoreline erosion.

In general, channelization and channel modifications can change sediment supply, reduce freshwater availability, accelerate the delivery of pollutants, cause a loss of contact with overbank areas, and adversely impact instream and riparian habitat.[192] Streambank and shoreline erosion can likewise adversely impact instream and riparian habitat and contribute to increased levels of turbidity and nutrients.[193]

Under Porter-Cologne, the Regional Water Boards can regulate any channelization or channel modification projects that cause a waste discharge, either as a result of construction or operation.[194] Similarly, they can regulate any activities that cause streambank or shoreline

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[186] 33 U.S.C. §1344.

[187] Harb. & Nav. Code §§775-786; see Cal. Code Regs., tit. 23, §§2831-2836.

[188] Harb. & Nav. Code §777; see Cal. Code Regs., tit. 23, §§2827-2829.

[189] *Ibid.*

[190] See discussion in Section II.A. of this Statement.

[191] Management Measure Guidance, *supra*, fn. 4, p. 6-2.

[192] *Id.*, pp. 6-4 through 6-7.

[193] *Id.*, pp. 6-57 through 6-58.

[194] See discussion in Section II.B.1 of this Statement.

erosion, resulting in the release of sediments or other wastes to state waters. The State Water Board can condition a section 401 water quality certificate for a federally-permitted activity involving a surface water discharge to address both the activity's point and nonpoint source impacts. The State and Regional Water Boards can address any other activities that affect water quality, but that do not entail a waste discharge, under their broad planning authority.[195]

(5) Wetlands

The (g) guidance contains management measures for categories of nonpoint sources. The management measures for wetlands promote protecting and restoring wetlands and riparian areas and using vegetated treatment systems to control nonpoint source pollution from these sources. The Regional Water Boards can use their Porter-Cologne authority to regulate any activities that result in a waste discharge to wetlands or riparian areas.[196] Where past waste discharges have adversely impacted wetland areas, they can issue enforcement orders requiring restoration.[197] The Regional Water Boards can also promote the protection and restoration of wetlands and the use of engineered vegetated treatment systems as supplemental environmental credit projects mitigating administrative civil liability assessments.[198] Finally, the State and Regional Water Boards can use their broad planning authority to address the protection and restoration of wetlands and to promote the use of vegetated treatment systems.[199]

C. Question: Will it be necessary for the state to issue regulations prior to using its Porter-Cologne authority to ensure implementation of the management measures?

Response: No, regulations are not necessary. The (g) guidance management measures vary from requirements for reports and watershed management plans to more prescriptive requirements. The appropriate Porter-Cologne response will also vary. If the State or Regional Water Boards choose to implement one or more of the management measures through their planning authority or regulations, they will have to comply with the state Administrative Procedure Act (APA).[200] Unlike the adoption of formal regulations, however, the APA contains special, abbreviated procedures for the adoption or amendment of plans, policies and guidelines.[201] If the State or Regional Water Boards choose other implementation alternatives, they will not have to comply with the APA.

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[195] See discussion in Section II.A. of this Statement.

[196] See discussion in Section II.B.1 of this Statement.

[197] See, e.g., Wat. Code §13304. See also State Water Board Order WQ 90-5, upholding a San Francisco Bay Regional Water Board order requiring a discharger to mitigate for losses of wetland habitat.

[198] See discussion in Guidance to Implement the Water Quality Enforcement Policy, State Water Board (April 1996), pp. 22-23.

[199] See discussion in Section II.A. of this Statement.

[200] See Gov. Code §111340 et seq.

[201] Compare Gov. Code §11353 with §11346 et seq.

As explained previously, the State Water Board's Nonpoint Source Management Plan lays out a three-tiered management approach to nonpoint pollution regulation.[202] In the first tier, the State and Regional Water Boards will encourage affected discharger groups to voluntarily implement applicable management measures. This can be done through, for example, funding and education. These activities are voluntary and can be accomplished without formal rulemaking.

The second tier is regulatory encouragement - through adoption of conditional waivers or management agency agreements with other enforcement agencies. Waivers may be either individual or general. The Regional Water Boards can waive waste discharge requirements for an individual discharger, on condition that the discharger comply with appropriate management measures; and this does not require a water quality control plan amendment.[203] Typically, the Regional Water Boards adopt waivers for classes of dischargers, and these waivers are included in the applicable water quality control plans. As stated previously, the adoption or amendment of water quality control plans, policies, or guidelines is subject to abbreviated, APA rulemaking procedures.[204] Alternatively, the State and Regional Water Boards can enter into management agency agreements with agencies with enforcement authority over the nonpoint sources. These agreements can ensure management measure implementation, and they do not require a water quality control plan amendment.

In the third tier, the State and Regional Water Boards adopt waste discharge requirements. The adoption of waste discharge requirements, either individual or general, is not subject to the APA's rulemaking requirements.[205] Waste discharge requirements can directly or indirectly require compliance with applicable management measures in appropriate cases.[206] If appropriate, general waste discharge requirements can be adopted to ensure management measure implementation on a regionwide or statewide basis.

Some management measures require submission of plans, such as erosion and sediment control plans. The Regional Water Boards can implement these measures under their existing Porter-Cologne investigative powers, without undertaking a rulemaking.[207]
Likewise, if the Regional Water Boards choose to adopt enforcement orders to address, for example, wetland or riparian areas degraded by waste discharges, the Regional Water Boards will not have to undertake formal rulemaking.

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[202] See discussion in Section III.A.2.(a) of this Statement.

[203] See Gov. Code §11352.

[204] See *id*. §11353, which contain special procedures for State and Regional Water Board plans, policies, and guidelines.

[205] See *id*. §11352(b).

[206] See discussion in Section III.A.2.(a) & (b).

[207] See Wat. Code §§13165, 13225(c), 13267, 13383. See also Gov. Code §11342(g), defining "regulation" as a rule, regulation, order, or standard of general application.

On the other hand, the Regional Water Boards are currently engaged in developing TMDLs for impaired waterbodies, many of which are impaired by nonpoint sources. These TMDLs can be used as a vehicle to implement appropriate management measures. The TMDLs have to be included in the state's water quality management plan under the Clean Water Act; they will, therefore, necessarily result in water quality control plan amendments.[208]

IV. CONCLUSION

In sum, the State and Regional Water Boards have broad-reaching power under Porter-Cologne to prevent nonpoint source pollution. In their planning capacity, they can address all activities and factors that may affect water quality, including nonpoint source activities. They can also directly regulate all waste discharges, both point and nonpoint source, that may affect the quality of state waters. In addition to preventing nonpoint source pollution, the State and Regional Water Boards can ensure implementation of the management measures through several mechanisms. Finally, the State and Regional Water Boards are not required to undertake rulemaking before implementing the measures.

Date: _____

_____
William R. Attwater
Chief Counsel
California State Water Resources
Control Board

[208] 33 U.S.C. §1313(d).

CALIFORNIA COASTAL COMMISSION
CHIEF COUNSEL'S STATEMENT
FOR THE
CALIFORNIA'S NONPOINT SOURCE POLLUTION CONTROL PROGRAM

NOVEMBER 1999

STATE OF CALIFORNIA -- THE RESOURCES AGENCY GRAY DAVIS, *Governor*

CALIFORNIA COASTAL COMMISSION
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MEMORANDUM

October 21, 1999

TO: Peter Douglas, Executive Director
Jaime Kooser, Deputy Director

FROM: Ralph Faust, Chief Counsel
Dorothy Dickey, Deputy Chief Counsel

SUBJECT: **Enforceability of Nonpoint Source Pollution Control Program**

We are writing to address the scope of the Coastal Commission's authority to enforce the nonpoint source pollution control provisions of the Coastal Zone Management Act. (16 U.S.C. § 1451 *et seq*.) Section 6217 of that Act provides that each state "for which a management program has been approved pursuant to section 306 of the Coastal Zone Management Act … shall prepare and submit to the Secretary and the Administrator a Coastal Nonpoint Pollution Control Program for approval pursuant to this section." (16 U.S.C. § 1455b.) The Coastal Zone Management Act explains that the "purpose of the program shall be to develop and implement management measures for nonpoint source pollution to restore and protect coastal waters, working in conjunction with other State and local authorities." (16 U.S.C. § 1455b(a)(1).) You have asked whether the Commission can enforce those nonpoint pollution control provisions.

The Coastal Commission implements the policies of California's Coastal Act. (Public Resources Code § 30000 *et seq.*) A central focus of the Coastal Act is the protection and, where feasible, restoration, of coastal water quality. The Act includes numerous enforceable policies that are directed toward that objective. For example, section 30230 provides that:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

The Commission is required specifically to control runoff in section 30231:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum*

> *populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

In addition, Coastal Act policies limit development in numerous other ways to protect water quality. (See Attachment 1.)

The Commission implements these protective policies as it undertakes its three major regulatory tasks. Its first regulatory responsibility is to review and certify plans that address how development will occur along the California coast. Most of those plans are developed by local governments and are called "local coastal programs". (Public Resources Code § 30500 *et seq.*) Plans are also prepared by port districts (Public Resources Code § 30711 *et seq.*), colleges and universities (Public Resources Code § 30605) and proponents of public works projects (*id.*).

The Commission reviews those plans to determine whether they are consistent with applicable policies of the Coastal Act, including those related to water quality. If the Commission determines that a plan is not consistent with the policies of the Coastal Act, it is required to deny certification of the plan. In that event the Commission generally suggests modifications to the plan that the local government or other plan proponent could adopt.[209] Once the plan has been modified to incorporate the changes identified by the Commission, it can be resubmitted to the Commission for certification. Following certification by the Commission of a plan, any amendments to the plan must be submitted to the Commission. Until the Commission certifies an amendment, the measure has no legal effect for purposes of the Coastal Act.

The Commission has the authority to enforce Coastal Act provisions relating to water quality, including nonpoint source pollution. As described above, the Commission is required to refuse to certify plans and amendments which it determines do not meet the Coastal Act's water quality requirements. The Commission is additionally authorized to identify appropriate changes to those plans and amendments to bring them into conformity with the Coastal Act's water quality provisions. Such changes may include nonpoint source pollution management measures necessary to bring a plan or amendment into conformity with Coastal Act provisions relating to water quality.

The Commission's second regulatory task is to review applications for coastal development permits. The Coastal Act provides that any person who wishes to pursue "development" in the

[209] The procedures for processing those modifications differ depending on the type of plan reviewed by the Commission. A discussion of the specific procedural mechanisms involved is beyond the scope of this memo.

coastal zone must obtain a coastal development permit. (Public Resources Code § 30600.) "Development" is broadly defined in Public Resources Code § 30106 to mean:

> *"… on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).*
>
> *As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line."*

The Commission performs its permit review function with respect to development within the coastal zone until the Commission has certified a local coastal program for each coastal city and county or a port master plan for that jurisdiction. (Public Resources Code §§ 30600(c), 30715(a).) In determining whether or not to approve a particular coastal development permit application, the Commission applies the Coastal Act's policies concerning coastal protection, which include the policies to protect coastal water quality that are cited above. (Public Resources Code §§ 30604, 30715(a).) As a condition of approving coastal development permit applications, the Commission may impose conditions to prevent and mitigate nonpoint source pollution in order to implement those water quality requirements.[210]

After the Commission has certified a local coastal program, it delegates coastal development permitting authority to the local government. (Public Resources Code § 30519(a).) The Commission retains permitting jurisdiction over development proposed on tidelands, submerged

[210] The Coastal Act does not authorize the Commission to require a coastal development permit for the "removal or harvesting of major vegetation … for agricultural purposes, kelp harvesting and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973…." (Public Resources Code § 30106.) Nevertheless, the Commission is authorized to regulate other development activities related to agriculture and forestry. As a condition of approval of such development, the Commission may require that nonpoint source pollution control measures be undertaken in order to find that the development meets Coastal Act water quality standards.

lands and public trust lands. (Public Resources Code § 30519(b).) Similarly, the Commission delegates coastal development authority to a port once the Commission has certified the port's master plan. (Public Resources Code § 30519(b).)

Local governments' and ports' decisions concerning applications for coastal development permits may be appealed to the Coastal Commission in certain instances. (Public Resources Code §§ 30603, 30715.) The standard of review for permit decisions after the Commission has certified a local coastal program or a port master plan is the certified program or plan. (Public Resources Code §§ 30604(b), 30715.5.) The Commission's actions on appeals are also governed by the certified program or plan. (*Id.*) As noted above, those planning documents must meet the Coastal Act's standards concerning water quality, including nonpoint source pollution. Thus, when the Commission, a local government or a port makes a decision on whether to issue a coastal development permit after the Commission has certified such a plan or program, the permitting agency must determine whether the proposed development will comply with the policies and standards set forth in its plan or program, including those related to water quality. If the Commission or other permitting agency determines that the proposed development will not comply with those standards, it may impose conditions on the project to bring it into compliance with the standards in the plan or program, including any management measures to prevent or mitigate nonpoint source pollution. Alternatively, the Commission or other permitting agency may deny the development.

The applicable requirements concerning water quality are found in the Coastal Act. Thus, a coastal development permit application may not be approved unless it complies with the water quality requirements contained in the Coastal Act or in certified plans and programs.

The Coastal Commission's third major regulatory responsibility is federal consistency review under the Coastal Zone Management Act. (16 U.S.C. § 1451 *et seq.*) The Commission reviews activities conducted by the federal government, federally issued licenses and permits, plans for exploration and production of the outer continental shelf, and federally funded activities. (16 U.S.C. § 1456.) The Commission reviews each proposed activity to determine whether it is consistent with the California Coastal Management Program. The Program includes the Coastal Act and those local coastal programs that have been formally approved by the Office of Ocean and Coastal Resource Management for incorporation into the State's program. The Commission must determine that the proposed activity is consistent with those policies and standards, including any required nonpoint source pollution control measures.

As noted above, the Coastal Act includes policies to protect coastal water quality. Therefore, in performing federal consistency review, the Commission is authorized to apply those water quality standards and to "disagree" or "object" as appropriate to those activities and projects that do not comply with those standards. (*Id.*, 15 C.F.R. §§ 930.32(a), 930.39, 930.42, 930.79.)

For the reasons set forth above, we conclude that the Coastal Commission has adequate legal authority under the Coastal Act to enforce water quality requirements related to nonpoint source pollution.

Attachment

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ATTACHMENT 1

Coastal Act Policies Relevant to the Control of Polluted Runoff

§	Summary of Coastal Act Policy
30012	Carry out a public education program to promote coastal conservation.
30230	Maintain, enhance, and where feasible restore marine resources.
30231	Maintain and, where feasible, restore biological productivity and the quality of coastal waters, streams, wetlands, estuaries and lakes through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.
30232	Protect against the spillage of crude oil, gas, petroleum products, or hazardous wastes.
30233	Limit the alteration of wetlands, coastal waters, estuaries; provide for feasible mitigation measures to minimize adverse environmental effects.
30235	Phase out or upgrade where feasible existing marine structures causing water stagnation contributing to pollution problems and fish kills.
30236	Limit hydromodification of rivers and streams; channelizations, dams, other substantial alterations of rivers and streams shall incorporate best mitigation measures feasible.
30240	Protect environmentally sensitive habitat areas (ESHAs). Site and design new development in areas adjacent to ESHAs to prevent significant adverse impacts.
30243	Protect long-term productivity of soils and timberlands.
30250	Site and design new development so as to not have significant adverse impacts, either individually or cumulatively, on coastal resources.
30251	Minimize alteration of natural land forms.
30253	Assure that new development is stable, has structural integrity, and does not contribute significantly to erosion.
30705	Control impacts of dredging in specified port areas.
30706 (b)	Minimize harmful effects to coastal waters, including water quality, from the nature, location, and extent of any fill (seaward of the mean high tide line within the jurisdiction of ports), including disposal of dredge spoils, and minimize reductions of volume, surface area, or circulation of water.
30708 (a) and (d)	Locate, design, and construct all port-related development so as to (a) minimize substantial environmental impacts and (d) provide for other beneficial uses consistent with the public trust, including, but not limited to, recreation and wildlife habitat uses, to the extent feasible.

APPENDIX C. SCHEDULE OF TMDLS BY CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARDS

(NOTE: The following tables were developed from information submitted by the RWQCBs for inclusion in the CWA section 303(d) TMDL priority list and their respective chapters of the 1999 WMI Integrated Plan. The tables represent those TMDLs that the RWQCBs have identified with initial development or completion occurring during the first five-year implementation cycle (1998-2003) of the Program Plan.)

Table C1. Scheduled Development of TMDLs by North Coast Regional Water Quality Control Board (RWQCB1)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Noyo River	Sediment	1999	1999			x				
Estero Americano	Nutrients	1997			x					
Garcia River	Sediment	2000	2000		x	x	x			
	Temperature						x			
Navarro River	Sediment		2000							
	Temperature		2000							
Americano Creek	Nutrients	1997			x					
Mattole River	Sediment	2001	2002			x				
	Temperature		2002							
Ten Mile River	Sediment		2000							
Redwood Creek	Sediment		1998							
Elk River	Sediment	2009				x				
Albion River	Sediment	2000	2001			x				
Big River	Sediment	2001				x				
South Fork Trinity River	Sediment		1998							
Beaughton Creek	Unpermitted discharge of waste		1998							
Eel River	Sediment		1999-2006							
	Temperature		1999-2006							
Van Duzen River	Sediment		1999							
Trinity River	Sediment	2001								
Gualala River	Sediment	1999	2000			x				

Table C2. Scheduled Development of TMDLs by San Francisco Bay Regional Water Quality Control Board (RWQCB2)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
South San Francisco Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							
Central San Francisco Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							
Lower San Francisco Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBS		2003							
Carquinez Strait	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							
Napa River	Siltation		2003		x		x			
San Pablo Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							
Suisun Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							
Richardson Bay	Exotic Species		2001					x		
	Mercury		2003							x
	PCBs		2003							x
Delta	Exotic Species		2001					x		
	Mercury		2003							x

Table C3. Scheduled Development of TMDLs by Central Coast Regional Water Quality Control Board (RWQCB3)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Morro Bay	Metals	2000						x		
	Pathogens	2000			x		x			
	Sedimentation/ Siltation	1999			x		x			
Old Salinas River Estuary	Nutrients	2003	2006		x					
	Pesticides	2003	2006		x					
Las Tablas Creek	Mercury	2000			x					
Salinas River Lagoon (North)	Nutrients	2003	2006							x
	Pesticides	2003	2006		x					
	Siltation	2001	2004		x					
Salinas River Lagoon (South)	Nutrients	2003	2006		x					
	Pesticides	2003	2006		x					
	Salinity/TDS/ Chlorides	2003	2006		x					
Tembladero Slough	Nutrients	2003	2006		x					
	Pesticides	2003	2006		x					
Pajaro River	Nutrients	2001	2004		x					
	Siltation	2001	2004		x					
Las Tablas Creek, North Fork	Mercury	2000								
Salinas River	Siltation	2001	2004		x		x			
	Nutrients	2003	2006		x					
	Pesticides/	2003	2006		x					
	Salinity	2003	2006		x					
	Priority Pollutants									
Espinosa Slough	Nutrients	2003	2006		x					
	Pesticides/Priority Organics	2003	2006		x					
Carbonera Creek	Pathogens	2001	2004							x
	Siltation	2000	2003		x					
	Nutrients	2000								x
Lompico Creek	Pathogens	2001	2004				x			
	Siltation	2000	2003		x					
	Nutrients	2000					x			

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
San Lorenzo River Estuary	Pathogens	2001	2004							
	Siltation	2000	2003						x	
Hernadez Reservoir	Mercury	2003	2006							
Lompico Creek	Nutrients						x			
Llagas Creek	Nutrients	2001	2004		x					
	Siltation	2001	2004		x				x	
Pajaro River	Nutrients	2001	2004		x		x			
	Siltation	2001	2004		x		x		x	
Rider Gulch Creek	Siltation	2001	2004		x					
San Benito River	Siltation	2001	2004		x					
Shingle Mill Creek	Nutrients	2001	2004				x			
	Siltation	2001	2004				x			
Watsonville Slough	Oil and Grease	2003	2006							x
	Pathogens	2003	2006							x
	Pesticides	2003	2006				x			
	Siltation	2001	2004				x			
	Metals	2003								
Chorro Creek	Metals	2000								
	Nutrients	2000			x					
	Siltation	2000			x		x		x	
San Luis Obispo Creek	Nutrients	2000	2003		x					
	Pathogens	2000								
	Priority Pollutants	2001								
Arroyo Burro Creek	Pathogens	2011	2014							
Las Tablas Creek, South Fork	Mercury	2000								
Nacimiento Reservoir	Mercury	2000								
Los Osos Creek	Nutrients	2000			x					
	Siltation	1999			x		x		x	
	Priority Organics	2000								
Valencia Creek	Siltation	2001								
Salinas River	Nutrients	2003								
Salinas River	Pesticides/Priority Organics	2003								
	Salinity	2003								
	Siltation	2001								
Clear Creek	Mercury	2003								
Hernandez Reservoir	Mercury	2003								
San Benito River	Siltation	2001								

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
San Lorenzo River	Nutrients	2000					x			
	Siltation	2000								
	Pathogens	2001					x			
San Lorenzo Creek	Nutrients						x			
	Siltation	2000	2003			x				

Table C4. Scheduled Development of TMDLs by Los Angeles Regional Water Quality Control Board (RWQCB4)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromodi-fication	Not identified
Arroyo Conejo North Fork	Nitrogen	00/01	01/02	01/02						x
Arroyo Las Posas (Reaches 1&2)	Pesticides	02/03	03/04	03/04						x
Arroyo Simi (Reach 1)	Metals	04/05	05/06	05/06						x
Ballona Creek	Trash	00/01	01/02	02/03						x
	Metals	02/03	03/04	03/04						x
	Pesticides	02/03	03/04	03/04						x
Ballona Estuary	Coliform	02/03	03/04	03/04						x
Cabrillo Pier area	Pathogens	00/01	02/03	03/04						x
Conejo Creek	Nitrogen	00/01	01/02	01/02						x
Fox Barranca	Salts	04/05	05/06	05/06						x
Lake Calabasas	Nutrients	00/01	01/02	02/03						x
Los Angeles River (Reaches 1 - 5)	Nitrogen (effects)	01/02	02/03	02/03						x
	Trash	99/00	00/01	00/01						x
Los Angeles River (Reaches 1,2,4, & 6)	Coliform	00/01	01/02	01/02						x
Los Angeles River (Rchs 1,2, & 4)	Metals	02/03	03/04	03/04						x
Los Angeles River (Reach 5)	Pesticides	04/05	05/06	05/06						x
Marina del Rey Harbor – Back Basins	PCBs	03/04	04/05	04/05						x
	Pesticides	03/04	04/05	04/05						x
	Metals	03/04	04/05	04/05						x
Marina del Rey Harbor Beach	Coliform	01/02	02/03	02/03						x
McGrath Beach	Coliform	99/00	01/02	02/03						x
Medea Creek (Reaches 1 & 2)	Coliform	00/01	01/02	02/03						x

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromodi-fication	Not identified
Revlon Slough	Pesticides	01/02	02/03	02/03						x
San Gabriel River East Fork	Trash	99/00	99/00	99/00						x
San Gabriel River(Reach 2)	Coliform	02/03	03/04	04/05						x
San Gabriel River (Reaches 1,2, & 3)	Nitrogen	01/02	02/03	02/03						x
San Jose Creek (Reach 1)	Metals	04/05	05/06	05/06						x
Santa Clara River (Reaches 3,7, & 8)	Chloride	99/00	99/00	99/00						x
	Nitrogen	99/00	01/02	02/03						x
Santa Monica Bay (Greater) beaches	Pathogens	00/01	01/02	02/03						x
Santa Monica Bay Nearshore/Offshore	Metals	02/03	03/04	03/04						x
	Chlordane	04/05	05/06	05/06						x

Table C5. Scheduled Development of TMDLs by Central Valley Regional Water Quality Control Board (RWQCB5)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Delta Waterways	Chlorpyrifos	2002	2004		x					
	Diazinon	2002	2004		x					
	Mercury	2002	2004							
Feather River	Diazinon	2002	2004		x					
Sacramento River, Lower	Diazinon	2002	2004		x					
	Mercury	2002	2004							
Berryessa Lake	Mercury	2002	2004							
Cache Creek	Mercury	2002	2004							
Sulfur Creek	Mercury	2002	2004		x					
Harley Gulch	Mercury	2002	2004							
Mud Slough	Selenium	1997	1999		x					
San Joaquin River	Selenium	1997	1999		x					
	Boron				x					
	Electrical Conductivity				x					
	Chlorpyrifos	2002	2004		x					
	Diazinon	2002	2004		x					
Little Grizzly Creek	Copper	2002								
	Zinc	2002								

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Stanislaus River (Lower)	Diazinon	2002	2004		x					
Clear Lake	Mercury	2002	2004							
Tuolumne River (Lower)	Diazinon	2002	2004		x					

Table C6. Scheduled Development of TMDLs by Lahontan Regional Water Quality Control Board (RWQCB6)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Aspen Creek	Metals									x
Bear Creek	Sedimentation/ Siltation								x	
Blackwood Creek	Sedimentation/ Siltation					x	x		x	
Bodie Creek	Metals									x
Bridgeport Res	Nutrients				x					
Bronco Creek	Sedimentation/ Siltation									x
Bryant Creek	Metals									x
Carson River, East Fork	Nutrients				x					
Cottonwood Creek	Water/Flow Variability									
Eagle Lake	Org. enrichment/ Low D.O.				x		x			
East Walker River	Sedimentation/ Siltation				x		x			
Gray Creek	Sedimentation/ Siltation									x
Heavenly Valley Creek.	Sediment						x			
Indian Creek	Habitat Alterations				x					
Lake Tahoe	Nutrients					x	x	x	x	
Lee Vining Creek	Flow Alterations									
Mammoth Creek	Metals									x
Mill Creek	Flow Alterations									

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Monitor Creek	Metals									x
Mono Lake	Salinity/TDS/ Chlorides									
Owens River	Habitat Alterations									
Pine Creek	Siltation				x					
Pleasant Valley Reservoir	Org. Enrichment/ Low D.O.				x					
Snow Creek	Habitat Alterations						x			
Squaw Creek	Siltation	2002					x			
Susan River	Unknown Toxicity				x		x			
Topaz Lake	Sedimentation/ Siltation				x					
Ward Creek	Sedimentation/ Siltation						x			
West Walker River	Sedimentation/ Siltation				x					
Wolf Creek	Sedimentation/ Siltation				x					

Table C7. Scheduled Development of TMDLs by Colorado River Regional Water Quality Control Board (RWQCB7)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Alamo River	Siltation	2000	2001		x					
Imperial Valley Drains	Silt	2000	2011		x					
New River	Silt	2002	2003		x					
Salton Sea	Salt	2001								

Table C8. Scheduled Development of TMDLs by Santa Ana Regional Water Quality Control Board (RWQCB8)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Big Bear Lake and tributaries	Metals	07/03	01/04	12/04						x
	Nutrients	07/03	01/04	12/04			x			
Canyon Lake	Nutrients	06/02	01/03	12/03						x
	Pathogens	06/02	01/03	12/03						x
Lake Elsinore	Nutrients	06/02	01/03	12/03						x
	Siltation	06/02	01/03	12/03						x
Newport Bay (Lower)	Metals	01/01	01/01	12/01				x		
	Nutrients	12/98	12/98	12/98	x					
	Pathogens	12/98	03/99	12/99						x
	Pesticides	01/01	01/01	12/01	x					
	Pr. Organics	01/01	01/01	12/01						x
	Sediment	12/98	12/98	12/98	x		x		x	
Newport Bay (Upper)	Metals	01/01	01/01	12/01						x
	Nutrients	12/98	12/98	12/98	x					
	Pathogens	12/98	03/99	12/99						x
	Pesticides	01/01	01/01	12/01	x					
	Sediment	12/98	12/98	12/98	x		x		x	
San Diego Creek (Reach 1 & 2)	Metals	01/01	01/01	12/01						x
	Pesticides	01/01	01/01	12/01						x
	Sediment	12/98	12/98	12/98	x		x		x	

Table C9. Scheduled Development of TMDLs by San Diego Regional Water Quality Control Board (RWQCB9)

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
Aliso Creek	Coliform	07/02	07/02	07/02						x
Aqua Hedionda Lagoon	Coliform	07/03	07/09	07/09						x
	Sediment	07/03	07/07	07/07						x
Buena Vista Lagoon	Sediment	07/03	07/07	07/07						x
Chollas Creek	Coliform	07/00	07/03	07/03						x
	Metals	05/00	07/00	12/00						x
	Toxicity	05/00	07/00	12/00						x
Formosa Slough	Nutrients	07/03	07/08	07/08						x
Guajome Lake	Nutrients	07/05	07/11	07/11						x
Loma Alta Slough	Coliform	07/03	07/09	07/09						x
	Nutrients	07/03	07/09	07/09						x
Los Penasquitos Lagoon	Sediment	07/03	07/08	07/08						x
Mission Bay	Coliform	07/03	07/08	07/08						x
	Lead	07/03	07/08	07/08						x
	Nutrients	07/03	07/08	07/08						x
Pacific Ocean (Laguna Beach)	Coliform	07/10	07/10	07/10						x
Pacific Ocean (Aliso HAS)	Coliform	07/02	07/02	07/02						x
Pacific Ocean (Dana Point HSA)	Coliform	07/10	07/10	07/10						x
Pacific Ocean (L. San Juan Ck.)	Coliform	07/10	07/10	07/10						x
Pacific Ocean (Sn Clemente HA)	Coliform	07/10	07/10	07/10						x
Pacific Ocean (San Luis Rey HU)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (Loma Alta Ck HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (Bna Vsta Ck HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (San Marcos Ck HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (Escondido Ck HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (San Dieguito HU)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (San Marcos Ck HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (San Diego HU)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (Coronado HA)	Coliform	07/03	07/09	07/09						x
Pacific Ocean (Tijuana HU)	Coliform	07/11	07/11	07/11						x
Rainbow Creek	Nutrients	03/00	05/00	10/00						x
San Diego Bay (Nr. 24th Street)	Toxicity	07/03	07/03	07/03						x
San Diego Bay (Shoreline)	Coliform	07/03	07/09	07/09						x
San Diego Bay (Nr. Chollas Crk.)	Toxicity	05/00	07/00	12/00						x
San Diego Bay (Naval Air Station)	Toxicity	07/03	07/03	07/03						x
San Diego Bay (7th St. Channel)	Toxicity	06/00	11/00	06/01						x

Waterbody	Stressor	Completion Date		Implement Actions	Stressor Source Category					
		Technical Report	Implementation Plan		Agriculture	Forestry	Urban	Marinas	Hydromod-ification	Not identified
San Diego Bay (Nr. Coronado Br.)	Toxicity	07/03	07/03	07/03						x
San Diego Bay (Submarine Base)	Toxicity	07/03	07/03	07/03						x
San Diego Bay (Shelter Island)	Toxicity	06/00	11/00	06/01						x
San Diego Bay (Nr. Grape Street)	Toxicity	07/03	07/03	07/03						x
San Diego Bay (Downtown Pier)	Toxicity	07/03	07/03	07/03						x
San Elijo Lagoon	Nutrients	07/03	07/09	07/09						x
	Coliform	07/03	07/09	07/09						x
	Sediment	07/03	07/07	07/07						x
San Juan Creek (Lower)	Coliform	07/10	07/10	07/10						x
San Juan Creek (Mouth)	Coliform	07/10	07/10	07/10						x
Santa Margarita Lagoon	Nutrients	07/05	07/05	07/05						x
Tecolote Creek	Coliform	07/03	07/09	07/09						x
	Metals	07/03	07/08	07/08						x
	Toxicity	07/03	07/08	07/08						x
Tijuana River	Coliform	07/11	07/11	07/11						x
	Metals	07/11	07/11	07/11						x
	Nutrients	07/11	07/11	07/11						x
	Organics	07/11	07/11	07/11						x
	Pesticides	07/11	07/11	07/11						x
	Trash	07/11	07/11	07/11						x
Tijuana River Estuary	Coliform	07/11	07/11	07/11						x
	Metals	07/11	07/11	07/11						x
	Nutrients	07/11	07/11	07/11						x
	Pesticides	07/11	07/11	07/11						x
	Trash	07/11	07/11	07/11						x

APPENDIX D: LETTERS FROM THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY AND THE CALIFORNIA RESOURCES AGENCY TO LEAD AND ENFORCING STATE AGENCIES WITH RESPECT TO DEVELOPMENT OF THE FIVE-YEAR NONPOINT SOURCE IMPLEMENTATION PLANS

APPENDIX E. MEMORANDUM OF UNDERSTANDING BETWEEN THE STATE WATER RESOURCES CONTROL BOARD AND THE CALIFORNIA COASTAL COMMISSION

This Memorandum of Understanding (MOU) is between the State Water Resources Control Board (SWRCB) and the California Coastal Commission (CCC). The SWRCB is part of the California Environmental Protection Agency (Cal/EPA), and the CCC is part of the California Resources Agency.

AGENCIES AGREE AS FOLLOWS:

A. PURPOSE

The purpose of this MOU is to promote protection of (1) water quality and (2) the uses and resources dependent on clean water from the potential adverse effects of nonpoint source (NPS) pollution. The SWRCB and CCC concur that the State will benefit from a unified and cooperative program to protect and restore water quality.

B. AUTHORITY

The authority of the SWRCB and CCC are defined by federal and State law described as follows:

1. The SWRCB and CCC, in coordination with the nine Regional Water Quality Control Boards (RWQCBs), are the lead State agencies in California for the development and implementation of the *Plan for California's Nonpoint Source Pollution Control Program: 1998-2013* (Program Plan) which has been prepared pursuant to the Federal Clean Water Act section 319 (33 U.S.C. §1329) and Coastal Zone Management Act section 6217 (16 U.S.C. §1455b).

2. The SWRCB and the RWQCBs are the State agencies with primary responsibility for coordination and control of water quality throughout California. The SWRCB and RWQCBs are the State agencies authorized under the Clean Water Act and State law to designate beneficial uses of the State's waters and establish water quality objectives for protecting those uses. The SWRCB and RWQCBs have a variety of regulatory powers under which they investigate water quality issues; adopt water quality control plans, regulations, and policies; prohibit waste discharges in certain areas; and issue permits regulating waste discharges affecting water quality. The SWRCB is required to provide information to the public regarding water quality issues. The SWRCB also administers several loan and grant programs for the protection of water quality, including the NPS grant program under the Federal Clean Water Act section 319 (33 U.S.C. §1329). RWQCBs also have the authority to order cleanup of waste discharges and to take enforcement actions against waste dischargers, including imposing administrative civil liability.

3. The CCC has the primary responsibility for implementation of the California Coastal Act and has been designated the State coastal zone planning and management agency for any and all purposes and may exercise any and all powers set forth in the Federal Coastal Zone Management Act of 1972 (16 U.S.C. §1451, et seq.) and any amendments thereto or other federal laws that relate to the planning or management of the coastal zone. The California Coastal Act mandates the protection and restoration of coastal waters. The CCC certifies local coastal programs and approves coastal development permits, energy projects, and federal projects within the Coastal Zone in accordance with water quality policies in the California Coastal Act. The CCC protects water quality through the management of development that generates runoff, creates spills, or otherwise affects water quality. The CCC also implements educational and technical assistance programs and coordinates with other agencies to address land-use and development activities that may generate polluted runoff.

4. According to Public Resources Code section 30400, in the absence of specific authorization by law or by agreement with the CCC, no State agency shall exercise any powers or carry out any duties or responsibilities established by the California Coastal Act or by the Federal Coastal Zone Management Act of 1972 or any amendment thereto.

5. According to Public Resources Code section 30412, the CCC, subject to limited exceptions regarding wastewater treatment plants, shall not modify, adopt conditions, or take any action in conflict with any determination by the SWRCB or any RWQCB in matters relating to water quality or the administration of water rights.

C. IMPLEMENTATION

Effective implementation of the Program Plan requires continued collaboration between the SWRCB and CCC. The SWRCB and the CCC therefore agree to:

1. To continue to work cooperatively to implement the Program Plan;
2. To be partners in the administrative coordination of California's Nonpoint Source Pollution Control Program (NPS Program);
    a. The SWRCB and CCC will be joint partners in developing, implementing, and participating in interagency coordinating committees;
    b. The SWRCB will act as the lead coordinating agency with Cal/EPA members; the CCC will act as the lead coordinating agency with Resources Agency members;
    c. The SWRCB will serve as the liaison with the U.S. Environmental Protection Agency (USEPA); the CCC will serve as the liaison with the National Oceanic and Atmospheric Administration (NOAA);

3. To implement and to track the implementation of applicable management measures and management practices related to NPS pollution prevention and control;
4. To modify or add to the Program Plan, including the actions identified in the Five-Year Implementation Plans (Volume 1) and the management measures in California Management Measures for Polluted Runoff (CAMMPR) (Volume 2), in a joint effort;
5. To meet on a regular basis (quarterly) to assess Program implementation, to discuss existing and proposed projects of mutual interest, and to consider changes to the Program Plan or MOU;
6. To have staff and management actively participate in regular updates on implementation of the Plan and identify concerns regarding the coordination and control of water quality due to changes in laws, regulations, policies, water quality control plans, or local coastal programs;
7. To work cooperatively through the legislative process to the extent permitted by law and Governor's Office procedures to further the NPS Program;
8. To work cooperatively in the budgetary process to support NPS Program activities;
9. To jointly convene public workshops to develop the next Five-Year Implementation Plan, no later than three years after the effective date of each Five-Year Implementation Plan;
10. To report biennially on program effectiveness;
11. To improve communication with the members of the CCC, SWRCB, and RWQCBs by:

    a. SWRCB staff and CCC staff jointly presenting an annual status report to the CCC and the SWRCB Members regarding the NPS program;

    b. SWRCB and RWQCB staffs consulting with CCC staff regarding NPS projects implemented or ordered by the SWRCB or a RWQCB requiring a coastal development permit issued or reviewed by the CCC. CCC staff will brief Commission Members in advance and take other actions needed to expedite a decision on the project. CCC staff will consult with SWRCB and RWQCB staffs regarding any of their projects that require SWRCB approval; and SWRCB and RWQCB staffs will brief SWRCB Members in advance and take other actions needed to expedite a SWRCB decision on the project.

D. RESERVATION OF AUTHORITY

Nothing herein shall be construed in any way as limiting the authority of the SWRCB or CCC in carrying out their respective legal responsibilities for management, regulation, coordination, and control of water quality or land uses affecting water quality.

Nothing herein shall be construed to prohibit the establishment of MOUs/Management Agency Agreements/Memoranda of Agreements with State or other agencies by either the SWRCB or CCC.

E. MODIFICATION OR RECISION

This MOU shall become effective upon the date of final signature and shall continue in effect until modified by the mutual written consent of both parties or until terminated by either party upon a 30-day advance written notice to the other party.

State Water Resources Control Board
Approves

Walt Pettit, Executive Director
February 2, 2000

California Coastal Commission
Approves

Peter M. Douglas, Executive Director
February 2, 2000

California Environmental Protection Agency
Concurs

Winston Hickox
Agency Secretary
February 2, 2000

California Resources Agency
Concurs

Mary Nichols
Secretary for Resources
February 2, 2000

APPENDIX F. LIST OF ACRONYMS

1988 Plan – Nonpoint Source Management Plan, November 1988
AB – Assembly Bill
ACL – Administrative Civil Liability
ADMP – Agriculture Drainage Management Plan
AFO – Animal Feeding Operations
AG – Attorney General
AMBAG - Association of Monterey Bay Area Governments
ARS – Agricultural Research Service
ASBS – Areas of Special Biological Significance
Basin Plan – Regional Water Quality Control Plans
BASMAA – Bay Area Stormwater Management Agencies Association
BAWPG – Bay Area Wetlands Planning Group
BCGC – Boating and Clean Green Campaign
BCP – Budget Change Proposal
BIOS – Biologically Integrated Orchard Systems
BLM – U.S. Bureau of Land Mangement
BMP – Best Management Practices
BOF – Board of Forestry
BPTCP – Bay Protection and Toxic Cleanup Program
Cal/EPA – California Environmental Protection Agency
CALFED – CALFED Bay-Delta Program
Cal/RA – California Resources Agency
Cal/Trans – California Department of Transportation
CAMMPR – Volume II: California Management Measures for Polluted Runoff
CAO – Cleanup and Abatement Orders
CARCD – California Association of Resource Conservation Districts
CBC – California Biodiversity Council
CCA – Critical Coastal Area
CCBN – California Clean Boating Network
CCC – California Coastal Commission
CCR – California Code of Regulations
CCMP – California Coastal Management Program
CDF – California Department of Forestry and Fire Protection
CDO – cease and desist orders
CDP – Coastal Development Permit
CDPR – Department of Pesticide Regulation
CEEIN – California Environmental Education Interagency Network
CEQA – California Environmental Quality Act
CERCLA – Comprehensive Environmental Response and Compensation Liability Act
CERPI – California Ecological Restoration Projects Inventory
CESA – California Endangered Species Act
CFB – California Farm Bureau
CFR – Code of Federal Regulations
CIWMB – California Integrated Waste Management Board
CNPCP – Coastal Nonpoint Source Pollution Control Program
Coastal Act – California Coastal Act
CPR Plan –*Plan for Controlling Polluted Runoff*
CRMP – Coordinated Resource Management and Planning Program
CRWQMP – California Rangeland Water Quality Management Plan
CTR – California Toxics Rule
CVA – Clean Vessel Act
CWA - Clean Water Act
CWAP – Clean Water Action Plan
CWC – California Water Code
CWPI – California Watershed Project Inventory
CZARA Coastal Zone Act Reauthorization Amendments of 1990
CZM – Coastal Zone Management
CZMA – Coastal Zone Management Act
CZTA – Coastal Zone Treatment Areas
DA – District Attorney
DBW – Department of Boating and Waterways
DFA – Department of Food and Agriculture
DFG – Department of Fish and Game
DHS – Department of Health Services
DOC – Department of Conservation
DPR - Department of Parks and Recreation
DTSC – Department of Toxic Substance Control
DWR – Department of Water Resources
DWSAP – Drinking Water Source Assessment and Protection
EBEP – Enclosed Bays and Estuaries Plan
EIR – Environmental Impact Report
EQIP – Environmental Quality Incentives Program
ESA – Endangered Species Act
ESHA – Environmentally Sensitive Habitat Area
FACT – Functioning Assessment Criteria Test
FERC – Federal Energy Regulatory Commission
FOTG – Field Office Technical Guide

FPR – Forest Practice Rules
FSA – Farm Services Agency
FY – Fiscal Year
g-Guidance – Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (CZARA §6217[g])
GeoWBS – Geographically-based Water Body System
GIS – Geographic Information System
GRTS – Grants Reporting and Tracking System
HHW – Household Hazardous Waste
HTB – Heal the Bay
IACC – Interagency Coordinating Committee
Implementation Plan – Five-Year Implementation Plan (1998-2003)
IPM – Integrated Pest Management
ISWP – Inland Surface Waters Plan
LCP – Local Coastal Program
LCPA – Local Coastal Program Amendment
LEA – local enforcement agency
LUP – land use plan
MAA – Management Agency Agreement
MBNMS - Monterey Bay National Marine Sanctuary
MM – management measure
MOA - Memorandum of Agreement
MOU – Memorandum of Understanding
MP – management practices
MPA – MacAteer-Petris Act
MSG – Monitoring Study Group
MURP – Model Urban Runoff Program
NAWQA – National Water Quality Assessment Program
NEP - National Estuary Program
NEPA – National Environmental Policy Act
NERR - National Estuarine Research Reserve
NGO – non-governmental organization
NMS - National Marine Sanctuary
NOAA – National Oceanic and Atmospheric Administration
NOV – Notice of violation
NPDES – National Pollutant Discharge Elimination System
NPS – nonpoint source
NPS MIS – NPS Management Information System
NRCS – Natural Resources Conservation Service
NRDC – Natural Resources Defense Council
NRPI – Natural Resources Project Inventory
OAL – State Office of Administrative Law
Ocean Plan – California Ocean Plan
OCWD – Orange County Water District
OSDS – On-site Disposal System
OSPR – DFG/Oil Spill Prevention and Response
PCA – Program Cost Account
PIPP – Public Information Public Participation Committee of the SWQTF
PMP – portmaster plan
PMZ – Pesticide Management Zone
Policy – Policy for Implementation of Toxics Standards for Inland Surface Water, Enclosed Bays, and Estuaries of California
Porter-Cologne Act - Porter Cologne Water Quality Control Act
POTWs – publicly owned treatment works
PRC – Public Resources Code
Program – NPS Pollution Control Program
Program Plan – *Plan for California's Nonpoint Source Pollution Control Program 1998-2013*
PROSIP – Volume I: Nonpoint Source Program Strategy and Implementation Plan, 1998-2013
PTS – Permit Tracking System
QA/QC – Quality Assessment/Quality Control
RCDs –Resource Conservation Districts
RCRA – Resource Conservation and Recovery Act
ReCAP – CCC's Regional Cumulative Assessment Program
RFP – Request for Proposal
RIFA – red imported fire ants
RMS – Resource Management Systems
RWQCB – Regional Water Quality Control Board
SbMA – Subdivision Map Act

SCC – State Coastal Conservancy
SFB – San Francisco Bay
SFBCDC - San Francisco Bay Conservation and Development Commission
SFEP – San Francisco Estuary Project
SJVDIP – San Joaquin Valley Drainage Implementation Program
SLC – State Lands Commission
SMA – Streamside Management Areas
SMARA – Surface Mining and Reclamation Act
SMB – Santa Monica Bay
SRF – State Revolving Fund
Strategy – Fifteen-Year Program Strategy
SWIM – System for Water Information Management
SWPPP – Storm Water Pollution Prevention Program
SWQTF – Stormwater Quality Task Force

SWRCB – State Water Resources Control Board
TAC – Technical Advisory Committee
TBT - tributyltin
THP – Timber Harvesting Plan
TMDL – Total Maximum Daily Load
TSCA Toxic Substances Control Act
TSS – Total Suspended Solids

UC – University of California
UCCE University of California Cooperative Extension
UCD ICE – University of California, Davis, Information Center for the Environment
USBR – U. S. Bureau of Reclamation
USC – United States Code
USCG – U.S. Coast Guard
USACOE – U.S. Army Corps of Engineers
USDA – U. S. Department of Agriculture
USEPA – U. S. Environmental Protection Agency
USFS – U.S. Forest Service
USFWS - U.S. Fish and Wildlife Service
USGS – U. S. Geological Survey
WATER – Watershed Analysis Tool for Environmental Review
WCB – Wildlife Conservation Board
WCL – Wildlife Conservation Law of 1947
WDR – Waste Discharge Requirement
WLPZ – Watercourse and Lake Protection Zone
WMA – Watershed Management Areas
WMI – Watershed Management Initiative
WQA – Water Quality Assessment
WQCP – Water Quality Control Plans
WQCrP – Water Quality Certification Program
WQMP – Water Quality Management Plan
WQPP - Water Quality Protection Program
WRAS – Watershed Restoration Action Strategy
WRP – Wetlands Research Project

APPENDIX G. BIBLIOGRAPHY

McDonald, L.H., A.W. Smart, and R.C. Wissmar. 1991. *Monitoring Guidelines to Evaluate the Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska*. EPA/910-91-001. U.S. Environmental Protection Agency, Region 10, Seattle, Washington.

Natural Resources Defense Council (NRDC), 1999. Testing the Waters IX: A Guide to Water Quality at Vacation Beaches. NRDC Coastal Project, New York, NY.

NOAA, 1997. The 1995 national shellfish register of classified growing waters. Office of Ocean Resources Conservation and Assessment, Strategic Environmental Assessments Division. Silver Spring, MD.

NOAA and USEPA, 1993. Coastal Nonpoint Pollution Control Program – Program Development and Approval Guidance. U.S. Department of Commerce, National Oceanic and Atmospheric Administration, and U.S. Environmental Protection Agency. Washington, DC. January 1993.

SWRCB, 1988. Nonpoint Source Management Plan. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1988.

SWRCB, 1994a. Report of the Technical Advisory Committee for Abandoned Mines. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. October 1994.

SWRCB, 1994b. Confined Animal TAC – Nonpoint Source Pollution Solutions. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994c. Hydromodification, Wetlands, and Riparian Areas Technical Advisory Committee Report. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994d. Irrigated Agriculture Technical Advisory Committee Report. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. December 1994.

SWRCB, 1994e. Marina and Recreational Boating Technical Advisory Committee Report. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994f. Urban Runoff Technical Advisory Committee Report. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994g. Report of the Technical Advisory Committee for Onsite Disposal Systems. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994h. Report of the Technical Advisory Committee for Pesticide Management. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1994i. Report of the Technical Advisory Committee for Plant Nutrient Management. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. November 1994.

SWRCB, 1995a. California Rangeland Water Quality Management Plan. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. July 1995.

SWRCB, 1995b. Initiatives in Nonpoint Source Management. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. September 21, 1995.

SWRCB, 1998. *1998 CWA Section 305(b) Report on Water Quality*. State Water Resources Control Board, Division of Water Quality, Sacramento, CA. 1998.

SWRCB and CCC, 1995. California's Coastal Nonpoint Pollution Control Submittal. State Water Resources Control Board and the California Coastal Commission. Sacramento, CA. September 1995.

SWRCB and CCC, 1999. Volume II: California's Management Measures for Polluted Runoff (CAMMPR). State Water Resources Control Board and the California Coastal Commission. Sacramento, CA. June 1999.

USEPA, 1993. Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters. January 1993.

USEPA, 1996. Nonpoint Source Program and Grants Guidance for Fiscal Years 1997 and Future Years. U.S. Environmental Protection Agency. 1996.

USEPA and NOAA, 1998. Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance and Responses to Comments. U.S. Environmental Protection Agency and U.S. Department of Commerce, National Oceanic and Atmospheric Administration. Washington, DC. October 1998.

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