PLAN FOR
CALIFORNIA'S NONPOINT SOURCE
POLLUTION CONTROL PROGRAM

FIRST ADDENDUM TO
FIVE-YEAR IMPLEMENTATION PLAN FOR 1998-2003

State Water Resources Control Board
California Coastal Commission

November 2000

FIRST ADDENDUM TO

THE FIVE-YEAR IMPLEMENTATION PLAN, 1998-2003

Introduction

The first addendum to the State's Five-Year Implementation, 1998-2003 (Implementation Plan), originally contained in the *Plan for California's Nonpoint Source Pollution Control Program, January 2000* (NPS Program Plan), primarily details the activities of the lead agencies—State Water Resources Control Board (SWRCB), Regional Water Quality Control Boards (RWQCBs), and the California Coastal Commission (CCC). Pursuant to the requirements of the NPS Program Plan, this addendum updates the current and planned efforts of the SWRCB, RWQCBs, and the CCC in implementing the management measures (MMs).

Structure

Based on past agency experiences, the Clean Water Act (CWA) section 303(d) and total maximum daily load (TMDL) priority lists, a survey of the stakeholders, and recommendations from the previous NPS Technical Advisory Committees (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. For the first five-year cycle, the Implementation Plan only addresses those MMs targeted at the primary and secondary level. The MMs chosen are those determined to be the most effective and appropriate for California.

Seven process elements are prescribed for each of the MMs. 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 NPS Program Plan. These steps are essential to ensuring effective and efficient implementation of the MMs which will enable the State to achieve the defined goals of preventing and controlling NPS pollution as established in *Nonpoint Source Program Strategy and Implementation Plan, 1998-2013* (Strategy), Volume I of the NPS Program Plan. The Implementation Plan also identifies parties/agencies responsible for performing the activities. Funding sources and milestones to be achieved during and/or 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.

Pursuant to the requirements of the NPS Program Plan and through the addendum, all relevant information for each process element for each primary and secondary MM has been established and entered into the Implementation Plan, including numeric program performance measures. The NPS Program Plan also requires completion of 50 to 100 percent of individual State agency five-year implementation plans by December 31, 2000. In April 2001, when all of the agencies' plans should be completed, the SWRCB will release a second addendum which will incorporate the five-year implementation plans for the remaining departments/boards of the California Environmental Protection Agency (Cal/EPA) and the California Resources Agency (Cal/RA). The second

addendum will also include five-year implementation plans for the Department of Health (DHS), the Department of Food and Agriculture (DFA), and the Department of Transportation (Cal/Trans). Any additional updates or corrections from the SWRCB, RWQCBs, and CCC will also be included to provide the most complete, up-to-date information available on activities being conducted throughout the State to address NPS pollution problems.

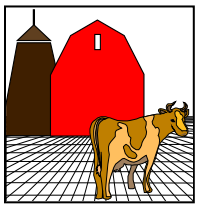
Reporting

Beginning in 2001, biennial reports will be completed for evaluation by the U.S. Environmental Protection Agency (USEPA) and National Oceanic and Atmospheric Administration (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 Interagency Coordinating Committee (IACC) become active and successful in fostering implementation?
4. Have the SWRCB/RWQCBs published NPS enforcement guidance in 2001 as per California Water Code (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 NPS 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.

A. 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. Develop and implement water quality management plans to control erosion and reduce sediment.
2. Develop and implement TMDLs for sediment for CWA §303(d) listed waters in four Regions.
3. Prepare education and outreach materials on how to reduce erosion and sediment for stakeholders.
4. Track and monitor implementation of TMDLs and management practices to reduce sediment and erosion.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	a. Compile existing monitoring data; b. Analyze instream conditions; c. Develop preliminary reference model; d. Incorporate Citizen Volunteer Monitoring Program on reference conditions.	RWQCB 2		Napa River Watershed	TMDL contract funds	Watershed assessment report to confirm or reject sediment listings		x	x	x	x	
	Develop regional monitoring strategy and coordinate monitoring with local partners to monitor and assess watersheds in agricultural areas for CWA §§305(b)/303(d) listings.	RWQCB 2, Local Stormwater Agencies		Regionwide	USEPA grant	Complete regional monitoring and assessment strategy; Assess 10-20 percent of region's watersheds annually			x	x	x	
	Identify water segments impaired by sedimentation.	RWQCB 4 SWRCB USEPA		RWQCB 4		Update CWA §303(d) list		x			x	As needed
	Implement water quality monitoring activities in the Salton Watershed for the Alamo and New Rivers and the Imperial Valley Agricultural Drains. Coordinate monitoring activities with input from the Salton Sea Water Quality Technical Committee, which Regional Board staff will chair.	RWQCB 7		Salton Sea Transboundary Watershed	General Fund	Annual water quality monitoring reports; Data incorporated into GIS database			x	x	x	
	Perform a watershed assessment of the Salton Sea Transboundary Watershed.	RWQCB 7		Salton Sea Transboundary Watershed	General Fund	Publicly available watershed assessment report				x	x	
Target	Prioritize water segments by regional watershed list, TMDLs, and potential impact reduction	RWQCB 4		RWQCB 4	CWA §205(j) Prop. 13	Publish priority list		x		x		

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Develop resource management plans.	County Farm Bureau, UCCE	RWQCB 3, NRCS, RCD	RWQCB 3	CWA §319(h), USDA EQIP, California Farm Bureau (CFB), and partner's funds	Five to ten plans per year.	x	x	x	x	x	
Plan	Direct grant funds and cost sharing opportunities to projects that implement MPs.	RWQCB 3 RWQCB 7		Lands in irrigated agriculture and grazing throughout Regions 3 and 7	CWA §319(h)	Implementation of at least one new project each year	x	x	x	x	x	
	Develop TMDLs for CWA §303(d) listed waters.	RWQCB 2		Napa River, Tomales Bay, Petaluma River, Sonoma Creek	CWA §319(h), CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	RWQCB consideration of TMDLs and implementation plans according to established schedule	x	x	x	x	x	
		RWQCB 3		Lower Salinas River, Lower Pajaro River, Morro Bay Watershed								
		RWQCB 7		Salton Sea Transboundary Watershed								
		RWQCB 8		Newport Bay Watershed, Lake Elsinore, San Jacinto Watershed, Big Bear Lake								
	Work with stakeholders to develop watershed management plan (includes erosion control element).	RWQCB 5	Cache Creek Conservancy, Yolo County, NRCS	Cache Creek	NPS, CALFED, other	Symposium on erosion control (June 2000); group working on erosion management plan; staff attending 6 mercury workgroup meetings per year (see notes).			x	x		Due to resource limitations, staff not attending the general stakeholder meetings where erosion issues are more of a focus.
		RWQCB 5, local agency		Westside tributaries of Sacramento River	CWA §319(h); Prop. 204	Educational workshops (two per year); Public meetings (quarterly)	x	x	x	x	x	
	Develop MAA and WQMP with BLM.	SWRCB BLM		Statewide	Agency baseline	MAA and WQMP		x	x	x		
	Draft implementation control strategies.	RWQCB 4		RWQCB 4		Identify who should have ESCPs; Requirements for ESCPs			x			

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Incorporate sediment control BMPs in Basin Plan.	RWQCB 7		Salton Sea Transboundary Watershed	CWA §319(h), TMDL	RWQCB adopted Basin Plan amendment			x			
	Develop Subwatershed Plans and individual farm Water Quality Management Plans.	RWQCB7, Imperial County Farm Bureau		Imperial Valley portion of the Salton Sea Transboundary Watershed	CWA §319(h), USDA EQIP, California Farm Bureau (CFB), and partner's funds, Prop. 13 Grant Program?	Completed, approved Subwatershed Plans			x	x	x	
	Coordinate with growers to quantify sediment control BMP performance.	RWQCB7, Imperial County Farm Bureau, UCCE		Imperial Valley portion of the Salton Sea Transboundary Watershed	CWA §319(h), TMDL, UCCE funds, Imperial County Farm Bureau funds	"Performance standards" for three BMPs				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(h)	Interagency network sessions (8 per year), outreach--see Outreach and Education		x	x	x		
	Participate in technical advisory committee for Cottonwood Creek.	RWQCB 5; local agency		West side tribs. Sacramento R.	CWA §319(h)	Attendance at meetings (9 for FY 99/00)	x	x	x			
	a) Serve as advisory to Napa River Watershed Task Force (NRWTF), to address vineyard development; and b) Assist NRWTF in recommending interim measures regarding hillside vineyard development.	Local agency (Napa County Board of Supervisors),	RWQCB 2	Napa	Existing staff resources	a) Number of weekly meetings attended during first year to provide technical assistance; b) Assist in revising existing Hillside Conservation Ordinance; progress report on ordinance development	x	x	x	x	x	Local agency is lead for this task, RWQCB 2 staff are participating but not developing ordinance.
	Work with stakeholders to develop watershed management plans to address sedimentation and erosion from agricultural areas.	RWQCB 2		Tomales Bay, San Francisquito Creek, Pescadero Creek, Petaluma River, Sonoma Creek	CWA §319(h)	Attendance at 75 percent of meetings; Preparation of summary status reports for each stakeholder group	x	x	x	x	x	
	Participate at interagency and watershed group meetings.	RWQCB 3, Farm Bureaus, NRCS, local Conservation Districts, MBNMS WQPP, UCCE		Lands with irrigated agriculture and grazing throughout Region 3	CWA §319(h), USDA, EQIP, CFB, Guadalupe oil field settlement funds	Development and implementation of plans (10-20 per year on recorded number of acres)		x	x	x	x	
	Coordinate with other agencies and stakeholders.	SWRCB RWQCB 4		RWQCB 4		Establish list of stakeholders			x			

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	Coordinate Adaptive Management Committee for implementation of sediment Total Maximum Daily Loads (TMDLs) for the Alamo and New Rivers and the Imperial Valley Agricultural Drains.	RWQCB7, NRCS, Imperial County Farm Bureau		Salton Sea Transboundary Watershed	CWA §319(h), General Fund Water Quality Initiative, USDA EQIP	Number of meetings, MOUs/MAAs, formal recommendations, etc.				x	x	
Implement	a. Conduct sediment budgets; b. Perform historical/existing land use and habitat analysis; c. Develop and calibrate erosion control model to evaluate land uses and BMP effectiveness, with emphasis on vineyards; d. Develop hydrologic budget; e. Establish linkages between BMPs, sediment production and delivery and effects on habitat/beneficial uses.	RWQCB 2		Napa River Watershed	TMDL contract funds, Coastal Conservancy	Sediment numeric targets that link to habitat/ beneficial uses protection; erosion control model; hydrologic budget				x	x	
	Implement recommended BMPs and evaluate effectiveness.	RWQCB 2		Napa River Watershed	TMDL funds	Implementation plan for number of BMPs					x	
	Assist in developing local Watershed Monitoring Center.	RWQCB 2		Napa River Watershed	Prop. 13 funds	Modified/improved BMPs; Long-term watershed monitoring plan					x	
	Implement resource management plans.	County Farm Bureau (CFB), NRCS, RCDs	RWQCB 3, MBNMS WQPP, UCCE	Lands in irrigated agriculture and grazing throughout RWQCB 3	CWA §319(h), USDA EQIP, CFB, and partner's funds	Number of plan elements implemented; Improvements installed; Acres protected		x	x	x	x	
	.	CFB, NRCS, RCDs	RWQCB 2, RWQCB 3,, MBNMS-WQPP,	Lower Salinas River, Lower Pajaro River, Pescadero and lands in irrigated agriculture and grazing throughout Region 3	CWA §319(h), USDA-EQIP, CFB, and MBNMS	Sediment basins, cover crops, grass-lined waterways on 5-10 farms; Upland water sources developed on 3-5 ranches		x	x	x	x	
	Implement strategies for protection of resources from agricultural pollution, including erosion, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS SWRCB	CCC	Central Coast	CWA §319(h)	Complete final WQPP agriculture plans by summer 1999 and begin implementation	x	x	x	x	x	Ongoing activity Includes all NPSs impacting MBNMS watersheds

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Implement Subwatershed Plans and individual farm Water Quality Management Plans.	RWQCB 7, Imperial County Farm Bureau		Imperial Valley portion of the Salton Sea Transboundary Watershed	CWA §319(h), USDA EQIP California Farm Bureau (CFB), and partner's funds, Prop. 13 grant program (?)	Demonstrated implementation of Subwatershed Plans			x	x	x	
	Implement BMPs in accordance with Subwatershed Plan time schedules.	RWQCB 7, Imperial County Farm Bureau, NRCS		Imperial Valley portion of the Salton Sea Transboundary Watershed	CWA §319(h), USDA EQIP, and CFB, General Fund Water Quality Initiative	Regular "watershed-scale" implementation reports submitted by local watershed groups; Two demonstration projects per year			x	x	x	
	Implement TMDLs for CWA §303(d) listed waters.	RWQCB 2		Napa River, Tomales Bay, Petaluma River, Sonoma Creek,	CWA §319(h), CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Implementation of practices per the TMDL schedule	x	x	x	x	x	
		RWQCB 3		Lower Salinas River, Lower Pajaro River, Morro Bay Watershed								
		RWQCB 7		Salton Sea Transboundary Watershed								
		RWQCB 8	Newport Bay Watershed Management Committee	Newport Bay								
	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(h)	Interagency network sessions (8 per year); Outreach--see Outreach and Education		x	x	x		
	Implement sediment and nutrient reduction projects and riparian restoration activities.	Local agencies, RWQCB 2		Walker Creek, San Lorenzo Creek, Sonoma Creek, Petaluma River	CWA §319(h) grants	Restoration plans for specific sites; Site-specific sediment control projects; Educational materials				x	x	Number of products varies according to grant contracts

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Implement BMPs for flood and sediment control.	RWQCB 5		Salt and Sand Creek	CWA §319(h), CALFED	CWA 319 project: 20 orchard sites, ranging from 20 to 100 acres, demonstrating use of cover crops and drip or micro sprinkler systems; Resource Management Plan for each site (20); grassed waterways (2); field days (8). CALFED project: implementation of sediment control practices on 200 acres almond orchard and 640 acres of row crops; two grassed channels and 50 feet wide native shrub filter strips in almond orchard; sediment traps (3); tailwater pond; sediment monitoring; field days (6).	x	x	x	x		
	Implement sediment and erosion control demonstration program.	RWQCB 5, local agency		Cache Creek	Prop. 204	At seven sites, stabilize banks (5,000 feet) with plantings of trees and native vegetation		x	x	x		
	Support development of education center; prepare education and outreach material for erosion control techniques; construct boardwalk and interpretative signs.	RWQCB 5, local agency		Cache Creek	Prop. 204	Preparation and distribution booklet; Construction of boardwalk and interpretative signs; Newsletter (4 per year); Field tours (5-6 per year with Cache Creek Stakeholder Group; 3-4 school groups per week).		x	x	x		

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Implement model, interagency streamlined permit process piloted in Elkhorn Slough in other watersheds Statewide.	NRCS, DFG, RWQCBs (except RWQCB 6), Sustainable Conservation, MBNMS WQPP	CCC	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. This can be applicable to watersheds throughout the State and is subject to one of the statewide 319 proposals (from Sustainable Conservation). Currently it is only being implemented in Region 3, but the statewide process is proposed for funding in 2000-01 CWA §319 grant.
	Implement management measures/practices to reduce sedimentation,includes revegetation, fencing, alternate water supply, and tailwater return systems.	RWQCB 5, local agency		Panoche and Silver Creek, Arroyo Passajero	CWA §319(h)	Panoche and Silver Creek: revegetation (4,200 feet), clearing excess vegetation (2,100 feet), revetment (600 feet), tailwater return system (1), streambank road crossing (1), repair of damaged pipe crossings (9), low flow crossing (1); Arroyo Passajero: scope not yet established; to include revegetation, alternate water supply and fencing			x	x	x	
	Prepare and/or distribute education and outreach materials.	RWQCB 4		RWQCB 4	CWA §319(h) Prop 13	Draft brochure; Draft newsletter (semi-annual)			x			If funds are available
	Support funding opportunities for grants to stakeholders.	USEPA SWRCB RWQCB 4		RWQCB 4	CWA §319(h) Prop 13	Amount of funds provided to stakeholders for ESCP implementation		x	x	x	x	If funds are available

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Identify management measures/practices in place.	NRCS RWQCB 4		RWQCB 4		Number of questionnaires responded to and/or site visits				x		If funds are available
	Draft waiver for facilities that implement Resource Control Plans to protect water quality standards.	NRCS RWQCB 4		RWQCB 4	CWA §319(h) TMDL EQIP	Number of waivers for Resource Control Plans implemented					x	If funds are available
	Provide technical assistance in the implementation of BMP demonstration projects implemented pursuant to the Imperial County Farm Bureau NPS Initiative.	RWQCB 7, Imperial County Farm Bureau, CFB, NRCS		Salton Sea Transboundary Watershed	CWA §319(h) EQIP, CFB				x	x	x	
Track and Monitor	Monitor long-term sediment management strategies.	SWRCB, local agency		Union School Slough (Yolo County)	CWA §319(h), CALFED			x	x	x	x	
	Track and monitor MMs implemented.	RWQCB 4		RWQCB 4	CWA §319(h) Prop. 13	Draft report of response to questionnaire				x	x	If funds are available
	Monitor BMP implementation through on-the-ground tracking and through cooperative reporting.	RWQCB 7, Imperial County Farm Bureau		Salton Sea Transboundary Watershed	CWA §319(h), General Fund Water Quality Initiative	GIS-based tracking system with planned and implemented actions				x	x	
	Track monitoring programs specified in the sediment TMDL implementation plan.	RWQCB 8, watershed committee	UCCE, Orange County Farm Bureau, UC Riverside	Newport Bay Watershed	CWA §319(h); CWA §106; general funds	Baseline and post-monitoring (continuous)		x	x	x	x	
Report	Summarize erosion and sediment control task.	RWQCB 4		RWQCB 4		Distribute report to other Regions and stakeholders			x		x	
	Prepare and distribute biennial NPS Implementation Progress Reports for the Salton Sea Transboundary Watershed.	RWQCB 7		Salton Sea Transboundary Watershed	CWA §319(h), General Fund Water Quality Initiative, TMDL	Acreage covered by BMPs; Numbers of BMPs with accepted performance standards; Percent of dischargers implementing BMPs				x		

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. Work with the National Resource Conservation Service and U.S. Environmental Protection Agency to develop and implement a joint unified Animal Feeding Operations (AFOs) strategy, and develop a statewide strategy for AFOs.
2. Develop manure management and removal strategy for equestrian facilities and dairies in Regions 1 and 4.
3. Develop pilot projects that demonstrate best management practices.
4. Foster grant programs for NPS control on dairies.
5. Educate dairy industry on NPS impacts and control and conduct dairy waste management training.
6. Inpect and identify dairies, addressing dischargers in violation of water quality standards through use of regulatory authorities.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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 Water Master,	Chino Basin, Lake Elsinore/San Jacinto watershed		Database	x	x	x	x		
	Identify water segments impaired by AFOs.	RWQCB 4		RWQCB 4		Estimate number of horse corrals, kennels, and other AFOs by watershed			x			If funds are available
	Evaluate the current confined animal feeding operations (CAFO) programs being implemented at the Regional level.	SWRCB RWQCBs		Statewide		Evaluation Report				x	x	
		RWQCB 6				Report to RWQCB		x				RWQCB 6-- Evaluation of current legislation of CAFOs in Mojave Basin
Target	Prioritize by location of impaired waters, size of AFOs, and number of facilities.	RWQCB 4		Region 4		Publish Priority List				x		If funds are available
Plan	Foster grant program for NPS control on dairies.	RWQCB 1		Humboldt Watershed Management Area	CWA §319(h)	Three projects per year		x	x	x	x	
	Development of manure management strategy for equestrian facilities.	Alameda County RCD, RWQCB 2		Region 2	CWA §319(h) grant	Manure marketing assessment report; Waste management demonstration sites; Manure management strategy				x	x	Grant will be ongoing until FY 03-04.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Develop manure removal strategies.	RWQCB 8,	Local dairy agencies, Orange County Sanitation District (OCSD), Inland Empire Utilities Agency (IEUA)	Chino Basin, San Jacinto Watershed		Reduction in manure remaining in Chino Basin	x	x	x			
	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			
	Draft implementation control strategy.	RWQCB 4		Region 4	Prop. 13 EQIP	Final strategy				x		If funds are available
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(h) 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		Region 1	TSCA grant CWA §319(h) Current staff	Under the Partnership Agreement, complete dairy waste management training for 50 percent of CDFA inspectors in two years; RWQCB 5 has completed training of 100 percent of CDFA inspectors	x	x	x	x	x	On going activity Also supports process element of implementation
	Participate on the Sonoma-Marin Animal Waste Committee, Interagency Confined Animal Coordinating Group, and Dairy Waste Management Partnership Agreement.	RWQCB 2		Marin, Sonoma	CWA §319(h)	Monthly updates to dairy community	x	x	x	x	x	
	Coordinate with other agencies and stakeholders.	RWQCB 4		RWQCB 4		Establish list of stakeholders		x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Work with USEPA and Natural Resources ConservationService (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 USEPA	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 National Pollutant Discharge Elimination System (NPDES) permit.	RWQCB 8		Region 8	CWA §319(h)	Implement updated permit	x	x	x	x	x	
	Develop pilot projects to demonstrate best management practices at equestrian facilities; develop manure management measures.	Alameda County RCD, RWQCB 2		Region 2	CWA §319(h) grants	Horse Owners Manual fact sheets; Demonstration sites	x	x	x			
	Develop manure management strategy for equestrian facilities.	Alameda County RCD, RWQCB 2		Region 2	CWA §319(h)	Manure marketing assessment report; Waste management demonstration sites; Manure management strategy				x	x	Grant will be ongoing until FY 03-04
	Inspect up to 40 dairies and other confined animal facilities.	RWQCB 2		Marin and Sonoma Counties	CWA §319(h)	Inspection reports and semi-annual reports to SWRCB summarizing findings from inspections	x	x	x	x	x	Ongoing activity
	For those facilities where problems are identified, initiate appropriate actions (followup inspections, notices to comply, Notice of Violations [NOVs], Reports of Waste Discharge [ROWDs] and permits as needed).	RWQCB 2		Marin and Sonoma Counties	CWA §319(h)	Five to ten orders yearly; Summary reports on compliance status; Permits as needed for compliance	x	x	x	x	x	On as needed basis
	Educate dairy industry on NPS impacts and control, foster stewardship ethic, develop self-regulatory body.	RWQCB 1		Humboldt WMA	CWA §319(h)	A strategy with self-regulatory corrective actions by 2002		x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	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 Waste Discharge Requirement (WDR) in Central Valley.	SWRCB RWQCBs (except RWQCB 6)		Central Valley, Chino Basin, San Jacinto Watershed	General Fund, NPDES/WDR permit funds	Inspect 20 percent of all facilities annually		x	x	x	x	Ongoing activity With current available resources, RWQCB 5's focus is solely on complaint investigation and enforcement. Budget constraints do not allow for routine periodic inspections.
t	Identify management practices currently in place.	RWQCB 4		Region 4		Number of questionnaires			x			If funds are available
	Promote grants to stakeholders for implementation of MP.	RWQCB 4		Region 4	CWA §319(h) Prop 13	Amount of funds provided to stakeholders		x	x	x	x	If funds are available
	Draft waiver for facilities that implement Resource Control Plans to protect water quality standards.	NRCS RWQCB 4		Region 4	CWA §319(h) TMDL EQIP	Number of waivers for Resource Control Plans implemented					x	If funds are available
Track and Monitor	Review success of MP for AFOs.	RWQCB 4		Region 4		Draft report of MP success					x	If funds are available
	Establish database to track progress on animal waste facility inspections; continue to track and monitor.	RWQCB 2		Marin and Sonoma Counties	CWA §319(h)	Completion of database; Semiannual reports to SWRCB summarizing progress		x	x	x	x	
	Monitor for compliance in general NPDES permitted dairies.	RWQCB 8		Region 8	NPDES, CWA §§103 and 121	Inspections; database; Followup on illegal disposal-spill complaints		x	x	x	x	
	Implement monitoring program for TMDL development.	RWQCB 8	City of Lake Elsinore, dairies	Lake Elsinore	To be determined	TMDLs (still in development)		x	x	x		
Report	Summarize AFOs.	RWQCB 4		Region 4		Distribute report to other Regions and stakeholders			x		x	

Management Measure Category: Agriculture

Management Measure Title: 1C – Nutrient Management

Management Measure Targeting Level: Primary

Objectives:

1. Develop regional numeric nutrient criteria in cooperation with USEPA, RWQCBs, and Nutrient Criteria Team.
2. Develop standards for heaving metals in organic and inorganic fertilizers.
3. Develop TMDLs and associated implementation plans for CWA §303(d) listed water bodies in Regions 1, 2, 3, and 5.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	For watersheds with limited information, inspect irrigated agriculture and grazing areas for nutrient discharges.	RWQCB 3		Lands with irrigated agriculture or grazing uses	New	One major/priority watershed inspected per year;	x	x		x	x	
	Identify water segments impaired by nutrients.	RWQCB 4		Region 4	BCP	Updated CWA §303(d) report		x			x	As needed
	Review water quality lists of stream segments.	RWQCB 4		Region 4		Changes of CWA §§303(d) and 305(b) reports			x		x	Dependent on availability of reports
	Participate in multi-agency efforts to monitoring and model internal and external nutrient loading of the Salton Sea.	Salton Sea Science Office, RWQCB 7		Salton Sea	Current staff	Advancement in understanding of nutrient cycling and nutrient loading in the Salton Sea			x	x	x	
Target	Prioritize water segments by TMDLs.	RWQCB 4		Region 4		Publish priority list		x				If funds are available
Plan	Develop regional numeric nutrient criteria in cooperation with USEPA, RWQCBs, and Nutrient Criteria Team.	USEPA, SWRCB, RWQCBs (except RWQCB 6)		Statewide		Develop regional criteria by 2000; Incorporate into basin plans by 2003	x	x	x	x	x	RWQCB 6 has not been involved to date.
	Develop standards for heavy metals in organic and inorganic fertilizers.	DFA, 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, Stemple Creek Petaluma River		Two TMDLs and implementation plans in Region 1					x	
		RWQCB 2		Petaluma River	TMDL funds	TMDL report					x	
		RWQCB 3		Lower Pajaro River, Lower Salinas River, Monterey Bay and Morro Bay Watersheds		TMDLs, implementation plans	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Develop TMDL for dissolved oxygen (DO) in Stockton and the Sacramento-San Joaquin River Delta.--includes source loading studies, analysis of historical USGS loading data, upper basin loading studies, development of model to convert loads to BOD and coordination with the San Joaquin River stakeholder group/steering committee.	RWQCB 5		Stockton and SJ Delta	State and federal TMDL funds, CALFED, local source funding	Validation of dissolved oxygen (DO) model; Definition biochemical oxygen demand (BOD) and nutrient sources; Fact sheets; Outreach meetings (10 per year through 2002); TMDL (one)			x	x	x	TMDL for DO due 2003; Basin Plan Amendment due 2004
	Develop nutrient management plans.	RWQCB 8,	Orange County. Farm Bureau (OCFB), UCCE	Newport Bay Watershed	CWA §319(h)(h) funds	One agriculture nutrient management plan; Specify five BMPs		x	x	x	x	Requirement of Newport Bay TMDL
	Draft implementation control strategies.	RWQCB 4		Region 4		Identify who should have nutrient management program; Requirements of nutrient management program			x			If funds are available
Coordinate	Develop MOU or MAA with other regulatory agencies to control nutrients.	SWRCB, RWQCBs, excluding RWQCB 5 and RWQCB 6, NRCS		Statewide	Current							RWQCB 6 has not been involved to date.
	Coordination with stakeholders occurs during all phases of program.	See lead agency per process		Statewide	Current staff		x	x	x	x	x	
	Coordinate with other agencies and stakeholders.	RWQCB 4		RWQCB 4		List of stakeholders			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 Region 3	CWA §319(h), USDA-EQIP, CFB, and MBNMS	Number of pilot projects varies depending upon contracts awarded, currently 2-3 over two years		x	x	x	x	
	Implement strategies for protection of resources from agricultural pollution, including nutrients, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS SWRCB	CCC	Central Coast	CWA §319(h)	Complete final WQPP agriculture plan by summer 1999 and begin implementation	x	x	x	x	x	Ongoing activity Includes all NPSs impacting MBNMS watersheds

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Implement TMDLs for CWA §303(d) listed water bodies.	RWQCB 1		Laguna de Santa Rosa, Stemple Creek		In Laguna de Santa Rosa: ammmonia levels below TMDL target; In Stemple Creek: incremental reduction in sediment according to TMDL for 2002	x	x	x	x	x	
		RWQCB 3		Lower Pajaro River, Lower Salinas River, Monterey Bay and Morro Bay Watersheds		One by 2000, additional three by 2003 (implementation begun but not complete)	x	x	x	x	x	
	Implement nutrient management plans.	RWQCB 8,	OCFB, UCCE	Newport Bay Watershed	CWA §319(h)(h) funds	Nutrient reduction from agricultural lands to meet load allocations will be implemented in January 2001		x	x	x	x	Requirement of Newport Bay TMDL
	Update WDRs for commercial nurseries.	RWQCB 8		Newport Bay Watershed	General funds	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.	RWQCB 5, local agencies		Phelan Island	CWA §319(h)	Replacement of 33 acres of orchards from 98-00	x	x	x			
	Implement program for alternative practices for prunes.	RWQCB 5, local agencies		Phelan Island	CWA §319(h)	Education workshops and field meetings (4 per year); Cooperating growers demonstrating practices for nutrient and pesticide management (10 growers)	x	x	x			
	Prepare and/or distribute education and outreach materials.	RWQCB 4		Region 4		Draft nutrient management program brochure; Draft newsletter				x		If funds are available
	Support funding opportunities for grants to stakeholders.	NRCS, RWQCB 4		Region 4	CWA §319(h) Prop 13	Amount of funds provided to stakeholders for nutrient management program implementation		x	x	x	x	If funds are available
	Draft waiver for facilities that implement nutrient management programs to protect water quality standards.	NRCS RWQCB 4		Region 4	CWA §319(h) TMDL EQIP	Number of waivers for nutrient management programs implemented					x	If funds are available

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Outreach and education project to encourage walnut farmers to implement agricultural practices that reduce overall use of pesticides and synthetic fertilizers.	RWQCB 5		Stanislaus County	CWA §319(h)	Recruitment of 15-20 growers; Customized farm plans for each grower; Grower visits to review farm plans (2 per year); Weekly orchard monitoring; Farm field days and workshops (6); Goal is to reduce synthetic nitrogen fertilizer use by 25 percent and pesticide sprays by 50-75 percent by enrolled growers			x	x	x	
	Implement BMPs on cotton to reduce OP applications and other pesticides and synthetic fertilizers on cotton crops in priority watersheds.	RWQCB5		Northern San Joaquin Valley	319(h)	Recruitment of 30 growers to implement BMPs on up to 10,000 acres; covercrop evaluation; goal is to reduce pesticide use by 80 percent and synthetic fertilizer use by 50 percent by enrolled growers.			x	x	x	
Track and Monitor	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
	Review TMDL compliance monitoring data.	RWQCB 8		Newport Bay	CWA §104/106	Evaluation of TMDL compliance; Two developed (nutrient and sediment); Pathogen under development	x	x	x	x	x	Nutrient TMDL, sediment TMDL and fecal coliform TMDL
Report	Summarize nutrient management program control tasks.	RWQCB 4		Region 4		Distribute report to other Regions and stakeholders			x		x	

Management Measure Category: Agriculture

Management Measure Title: 1D – Pesticide Management

Management Measures Targeting Level: Primary

Objectives:

1. Identify pesticide impairment and implement strategies for protection of resources from agricultural pollution, including pesticides.
2. Develop TMDLs for diazinon and chlorpyrifos by 2002 in Regions 2 and 5.
3. Reduce pesticides in agricultural and urban surface waters through local outreach.
4. Prepare and distribute education and outreach materials to promote the practices in the pesticide management program.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	Identify water segments impaired by pesticides.		RWQCB 4	Region 4	BCP	Updated CWA §303(d) list		x			x	As needed
	Review water quality lists of stream segments.	RWQCB 4		Region 4		Changes to CWA §303(d) reports					x	Dependent on availability of reports
Target	Prioritize water segments through TMDL development/implementation schedule.	RWQCB 4		RWQCB 4		Publish priority list		x				
Plan	Develop strategies for protection of resources from agricultural pollution, including pesticides, in cooperation with the MBNMS WQPP.	RWQCB 3 MBNMS SWRCB	CCC	Central Coast	CWA §319(h)	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	Newport Bay Watershed Management Committee	Newport Bay watershed	CWA §106; CWA §319(h); General funds	Toxics TMDL	x	x	x	x		Toxics TMDL to be approved by the State by January 2002

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Participate in the Sacramento River Watershed Program (SRWP) to develop an organophosphate(OP) pesticide management strategy.	RWQCB 5S CDPR	CDFG; USGS; Glenn, Butte, and Sutter County Agricultural Commissioner's Offices; NRCS; Yuba, Sutter, Colusa and Yolo County RCDs; SWRCB; City of Sacramento; Sacramento County Regional Sanitation District	Sacramento River Watershed	Sacramento River Watershed Program (Congressional appropriations), CWA §319(h)	Determine diazinon loading and evaluate toxicity: Target Report (1); Management Practices Report (1); Outreach programs (2); Program for general audiences and a program to address non-traditional stakeholders; Monitoring--99/00 winter diazinon loading study, continuing trend monitoring; Management Strategy (based upon targets, management practices and monitoring analyses) (1); SRWP website; SRWP Resource Center; Staff participation in/facilitation of 6 subcommittees/work groups (average 5 meetings per month)	x	x	x	x	x	May extend to 2002; Will help TMDL development for diazinon; Focus of program at this time on orchard dormant sprays
	Develop TMDL for diazinon.	RWQCB 2 CDPR (RWQCB 2 and RWQCB 5 developed separately)		SFB urban creeks,	Federal, CALFED, State General Fund	Developed TMDL	x	x	x	x	x	TMDL report due in June 2002; Implementation Plan due in June 2003; Basin Plan Amendment due in June 2004
		RWQCB 5S		Sacramento-San Joaquin River Delta, Sacramento River, Feather River, and San Joaquin River		4 TMDLs developed	x	x	x	x	x	TMDL reports for Sacramento, Feather and San Joaquin Rivers due in 2002; report for Sacramento-San Joaquin River Delta due in 2003. Based upon projected funding, Basin Plan Amendments anticipated to be submitted to the RWQCB one year following the TMDL report.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Develop TMDL for chlorpyrifos.	RWQCB 5S CDPR		Sacramento-San Joaquin River Delta and San Joaquin River	Federal, CALFED, State General Fund	TMDLs (2)	x	x	x	x	x	TMDL reports for San Joaquin River due in 2002; report for Sacramento-San Joaquin River Delta due in 2003. Based upon projected funding, Basin Plan Amendments anticipated to be submitted to the RWQCB one year following TMDL report.
	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. No funding right now for developing objectives, so no "x"s in "Fiscal Years"boxes at this point.
	Draft implementation control strategies.	RWQCB 4		RWQCB 4		Identify who should have pesticide management programs;			x			If funds are available
						Requirements of pesticide management programs			x			
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 CDPR	RWQCBs (except RWQCB 6)	Statewide	CWA §319(h)	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 individual pesticide TMDLs (RWQCB 6 is currently not working on pesticide TMDLs)
	Review the control/eradication program for red imported fire ants (RIFA) in Southern California in coordination with DFA, CDPR, and the RWQCBs.	SWRCB, CDFA	RWQCB 8, CDPR, UCCE, OCFB, Orange County	Statewide Newport Bay Watershed	CWA §319(h)	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.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	Minimize/avoid NPS pollution in pest eradication programs. Consult with RWQCBs and SWRCB when developing programs.	DFA		Statewide		Consultation	x	x	x	x	x	
	Coordinate with other agencies and stakeholders.	RWQCB 4		RWQCB 4		List of stakeholders			x	x	x	
	Coordinate monitoring activities with input from the Salton Sea Water Quality Technical Committee, which RWQCB staff will chair.	RWQCB 7, CDPR		Salton Sea Transboundary Watershed	General Fund	Annual water quality monitoring reports; Data incorporated into GIS database			x	x	x	
Implement	Implement strategies for protection of resources from agricultural pollution, including pesticides, in cooperation with the MBNMS WQPP.	CFB	RWQCB 3, MBNMS, CCC, SWRCB	Central Coast	CWA §319(h)	Complete final WQPP agriculture plan by summer 1999 and begin implementation; Two pilot watershed groups of agriculture producers organized; Five to ten farm water quality plans developed and implemented including pesticide MPs	x	x	x	x	x	Ongoing activity; Includes all NPSs impacting sanctuary watersheds
	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, SWRCB RWQCB 8		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 (excluding RWQCB 5); 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; Decreases in surface water toxicity due to OP pesticides		x	x	x	x	
	Implement water quality monitoring activities in the Salton Watershed for the Coachella Valley Water District, Alamo and New Rivers and the Imperial Valley Agricultural Drains.	RWQCB 7, CDPR	SWRCB, Office of Environmental Health Hazard Assessment (OEHHA)	Salton Sea Transboundary Watershed	General Fund	Annual water quality monitoring reports; Data incorporated into GIS database			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
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
	Form alliances with the regulated community to jointly focus on reducing environmental risks while providing pest management solutions using Integrated Pest Management (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 in Sacramento River; Review annual CDPR report; Triennial review of program by RWQCB 5	x	x	x	x	x	Next triennial review due in 2001
	Prepare and/or distribute education and outreach materials.	RWQCB 4		Region 4		Draft pesticide management program brochure; Draft newsletter			x			
	Support funding opportunities for grants to stakeholders.	NRCS RWQCB 4		Region 4	CWA §319(h) Prop 13	Amount of funds provided to stakeholders for nutrient mangement program implementation		x	x	x	x	If funds are available
	Draft waiver for facilities that implement pesticide management programs to protect water quality standards.	NRCS RWQCB 4		Region 4	CWA §319(h) TMDL EQIP	Number of waivers for nutrient management programs drafted					x	If funds are available

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Implement BMPs on cotton to reduce OP applications and other pesticides and synthetic fertilizers on cotton crops in priority watersheds.	RWQCB5		Northern San Joaquin Valley	CWA §319(h)	Recruitment of 30 growers to implement BMPs on up to 10,000 acres; Covercrop evaluation; Goal is to reduce presticide use by 80 percent and synthetic fertilizer use by 50 percent by enrolled growers			x	x	x	
	Program for alternative practices for prunes.	RWQCB 5, local agencies		Phelan Island	CWA §319(h)	Education workshops and field meetings (4 per year); Cooperating growers demonstrating practices for nutrient and pesticide management (10).	x	x	x			
	Outreach and education project to encourage walnut farmers to implement agricultural practices that reduce overall use of pesticides and synthetic fertilizers.	RWQCB 5		Stanislaus County	CWA §319(h)	Recruitment of 15–20 growers; Customized farm plans for each grower; Grower visits to review farm plans (2 per year); Weekly orchard monitoring; Farm field days and workshops (6); Goal is to reduce pesticide sprays by 50 – 75 percent and synthetic nitrogen fertilizer use by 25 percent by enrolled growers			x	x	x	
Track and Monitor	Coordinate water quality sampling program for RIFA program.	SWRCB, RWQCB 8, local agencies	CDPR CDFA	Statewide, Newport Bay Watershed	CWA §319(h)	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 (except RWQCB 6)		Statewide	CDPR	Monitoring agreements		x	x	x	x	CDPR has received approximately $800,000 per year to do this monitoring. RWQCB 6 is not currently working on pesticide TMDLs.
	Assess physical habitat conditions and biological communities in agriculturally dominated water bodies.	RWQCB5		Sacramento River Watershed	AB982	Annual monitoring reports			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Track and Monitor	Prevent aquatic toxicity from OP pesticide residues through voluntary efforts to monitor for compliance with water quality standards.	CDPR, RWQCB 5		Sacramento River and San Joaquin River Watersheds	CDPR Regulation Fund, General Fund	Monitoring data; RWQCB 5/CDPR: 99/00 winter monitoring (chemistry – source & load analyses; toxicity – trend monitoring); winter storm monitoring.		x	x	x	x	If by the year 2001-2002 use-season aquatic toxicity persists, it is expected CDPR will impose regulatory controls to lower dormant spray residues to acceptable levels.
		RWQCB 8	Newport Bay Watershed Management Committee	Newport Bay Watershed								
	Summarize the status of management practice implementation in key counties; establish baseline conditions in 4 small drainages where early implementation is scheduled.	RWQCB 5		Sacramento River watershed	NPS Program, CWA §319(h) Sacramento River Watershed Program (Congressional appropriations)	Annual Report; Development of monitoring program			x	x		
Report	Summarize pesticide management program control tasks.	RWQCB 4		Region 4		Distribute report to other Regions and stakeholders			x		x	

Management Measure Category: Agriculture

Management Measure Title: 1E – Grazing Management

Management Measure Targeting Level: **Primary**

Objectives:

1. Implement and evaluate rangeland management practices.
2. Promote better grazing practices at dairies and other rangelands to protect water quality and habitat.
3. Develop and implement TMDLs for CWA §303(d) listed waters in Regions 1 and 3.
4. Direct grant funds and cost-sharing opportunities to projects that implement grazing management practices.
5. Develop a program to initiate watershed education.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	[See *All Management Measures* section.]											
Target	[See *All Management Measures* section.]											
Plan	Provide financial support for rangeland water quality workshops held by UC.	UCD Range and Agronomy, SWRCB		Statewide	CWA §319(h)	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, SWRCB	CCC	Central Coast	CWA §319(h)	Complete final WQPP agriculture plan by summer of 1999	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(h), CWA §104, CWA §106, General Fund (funding fairly secure for development through 2001)	Adopted TMDL according to established schedule	x	x	x	x	x	
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(h)	MAA or MOU	x	x	x			Includes all NPSs impacting BLM lands

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	Participate on stakeholder technical advisory committee or with watershed groups.	RWQCB 5		Upper Pit River, Upper Feather River, Westside Tribs, Goose Lake Watershed, Fall River, Cow Creek Watershed, Battle Creek, Deer Creek, Cottonwood Creek, Reeds and Redbank Creeks	NPS Program	Attend at least 50 meetings per year	x	x	x	x	x	Multiple issues are covered by these groups, including livestock management.
		RWQCB 6		Walker River, Lake Tahoe Basin		Attend at least four meetings per year	x	x	x	x	x	
	Meet with local cattleman's association to discuss concerns and objectives of livestock grazing and water quality.	RWQCB 5		Central Valley	NPS Program	Outreach meetings/workshops (3 for FY 00-01)			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(h), EQIP, Farm Bureau, MBNMS	Implementation of 2-3 rangeland projects per year	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(h)	Implementation of at least one new project each year	x	x	x	x	x	
		RWQCB 5		Central Valley	CWA §319(h), NPS Program, staff funds	Implementation of at least one new project each year		x	x	x	x	
	Implement 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)	Implementation of practices per the TMDL	x	x	x	x	x	
	Inspect 40 dairies annually and inventory current grazing practices.	RWQCB 2		Marin and Sonoma Counties	BCP	Establish problem statement				x		Dependent upon funding
	Promote better grazing practices at dairies to protect water quality and habitat.	RWQCB 2 Marin-Sonoma Animal Waste Committee		Marin and Sonoma Counties	BCP	Document water quality and habitat improvements at 10 dairies			x	x	x	Dependent upon funding
	Promote better grazing practices at other rangelands to protect water quality and habitat.	RWQCB 2		Napa, Solano, and San Mateo Counties	BCP	Document water quality or habitat improvements on other rangelands				x	x	Number of acres documented depends on funding

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	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 Region 3	CWA §319(h), General Funds (funding not secure)	Two inspections per year; Number of inspection reports; Implementation recommendations made in reports	x	x	x	x	x	
	Implement TMDLs for CWA §303(d) listed waters.	RWQCB 1		Garcia River Watershed	CWA §319(h)	Five ranch plans per acres; One monitoring plan; Five sites monitored; Data report in 2002		x	x	x	x	
		RWQCB 3		Lower Salinas River, Lower Pajaro River, Morro Bay Watershed	CWA §319(h), 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	
	Participate in the MBNMS WQPP to implement strategies for protection of MBNMS resources from agricultural pollution, including rangeland.	MBNMS	RWQCB 3, CCC, SWRCB, CFB	Central Coast	CWA §319(h)	Begin implementation. of WQPP agriculture plan; Complete at least one "strategy" of Plan for Agriculture per year	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	NRCS, UCCE, RCDs and CRMPs	Central Valley	NPS Program	Organized talk, field tours, individual meetings (12 per year)		x	x	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 (2 projects per year to include livestock enclosure fencing and off-site watering facilities)		x	x			
	Implement and evaluate Rangeland BMPs	RWQCB 6		West Walker River	NPS Program			x	x	x		
	Program for schools to initiate a watershed education program	RWCB5		Upper Pit River	NPS Program	Establish "river center"		x	x			Contingent upon adequate funding
Track and Monitor	Implement the SWRCB adopted WQMP.	RWQCB 5		Central Valley	NPS Program	Ranch Management Plans			x	x		Number of Plans per acres by region have not been established at this point.
	Evaluate and report effectiveness of rangeland BMPs.	RWQCB 3		Morro Bay	CWA §319(h) National Monitoring Program	Report					x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Track and Monitor	Disseminate statewide knowledge of rangeland BMP effectiveness.	RWQCB 3		Morro Bay	CWA §319(h) National Monitoring Program	National Conference					x	
	Resurvey participants in rangeland water quality workshops to determine extent of implementation of ranch WQMPs.	UCCE		Statewide	CWA §319(h)	Annual summary of level of implementation		x	x	x	x	
	Review ranch plans.	RWQCB 5		Central Valley	NPS Program	Number of Ranch Plans reviewed (2/year in 98 and 99; 5-6/year for 00 to 02)	x	x	x	x	x	
Report	Conduct selected quantitative or qualitative monitoring to document water quality impacts from grazing activities.	RWQCB 5		Sacramento Valley	NPS Program	Sites monitored (4)	x	x				Monitoring discontinued due to lack of resources.

Management Measure Category: Agriculture

Management Measure Title: 1F – Irrigation Water Management

Management Measure Targeting Level: Secondary

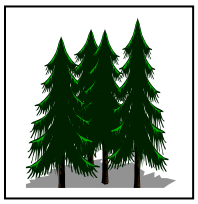
Objectives:

1. Develop methods and practices to reduce toxic elements in drainage water in the San Joaquin Valley.
2. Develop and implement TMDLs for selenium, salt, and boron in the San River River.
3. Conduct environmental planning for San Luis Drain.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Assess	Coordinate TMDL unit work with stakeholders to document levels of use and associated impacts to beneficial uses.	RWQCB 8, UCCE, OCFB, UC Riverside	Orange County dischargers	Newport Bay watershed	CWA §106; General funds	Baseline monitoring 2/00-12/00; Post monitoring 1/01-continuous; Evaluate compliance 7/02-12/02		x	x	x	x	
	Identify water segments impaired by irrigation return water.	RWQCB 4		Region 4		CWA §303(d) list update					x	
Target	[See *All Management Measures* section.]											
Plan	Develop methods and practices to manage and reduce toxic elements in drainage water.	DWR, DFA, SWRCB		San Joaquin Valley	Prop. 204 funds transfer	Documentation of feasible methods		x	x	x	x	Six-year program with funding under Prop. 204
	Conduct environmental planning for San Joaquin Valley agricultural drainage.	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 (1)		x	x	x		
	Develop TMDL for salt and boron in San Joaquin River.	RWQCB 5		San Joaquin River	NPS Program	TMDLs (2)			x	x		TMDL report due June 2001
	Administer grant to evaluate implementation of economic incentives (load trading program for Grassland Bypass Project).	RWQCB 5		San Joaquin River	NPS Program CWA §319(h)	Meetings (6 per year; 18 total); Final report	x	x	x			Final report was released in spring 2000.
	Develop TMDL for selenium in San Joaquin River.	RWQCB 5		San Joaquin River	NPS Program	TMDL (1)			x	x		Does not include Basin Plan Amdendment
Coordinate	Hold bi-monthly RWQCB Irrigated Agriculture Roundtable for information and strategy exchange.	SWRCB	RWQCBs 3, 4, 5, 7	Regions 3, 4, 5, 7	Baseline	Recommendations to SWRCB for NPS management of irrigated agriculture		x	x	x	x	Ongoing

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Participate in the San Joaquin Valley Drainage Implementation Program (SJVDIP).	DWR	SWRCB, CDFA, CDFG, USFWS, USGS, USBR, NRCS	San Joaquin Valley	Prop. 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 (2 per month); Workshops (6 per year)		x	x	x	x	
	Quantify measures to reduce impacts from irrigation waters.	Agriculture groups, UCCE, UC Riverside	RWQCB 8	Newport Bay Watershed	CWA §319(h)	Documentation of selected (preferred) measures; One nutrient agriculture management plan			x	x	x	RWQCB will coordinate as necessary for completion of TMDLs.
Implement	Implement salt and boron control program.	RWQCB 5		San Joaquin River	NPS Program	Development of waiver program			x	x	x	Once waiver program is in place, review of discharger submittals will be required.
	Real time management of salt in San Joaquin River.	RWQCB 5		San Joaquin River	CALFED	Weekly assimilative capacity reports posted on website; Workshops (2 per year); Meetings (12 per year); Activity reports (4 per year)		x	x	x		Funding ends in early 2002. Additional funding to continue effort being sought.
	Implement TMDL for selenium.	RWQCB 5		San Joaquin River		Incorporation of new load limits in WDR for Grassland Bypass Project (covers about 100,000 acres)				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	Weekly assimilative capacity reports posted on website; Workshops (2 per year); Meetings (12 per year); Activity reports (4 per year)		x	x	x	x	Funding ends in early 2002. Additional funding to continue effort being sought
Report	[See *All Management Measures* section.]											

B. 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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	[See *All Management Measures* section.]											
Target	Develop TMDLs for CWA 303(d)-listed waters impaired by silvicultural activities.	RWQCBs 1, 3, 5, and 6		Statewide	Current Staff	TMDL schedule	x		x		x	
Plan	Review the following issues and prepare recommendations that amend FPR: • Watersheds with Endangered Species Act (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, California Department of Mines and Geology, UC, DFG, SWRCB, RWQCBs 1, 3, 5, and 6		Statewide, especially North Coast	State	Set of FPR amendments sent to BOF Amendments to CDF administrative manual	x	x	x	x		BOF adopted Endangered Species Act (ESA) watershed rules, 04/00. Scientific study completed 06/99.
	Propose modifications of the FPR to the BOF to address TMDLs and requirements of CZARA.	SWRCB RWQCBs (excluding RWQCB 4)	CDF, DFG	Statewide	Budget Change Proposal (BCP) 99-00	Submit proposed changes to BOF				x		
	Adopt FPR amendments.	BOF		Statewide	State	FPR adopted by BOF		x	x	x		Rules cannot become effective until calendar year following OAL approval.
						FPR approved by OAL			x	x		
						FPR become effective			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
	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.
Plan	Coordinate development and adoption of FPR.	BOF		Statewide	State		x	x	x	x	x	Ongoing
Coordinate	Public review of proposed FPR amendments.	BOF		Statewide	State	Public comments	x	x	x	x	x	Ongoing
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	x			x	x	Enhanced MMs implementation
						Additional staff hired and trained		x	x		x	
	Implement amended FPR.	CDF		Statewide	State				x	x	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.	Mariposa County RCD for the Stockton Creek Watershed, Madera County Environmental Health for the Willow Creek Watershed	CDF	Willow, Stockton Creek,and American River Watersheds	Prop. 204	Willow Creek: goal to reduce fuel loads on 705 acres; loads reduced on 215 acres presently. Stockton Creek: fuel loads reduced on 1,200 acres; work continuing		x	x	x		Due to lack of funding, Redding office staff is not involved in fuel load reduction efforts in the northern part of the Central Valley Region at this time.
		RWQCB 6, local agencies		Lake Tahoe Basin		Provide technical assistance through prescribed Burn TAC	x	x	x	x	x	
Track and Monitor	Conduct statewide implementation/ effectiveness monitoring program.	CDF		Statewide	State	Monitor 50 sites per year;	x	x	x	x	x	First report completed.
						Provide biennial reports to BOF	x	x	x			
	Develop and implement administrative and repeated monitoring components.	BOF		Statewide	State	Develop new components				x	x	Administrate = how well did planning evaluate potential impact? Repeated = re-monitor sites after stressing events
						Implement new components			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
	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		
Track and Monitor	Increase review of Timber Harvest Practices (THPs).	RWQCB 1		North Coast	BCP 99-00	25 percent of THPs will be reviewed		x	x	x	x	
	Review of THPs, conduct pre-harvest inspections (PHIs).	RWQCB 5		Regionwide	General Funds	Review 400-500 THPs per year; Field review (PHIs) of 8-10 percent of THPs reviewed.	x	x	x	x	x	
Report	[See *All Management Measures* section.]											

C. 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.

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

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.

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.
3. Incorporate applicable MMs in Urban TMDL development strategies and implementation plans.
4. Incorporate applicable MMs in NPDES permits that come up for review.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	Develop regional monitoring strategy; coordinate monitoring with local partners to monitor; and assess watersheds in urban areas for CWA §§305(b)/303(d) listings.	RWQCB 2, Local Stormwater Agencies	Friends of the Estuary (Watershed Assessment Resource Center), SCC	Region 2	USEPA grant	Regional monitoring and assessment strategy; Assessment of 10-20 percent of region's watersheds annually			x	x	x	
	Conduct more intensive site-specific evaluations of impacts of Cal/Trans and local government road maintenance practices.	RWQCB 6	Cal/Trans, counties	Regionwide		At least 10 inspections per year	x	x	x	x	x	
	Identify water segments impaired by sedimentation.	RWQCBs		Statewide		Develop CWA §303(d) list for RWQCB approval		x		x		
	Develop Trash TMDLs.	RWQCB 4		Region 4		Approval of Basin Plan Amendment			x	x		
	Determine level of sediment and nutrient impacts from new developments located in upstream areas.	RWQCB 8		Lake Elsinore		Monitoring data--ongoing			x	x		Data will supplement TMDL development
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	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Promote watershed planning and the development of regional watershed management plans that include MMs and foster implementation of these plans.	SWRCB, SCC, local and regional entities, RCDs, Governor's Office of Planning and Research, Resources Agency, Cal/EPA	CCC, USFS, USGS, local agencies	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	
	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	
	Review project plans for road construction and maintenance.	RWQCB 6		Region 6		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 RWQCBs 4, 5, 6 and 8), CCC		Statewide (watershed-based)	CWA §319(h) 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	
	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 organophosphate (OP) pesticides in urban creeks.	RWQCB 2, / RWQCB 5		Urban areas in SF Bay Area / Central Valley	NPS Program, TMDL funding, and BCPs	RWQCB staff to conduct UPC meetings and coordinate agency activities; documentation of meeting attendance / RWQCB 5 to attend meetings quarterly	x	x	x	x	x	
	Work with municipalities and counties to develop appropriate grading ordinances aimed at controlling impacts from new development.	RWQCB 2 MBNMS WQPP in Central Coast RWQCB 6	CCC	MBNMS Regionwide	NPDES Storm Water—Non Chapter 15	Region 2—Development of grading ordinances for all municipalities within Region (10 per year)	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
		RWQCB 3,	Cities and counties in Region 3			Ordinances in Monterey, San Luis Obispo, and Santa Barbara Counties and munipalities within Region 3						
Coordinate	Coordinate with developer and regulatory agencieswith respect to erosion standards for development.	RWQCB 2, Local planning agencies		SFB Regione	NPDES Stormwater	Standard Urban Stormwater Mitigation Plan (SUSMP) Approval	x	x	x	x	x	
	Conduct BMP workshops for local developers.	RWQCB 2 RWQCB 6,		Region 2	NPDES Storm Water—Non Chapter 15	RWQCB 2 will conduct 7-10 workshops annually.	x	x	x	x	x	
		RWQCB 8	Newport Bay Watershed Management Committee	Region 8		RWQCB 8 will conduct monthly meetings addressing pesticide, RIFA, BMPs.		x			x	
Implement	Incorporate applicable MMs into NPDES permits that come up for review.	SWRCB, SWQTF	RWQCBs	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	RWQCB 5 incorporates BMPS into NPDES Stormwater permits which, to the extent applicable, support the adopted MMs.
	Review new LCPs, LCPAs, and CDP applications brought before it for appropriate NPS pollution prevention and control.	CCC		Coastal Zone	BCPs CWA §319(h)	40-50 CDPs reviewed; 7-13 LCPs and LCPAs reviewed per year	x	x	x	x	x	
	Implement Water Quality Protection Program (WQPP) for MBNMS.	MBNMS WQPP RWQCBs 2 and 3	CCC	MBNMS	BCPs CWA §319(h) 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 regionwide	BCPs, CWA §319(h), Local governments	MURP implementation in three new cities or counties			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Enforce sites where erosion and sedimentation are uncontrolled.	RWQCB 2		SFB Region	NPDES Stormwater	RWQCB 2—75 enforcement orders annually	x	x	x	x	x	Includes Notices to Comply, Cleanup and Abatement Orders (CAOs), Administrative Civil Liabilities (ACLs)
		RWQCB 8		Lake Elsinore Watershed		RWQCB 8—none since tracking in database 01/00	x	x	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.	Local agengies	RWQCB 2	Urban areas in SF Bay Area	NPS Program, TMDL funding	Active participation of CDPR, municipalities, and other interested entities (e.g., pesticide registrants, UC Departments) in UPC.			x	x	x	RWQCB 5 Urban Creek TMDL report to be completed by December 2001, the Basin Plan Amendment to be submitted to the Board 1 year later.
		Local agencies	RWQCB 5	Central Valley		RWQCB 5-- Urban Creek TMDL report (1) Basin Plan Amendment (1).						
	Oversee implementation of urban runoff practices in four North SF Bay counties.	RWQCB 2		Marin, Napa, Solano, and Sonoma Counties	CWA §319(h)	Annual meetings with municipalities to provide assistance and review program performance; Review and comments on annual reports for each county	x	x	x	x	x	
	Review of Marin County Action Plan 2005.	RWQCB 2		Marin County	CWA §319(h)	Review and written approval of Marin County's 5-year Action Plan, designed to implement performance standards and transition to permit status			x			
Track and Monitor	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	
	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	Completed TMDL implementation plans incorporating MMs			x	x	x	
	Permit tracking five-year review.	RWQCBs (excluding RWQCB 4 and 8), CCC (in the coastal zone)		Statewide by Region	State and one-time grant	Increased use of MM; Number of WQ issues reviewed in permits					x	To complete performance measures review, one-time funding will be necessary.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
	Citizen's Monitoring Program	Sacramento River Watershed Project	SWRCB, RWQCB 5	Sacramento River Watershed	NPS Program	Convening workshops (10 total from 98-00)	x	x	x			
Track and Monitor	Citizen's Monitoring Program: Detox - Urban Waterways .	Delta Keeper??	SWRCB, RWQCB 5	Stockton	CWA §319(h)	Citizen monitoring program (water quality monitoring conducted for 2 years); 60 students and 6 educators trained; Educational mailings to community (4); Local press articles (2).	x	x	x			
	Implement monitoring program for TMDL development.	RWQCB 8	Riverside and San Bernardino County Flood Controls, municipal water districts, City of Big Bear, ski opeations	Big Bear Lake	To be determined	TMDLs (still in development)		x	x	x		
	Review TMDL compliance monitoring data.	RWQCB 8		Newport Bay	CWA §104/106	Evaluation of TMDL compliance—2 developed (nutrient and sediment), pathogen under development	x	x	x	x	x	Nutrient TMDL, sediment TMDL, and fecal coliform
Report	[See *All Management Measures* section.]											

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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	Identify water segments impaired by OSDS.	RWQCB 4		RWQCB 4		Updated CWA §303(d) list				x		As needed
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
	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

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Review local OSDS-related policies and ordinances of local governments within one or more regions as submitted to the CCC (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. RWQCBs 5, 6, and 8)	Identified CCAs (e.g., the MBNMS)	Coastal Zone Management Act (CZMA) or CWA grants	Analysis of ordinances, policies, criteria, etc.		x				Modeled after similar recommended action in MBNMS (WQPP) Urban Action Plan. (RWQCB 5 recognizes this as an important task; however, lack of funding has limited staff work to a minimal effort.)
Coordinate	Assign or redirect SWRCB and/or RWQCB staffs to support OSDS activities.	SWRCB, in coordination with county health departments that have related/ overlapping authority	RWQCBs (except RWQCB 6)	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; Most Regions do not have resources to direct staff efforts to this issue.
	Develop a Memorandum of Agreement (MOA) between public agencies that operate facilities that use OSDS (e.g., Cal/Trans, DPR, Department 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	UCD ?	Statewide; begin in pilot project area (e.g., CCA or NEP such as Santa Monica Bay [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])

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Provide assistance to local developers in achieving the stated OSDS MM objectives.	SWRCB, RWQCBs (excluding RWQCBs 5, 6, and 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	Recommendation in NPS Initiatives Report and OSDS TAC Report Lack of resources limits RWQCB 5's efforts in this area.
	Provide technical assistance and oversight on siting and proper application of alternative technology.	SWRCB and RWQCBs (excluding RWQCB 5)	RWQCB 4	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 RWQCB 5 recognizes this as an important task and would like to increase efforts; however, current resources only allow for extremely limited staff work in this area.
	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 and RWQCBs (exluding RWQCB 5 and 6), in coordination with a local government	CCC	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? Without dedicated funding for this task, RWQCB 5 cannot provide work on this effort.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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 RWQCBs 5, 6, and 8)		Statewide	To be determined	Uniform standard of practice for the inspection of OSDS and pumping of tanks					x	OSDS TAC recommendation —development dependent on available funding.
	Develop consistent inspection and reporting protocols and certification of inspection forms for septic tank pumpers.	SWRCB, RWQCB (excluding RWQCBs 5, 6, and 8)	RWQCB 4, Santa Monica Bay Restoration Project (SMBRP)	Statewide	To be determined	Inspection and reporting protocols					x	OSDS TAC recommendation —development dependent on available funding.
	Develop data management systems to provide better tracking of inspection, maintenance, and performance information for OSDSs.	SWRCB, RWQCB (excluding RWQCBs 5, 6, and 8)		Statewide	To be determined	Data management system					x	OSDS TAC recommendation —development dependent on available funding.
	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 and RWQCBs (excluding RWQCBs 5, 6, and 8)	CCC	Statewide	To be determined	Technical assistance for existing and proposed OSDSs	x	x	x	x	x	Development dependent on available funding. Lack of resources limits RWQCB 5's efforts in this area.
	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 (except RWQCB 6		Statewide	To be determined	Program for annual inspection and certification of on-site system compliance	x	x	x	x	x	Trigger if other actions do not occur; Stakeholder recommendation (Heal the Bay [HTB])
	Update Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems, 1979, by including non-standard systems.	RWQCB 2		Region 2	BCP	Completion of update of minimum guidelines			x	x		Contingent upon staff resources
	Develop requirements for OSDS-maintenance-related activities (e.g., septic tank pump, switching of leachfields), where appropriate, based on occupancy patterns.	SWRCB, RWQCB (excluding RWQCBs 5, 6 and 8)		Statewide	Current staff	Guidelines	x		x		x	Stakeholder recommendation (HTB); Lack of resources limits RWQCB 5's efforts in this area.
	Develop a program to provide homeowner education and to encourage or require appropriate system operation and maintenance.	Nonprofit in coordination with SWRCB, RWQCBs, (excluding RWQCBs 5, 6, and 8), local municipalities	RWQCB 4	Statewide	CWA §319(h)	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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Track and Monitor	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, and Santa Clara Counties	BCP	Produce two Evaluation Reports per year for a total of eight counties, with findings and recommendations		x	x	x	x	
	Develop a mechanism to track effectiveness and implementation of urban BMPs for OSDSs and sediment/erosion control.	Stormwater Quality Task Force (SWQTF)		Regional	Contract staff					x		SWQTF subcommittee
Report	[See *All Management Measures* section.]											

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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	[See *All Management Measures* section.]											
Target	[See *All Management Measures* section.]											
Plan	Develop urban pesticide control education program.	Local agencies, RWQCB 2	RWQCB 4 RWQCB 8 nurseries, landscapers; CDPR, UCCE, Newport Bay Watershed Management Committee	Newport Bay, SFB,	CWA §319(h)	Pesticide control program; Household pesticide media campaign (RWQCB 2—SF Bay urban area by 2002) (RWQCB 8—Orange County by January 2001)			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
	Outreach and education under WMI—stakeholder meetings and workshops.	RWQCB 6		WMI target watersheds (Truckee, Upper Truckee, Carson, Owens, and Mojave River Watersheds)	CWA §§104/106, 319 Program Cost Account (PCA) 111 (WMI)	Participate in at least 10 meetings per year	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		Region 6	CWA §§104/106, 319 PCA 111 (WMI)	Participate in at least two activities per year	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	Coordinate and participate in training sessions, workshops, and community events.	SWRCB and RWQCBs	CCC RWQCB 4	Regional	Current staff	Participation in: regional watershed councils (~5), statewide and regional NPS workshops or meetings (5~10), special water quality taskforces (~5)	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		Coastal Zone	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, and beaches locations.	DPR, CCC		Coastal Zone	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
	Participate on technical advisory committees to address urban runoff issues.	RWQCB 2		Region 2	CWA §319(h)	Staff participation and attendance at numerous advisory committees associated with watershed management efforts; Summary status reports will be produced.	x	x	x	x	x	
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 (2-3 workshops per year); One—City of Watsonville		x	x			CCC's Coastal CPR Plan
	In public schools, participate in Adopt-a-Watershed and other watershed-awareness activities.	RWQCB 6, local agencies		Region 6 with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)	Two activities per year	x	x	x	x	x	
	Implement public education program for schools and public participation groups.	RWQCB 8, local agencies	Riverside, San Bernardino, Orange Counties, City of Newport Beach	Region 8 with focus in WMI target watersheds	CWA §§104/106, 319 PCA 436 (NPS)	Actively participate in monthly meetings (Public Information Public Participation Committee [PI/PP], California Clean Boating Network [CCBN], Southern California *Caulerpa* Action Team [SCCAT], NPDES Education Subcommittee meetings)	x	x	x	x	x	
	Use the RWQCB's table top watershed model to demonstrate the water quality impacts from development activities.	RWQCB 6		Region 6 with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)	Two activities per year	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Prepare newspaper articles and press releases to increase public awareness of watershed issues.	RWQCB 6		Region 6 with focus in WMI target watersheds	CWA §§104/106, 319 PCA 111 (WMI)	Two per year	x	x	x	x	x	
	Integrate watershed and polluted runoff information into the CCC's General Education Programs and applicable publications.	CCC		Coastal Zone	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		Coastal Zone	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	California Department of Education, USEPA, local stormwater agencies NPDES permittee	Statewide	CWA §319(h)	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.	RWQCBs through Adopt-A-Watershed (AAW) and other education groups	SWRCB, State Superintendent of Schools (California Regional Environmental Education Community [CREEC])	Statewide	SRF loan CWA §319(h)	Training for 300 teachers or administrators per year	x	x	x	x	x	Urban TAC recommendation
	Distribute watershed/water quality K-12 appropriate curricula.	RWQCBs through AAW and other education groups	SWRCB, State Superintendent of Schools (CREEC)	Statewide	SRF loan CWA §319(h)	2,500 copies per year	x	x	x	x	x	Urban TAC recommendation
	Make technical presentations to public and other agencies on urban runoff issues.	RWQCB 2		Region 2	CWA §319(h)	Development of presentation materials, including Powerpoint and slide presentations, fact sheets, and brochures, on a variety of NPS programs and issues--mininum of two to four yearly			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Facilitate the Sacramento River Watershed Program, Public Outreach and Education Subcommittee.	RWQCB 5		Northern Central Valley	Sacramento River Watershed Program (Congressional appropriations)	Workshops (2 per year); Technical documents (2); Watershed brochure; newsletters (3 per year); Public Service Announcements (PSA) (3 per year); display booth; website; Resource Center		x	x	x	x	
	Conduct Placer County RCD bioassessment and training seminars and related activities.	Placer County RWQCB 5		Northern Central Valley	CWA §319(h)	Conduct bioassessment training (9 sessions); Conduct seminars on stream channel dynamics, sedimentation, and watershed communication (9 sessions per year)		x	x	x	x	See grants for details.
	Make presentations to target corporation pesticide control operators (PCOs) on water quality and pesticide toxicity.	RWQCB 5		Region 5	Current staff	Presentations (3 sessions per year)		x	x			
	Implement Citizen's Monitoring Program: Detox–Urban Waterways Project.	RWQCB 5		Stockton	CWA §319(h)	Citizen monitoring program (monitoring conducted for 2 years); 60 students and 6 educators trained; Educational mailings to community (4); Local press articles (2).	x	x	x			
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		Coastal Zone	CWA §319(h) CCC License Plate funds Other government or corporate grants	An assessment report on California's polluted runoff educational programs in the coastal zone		x	x	x	x	CCC's Coastal CPR Plan
				Statewide	California Department of Education Cal/RA	An assessment report on California's polluted runoff educational programs in the coastal zone				x		Most NPS/CZARA State agency partners are involved in California Environmental Education Interagency Network (CEEIN)
	Evaluate K-12 watershed and polluted runoff educational programs statewide.	AAW, State Superintendent of Schools (CREEC)	SWRCB	Statewide	CWA §319(h) contract funds							

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Report	[See *All Management Measures* section.]											

D. Marinas and Recreational Boating Management Measures[1]

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

[1] 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.

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 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 and establish monitoring programs.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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).	RWQCBs (except RWQCB 6)	CCC, SMBRP ?	Statewide	CWA §319(h) 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 the State to provide baseline data to aid in assessing the effectiveness of implementing MPs.
Target	[See *All Management Measures* section.]											
Plans	[See *All Management Measures* section.]											
Coordinate	Provide water quality data to marinas (port captains, harbor masters, lessors, marina owners, etc.) and the public to help identify baseline conditions.	RWQCBs (except RWQCB 6), SWRCB	RWQCB 4, SMBRP ? RWQCB 8—OCWD; OCSD, OC Department of Health, OC Environmental Resources Agency	MBNMS and San Francisco, Tomales, Morro, Santa Monica, and San Diego Bays, Anaheim Bay and Huntington 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 (number and location dependent on available funding) (RWQCB 8--one report per year from each partner agency)		x			x	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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Establish baseline water quality data at marinas.	RWQCBs (except RWQCB 6), SWRCB		MBNMS and San Francisco, Tomales, Morro, Santa Monica, and San Diego Bays	To be determined	See above (dependent on funding)		x			x	
						Plans to establish baseline data at marinas by 2002				x	x	
	Monitoring programs to assess general water quality and bacteriological impacts to water quality from live-aboards, specifically. Establish partnership with Newport regulatory authorities to reduce runoff impacts.	RWQCB 8	City of Newport, Newport Bay Stakeholders	Lower Newport Bay	SWRCB BCP for additional funding Current funds	Develop ordinance on proper disposal of waste	x	x	x	x	x	Need to update and conduct additional monitoring.
Track and Monitor	[See *All Management Measures* section.]											
Report	[See *All Management Measures* section.]											

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. 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	Partner Agencies	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 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	RWQCB, CWC	MBNMS	CWA §319, Prop. 13	Assessment and recommendations for changes to current program by 2002		x	x	x	x	
		San Francisco Estuary Project (SFEP)		SFB								
		Morro Bay National Estuary Program (NEP)	RWQCB	Morro Bay	CWA §319, Prop. 13	Report and recommendations by 2002			x	x	x	
		Santa Monica Bay (SMB) NEP		SMB		CWA §303(d) list review ?				x		
		RWQCB 8	Orange County, City of Newport Beach	Lower Newport Bay	CWA §106 TMDL General funds CWA §319(h)	Assessment of programs and require relevant changes		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(h)	Assessment and recommendations for new laws if needed			x			Recommendation from 2/99 CCBN meeting

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	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	Clean Vessel Act (CVA) Grant	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 RWQCBs 6 and 8) and DBW (coordinate with permit and leasing agencies and regional entities [e.g., MBNMS and NEPs])	SMBRP ?	Statewide by region (e.g., MBNMS, Santa Monica Bay, Morro Bay, and SFB NEPs, San Diego Bay)	CVA, CWA §319(h)	MOA among SWRCB, RWQCBs, and DBW establishing minimum standards for regions		x	x			Recommendation in 1/19/99 letter from SF Estuary Project (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 RWQCBs 6 and 8) and local health departments	RWQCB 4	Statewide by region	Agency General Funds	MAAs or MOUs with appropriate agencies					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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Years 98	99	00	01	02	Notes
Coordinate	Develop and regularly maintain a vessel sewage information clearinghouse to include: a. BMPs; b. Guidance on how to comply with federal, State, and local laws and regulations; c. Examples of effective pump-out operations currently used around the State; d. Referrals to sources of reliable information.	DBW		Statewide	CVA, CWA §319(h), and other grants as applicable	Internet web site with information and links to other sites (DBW, UC Sea Grant, U.S. Coast Guard [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(h)	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, SFB Conservation and Development Commission [SFBCDC], SLC, DPR)		Statewide by region	Agency General Funds			x	x	x	x	Marina TAC recommendation
	c. Recommendations or requirements 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	CWA §319(h)	Support and assistance to commercial entities in applying for CVA grants	x	x		x		Activities being implemented through Tomales Bay Shellfish Advisory Committee and Tomales Bay Watershed Council
						Installation of pump-out facilities by Marin County		x	x		x	
	d. Enforcement program and effectively enforce violations.	RWQCBs and local governmentss		Statewide by region	Agency General Funds	Number of enforcement actions (level 1, 2, or 3)	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Years					Notes
							98	99	00	01	02	
Implement	Issue WDR's for land-based facilities.	RWQCB 5		Sacramento-San Joaquin River Delta	State General Funds	WDR's (2 per year)	x	x	x	x	x	Based upon current resources, only 20 percent of land-based facilities in Sacramento-San Joaquin River Delta are being addressed.
	Conduct complaint investigation (Non-15).	RWQCB 5		Sacramento-San Joaquin River Delta	State General Funds	Investigations (1 to 2 per month)	x	x	x	x	x	Based upon current resources, only 20 percent of land-based facilities in Sacramento-San Joaquin River Delta are being addressed.
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	[See *All Management Measures* section.]											

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.2E—Boat Cleaning and Maintenance

Management Measure Targeting Level: Primary

Objectives:

1. 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., tributyltin [TBT] and copper-based paints).

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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(h)	Educational materials		x	x	x	x	Recommendations from Marina TAC and 12/98 marina stakeholder meeting
Plan	Develop partnership program with City of Newport Beach to review applicable boat maintenance regulations and prohibitions.	RWQCB 8	City of Newport Beach, Harbor Patrol, Newport Beach Police Department Hazmat Investigations, Newport Beach Public Works	Newport Bay	CWA §319(h)	Complete review of applicable boat maintenance regulations and prohibitions			x			
Coordinate	Develop recommended ordinance language.	CCC		Statewide by region	To be determined	Training component for local enforcement personnel			x	x	x	Recommendation from 2/99 California Clean Boating Network (CCBN) meeting; Funding a potentially limiting factor.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	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(h) 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) Funding permitting.
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 6 and 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(h) Federal dollars passed through National Marine Sanctuaries (NMSs) or NEPs	Training and certification program initiated in one or more regions			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.
						95 percent of marinas in above regions certify divers			x			
						75 percent of boat cleanings in region done by certified divers				x		
	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(h), Sea Grant	Conference, with recommendations 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 accelerate the review and release to market of financially-feasible, non-toxic marine products;	SWRCB and DTSC (coordinate with National Marine Manufacturers Association [NMMA])		Statewide	To be determined.	50 percent increase in alternative products in stores		x	x	x		
	c. Compile a list of options for less toxic products and distribute them through marinas, boatyards, and marine products stores;	CCBN		Statewide	CWA §319(h), Sea Grant	List of options		x	x	x	x	Strategy in MBNMS WQPP Action Plan III (Marinas and Boating)

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	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
	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	[See *All Management Measures* section.]											
Report	[See *All Management Measures* section.]											

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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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 SMB Restoration Project		Statewide by region	California Integrated Waste Management Board (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	[See *All Management Measures* section.]											
Plan	[See *All Management Measures* section.]											
Coordinate	[See *All Management Measures* section.]											
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.)	Department of Toxic Substances Control (DTSC), City and County Household Hazardous Waste (HHW) agencies		MBNMS pilot project and Statewide	CWA §319(h)	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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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 Environmental Health and HHW Departments (coordinate with waste management districts and port captains and harbor masters; in MBNMS coordinate with WQPP)	MBNMS	MBNMS pilot project (Central Coast) and Statewide	SWRCB, DTSC, and/or CIWMB grants	Guide/report describing procedures for handling materials, brochures, pick up sites established		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	[See *All Management Measures* section.]											
Report	[See *All Management Measures* section.]											

Management Measure Category: Marinas and Recreational Boating

Management Measure Title: 4.3--Education/Outreach

Management Measure Targeting Level: Primary

Objectives:

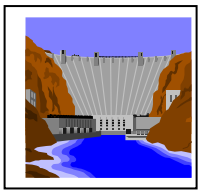
1. Communicate to boaters and owners/operators of marinas and boatyards the environmental and economic impacts of pollution; identify and increase the awareness and use of MMs and BMPs where needed to prevent and control adverse impacts associated with marinas and boats.
2. Enhance and coordinate State 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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	Assess existing pollution prevention and control programs regionally and/or statewide.	DBW		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(h), CVA funds, CCC license plate funds, UCCE, and other sources		x	x	x	x	x	Marina TAC recommendation. The CCBN is comprised of agency, public and private members.
Target	[See *All Management Measures* section.]											
Plan	[See *All Management Measures* section.]											
Coordinate	Develop action plan with City of Newport for local educational program for marina owners and users.	RWQCB 8	City of Newport Beach, Harbor Patrol, Public Works, Newport Harbor Nautical Museum	Newport Bay	CWA §319(h)	Coordinate citywide meetings; Develop marina BMPs; Present MMs to be addressed			x	x		The City will implement the program directly through their regulatory programs.
	Continue implementation of the CCC's BCGC, which includes the facilitation of the 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 meetings; 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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Continue expansion of education projects and dissemination of materials.	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.
	Implement the current CCC's BCGC.	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.
	Conduct public outreach to promote pollution reduction strategies.	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.
	Conduct education workshop.	San Francisco Estuary Project, RWQCB 2		Tomales Bay, Richardson Bay, Marin County	BCP or grant funding	Education brochure and 2 workshops (dependent on securing funding)				x		Performance dependent upon available funding

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Posteducational 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.
	Public campaign to encourage boaters to use pump outs.	RWQCB 5, City of Sacramento Department of Utilities	DBW	Marinas from Freeport to Alamar	City of Sacramento water utility fees	13 participating marinas distributing laminated fact cards, campaign handouts, maps of pump-out locations, and floatable key chains to boaters			x	x		
Track and Monitor	[See *All Management Measures* section.]											
Report	[See *All Management Measures* section.]											

E. 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:

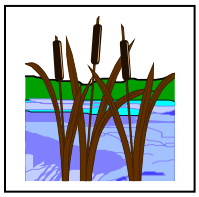
1. By the year 2001, implement CWA §401 certification program regulations to delegate program authority to the RWQCBs.
2. By the year 2002, develop a technical assistance manual that will assist local governments and small businesses with guidelines for designing projects to avoid wetlands and riparian 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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	[See *All Management Measures* section.]											
Target	[See *All Management Measures* section.]											
Plan	Ensure compliance with CEQA and Porter-Cologne Act when certifying nationwide permits.	US Army Corps of engineers (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 of regulations	x	x	x			Completed
	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; CWA §410 Guidance	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 analysis and mitigation of impacts relating to hydromodification	x	x	x	x		
	Participate in regional floodplain planning activities, such as Bay Area Wetlands Planning Group (BAWPG).	Various RWQCB 2, SF Estuary Project		Regional	CWA §319(h)	Statewide application of regional initiatives	x	x	x	x	x	
	• Develop a framework linking stream functions to beneficial uses;	RWQCB 2		Region 2	USEPA grant	A report linking beneficial uses to stream functions						
	• Develop criteria for protecting ecological functions and other beneficial uses of streams;					• Outline criteria for protecting beneficial uses of Bay Area streams			x			
	• Prepare staff report for Basin Plan Amendment;					• Draft staff report to initiate Basin Planning process					x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
	• Draft Stream Protection Policy;					• Draft Stream Protection Policy				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; RWQCB 5: Technical Advisory Panel meetings for South Sacramento-San Joaquin River Delta general order for dredging (3)	x	x	x	x	x	RWQCB 5: general order for dredging in the South Sacramento-San Joaquin River Delta adopted in 2000. MOU with CALFED signed in 2000.
	Participate in USEPA Floodplain Management Group to develop guidance on floodplain management.	USEPA		Statewide	CWA §319(h)	Guidance on floodplain management	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.	RWQCB 8	SCC, USACOE, DFG, USFWS, CCC	Southern California	General Funds	Include projects in WRP database	x	x	x	x	x	
	Conduct stakeholder workshops.		RWQCB 4			Convene a technical forum; Summary of comments from workshops	x	x	x	x	x	
Implement	Education (see actions under Urban, Education MM).						x	x	x	x	x	
	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	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Identify BMPs for channel maintenanceand issue WDRs for channel maintenance activities.	RWQCB 2, SWRCB, Bay Area Storm Water Management Agencies Association (BASMAA), USACOE		Region 2	CWA §319(h), CWA §104	Attend monthly meetings to identify MPs with associated channel maintenance activities	x	x	x		x	
						General WDRs by RWQCB 2			x			
	Develop guidelines for staff review of hydromodification projects.	RWQCB 2		Region 2	CWA §319(h)	Fact sheets for staff				x	x	
	Develop stream protection policy implementation guidelines.	RWQCB 2		Region 2	CWA §319(h)	Implementation guidelines for stream protection policy that is currently under development					x	
	Work in coordination with RWQCB 2 and operational permit committee of BASMAA to develop MMs and a streamline permitting process for flood channel maintenance.	RWQCB 2	SWRCB, BASMAA	SFB area	CWA §104 Grant	CEQA document; Draft WDRs			x	x		
	Develop flow-based and other standards to address hydromodification resulting from development.	RWQCB 2		Santa Clara River basin	General Funds	Adoption of 402(p) NPDES permit				x	x	Draft NPDES Permit No. CAS029718.
	Adopt general order for dredging.	RWQCB 5		South Sacramento-San Joaquin River Delta	Current staff	General order (1)			x			
	Construct wetlands improvements.	RWQCB 5 and local agencies		Cache Creek	Prop. 204	Wetland improvements near mines (2 sites); 30 acre mining basin reshaped, planted, channels constructed; 130 acre nature preserve established		x	x	x		
	Conduct public outreach.					Newsletter (4 per year); tours (5-6 per year with Cache Creek Stakeholder Group; 3-4 school groups per week).						
Track and Monitor	Monitor for water quality improvement resulting from wetlands improvements.	RWQCB 5 and local agencies		Cache Creek	Prop. 204	4 sites, 3 times per year. Parameters include conventional chemistry, pathogens, petroleum hydrocarbons, pesticides, some metals.		x	x	x		
Report	[See *All Management Measures* section.]											

F. 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.

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

Management Measure Category: 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.
3. Develop regional plan to implement habitat goals and monitoring protocols in Region 2.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	[See *All Management Measures* section.]											
Target	[See *All Management Measures* section.]											
Plan	Ensure compliance with CEQA and Porter-Cologne Act when certifying nationwide permits.	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 of regulations	x	x	x			Completed in 2000.
	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 Bay Area Wetlands Planning Group (BAWPG).	RWQCB 2, SF Estuary Project	Local stormwater and public works agencies	Region 2	CWA §319(h)	Statewide application of regional initiatives	x	x	x	x	x	
	Develop regional plan for baylands habitat.	USEPA, RWQCB 2, federal and State resources agencies		San Francisco Bay	USEPA, DFG	Baylands Ecosystem Habitat Goals Report, March 1999	x	x				

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal 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	RWQCBs' work in this area is limited due to resource contraints.
	Participate in USEPA Floodplain Management Group to develop guidance on floodplain management.	USEPA		Statewide	CWA §319(h)	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	
	Establish Baylands Advisor position to assist staff with review of projects within or near baylands.	RWQCB 2		SFB	Wetlands planning funds, 401 Certification Funds, potential BCP	Project reviews; Identification of monitoring needs; Regional plans; Staff training			x	x	x	
	Complete Baylands Ecosystem Species and Community Profiles.	RWQCB 2		SFB	Wetlands planning funds	Completion of technical compendium to Baylands Habitat Goals Report			x	x		
	Develop regional plan to implement Habitat Goals and develop MOA with agencies regarding permitting and restoration efforts.	RWQCB 2, USEPA		SFB	USEPA grant and State matching funds	MOA among agencies; Adaptive management framework			x	x		
	Development of regional wetlands monitoring protocols.	RWQCB 2, USEPA, SF Estuary Institute		Region 2	USEPA grant and State match	Monitoring protocols			x			
	Complete Basin Plan amendment to provide guidelines for determining wetland mitigation compensation and monitoring requirements.	RWQCB 2		Region 2	Wetlands planning funds	Basin Plan amendment; Interim staff guidelines by December 2001			x	x		
	Provide financial assistance to encourage environmentally friendly floodplain management.	SWRCB		Statewide	SRF, Prop. 13	Various	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Provide incentives for flood management approaches that minimize the need for channelization and channel hardening.	SWRCB		Statewide	State Fee, Grants, BCP, SRF, Prop. 13	Regulatory flexibility; Expedited permit review; Waived or reduced fees			x	x	x	
	Wetlands restoration projects.	RWQCB 2		Regionwide	Administrative Civil Liabilities (ACLs), CWA §319(h) grant funds, Prop. 13, SRF	Completed restoration projects			x	x	x	Number of projects dependent upon available funding sources
	Identify and demonstrate to urban and agricultural communities the value of riparian and wetland habitat with regards to water quality, mitigation, and species diversity and flood management.	RWQCB 5R		Sacramento River Basin	CWA §319(h), current staff	Participation with local stakeholder groups (RWQCB 5R--11 groups, meet with each about 3 times per year)	x	x	x	x	x	To some extent, all RWQCBs are involved in this activity.
Track and Monitor	[See *All Management Measures* section.]											
Report	[See *All Management Measures* section.]											

All Management Measure Categories

Objectives:

1. Coordinate effectiveness monitoring for management measures and management practices.
2. Establish baseline water quality and trend information.
3. Establish protocols for monitoring and quality assessment.
4. Identify and map initial list of CCAs.
5. Develop an ongoing process to identify CCAs and additional NPS MMs to implement as necessary in CCAs.
6. 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.
7. Review water quality and land use data every two years as part of the CWA §305(b) Water Quality Assessment Plan (WQAP).
8. Review the effectiveness of existing MM implementation in CCAs and identify and implement additional MMs as needed to protect and restore CCAs.
9. 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	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Assess	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 Roundtable) UCD		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(h)	Nine monitoring programs				x	x	
	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		Statewise	BCP, CWA §319(h)	Baseline agency monitoring and trend data on GIS layers Web accessible	x	x	x	x	x	Division of Water Quality is coordinating the statewide program.
	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, RWQCBs	Statewide (Coastal area)	Current Staff (CZARA)	Workgroup meetings and process			x	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	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years					Notes
							98	99	00	01	02	
Assess	Use the State's Water Quality Assessment (WQA) for assessing NPS pollution statewaide	SWRCB		Statewide	Existing funding	By August 1, 2001, WQA data (Geographically-based Water Body System (GeoWBS) on the internet for public reference and to help monitor and track effectiveness of the NPS Program			x	x		Data included on the GeoWBS database will identify water body size, degree to which beneficial uses are supported, afftected beneficial uses, pollutants, and pollution sources.
	Complete development of database that will enable State agencies to geographically track implementation of MMs and MPs.	SWRCB,	UC Davis' Information Center for the Environment (UCD ICE)	Statewide	Existing funding	By August 1, 2001, complete database			x	x		
	Prepare the CWA §303(d) and TMDL priority lists.	SWRCB		Statewide	Existing funding	CWA §303(d) and TMDL lists that assist the State in targeting priorities by water body, geographic region, pollutant, etc.	x		x		x	Lists to be prepared on even-numbered years or as required by USEPA.

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Target	Develop an initial list of Critical Coastal Areas (CCAs) where targeted implementation of MMs will occur--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; and • Pristine coastal waters.	CCC and SWRCB	RWQCBs	Watersheds that classify as CCAs pursuant to CZARA §6217(b)(2)	Current Staff (CZARA)/existing funding	CCA list (by December 31, 2000) 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.
	Prepare the CWA §303(d) and TMDL priority lists.	SWRCB		Statewide	Existing funding	CWA §303(d) and TMDL lists that assist the State in targeting priorities by water body, geographic region, pollutant, etc.	x		x		x	Lists to be prepared on even-numbered years or as required by USEPA.
Plan	Staff will propose amendments for addition of SWRCB NPS narrative requirements into the California Ocean Plan.	SWRCB		California ocean waters	Task 115 (existing funding)	Amendment of the California Ocean Plan			x	x	x	
	Identify and implement applicable MMs to protect or restore water quality in coastal and ocean waters adjacent to CCAs.	CCC, RWQCBs, SWRCB		CCAs	CZARA, CWA §319(h)	Implementation strategies and reports on status of implementation				x	x	
	Prepare joint annual workplans for NPS Program activities to include information on use of funding sources (including bond funds)	SWRCB, RWQCBs, CCC		Statewide	Existing funding	Joint annual workplans by July 1, 2000 and annually thereafter			x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Plan	Update inouse 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.	CCC		Statewide coastal areas	Existing funding	Updated Procedural Guidance Manual by July 1,2000			x			
	Develop TMDLs pursuant to extablished schedules.	RWQCBs		Statewide	Existing funding	TMDLs	x	x	x	x	x	See Appendix C of the *California's Plan for Nonpoint Source Pollution Control Program* (NPS Program Plan) for schedule.
Coordinate	Create CCA work groups to identify available resources and future needs.	CCC, RWQCBs, SWRCB		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, RWQCBs, SWRCB, CCA Committee		Regional	Current staff	Number of participating nonprofit/ community groups			x	x		
	Convene public review of CCA implementation projects.	CCC RWQCBs		Regional	Current staff Implementation Grants	Public comments					x	
	Finalize an MOU designed to enhance coordination between SWRCB and CCC.	SWRCB, CCC		Statewide	Current staff	Signed MOU by January 31, 2000			x			
	Convene Interagency Coordinating Committee (IACC).	CCC, SWRCB		Statewide	Current staff	Initial meeting of IACC by July 1, 2000			x	x	x	
	Convene Critical Coastal Areas (CCA) Committee.	CCC	SWRCB	Statewide	Current staff	Initial meeting of CCA Committee by September 30, 2000			x	x	x	
	Initiate development of five-year implementation plans for the Cal/EPA, Cal/RA, and other agencies.	SWRCB, CCC	Cal/EPA agencies, Cal/RA agencies, Cal/Trans, DFA, DHS	Statewide	Current staff	50-100 percent of agencies' plans completed by December 31, 2000			x	x	x	Development initiated in July 2000

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Coordinate	Update exisiting Memorandums of Understanding/Management Agency Agreements (MOUs/MAAs) and develop new MOUs/MAAs with other agencies as needed.	SWRCB, CCC	State agencies	Statewide	Current staff	Process to update, start in July 2000; Schedule due by January 1, 2002 for completing any necessary remaning MOUs/MAAs			x	x		Existing agreements with State Board of Forestry/Department of Forestry, Department of Pesticide Regulation, and Department of Food and Agriculture
Implement	Provide a California bioassessment lab to serve as a source of reference information for bioassessments, including internet and web site.	SWRCB	DFG	Statewide	BCP, CWA §319(h)	Reference information available online and at California Bioassessment lab; Provide information for development of biological criteria	x	x	x	x	x	
	Train community members in bioassessment procedures and sedimentation issues.	RWQCBs (excluding RWQCB 4), RCDs, nonprofit groups	DFG	Statewide	CWA §319(h) grants, e.g. Placer County RCD	Number of trainings	x	x	x			
	Establish a Technical Advisory Council to review and recommend monitoring protocols and quality assurance measures.	SWRCB, CARCDs, volunteer monitoring organizations		Statewide	CWA §319(h), BCP	Written review of protocols	x	x	x	x	x	One of the activities proposed in the SWRCB's Surface Water Ambient Monitoring Program (SWAMP).
	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(h)	Monitoring protocols; Specialized regional keys for bioassessment	x	x	x	x	x	
	Develop generic quality assurance plans for monitoring methods.	SWRCB		Statewide	Current staff, BCP	QA plans	x	x	x	x	x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years					Notes
							98	99	00	01	02	
Implement	Establish regional watershed assessment and monitoring resource centers. Provide technical support, information, and training to NPS practitioners, landowners, and community groups.	Numerous, RWQCB 2, Friends of SF Estuary	Stormwater management agencies	SFB area, Sacramento Watershed, San Diego, Lake Tahoe	CWA §319(h) funds, municipal storm water programs, private foundations	Ten trainings per year	x	x	x	x	x	
	Train landowners, community groups, and RCD staff in appropriate watershed monitoring methods.	SWRCB, CARCDs, volunteer monitoring organizations		Statewide	CWA §319(h)	Three trainings per year	x	x	x	x	x	
	Direct, facilitate, and support technical development and application of citizen monitoring data.	SWRCB, volunteer monitoring organizations		Statewide	BCP, CWA §319(h)	Baseline citizen biological monitoring and trend data with Quality Assessment Quality Control (QA/QC).			x	x	x	
	Work with local researchers and agencies to develop additional MMs.	CCC CCA Committee		Regioanl and statewide	Special grants	Modified and new MMs		x	x	x	x	
	Support funding of additional MM implementation.	CCC SWRCB		CCAs	Special grants	Additional MM implementation						
	Support activities to implement management measures identified in *California Management Measures for Polluted Runoff* (CAMMPR).	SWRCB, RWQCBs		Statewide	CWA §319(h)	Implemented management measures		x	x	x	x	
	Develop enforcement guidance to establish process by which the SWRCB and RWQCBs will enforce their authorities as outlined in the NPS Program Plan (CWC §13369).	SWRCB		Statewide	Existing funding	Enforcement Guidance by February 2001			x	x		

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Implement	Prepare California MM guidance.	SWRCB		Statewide	Existing funding	California Management Measures Implementation Guidance by July 1, 2002			x	x	x	In the interim, links to existing guidance for implementation of MMs and MPs will be provided on the NPS Program website(s)—examples include NRCS technical guides and Storm Water Quality Task Force Manuals.
	Begin implementation of TMDL implementation plans.	RWQCBs		Statewide	Existing funding	Implemented TMDL plans pursuant to the schedules listed in Appendix C of the NPS Program Plan.	x	x	x	x	x	
Track and Monitor	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						
	b. Develop protocols and quality assurance methods for BMP functioning assessment criteria.	SWRCB UCD		Statewide	State	Written protocols, QA Plan						
	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						
	d. Develop database on BMP effectiveness.	SWRCB UCD		Statewide	State	Database						

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Track and Monitor	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 nine key watersheds statewide; Report on effectiveness of BMPs						
	2. 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 8, RWQCB 9, USEPA	SWRCB, RWQCB 4 County Sanitation of Orange	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	SWRCB	Statewide	To be determined	Monitoring programs; Water quality data	x	x	x	x	x	Selected watersheds every two years
	3. Improve knowledge of NPS contributions to impaired water bodies:											
	a. Monitor pathogens in shellfish areas and upland watersheds to determine sources of contamination.	DHS	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
	4. Data Access											
	a. Populate the statewide System for Water Information Management (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	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
Track and Monitor	b. 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	
	c Populate existing on-line databases (e.g., California Coastal Water Quality Monitoring Inventory, 305(b), 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	
	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	
	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).	SWRCB	RWQCBs	Statewide	Current funding	Report to the Legislature by November 30, 2000			x			
	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).	SWRCB		Statewide	Current funding	Report to the Legislature by January 1, 2001				x		
Report	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	
Report	Update CCA list, maps, and watershed information at least every two years, and report on implementation efforts and committee meetings.	CCC, SWRCB	RWQCBs	Statewide	Current Staff (CZARA)	Updated CCA lists and maps; Reports of implementation on web site			x		x	

Process Element	Actions/ Statements	Lead Agency	Partner Agencies	Geographic Area	Potential Funding	Performance Measures	Fiscal Years 98	99	00	01	02	Notes
	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 §§303, 305(b), and 319 and CZARA §6217. (CWC §13369[b])	SWRCB	RWQCB	Statewode	Current funding	Report to the Legislature by August 1, 2000 and annually thereafter			x	x	x	
Report	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.	SWRCB, CCC		Statewide	Existing funding	Biennial reports by August 1, 2001 and August 1, 2003				x		