Water Quality Control Plan

for the

Central Coastal Basin

March 2016 Edition

Regional Water Quality Control Board, Central Coast Region
State Water Resources Control Board
California Environmental Protection Agency

State of California

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for the

Central Coastal Basin

March 17, 2016 Edition

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Regional Water Quality Control Board, Central Coast Region
State Water Resources Control Board
California Environmental Protection Agency

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Table of Contents

List of Tables

List of Figures

List of Appendices

Chapter 1. Introduction

I. Function of the Water Quality Control Plan (Basin Plan)

The objective of this Water Quality Control Plan for the Central Coastal Basin, or Basin Plan, is to show how the quality of the surface and ground waters in the Central Coast Region should be managed to provide the highest water quality reasonably possible. Water uses and water benefits vary. Water quality is an important factor in determining use and benefit. For example, drinking water has to be of higher quality than the water used to irrigate pastures. Both are legitimate uses, but the quality requirements for irrigation are different from those for domestic use. The plan recognizes such variations.

This Basin Plan lists the various water uses (Beneficial Uses, Chapter Two). Second, it describes the water quality which must be maintained to allow those uses (Water Quality Objectives, Chapter Three). Federal terminology is somewhat different, in that beneficial uses and water quality objectives are combined and the combination is called Water Quality Standards. Chapter Four, the Implementation Plan, then describes the programs, projects, and other actions which are necessary to achieve the standards established in this plan. Chapter Five, Plans and Policies, summarizes State Water Resources Control Board (State Board) and Regional Water Quality Control Board (Regional Board) plans and policies to protect water quality. Chapter Six describes statewide surveillance and monitoring programs as well as regional surveillance and monitoring programs.

The Regional Board implements the Basin Plan by issuing and enforcing waste discharge requirements to individuals, communities, or businesses whose waste discharges can affect water quality. These requirements can be either State Waste Discharge Requirements for discharges to land, or federally delegated National Pollutant Discharge Elimination System (NPDES) permits for discharges to surface water. Methods of treatment are not specified. When such discharges are managed so that: 1) they meet these requirements; 2) water quality objectives are met; and, 3) beneficial uses are protected, water quality is controlled.

The Basin Plan is also implemented by encouraging water users to improve the quality of their water supplies, particularly where the wastewater they discharge is likely to be reused. Public works or other projects which can affect water quality are reviewed and their impacts identified. Proposals which implement or help achieve the goals of the Basin Plan are supported; the Regional Board makes water quality control recommendations for other projects.

II. Legal Basis and Authority

California's Porter-Cologne Water Quality Control Act (1969), which became Division Seven ("Water Quality") of the State Water Code, establishes the responsibilities and authorities of the nine Regional Water Quality Control Boards (previously called Water Pollution Control Boards) and the State Water Resources Control Board (SWRCB). The Porter-Cologne Act names these Boards "... the principal State agencies with primary responsibility for the coordination and control of water quality" (Section 13001). Each Regional Board is directed to "...formulate and adopt water quality control plans for all areas within the region." A water quality control plan for the waters of an area is defined as having three components: beneficial uses which are to be protected, water quality objectives which protect those uses, and an implementation plan which accomplishes those objectives (Section 13050). Further, "such plans shall be periodically reviewed and may be revised" (13240). The federal Clean Water Act (Public Law 92-500, as amended) provides for the delegation of certain responsibilities in water quality control and water quality planning to the states. Where the Environmental Protection Agency (EPA) and the SWRCB have agreed to such delegation, the Regional Boards implement portions of the Clean Water Act, such as the NPDES program and toxic substance control programs.

The Porter-Cologne and Clean Water Acts also describe how enforcement of waste discharge regulations is to be carried out. Enforcement tools available to the Regional Board range from simple letters to the discharger, through formal Regional Board order, and direct penalty assessments, to judicial abatement for civil and/or criminal penalties. Legally noticed public hearings are required for most actions, but some enforcement actions (e.g., Cleanup or Abatement Orders) have been delegated to staff to allow for a quicker response than regularly scheduled Regional Board meetings can provide.

III. The Central Coastal Region

One of nine Regional Water Quality Control Boards in California, the Central Coast Regional Board has jurisdiction over a 300-mile long by 40-mile wide section of the State's central coast. Its geographic area encompasses all of Santa Cruz, San Benito, Monterey, San Luis Obispo, and Santa Barbara Counties as well as the southern one-third of Santa Clara County, and small portions of San Mateo, Kern, and Ventura Counties. Included in the region are urban areas such as the Monterey Peninsula and the Santa Barbara coastal plain; prime agricultural lands as the Salinas, Santa Maria, and Lompoc Valleys; National Forest lands, extremely wet areas like the Santa Cruz mountains; and arid areas like the Carrizo Plain. Figure 1-1 shows the Central Coast Regional boundary. Some physical characteristics of the Region are listed below:

CENTRAL COAST REGION[1]

Characteristics	Number	Measure
Area of Region	--	11,274 square miles
Streams	Unknown	2,360 miles
Lakes	99	25,040 acres
Ground Water Basins	53	3,559 square miles
Mainland Coast	--	378 miles
Wetlands and Estuaries	59	8,387 acres
Areas of Special Biological Significance	9	235,825 acres

1 Water Quality Assessment for Water Years 1986 and 1987, Water Quality Monitoring Report No. 88-1 Water Quality, Division of Water Quality, State Water Resources Control Board, July, 1988.

Topographic features are dominated by a rugged seacoast and three parallel ranges of the Southern Coast Mountains. Ridges and peaks of these mountains, the Diablo, Gabilan, and Santa Lucia Ranges, reach to 5,800 feet. Between these ranges are the broad valleys of the San Benito and Salinas Rivers. These Southern Coast Ranges abut the west to east trending Santa Ynez Mountains of the Transverse Ranges that parallel the southern exposed terraces of the Santa Barbara Coast.

This coastal area includes urbanized and agricultural areas along Monterey Bay, the rugged Big Sur Coast, Morro Bay with its famous rock, the sandy clam beds of Pismo Beach, and a varied coastline south to Point Conception and eastward along the terraces and recreational beaches which line the Santa Barbara Channel. The inland valleys and cities reflect an agricultural, oil, and tourism economy, as well as the early history of California expressed in the architectural styles of the famous Spanish missions which are found throughout this region.

The trend of the mountain ranges, relative to onshore air mass movement, imparts a marked climatic contrast between seacoast, exposed summits, and interior basins. Variations in terrain, climate, and vegetation account for a multitude of different landscapes. Seacliffs, sea stacks, white beaches, cypress groves, and redwood forests along the coastal strand contrast with the dry interior landscape of small sagebrush, short grass, and low chaparral.

In times past, the beaches and ocean waters offshore have been prolific producers of clams, crustaceans, and important sport and commercial fish. Past fishing practices and disruption of habitat have reduced fishery resources; protective controls are now in effect. Terrestrial wildlife includes a wide range of valley and upland species including the more common raccoon, quail, bear, and deer. Rare, endangered, or unique species include various shore birds, the Morro Bay Kangaroo rat, the European boar, and the California condor. The Sespe Condor Range serves as a sanctuary for this impressive bird.

Historically, the economic and cultural activities in the basin have been agrarian. Livestock grazing persists, but it has been combined with hay cultivation in the valleys. Irrigation, with pumped local ground water, is very significant in intermountain valleys throughout the basin. Mild winters result in long growing seasons and continuous cultivation of many vegetable crops in parts of this basin.

While agriculture and related food processing activities are major industries in the region, oil production, tourism, and manufacturing contribute heavily to its economy. The northern part of the region has experienced a significant influx of electronic manufacturing industry, and the southern part is being heavily influenced by expanded offshore oil exploration and production.

The Central Coast Region has three times the volume of average annual precipitation (12,090,000 acre-feet) as the Los Angeles Region, but one-seventh the population (1.2 million versus 8 million). The North Coast Region receives 52 million acre-feet of precipitation on the average with a population of 460,000. These three regions demonstrate the range of California's water and population distribution imbalance:

Figure 1-1. Central Coast Region 3

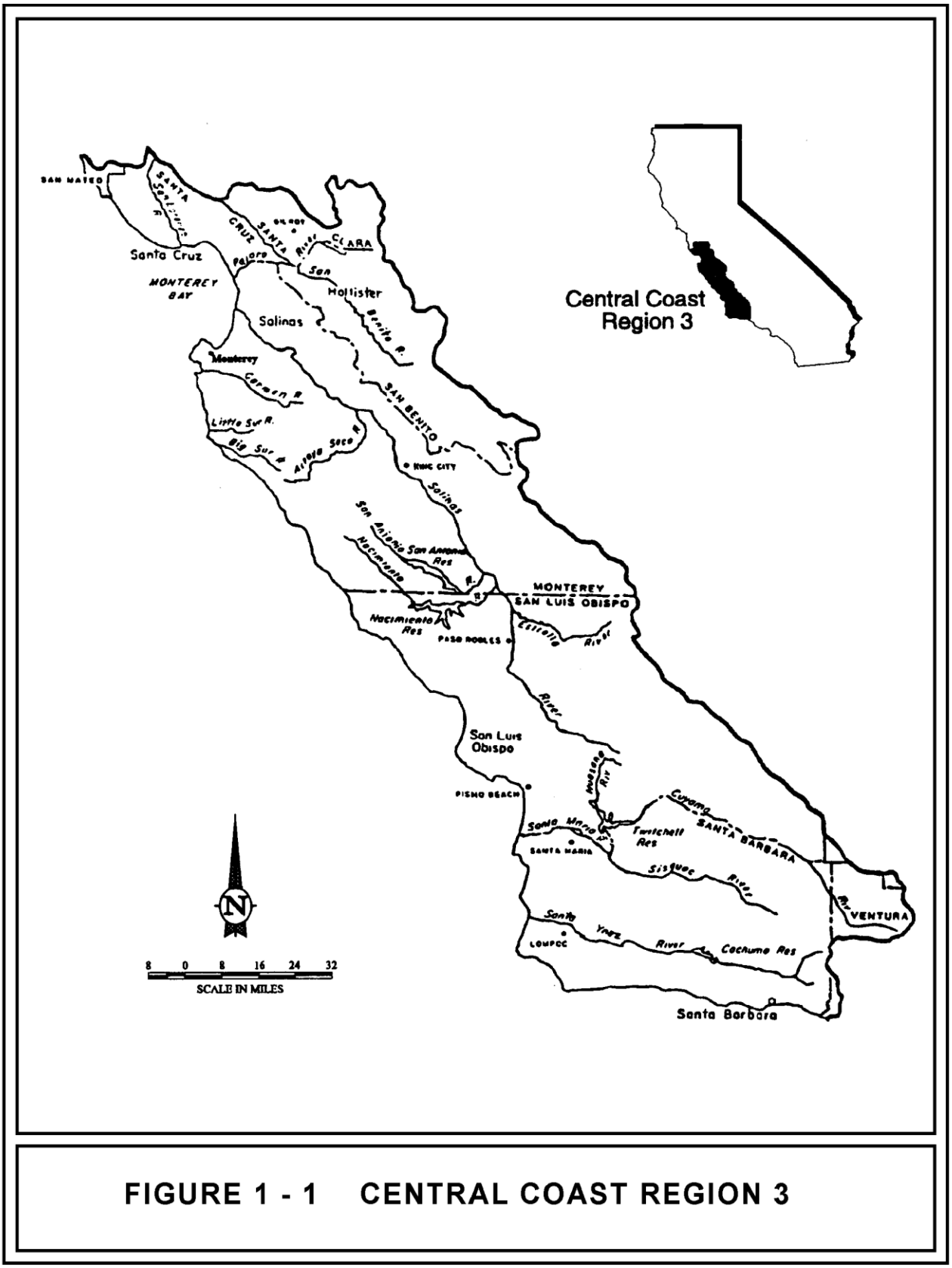

FIGURE 1 - 1 CENTRAL COAST REGION 3

Region	Annual Average Precipitation (Ac. Ft.) per Person
North Coast	113.0
Central Coast	9.9
Los Angeles	0.56

Although this table shows the Central Coast is somewhat in the middle of the State's water-versus-population distribution, the region is considered arid for the most part. An exception is the Santa Cruz mountain area with its relatively high average precipitation.

Total population of the region is estimated to be 1.22 million people. San Luis Obispo County continues to grow more rapidly than other large counties in the region. The population of San Luis Obispo County has doubled since 1970:

Central Coast Region Population

County	1970	1988
Santa Cruz	124,000	225,400
Santa Clara(South)	29,000	65,800
San Benito	18,000	34,100
Monterey	249,000	346,100
San Luis Obispo	107,000	204,300
Santa Barbara	265,000	345,000
Total[1]	792,000	1,220,700

1 Table does not include relatively small populations of portions of Ventura, Kern, and San Mateo Counties that are within the Central Coast Region.

Adequate quality water for many beneficial uses in the Central Coastal Basin is in short supply. Water rationing for domestic purposes is seriously considered and sometimes implemented during water shortages. The use of water by the human population and its activities is increasing in the basin. Water mining and seawater intrusion have resulted in some locations. Consequently, the competition for waters of adequate quality will become more intense in the future.

Water quality problems most frequently encountered in the Central Coastal Basin pertain to excessive salinity or hardness of local ground waters. Ground water basins containing 1000 mg/l Total Dissolved Solids (TDS) or higher are found near Hollister, the Lower Forebay of the Salinas Sub-basin, the Carrizo Plain, the Santa Maria and Cuyama Valleys, San Antonio Creek Valley, Lompoc and Santa Rita Basins of the Santa Ynez River Valley, and Goleta and Santa Barbara. The Carrizo Plain ground waters are most highly mineralized—averaging over 5,000 mg/l TDS. Increasing nitrate concentrations is a growing problem in the Salinas River Basin, Los Osos Creek Basin, the Santa Maria Valley, and near Arroyo Grande. Surface water problems are less frequently evident, although bacteriological contamination of coastal waters has been a problem in Morro Bay and South Santa Barbara County. Eutrophication occurs in Pajaro River and Llagas Creek, Salinas River below Spreckels, and in the lower reaches of San Luis Obispo Creek. Some streams in the basin are naturally highly mineralized and contribute to the excessive salinity of local ground waters; examples include Pancho Rico Creek in the Salinas River Sub-basin, and the Cuyama River in the Santa Maria Sub-basin. Both surface waters contain in excess of 1000 mg/l TDS.

IV. The Regional Board

The Regional Board consists of nine members appointed by the Governor to serve staggered four-year terms. Members must reside or maintain a place of business within the Region and must be associated with or have special knowledge of specific activities related to the control of water quality. Members of the Regional Board conduct their business at regular meetings and public hearings at which public participation is encouraged.

All duties and responsibilities of the Regional Board are directed at providing reasonable protection and enhancement of the quality of all waters in the Region, both surface and underground. The programs by which these duties and responsibilities are carried out include:

- Preparing new or revised policies addressing region-wide water quality concerns;
- Adopting, monitoring compliance with, and enforcing waste discharge requirements and NPDES permits;
- Providing recommendations to the State Board on financial assistance programs, proposals for water diversion, budget development, and other statewide programs and policies;
- Coordinating with other public agencies which are concerned with water quality control; and
- Informing and involving the public on water quality issues.

V. History of Basin Planning and the Basin Plan

Prior to 1970, the Regional Board did not have an active water quality planning function. Water quality problems in surface streams and ground water were responded to by setting controls on discharges. Those discharge controls generally consisted of limiting the allowable increases in TDS concentrations and certain other parameters. Normally, the only additional requirement specified by the Regional Board was that the discharge could not create a nuisance or pollution.

At the request of the federal Water Quality Administration, predecessor to the EPA (and successor to the federal Water Pollution Control Administration), the so-called 1967 Standards were developed and published. These standards applied to coastal and estuarine waters.

By 1970, the Regional Board was actively involved in the formulation of plans to meet established water quality objectives. The federal Clean Water Act and the Porter-Cologne Act, requiring basinwide planning in order to qualify for state and federal funding, plus the National Pollution Discharge Elimination System (NPDES), which empowers the states to set discharge standards, placed new tools in the hands of the Regional Boards and encouraged the development of new approaches to water quality management.

The first single plan for this Region was the 1971 Interim Water Quality Control Plan. It represented significant progress in that the 1967 Standards were incorporated and standards were designated for fresh water streams as well.

Following adoption of the 1971 Interim Plan, the State Board developed and adopted the Ocean Plan and the Thermal Plan. The Regional Board expanded objectives for municipal and domestic water supplies. Chemical objectives for the San Lorenzo River Sub-basin were made more stringent. Incorporation of these State Board plans and Regional Board revisions produced the Revised Interim Water Quality Control Plan of 1973.

Work then began in earnest on a complete Water Quality Control Plan, the 1975 Basin Plan, which has been the foundation of the Regional Board's planning operations since its adoption in 1975. Basin Plans were being developed statewide at that time under the direction of the State Water Resources Control Board (SWRCB). In this region, the prime contractors for basin planning were Brown and Caldwell Consulting Engineers; Water Resources Engineers, Inc.; and Yoder, Trottner, Orlob and Associates. Water quality objectives were based largely on existing water quality.

After adoption of the 1975 Basin Plan, some thirty-eight amendments were made to the Basin Plan. Management of those amendments became cumbersome and led to the need for a Basin Plan reprint which included all current amendments. This document is intended to fulfill that need.

VI. Triennial Review and Basin Plan Amendment Procedure

The federal Clean Water Act (Section 303(c)) requires states to hold public hearings for review of water quality standards at least once every three years. Water quality standards consist of beneficial use designations and water quality criteria (objectives) necessary to protect those uses. The Porter-Cologne Water Quality Control Act requires the entire Basin Plan to be reviewed periodically. While a major part of the review process consists of identifying potential problems, an important part of the review is the reaffirmation of those portions of the plan where no potential problems are identified.

At the conclusion of the triennial review public hearing, Regional Board staff prepares a priority list of potential problems to the Basin Plan that may result in amendments. Placing a potential problem on the priority list will only require the Regional Board staff to investigate the need for an amendment. It does not necessarily mean a revision of the water quality control plan will be made.

Other items completed after the public hearing include:

- Detailed workplans of each issue;
- Regional Board identification of issues that can be completed within existing resource allocations over a three-year period; and
- List of issues requiring additional resources to complete.

Once the triennial review process is complete, Regional Board staff begin investigating the issues in

order of rank. After each investigation, staff determines the need for a Basin Plan amendment.

Basin Plan amendments can also occur for issues not identified during the triennial review. Amendments can occur for urgent issues to reflect new legislation.

Basin Plan amendment hearings are advertised in the public notice section of a newspaper circulated in areas affected by the amendment. Persons interested in a particular issue can also notify the Regional Board staff of their interest in being notified of hearings on that topic.

Basin Plan amendments do not become effective until approved by the State Board. Surface water standards also require the approval of the Environmental Protection Agency to become effective.

VI.A. Continuing Planning

The Basin Plan is a flexible tool which must be reviewed and revised regularly for it to adapt to changing conditions. "Continuing planning" allows this to occur. The following section prioritizes Regional Board tasks and resources. This ranked list is referred to as the "Triennial Review List" and is shown in Table 1-1.

Items listed were ranked in order of priority by the Regional Board on May 6, 1988 and July 8, 1988. Each item is followed by an estimate of staff time needed to complete the item (actual time and duration). For those items requiring contract funding, estimated contract needs are identified following the description of each item. Resolution of these items may result in future Basin Plan amendments.

Table 1-1. 1988 Triennial Review Priority List

Task	Estimated Time Staff Resources (Staff Years and Duration)
1. Adopt water quality limited segments*	0.02 SY
2. Reprint Basin Plan*	0.2 SY 1 year
3. Incorporate Proposition 65 criteria as developed by State Board	0.2 SY 6 months
4. Determine water quality monitoring needs*	0.4 SY
5. Establish nutrient objectives for Pajaro River and Llagas Creek Contract $ = 40,000	0.3 SY 20 months
6. Establish nutrient objectives for San Luis Obispo Creek Contract $ = 10,000	0.3 SY 20 months
7. Establish additional toxic pollutant objectives as developed by the State Water Resources Control Board	0.1 SY 5 years
8. Reevaluate Santa Maria Basin ground water quality objectives (including Nipomo Mesa and Valley) Contract $ = 20,000	0.3 SY 2 years
9. Reevaluate discharge prohibition to Santa Maria River below Highway One Bridge Contract $ = 20,000	0.2 SY 2 years
10. Revaluate Lompoc Plain Boron objective*	0.03 SY
11. Incorporate State Board Ground Water Strategy and Develop Regional Ground Water Strategy	0.3 SY 3 years
12. Reevaluate San Lorenzo River nitrate objective Contract $ = $30,000	0.4 SY 2 years
13. Review on-site sewage disposal prohibition in San Lorenzo Valley Class I & II areas	0.2 SY
14. Review beneficial uses for: Santa Barbara Harbor (shellfish), Goleta Slough (migration and spawning), San Luis Obispo Creek (municipal water supply), Lower Salinas River (all)	0.7 SY
15. Develop Upper Salinas Valley ground water salt management plan Contract $ = 30,000	0.4 SY 1 year
16. Adopt amendments for water bodies affected by toxics as required by Clean Water Act	0.2 SY
17. Develop toxic control strategy	0.3 SY
18.	
a. Develop beneficial uses for additional needed water bodies	0.2 SY
b. Add "Preservation of Areas of Special Biological Significant" (BIOL) beneficial use to needed water bodies	0.05 SY
19. Determine need for septic tank prohibition in Prunedale, San Lucas, Los Olivos, Ballard and other needed areas	1.0 SY
20. Establish septic tank sludge policy	0.2 SY
21. Establish residual repositories policy	0.3 SY
22. Establish Gilroy, Morgan Hill, San Martin ground water management plan	0.4 SY 8 months
23. Establish nonpoint source runoff policy for sensitive watersheds (i.e. Elkhorn Slough)	0.5 SY 1 year
24. Establish agriculture/ pesticide runoff policy	0.2 SY
25. Establish greenhouse operations policy	0.1 SY
26. Evaluate erosion/sedimentation problems in Santa Cruz County	0.4 SY
27. Reevaluate vessel discharge policy	0.2 SY
28. Reevaluate Santa Ynez ground water basin objective	0.3 SY 6 months
29. Provide guidance for effluent limits in areas with high background concentrations (e.g. ground water nitrate exceeds objectives)	0.2 SY
30. Establish suitable criteria for Waste Discharge Requirements (e.g. standardize rainfall event used to evaluate capacity)	0.2 SY
31. Provide guidance for regulation of point source discharges in the vicinity of significant nonpoint source discharges	0.2 SY
32. Review unionized ammonia objective for receiving waters	0.4 SY
33. Reevaluate nonpoint source controls for urban and rural runoff	0.3 SY
34. Establish storm water discharge policy	0.5 SY
35. Review cumulative impact of Monterey Bay discharges. Determine need for policy	0.4 SY
36. Establish policy for discharge of high temperature waters to ground water	0.2 SY
37. Incorporate revised ground water basin boundary maps*	0.2 SY
38. Review cumulative impact of future on-site disposal on Nipomo Mesa/Valley. Reevaluation of the Nipomo prohibition boundaries	0.4 SY
39. Establish oil drilling mud policy	0.2 SY
40. Establish Morro Basin ground water objectives	0.5 SY
41. Establish ground water objectives for San Benito Basin Contract $ = 40,000	0.5 SY 2 years

Table 1-1. 1988 Triennial Review Priority List

Task	Estimated Time Staff Resources (Staff Years and Duration)
42. Establish ground water objectives for Price Canyon-Edna Valley Watershed Contract $ = $20,000	0.3 SY 18 months
43. Establish offshore oil policy	0.1 SY
44. Establish reclamation/conservation policy	0.05 SY
45. Evaluate need for sewering Hidden Glen area of Scotts Valley	0.2 SY
46. Review water contact recreation for San Miguel, Santa Rosa, and Santa Cruz Island	0.05 SY
47. Update landfill policy to incorporate new State standards*	0.05 SY
48. Update dairy waste policy to incorporate new State standards*	0.05 SY
49. Delete Mission Canyon and Los Alamos prohibition areas*	

* These tasks accomplished by adoption of this Basin Plan

Chapter 2. Present and Potential Beneficial Uses

State policy for water quality control in California is directed toward achieving the highest water quality consistent with maximum benefit to the people of the State. Therefore, all water resources must be protected from pollution and nuisance that may occur as a result of waste discharges.

Establishing the beneficial uses to be protected in the Central Coastal Basin is a cornerstone of this comprehensive plan. Once uses are recognized, compatible water quality standards can be established as well as the level of treatment necessary to maintain the standards and ensure the continuance of the beneficial uses. This chapter will examine and identify historical, present, and potential beneficial uses in the Basin.

The remainder of this chapter summarizes current beneficial uses, describes anticipated future water demands characterizing future or potential water users, and lists the present and potential beneficial uses in tabular form.

I. Present and Potential Beneficial Uses

Beneficial uses are presented for inland surface waters by 13 sub-basins in Table 2-1. Beneficial uses for inland surface waters are arranged by hydrologic unit on pages II-2 through II-15. A map of the hydrologic units is shown in Figure 2-1 on page II-16. Beneficial uses are regarded as existing whether the water body is perennial or ephemeral, or the flow is intermittent or continuous. Beneficial uses of coastal waters are shown in Table 2-2 on page II-17.

Surface water bodies within the Region that do not have beneficial uses designated for them in Table 2-1 are assigned the following designations:

- Municipal and Domestic Water Supply
- Protection of both recreation and aquatic life.

Municipal and Domestic Water Supply is designated in accordance with the provisions of State Water Resources Control Board Resolution 88-63 is by reference, a part of this Plan. (A copy of this resolution is located in the appendix). These MUN designations in no way affect the presence or absence of other beneficial use designations in these water bodies.

Ground water throughout the Central Coastal Basin, except for that found in the Soda Lake Sub-basin, is suitable for agricultural water supply, municipal and domestic water supply, and industrial use. Ground water basins are listed in Table 2-3. A map showing these ground water basins is displayed in Figure 2-2 on page II-19.

II. Beneficial Use Definitions

Beneficial uses for surface and ground waters are divided into the twenty standard categories listed below. One of the principal purposes of this standardization is to facilitate establishment of both qualitative and numerical water quality objectives that will be compatible on a statewide basis.

II.A. Municipal and Domestic Supply (MUN)

Uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply. According to State Board Resolution No. 88-63, "Sources of Drinking Water Policy" all surface waters are considered suitable, or potentially suitable, for municipal or domestic water supply except where:

a. TDS exceeds 3000 mg/l (5000 uS/cm electrical conductivity);
b. Contamination exists, that cannot reasonably be treated for domestic use;
c. The source is not sufficient to supply an average sustained yield of 200 gallons per day;
d. The water is in collection or treatment systems of municipal or industrial wastewaters, process waters, mining wastewaters, or storm water runoff; and
e. The water is in systems for conveying or holding agricultural drainage waters.

II.B. Agricultural Supply (AGR)

Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

II.C. Industrial Process Supply (PROC)

Uses of water for industrial activities that depend primarily on water quality (i.e., waters used for manufacturing, food processing, etc.).

II.D. Industrial Service Supply (IND)

Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well repressurization.

II.E. Ground Water Recharge (GWR)

Uses of water for natural or artificial recharge of ground water for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers. Ground water recharge includes recharge of surface water underflow.

II.F. Freshwater Replenishment (FRSH)

Uses of water for natural or artificial maintenance of surface water quantity or quality (e.g., salinity) which includes a water body that supplies water to a different type of water body, such as, streams that supply reservoirs and lakes, or estuaries; or reservoirs and lakes that supply streams. This includes only immediate upstream water bodies and not their tributaries.

II.G. Navigation (NAV)

Uses of water for shipping, travel, or other transportation by private, military, or commercial vessels. This Board interprets NAV as, "Any stream, lake, arm of the sea, or other natural body of water that is actually navigable and that, by itself, or by its connections with other waters, for a period long enough to be of commercial value, is of sufficient capacity to float watercraft for the purposes of commerce, trade, transportation, and including pleasure; or any waters that have been declared navigable by the Congress of the United States" and/or the California State Lands Commission.

II.H. Hydropower Generation (POW)

Uses of water for hydropower generation.

II.I. Water Contact Recreation (REC-1)

Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs.

II.J. Non-Contact Water Recreation (REC-2)

Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.

II.K. Commercial and Sport Fishing (COMM)

Uses of water for commercial or recreational collection of fish, shellfish, or other organisms including, but not limited to, uses involving organisms intended for human consumption or bait purposes.

II.L. Aquaculture (AQUA)

Uses of water for aquaculture or mariculture operations including, but not limited to, propagation, cultivation, maintenance, or harvesting of aquatic plants and animals for human consumption or bait purposes.

II.M. Warm Fresh Water Habitat (WARM)

Uses of water that support warm water ecosystems including, but not limited to, preservation or

enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.

II.N. Cold Fresh Water Habitat (COLD)

Uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.

II.O. Inland Saline Water Habitat (SAL)

Uses of water that support inland saline water ecosystems including, but not limited to, preservation or enhancement of aquatic saline habitats, vegetation, fish, or wildlife, including invertebrates. Soda Lake is a saline habitat typical of desert lakes in inland sinks.

II.P. Estuarine Habitat (EST)

Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife (e.g., estuarine mammals, waterfowl, shorebirds). An estuary is generally described as a semi-enclosed body of water having a free connection with the open sea, at least part of the year and within which the seawater is diluted at least seasonally with fresh water drained from the land. Included are water bodies which would naturally fit the definition if not controlled by tidegates or other such devices.

II.Q. Marine Habitat (MAR)

Uses of water that support marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife (e.g., marine mammals, shorebirds).

II.R. Wildlife Habitat (WILD)

Uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

II.S. Preservation of Biological Habitats of Special Significance (BIOL)

Uses of water that support designated areas or habitats, such as established refuges, parks, sanctuaries, ecological reserves, or Areas of Special Biological Significance (ASBS), where the preservation or enhancement of natural resources requires special protection.

II.T. Rare, Threatened, or Endangered Species (RARE)

Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

II.U. Migration of Aquatic Organisms (MIGR)

Uses of water that support habitats necessary for migration or other temporary activities by aquatic organisms, such as anadromous fish.

II.V. Spawning, Reproduction, and/or Early Development (SPWN)

Uses of water that support high quality aquatic habitats suitable for reproduction and early development of fish.

II.W. Shellfish Harvesting (SHELL)

Uses of water that support habitats suitable for the collection of filter-feeding shellfish (e.g., clams, oysters, and mussels) for human consumption, commercial, or sport purposes. This includes waters that have in the past, or may in the future, contain significant shellfisheries.

II.X. Areas of Special Biological Significance (ASBS)

are those areas designated by the State Water Resources Control Board as requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable.

The following areas have been designated Areas of Special Biological Significance in the Central Coastal Basin:

1. Año Nuevo Point and Island, San Mateo County

2 Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge, Monterey County

3. Point Lobos Ecological Reserve, Monterey County

4. Carmel Bay, Monterey County

5 Julia Pfeiffer Burns Underwater Park, Monterey County

6. Ocean area surrounding the mouth of Salmon Creek, Monterey County

7. Channel Islands, Santa Barbara County - San Miguel, Santa Rosa, Santa Cruz

An ASBS designation implies the following requirements:

Discharge of elevated temperature wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

Discharge of discrete, point source sewage or industrial process wastes in a manner that would alter water quality conditions from those occurring naturally will be prohibited.

Discharge of waste from nonpoint sources, including but not limited to storm water runoff, silt, and urban runoff, will be controlled to the extent practicable. In control programs for waste from nonpoint sources, Regional Boards will give high priority to areas tributary to ASBS.

Further information concerning ASBS areas can be found by reviewing Regional Board Policies in Chapter Five.

Table 2-1. Identified Uses of Inland Surface Waters

Waterbody Names	MUN	AGR	PROC	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRSH	NAV	POW	COMM	AQUA	SAL	SHELL
Big Basin Hydrologic Unit 304																						
Lucerne Lake Estuary						X	X	X	X			X	X	X	X				X			X
Lucerne Lake	X	X				X	X	X	X							X			X			
Arroyo de los Frejoles Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Arroyo de los Frejoles Reservoir	X	X			X	X	X	X	X	X						X	X		X			
Gazos Creek Lagoon/Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Gazos Creek	X	X			X	X	X	X	X		X	X				X			X			
Old Woman's Creek	X					X	X	X	X		X	X	X						X			
Whitehouse Creek	X					X	X	X	X		X	X	X		X	X			X			
Cascade Creek Lagoon/Estuary						X	X	X	X		X	X	X	X	X				X			X
Cascade Creek	X	X			X	X	X	X	X		X	X	X	X		X			X			
Green Oaks Creek Lagoon/Estuary						X	X	X	X			X		X	X				X			X
Green Oaks Creek	X	X			X	X	X	X	X	X	X	X	X		X	X			X			
Año Nuevo Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Finney Creek	X	X				X	X	X	X				X		X	X			X			
Elliot Creek	X	X				X	X	X	X				X		X	X			X			
Waddell Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Waddell Creek (Main Stem)	X	X		X	X	X	X	X	X		X	X	X	X		X			X			
Waddell Creek, east branch	X				X	X	X	X	X		X	X	X	X		X			X			
Last Chance Creek	X	X			X	X	X	X	X		X	X		X					X			
Blooms Creek	X				X	X	X	X	X			X	X	X					X			
Sempervirens Creek	X				X	X	X	X	X		X	X	X						X			
Union Creek	X					X	X	X	X				X						X			
Sempervirens Res.	X					X	X	X	X				X			X			X			X
Opal Creek	X				X	X	X	X	X				X						X			
Rogers Creek	X					X	X	X	X				X						X			
Maddock's Creek	X					X	X	X	X				X						X			
Waddell Creek, west branch	X				X	X	X	X	X		X	X	X	X					X			
Kelley Creek	X				X	X	X	X	X										X			
Berry Creek	X				X	X	X	X	X										X			
Henry Creek	X				X	X	X	X	X				X						X			
Scott Creek Lagoon						X	X	X	X		X	X		X	X				X			X
Scott Creek	X	X		X	X	X	X	X	X		X	X		X		X			X			
Little Creek	X	X		X	X	X	X	X	X		X	X		X					X			
Big Creek (Año Nuevo)	X	X		X	X	X	X	X	X		X	X		X				X	X			
Berry Creek	X				X	X	X	X	X				X						X			
Deadman Gulch Creek	X				X	X	X	X	X			X		X					X			
Boyer Creek	X				X	X	X	X	X			X						X	X			
Mill Creek (Scott Creek)	X	X		X	X	X	X	X	X		X	X		X		X			X			
Mill Creek Res.	X					X	X	X	X	X	X	X				X	X		X			
Molino Creek	X	X			X	X	X	X	X						X	X			X			
San Vicente Creek	X	X	X	X	X	X	X	X	X		X	X		X	X	X			X			
Mill Creek (Bonnie Doon)	X				X	X	X	X	X		X	X							X			
Liddell Creek	X	X			X	X	X	X	X		X	X		X	X	X			X			
Liddell Creek, east branch	X	X		X	X	X	X	X	X		X	X							X			
Liddell Creek, west branch	X				X	X	X	X	X		X	X							X			
Laguna Creek Estuary					X	X	X	X	X		X	X		X	X				X			X

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Laguna Creek	X	X		X	X	X	X	X	X		X	X		X		X			X			
Reggiardo Creek	X				X	X	X	X	X					X					X			
Majors Creek	X	X		X	X	X	X	X	X		X	X		X	X	X			X			
Baldwin Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Baldwin Creek	X	X			X	X	X	X	X		X	X	X	X		X			X			
Wilder Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Wilder Creek	X	X			X	X	X	X	X	X	X	X	X			X			X			
Cave Gulch	X				X	X	X	X	X	X									X			
Younger's Lagoon					X	X	X	X	X	X		X	X						X			X
Antonellis Pond					X	X	X	X		X	X	X		X					X			
Moore Creek	X	X			X	X	X	X	X	X		X	X			X			X			
Neary's Lagoon					X	X	X	X		X		X		X					X			
San Lorenzo River Estuary						X	X	X	X		X	X	X	X	X				X			
San Lorenzo River	X	X		X	X	X	X	X	X		X	X	X	X		X			X			
Branciforte Creek	X	X			X	X	X	X	X		X	X							X			
Blackburn Gulch	X				X	X	X	X	X		X	X							X			
Tie Gulch	X				X	X	X	X	X		X	X							X			
Granite Creek	X			X	X	X	X	X	X		X	X							X			
Carbonera Creek	X	X		X	X	X	X	X	X		X	X							X			
Zayante Creek	X	X		X	X	X	X	X	X		X	X							X			
Bean Creek	X	X		X	X	X	X	X	X		X	X							X			
Mackenzie Creek	X				X	X	X	X	X		X	X							X			
Ruins Creek	X				X	X	X	X	X		X	X							X			
Lockhart Gulch Creek	X				X	X	X	X	X		X	X							X			
Mountain Charlie Gulch	X				X	X	X	X	X		X	X							X			
Lompico Creek	X	X			X	X	X	X	X		X	X							X			
Mill Creek (SLR)	X				X	X	X	X	X										X			
Newell Creek	X	X		X	X	X	X	X	X		X	X				X			X			
Loch Lomond Res.	X	X		X	X	X	X	X	X	X	X	X		X		X	X		X			X
Love Creek	X				X	X	X	X	X		X	X							X			
Fritch Creek	X				X	X	X	X	X		X	X							X			
Smith Creek	X				X	X	X	X	X										X			
Spring Creek Gulch	X				X	X	X	X	X										X			
Bear Creek	X	X			X	X	X	X	X		X	X							X			
Connelly Gulch	X				X	X	X	X	X		X	X							X			
Shear Creek	X				X	X	X	X	X		X	X							X			
Deer Creek	X				X	X	X	X	X		X	X							X			
Hopkins Gulch	X				X	X	X	X	X		X	X							X			
Two Bar Creek	X				X	X	X	X	X		X	X							X			
Kings Creek	X				X	X	X	X	X		X	X	X						X			
Logan Creek	X				X	X	X	X	X		X	X							X			
Sleeper Gulch	X				X	X	X	X	X				X						X			
McDonald Gulch	X				X	X	X	X	X		X	X	X						X			
Spring Creek	X				X	X	X	X	X		X	X							X			
Boulder Creek	X	X			X	X	X	X	X		X	X							X			
Bracken Brae Creek	X				X	X	X	X	X					X					X			
Hare Creek	X				X	X	X	X	X		X	X		X					X			
Jamison Creek	X				X	X	X	X	X		X	X							X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Peavine Creek	X				X	X	X	X	X		X	X							X			
Silver Creek	X				X	X	X	X	X		X	X							X			
Foreman Creek	X				X	X	X	X	X		X	X							X			
Malosky Creek	X				X	X	X	X	X		X	X							X			
Clear Creek	X				X	X	X	X	X		X	X							X			
Alba Creek	X				X	X	X	X	X		X	X							X			
Marshall Creek	X				X	X	X	X	X		X	X							X			
Manson Creek	X				X	X	X	X	X		X	X							X			
Fall Creek	X	X		X	X	X	X	X	X		X	X	X						X			
South Fall Creek	X	X			X	X	X	X	X		X	X	X						X			
Bennett Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Bull Creek	X				X	X	X	X	X			X							X			
Shingle Mill Creek	X				X	X	X	X	X		X	X							X			
Gold Gulch Creek	X				X	X	X	X	X		X	X							X			
Woods Lagoon						X	X	X			X	X			X				X			X
Arana Gulch	X				X	X	X	X	X		X	X		X		X			X			
Schwan Lake						X	X	X		X		X	X	X					X			X
Corcoran Lagoon					X	X	X	X		X		X		X	X				X			X
Rodeo Creek Gulch (Doyle Gulch)	X	X		X	X	X	X	X	X			X				X			X			
Moran Lake					X	X	X	X		X		X							X			
Soquel Lagoon						X	X	X	X		X	X		X	X				X			
Soquel Creek	X	X		X	X	X	X	X	X		X	X	X			X			X			
Bates Creek	X					X	X	X	X		X	X	X						X			
Grover Gulch	X				X	X	X	X	X		X	X							X			
Soquel Creek, east branch	X			X	X	X	X	X	X		X	X							X			
Hinckley Creek	X	X		X	X	X	X	X	X		X	X	X						X			
Amaya Creek	X				X	X	X	X	X		X	X							X			
Soquel Creek, west branch	X				X	X	X	X	X		X	X							X			
Hester Creek	X				X	X	X	X	X		X	X							X			
Laural Creek	X				X	X	X	X	X		X	X							X			
Burns Creek	X				X	X	X	X	X		X	X							X			
Moores Gulch	X				X	X	X	X	X		X	X							X			
Miners Creek	X				X	X	X	X	X		X	X							X			
Aptos Creek	X	X		X	X	X	X	X	X		X	X	X		X	X			X			
Valencia Creek	X				X	X	X	X	X		X	X							X			
Trout Gulch	X				X	X	X	X	X										X			
Bridge Creek	X	X				X	X	X	X		X	X	X						X			
Valencia Lagoon						X	X	X		X		X		X					X			
Pajaro River Hydrologic Unit 305																						
Corralitos Lagoon						X	X	X	X										X			
Palm Beach Pond	X					X	X	X		X				X					X			
Pinto Lake	X	X			X	X	X	X		X		X							X			
Kelley Lake	X	X			X	X	X	X		X		X							X			
Drew Lake	X	X			X	X	X	X		X		X							X			
Tynan Lake	X	X			X	X	X	X		X		X							X			
Warner Lake	X	X			X		X	X											X			
Pajaro River Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Pajaro River	X	X		X	X	X	X	X	X	X	X	X				X			X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
San Benito River	X	X		X	X	X	X	X		X		X				X			X			
Bird Creek	X	X			X	X	X	X		X			X						X			
Pescadero Creek (S. Benito)	X	X			X	X	X	X	X	X	X	X							X			
Tres Pinos Creek	X	X		X	X	X	X	X		X		X							X			
Hernandez Reservoir	X	X			X	X	X	X		X		X				X	X		X			
Tequisquita Slough					X	X	X	X		X		X							X			
San Felipe Lake	X	X			X	X	X	X	X	X	X					X	X		X			
Pacheco Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Pacheco Lake	X	X			X	X	X	X	X	X		X		X		X	X		X			
Llagas Creek (above Chesbro Res.)	X	X			X	X	X	X	X	X				X		X			X			
Chesbro Reservoir	X	X			X	X	X	X		X	X	X		X		X	X		X			
Llagas Creek (below Chesbro Res.)	X	X		X	X	X	X	X	X	X	X	X		X					X			
Alamias Creek	X	X			X	X	X	X	X	X	X	X							X			
Live Oak Creek	X	X			X	X	X	X	X	X	X								X			
Little Llagas Creek	X	X			X	X	X	X		X									X			
Carnadero Creek	X				X	X	X	X	X	X	X			X					X			
Uvas Creek, downstream	X	X		X	X	X	X	X	X	X	X	X		X					X			
Uvas Res.	X	X			X	X	X	X		X		X		X		X	X		X			
Little Arthur Creek	X	X			X	X	X	X	X	X	X	X							X			
Bodfish Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Black Hawk Canyon Creek	X					X	X	X		X	X	X		X					X			
Uvas Creek, upstream	X				X	X	X	X	X		X	X		X		X			X			
Little Uvas Creek	X	X			X	X	X	X		X									X			
Swanson Canyon Creek	X				X	X	X	X											X			
Alec Canyon Creek	X				X	X	X	X	X		X	X							X			
Croy Creek	X				X	X	X	X		X				X					X			
Eastman Canyon Creek	X	X			X	X	X	X		X									X			
Pescadero Creek	X	X			X	X	X	X	X		X	X	X						X			
Soda Lake							X	X		X				X					X			
Salsipuedes Creek	X	X			X	X	X	X	X		X	X							X			
Corralitos Creek	X	X		X	X	X	X	X	X	X	X	X							X			
Browns Creek	X	X		X	X	X	X	X	X	X	X	X							X			
Gamecock Creek	X				X	X	X	X	X		X	X							X			
Ramsey Gulch	X				X	X	X	X	X		X	X							X			
Redwood Creek	X					X	X	X	X		X	X							X			
Mormon Gulch	X				X	X	X	X	X										X			
Clipper Gulch	X				X	X	X	X	X										X			
Cookhouse Gulch	X				X	X	X	X	X										X			
Shingle Mill Gulch	X				X	X	X	X	X		X	X							X			
Rattlesnake Gulch	X				X	X	X	X	X										X			
Diablo Gulch Creek	X				X	X	X	X	X										X			
Eureka Gulch	X				X	X	X	X	X										X			
Rider Gulch Creek	X				X	X	X	X	X		X	X							X			
Watsonville Slough						X	X	X		X		X	X	X	X				X			
Struve Slough						X	X	X		X		X	X	X	X				X			
Hanson Slough						X	X	X		X		X	X	X	X				X			
Harkins Slough						X	X	X		X		X	X	X	X				X			
Gallighan Slough						X	X	X		X		X		X	X				X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Bolsa Nueva Hydrologic Unit 306																						
McClusky Slough					X	X	X	X		X		X		X					X			X
Elkhorn Slough						X	X	X	X	X	X	X	X	X	X		X		X	X		X
Los Carneros Creek	X					X	X	X	X		X	X		X		X			X			
Bennett Slough/Estuary						X	X	X	X	X		X	X	X	X				X			X
Parsons Slough						X	X	X	X			X	X	X	X				X			X
Carmel River Hydrologic Unit 307																						
Carmel River Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Carmel River	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
San Clemente Res.	X	X			X	X	X	X	X		X	X				X	X		X			
San Clemente Creek	X	X			X	X	X	X	X	X	X	X				X			X			
Pine Creek	X				X	X	X	X	X	X	X	X	X						X			
Los Padres Reservoir	X				X	X	X	X	X	X	X	X				X	X		X			
Cachagua Creek	X	X	X	X	X	X	X	X	X	X	X	X				X			X			
Finch Creek	X				X	X	X	X	X	X	X	X	X	X					X			
Tularcitos Creek	X	X			X	X	X	X	X	X	X	X							X			
Rana Creek	X				X	X	X	X	X	X	X	X							X			
Chupines Creek	X				X	X	X	X	X	X	X	X							X			
Black Rock Creek	X					X	X	X	X		X	X		X		X			X			
White Rock Lake	X					X	X	X	X	X	X	X					X		X			
Santa Lucia Hydrologic Unit 308																						
San Jose Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
San Jose Creek	X	X			X	X	X	X	X	X	X	X	X			X			X			
Garrapata Creek	X					X	X	X	X		X	X		X	X	X			X	X		
Palo Colorado Canyon	X	X			X	X	X	X	X	X		X			X	X			X			
Rocky Creek	X					X	X	X	X	X	X	X			X	X			X			
Bixby Creek	X					X	X	X	X		X	X		X	X	X			X			
Mill Creek	X					X	X	X	X		X	X							X			
Little Sur River Estuary						X	X	X	X		X	X	X	X	X				X			X
Little Sur River	X	X			X	X	X	X	X		X	X	X	X		X			X			
Big Sur River Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Big Sur River	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Big Creek	X					X	X	X	X	X	X	X	X	X	X	X			X			
Devils Canyon Creek, south fork	X					X	X	X	X		X	X	X						X			
Devils Canyon Creek, middle fork	X					X	X	X	X		X	X	X						X			
Devils Canyon Creek, north fork	X					X	X	X	X		X	X	X						X			
Big Creek, north fork	X					X	X	X	X				X						X			
Limekiln Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Mill Creek (Cape San Martin)	X					X	X	X	X	X	X	X			X	X			X			
Willow Creek	X				X	X	X	X	X		X	X		X	X	X			X			
Salmon Creek	X					X	X	X	X		X	X		X	X	X			X			
Salinas Hydrologic Unit 309																						
Moro Cojo Slough					X	X	X	X	X	X		X	X	X	X				X			X
Old Salinas River Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Tembldero Slough						X	X	X		X		X		X	X				X			X
Espinosa Lake						X	X	X		X									X			
Espinosa Slough						X	X	X		X									X			
Salinas Reclamation Canal						X	X	X		X									X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Gabilan Creek	X	X			X	X	X	X		X		X							X			
Alisal Creek	X	X			X	X	X	X	X	X		X							X			
Blanco Drain						X	X	X		X									X			
Salinas River Refuge Lagoon (South)						X	X	X	X	X	X		X	X					X			X
Marina Pond #1					X	X	X	X	X			X	X	X					X			
Marina Pond #2					X	X	X	X	X				X	X					X			
Marina Pond #3					X	X	X	X	X				X	X					X			
Marina Pond #4/5					X	X	X	X	X				X	X					X			
Marina Pond #6					X	X	X	X	X				X	X					X			
Marina Pond #7					X	X	X	X	X			X	X	X					X			
Laguna Grande/Roberts Lake	X					X	X	X	X	X									X			
Del Monte Lake	X					X	X	X		X									X			
El Estero Lake	X				X	X	X	X	X	X		X							X			
Salinas River Lagoon (North)						X	X	X	X	X	X	X	X	X	X				X			X
Salinas River, dnstr of Spreckels Gage	X	X					X	X	X	X	X					X			X			
Salinas River, Spreckels Gage-Chualar	X	X	X	X	X	X	X	X	X	X	X								X			
Salinas Riv, Chualar-Nacimiento Riv	X	X	X	X	X	X	X	X	X	X	X	X		X					X			
Arroyo Seco River	X	X		X	X	X	X	X	X	X	X	X		X					X			
Abbott Lakes (The Lakes)	X				X	X	X	X	X	X		X					X		X			
Piney Creek	X					X	X	X	X		X	X							X			
Paloma Creek	X	X			X	X	X	X	X	X									X			
Tassajara Creek	X	X			X	X	X	X	X	X	X	X	X	X					X			
Santa Lucia Creek	X	X			X	X	X	X	X	X	X	X	X						X			
Vaqueros Creek	X	X				X	X	X	X		X	X							X			
Reliz Creek	X	X			X	X	X	X	X		X	X							X			
Hames Creek	X	X			X	X	X	X		X									X			
San Antonio Riv., dwnstr frm Res.	X	X		X	X	X	X	X		X	X	X		X					X			
San Antonio Reservoir	X	X			X	X	X	X	X	X		X		X		X	X	X	X			
San Antonio Riv., upstm Frm Res.	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Pancho Rico Creek	X	X			X	X	X	X		X		X							X			
San Lorenzo Creek	X	X			X	X	X	X		X		X							X			
Chalone Creek	X	X			X	X	X	X		X		X							X			
Salinas R.,Nacimiento R.-S. Margarita Res.	X	X	X		X	X	X	X	X	X	X	X		X					X			
Nacimiento River, upstream of Res.	X	X			X	X	X	X	X	X		X		X		X			X			
Salmon Creek	X					X	X	X	X		X	X		X					X			
Nacimiento Reservoir	X	X			X	X	X	X	X	X		X		X		X	X		X			
Nacimiento River, dwnstr Res.	X	X		X	X	X	X	X	X	X	X	X		X					X			
Las Tablas Creek	X	X			X	X	X	X	X	X		X		X					X			
Las Tablas Creek, north fork	X	X			X	X	X	X	X			X		X					X			
Las Tablas Creek, south fork	X	X			X	X	X	X	X			X		X					X			
Franklin Creek	X	X			X	X	X	X											X			
San Marcos Creek	X	X			X	X	X	X		X									X			
Paso Robles Creek	X	X			X	X	X	X	X		X	X		X					X			
Jack Creek	X	X			X	X	X	X	X		X	X		X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Santa Rita Creek	X	X		X	X	X	X	X	X	X	X	X		X					X			
Atascadero Creek	X	X			X	X	X	X	X			X		X					X			
Santa Margarita Reservoir (Lake)	X	X		X	X	X	X	X	X	X		X		X		X	X	X	X			
Salinas R., Reservoir-Headwaters	X	X			X	X	X	X	X		X	X				X			X			
Huerhuero Creek	X	X			X	X	X	X		X				X					X			
Vineyard Canyon Creek	X	X			X	X	X	X		X									X			
Big Sandy Creek	X	X			X	X	X	X		X			X	X					X			
Atascadero Lake	X				X	X	X	X	X	X		X					X		X			
Estero Bay Hydrologic Unit 310																						
San Carpoforo Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
San Carpoforo Creek	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Estrada Creek	X	X			X	X	X	X	X	X									X			
Chris Flood Creek	X	X			X	X	X	X	X	X									X			
Wagner Creek	X	X			X	X	X	X	X	X									X			
Dutra Creek	X	X			X	X	X	X	X	X									X			
Arroyo de los Chinos	X	X			X	X	X	X	X	X				X	X	X			X			
Arroyo de la Cruz Estuary						X	X	X	X		X	X	X	X	X				X			X
Arroyo de la Cruz Creek	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Burnett Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Arroyo del Oso	X	X			X	X	X	X	X					X	X	X			X			
Arroyo del Corral	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Oak Knoll Creek	X	X			X	X	X	X	X	X				X	X	X			X			
Arroyo Laguna						X	X	X	X			X		X	X				X			X
Little Pico Creek Estuary						X	X	X	X		X	X	X	X	X				X			X
Little Pico Creek	X	X			X	X	X	X	X		X	X		X		X			X			
Pico Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
Pico Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Pico Creek, south fork	X	X			X	X	X	X	X		X	X		X					X			
Pico Creek, north fork	X	X			X	X	X	X	X		X	X		X					X			
San Simeon Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
San Simeon Creek	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
Steiner Creek	X	X			X	X	X	X	X	X	X	X		X					X			
Santa Rosa Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
Santa Rosa Creek	X	X		X	X	X	X	X	X	X	X	X		X		X			X			
Perry Creek	X	X			X	X	X	X	X					X					X			
Green Valley Creek	X	X			X	X	X	X	X	X				X					X			
Villa Creek	X	X			X	X	X	X	X		X	X		X	X	X			X			
Cayucos Creek	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Old Creek, downstream	X	X			X	X	X	X		X				X	X	X			X			
Whale Rock Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Old Creek, upstream	X	X	X	X	X	X	X	X	X	X		X		X		X			X			
Toro Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Morro Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Little Morro Creek	X	X			X	X	X	X	X		X	X		X					X			
Morro Bay Estuary				X		X	X	X	X		X	X	X	X	X				X	X		X
Chorro Creek	X	X			X	X	X	X	X	X	X	X	X	X		X			X			
Dairy Creek	X	X			X	X	X	X	X		X	X		X					X			
San Luisito Creek	X	X			X	X	X	X	X		X	X		X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
San Bernardo Creek	X	X			X	X	X	X	X		X	X		X					X			
Los Osos Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			
Warden Lake Wetland		X			X	X	X	X		X		X		X					X			
Islay Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Coon Creek	X	X			X	X	X	X	X		X	X	X	X	X	X			X			
Diablo Canyon Creek	X	X		X	X	X	X	X	X			X		X	X	X			X			
San Luis Obispo Creek Estuary (a)					X	X	X	X	X	X	X	X	X	X	X				X	X		X
S.L.O. Crk. above W. Marsh St.	X	X			X	X	X	X	X	X	X	X		X					X			
S.L.O. Crk. below W. Marsh St.	X	X			X	X	X	X	X	X	X	X				X			X			
Froom Creek	X					X	X	X						X					X			
Davenport Creek	X	X			X	X	X	X	X					X					X			
San Luis Obispo Creek, east fork	X	X			X	X	X	X	X		X	X		X					X			
Stenner Creek	X	X			X	X	X	X	X		X	X		X					X			
Brizziolari Creek	X	X			X	X	X	X	X		X	X		X					X			
Prefumo Creek	X	X			X	X	X	X	X		X	X		X		X			X			
Laguna Lake	X	X			X	X	X	X		X	X	X		X			X		X			
Pismo Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Pismo Creek	X	X		X	X	X	X	X	X	X	X	X	X	X		X			X			
Arroyo Grande Creek Estuary					X	X	X	X	X		X	X	X	X	X				X			X
Arroyo Grande Creek, downstream	X	X		X	X	X	X	X	X	X	X			X		X			X			
Oceano Lagoon						X	X	X		X		X	X	X					X			
Meadow Creek	X	X			X	X	X	X	X				X	X					X			
Pismo Marsh (Lake)					X	X	X	X		X			X	X					X			
Los Berros Creek	X	X			X	X	X	X	X		X			X					X			
Lopez Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Arroyo Grande Creek, upstream	X	X	X	X	X	X	X	X	X	X	X	X		X					X			
Big Pocket Lake (Dunes Lakes)					X		X	X						X					X			
Willow Lake " "					X	X	X	X		X		X		X					X			
Pipeline Lake " "					X	X	X	X		X		X		X					X			
Celery Lake " "					X	X	X	X		X		X		X					X			
Hospital Lake " "					X	X	X	X		X		X		X					X			
Big Twin Lake " "					X	X	X	X		X		X		X					X			
Small Twin Lake " "						X	X	X		X		X		X					X			
Bolsa Chico Lake " "					X	X	X	X		X		X		X					X			
White Lake " "					X	X	X	X		X		X		X					X			
Mud Lake " "					X	X	X	X		X		X		X					X			
Black Lake " "					X	X	X	X		X		X		X					X			
Dune Lakes Marsh Area " "					X	X	X	X		X		X		X					X			
Carrizo Plain Hydrologic Unit 311																						
San Diego Creek	X	X			X	X	X	X		X			X	X		X			X			
Soda Lake				X			X	X		X			X	X					X			
Santa Maria Hydrologic Unit 312																						
Oso Flaco Lake					X	X	X	X		X		X	X	X			X		X			
Oso Flaco Creek	X	X			X	X	X	X		X			X	X		X			X			
Santa Maria River Estuary					X	X	X	X		X	X	X	X	X	X				X			X
Santa Maria River	X	X		X	X	X	X	X	X	X	X			X		X			X			
Corralitos Canyon Creek	X	X				X	X	X											X			
Sisquoc River, downstream	X	X		X	X	X	X	X	X	X	X	X							X			
Sisquoc River, upstream	X				X	X	X	X	X		X	X	X	X					X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Cuyama River, downstream	X	X			X	X	X	X		X				X					X			
Twitchell Reservoir	X	X			X		X	X		X				X		X			X			
Cuyama River, upstream	X	X	X	X	X	X	X	X	X	X		X		X		X			X			
Alamo Creek	X	X			X	X	X	X	X	X		X		X					X			
Huasna River	X	X			X	X	X	X		X				X					X			
Orcutt Creek	X	X			X	X	X	X	X					X	X	X			X			
San Antonio Hydrologic Unit 313																						
Shuman Canyon Creek	X	X				X	X	X		X		X			X	X			X			
Casmalia Canyon Creek	X	X				X	X	X		X		X							X			
San Antonio Creek Estuary					X	X	X	X	X	X	X	X	X	X	X				X			X
San Antonio Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			
Barka Slough					X	X	X	X		X		X		X	X				X			X
Santa Ynez Hydrologic Unit 314																						
Santa Ynez River Estuary						X	X	X		X	X	X	X	X	X				X			X
Santa Ynez River, downstream	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Graves Wetland						X	X	X		X		X							X			
Lompoc Canyon	X	X		X	X	X	X	X		X									X			
La Salle Canyon Creek	X	X			X	X	X	X		X									X			
Sloans Canyon Creek	X				X	X	X	X		X									X			
San Miguelito Creek	X	X			X	X	X	X	X	X		X							X			
Salsipuedes Creek	X	X		X	X	X	X	X	X	X	X	X							X			
El Jaro Creek	X	X		X	X	X	X	X	X	X	X	X							X			
El Callejon Creek	X				X	X	X	X		X									X			
Llanito Creek	X				X	X	X	X		X									X			
Yridisis Creek	X	X			X	X	X	X		X		X							X			
Canada de la Vina	X	X			X	X	X	X		X									X			
Nojoqui Creek	X	X			X	X	X	X	X	X		X							X			
Alamo Pintado Creek	X	X		X	X	X	X	X		X									X			
Zaca Creek	X	X			X	X	X	X	X	X				X					X			
Zaca Lake	X					X	X	X	X	X		X		X					X			
Santa Rosa Creek	X	X			X	X	X	X	X	X	X	X							X			
Santa Rita Creek	X	X		X	X	X	X	X		X									X			
Davis Creek	X				X	X	X	X		X									X			
Santa Lucia Canyon Creek	X	X			X	X	X	X		X									X			
Oak Canyon Creek	X	X		X	X	X	X	X		X			X						X			
Hilton Creek	X	X			X	X	X	X	X		X	X							X			
Cachuma Reservoir	X	X	X		X	X	X	X	X	X		X		X		X	X		X			
Santa Ynez River, upstream	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Gibralter Reservoir	X	X	X	X	X	X	X	X	X	X		X		X		X	X		X			
Jameson Reservoir	X	X	X		X	X	X	X	X	X		X		X		X	X		X			
Agua Caliente Canyon	X	X		X	X	X	X	X	X	X		X		X					X			
Mono Creek	X	X		X	X	X	X	X	X	X	X	X		X					X			
Indian Creek	X	X		X	X	X	X	X	X	X	X	X	X	X					X			
Santa Cruz Creek	X	X		X	X	X	X	X	X	X	X	X		X					X			
Cachuma Creek	X				X	X	X	X	X	X	X	X		X					X			
South Coast Hydrologic Unit 315																						
Canada Honda Creek Estuary						X	X	X	X	X	X	X	X	X	X				X			X
Canada Honda Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Canada Agua Viva	X				X	X	X	X		X					X	X			X			
Water Canyon Creek	X				X	X	X	X		X			X		X	X			X			
Canada del Jolloru	X					X	X	X		X					X	X			X			
Jalama Creek Estuary						X	X	X		X	X	X	X	X	X				X			X
Jalama Creek	X	X			X	X	X	X		X		X				X			X			
Escondido Creek	X				X	X	X	X	X	X	X	X		X					X			
Gasper Creek	X				X	X	X	X		X									X			
Espada Creek	X				X	X	X	X		X									X			
Wood Canyon Creek	X				X	X	X	X		X					X	X			X			
Canada del Cojo	X				X	X	X	X		X					X	X			X			
Barranca Honda	X	X			X	X	X	X		X				X	X	X			X			
Arroyo Bulito	X	X			X	X	X	X		X					X	X			X			
Canada de Santa Anita	X	X			X	X	X	X		X					X	X			X			
Canada del Sacate	X	X			X	X	X	X		X					X	X			X			
Canada Alegria	X				X	X	X	X		X					X	X			X			
Canada del Agua Caliente	X	X			X	X	X	X	X	X					X	X			X			
Canada de la Gaviota	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Canada San Onofre	X					X	X	X	X	X	X	X		X	X	X			X			
Canada del Molino	X					X	X	X		X				X	X	X			X			
Arroyo Hondo	X					X	X	X	X	X	X	X		X	X	X			X			
Arroyo Quenado	X	X				X	X	X	X		X	X		X	X	X			X			
Tajigas Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Canada del Refugio	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Canada del Capitan	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Dos Pueblos Canyon Creek	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X			
Tecolote Creek	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			X			
Devereaux Ranch Lagoon						X	X	X		X	X	X	X	X	X				X			X
Devereaux Creek	X				X	X	X	X		X						X			X			
Goleta Point Marsh						X	X	X		X		X	X	X					X			
Goleta Slough/Estuary						X	X	X		X	X	X	X	X	X				X			X
Carneros Creek	X	X			X	X	X	X	X	X						X			X			
Tecolotito Creek	X				X	X	X	X	X	X	X					X			X			
Glen Anne Creek	X	X	X	X	X	X	X	X	X	X	X	X		X		X			X			
Los Caneros Wetland					X	X	X	X		X		X		X					X			
Los Caneros	X	X			X	X	X	X		X		X		X		X			X			
Atascadero Creek (SB)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Maria Ygnacio Creek	X	X			X	X	X	X	X		X	X							X			
San Antonio Creek (S Barbara County)	X	X			X	X	X	X	X	X	X	X		X					X			
San Jose Creek (S Barbara County)	X	X			X	X	X	X	X	X	X	X		X		X			X			
Las Vegas Creek	X				X	X	X	X	X	X									X			
San Pedro Creek	X	X			X	X	X	X	X	X	X					X			X			
Las Palmas Creek	X				X	X	X	X		X									X			
Arroyo Burro Estuary						X	X	X		X		X			X				X			
Arroyo Burro Creek	X				X	X	X	X		X		X	X	X		X			X			
Mission Creek	X				X	X	X	X	X	X	X	X		X	X	X			X			
Rattlesnake Canyon	X				X	X	X	X	X	X	X	X							X			
Waste Slough					X	X	X	X		X		X							X			

Table 2-1. Identified Uses of Inland Surface Waters (continued)

Waterbody Names	MUN	AGR	PRO	IND	GWR	REC1	REC2	WILD	COLD	WARM	MIGR	SPWN	BIOL	RARE	EST	FRESH	NAV	POW	COMM	AQUA	SAL	SHELL
Sycamore Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Andree Clark Bird Refuge						X	X	X		X			X	X					X			X
San Ysidro Creek	X				X	X	X	X		X					X	X			X			
Romero Creek	X				X	X	X	X		X					X	X			X			
Toro Canyon Creek	X				X	X	X	X		X					X	X			X			
Arroyo Paredon	X	X			X	X	X	X		X	X	X		X	X	X			X			
Carpinteria Marsh (El Estero Marsh)						X	X	X		X	X	X	X	X	X				X			
Santa Monica Creek	X	X			X	X	X	X	X	X		X	X			X			X			
Franklin Creek	X	X			X	X	X	X	X	X	X	X		X		X			X			
Carpinteria Creek	X	X			X	X	X	X	X	X	X	X	X	X	X	X			X			
Gobernador Creek	X				X	X	X	X	X	X		X							X			
Steer Creek	X					X	X	X	X	X	X	X							X			
Rincon Creek	X	X			X	X	X	X	X	X	X	X		X	X	X			X			
Santa Barbara Channel Hydrologic Unit 316																						
Santa Rosa Island																						
Canada Lobos Creek	X	X				X	X	X		X			X	X					X			
Old Ranch Canyon Creek	X	X				X	X	X		X			X	X		X			X			
Arlington Canyon Creek	X	X				X	X	X		X			X	X					X			
Water Canyon Creek	X	X				X	X	X		X			X	X					X			
Cow Canyon Creek	X	X				X	X	X		X			X	X					X			
Clapp Springs	X	X				X	X	X		X			X	X					X			
Old Ranch Canyon Creek Estuaries		X				X	X	X		X			X	X	X				X			
Old Ranch House Canyon Creek	X	X				X	X	X		X			X	X		X			X			
Cherry Canyon Creek	X	X				X	X	X		X			X	X					X			
Santa Cruz Island																						
Willow Canyon Creek	X					X	X	X		X			X	X					X			
Coches Prieto Canyon Creek	X					X	X	X		X			X	X					X			
Almos Anchorage Canyon Creek	X					X	X	X		X			X	X					X			
Canada del Puerta (Prisoner Harbor)	X					X	X	X		X			X	X					X			
Canada Larga Creek	X					X	X	X		X			X	X					X			
Upper Pozo Canyon Creek	X					X	X	X		X			X	X					X			
Sauces Canyon Creek	X					X	X	X		X			X	X					X			
Twin Harbors Canyon Ck, (E. Fork)	X					X	X	X		X			X	X					X			
Lady's Harbor Canyon Creek	X					X	X	X		X			X	X					X			
Estrella River Hydrologic Unit 317																						
Estrella River	X	X			X	X	X	X		X		X							X			
San Juan Creek	X	X			X	X	X	X		X				X					X			
Chalome Creek	X	X			X	X	X	X		X				X					X			
Little Chalome Creek	X	X			X	X	X	X		X				X					X			

Table 2-2. Existing and Anticipated Uses of Coastal Waters[a]

Coastal Water	REC 1	REC 2	IND	NAV	MAR	SHELL	COMM	RARE	ASBS	WILD
Pescadero Pt. to Pt. Año Nuevo		E	E	E	E	E	E	E		E
Pt. Año Nuevo to Soquel Pt.	E	E	E	E	E	E				E
Pt. Año Nuevo and Island	E	E			E			E	E	E
Santa Cruz Harbor	E	E	E	E	E		E			
San Lorenzo Estuary	E	E		E	E	E	E			E
Soquel Pt. to Salinas River	E	E	E	E	E	E	E	E		E
Elkhorn Slough[b]	E	E			E	E	E	E		E
Moss Landing Harbor	E	E	E	E	E	E[c]	E	E		E
Salinas River to Pt. Piños	E	E	E	E	E	E	E			E
Monterey Harbor	A	E	E	E	E	E	A	E		
Pacific Grove Marine Gardens	E	E			E		E	E	E	E
Hopkins Marine Life Refuge	E	E			E		E	E	E	E
Pt. Piños to Pt. Piedras Blancas	E	E		E	E		E	E		E
Carmel Bay	E	E			E		E	E	E	E
Pt. Lobos State Reserve	E	E			E			E	E	E
Pt. Sur	E	E			E	E	E			E
Pfeiffer-Burns State Park	E	E			E			E	E	E
Ocean Area Surrounding Salmon Creek	E	E			E				E	E
Pt. Piedras Blancas to Pt. Estero	E	E		E	E	E	E	E		E
Estero Bay	E	E	E	E	E	E	E	E		E
Morro Bay	E	E	E	E	E	E	E	E		E
Pt. Buchon to Pt. San Luis	E	E	E	E	E	E	E			E
Pt. San Luis to Pt. Sal	E	E	E	E	E	E	E	E		E
Pt. Sal to Pt. Arguello	E	E		E	E	E	E			E
Pt. Arguello to Coal Oil Pt.	E	E	E	E	E	E	E			
Coal Oil Pt. to Rincon Pt.	E	E	E	E	E	E	E	E		E
Goleta Slough	E	E			E	E		E		E
Santa Barbara Harbor	E	E	E	E	E		E			
Beach Parks	E	E		E	E					
San Miguel Island	E	E		E	E	E	E	E	E	E
Santa Rosa Island	E	E		E	E	E	E		E	E
Santa Cruz Island	E	E		E	E	E	E	E	E	E
El Estero	E	E			E	E		E		E

a This table lists selected coastal segments. It is not a complete inventory for the Central Coast Region. Unlisted water bodies have implied beneficial use designations for protection of both recreation and aquatic life.

b Elkhorn Slough has been designated an ecological reserve by the California Department of Fish and Game, and recognized as a National Estuary Sanctuary by the Federal Government.

c Clamming is an existing beneficial use in the North Harbor and on the south side of the entrance channel to Elkhorn Slough (north of the Pacific Gas and Electric Cooling Water Intake). Presently, no shellfishing use occurs south of the Pacific Gas and Electric Intake.

NOTES: E = Existing beneficial water use
A = Anticipated beneficial water use

Table 2-3. Central Coastal Ground Water Basins[a]

Name	County
Año Nuevo Area (3-20)	San Mateo
Arroyo de la Cruz Valley (3-34)	San Luis Obispo
Arroyo Grande Valley-Nipoma Mesa Area (3-11)	San Luis Obispo
Big Spring Area (3-47)	San Luis Obispo
Bitter Water Valley (3-30)	San Benito
Careaga Sand Highlands (3-48)	Santa Barbara
Carmel Valley (3-7)	Monterey
Carpinteria Basin (3-18)	Santa Barbara
Carrizo Plain (3-19)	San Luis Obispo
Cayucos Valley (3-38)	San Luis Obispo
Cholame Valley (3-5)	Monterey, San Luis Obispo
Chorro Valley (3-42)	San Luis Obispo
Corral de Tierra Area (3-4.10)	Monterey
Cuyama Valley (3-13)	Kern, San Luis Obispo, Santa Barbara, Ventura
Dry Lake Valley (3-29)	Benito
Gilroy-Hollister Valley (3-3)	Benito, Santa Clara
Goleta Basin (3-16)	Santa Barbara
Hernandez Valley (3-31)	Benito
Huasna Valley (3-45)	San Luis Obispo
Langley Area (3-4.09)	Monterey
Lockwood Valley (3-6)	Monterey
Los Osos Valley (3-8)	San Luis Obispo
Montecito Area (3-49)	Santa Barbara
Morro Valley (3-41)	San Luis Obispo
Old Valley (3-39)	San Luis Obispo
Pajaro Valley (3-2)	Monterey, Santa Cruz
Paso Robles Basin (3-4.06)	Monterey, San Luis Obispo
Peach Tree Valley (3-32)	San Benito
Pismo Creek Valley (3-10)	San Luis Obispo
Pozo Valley (3-44)	San Luis Obispo
Quien Sabe Valley (3-24)	San Benito
Rafael Valley (3-46)	San Luis Obispo
Rinconada Valley (3-43)	San Luis Obispo
Salinas Valley (3-4)	Monterey
San Antonio Creek Valley (3-14)	Santa Barbara
San Benito River Valley (3-28)	San Benito
San Carpoforo Valley (3-33)	San Luis Obispo
San Luis Obispo Valley (3-9)	San Luis Obispo
San Simeon Valley (3-35)	San Luis Obispo
Santa Ana Valley (3-22)	San Benito
Santa Barbara Basin (3-17)	Santa Barbara
Santa Cruz Purisima Formation Highlands (3-21)	Santa Cruz
Santa Maria River Valley (3-12)	San Luis Obispo, Santa Barbara
Santa Rosa Valley (3-36)	San Luis Obispo
Santa Ynez River Valley (3-15)	Santa Barbara
Scotts Valley (3-27)	Santa Cruz
Seaside Area (3-4.08)	Monterey
Soquel Valley (3-1)	Santa Cruz
Toro Valley (3-40)	San Luis Obispo
Tres Pinos Creek Valley (3-25)	San Benito
Upper Santa Ana Valley (3-23)	San Benito
Villa Valley (3-37)	San Luis Obispo
West Santa Cruz Terrace (3-26)	Santa Cruz

a Basin number locations identified on Figure 2-2.

Figure 2-1. Central Coast Hydrologic Planning Area

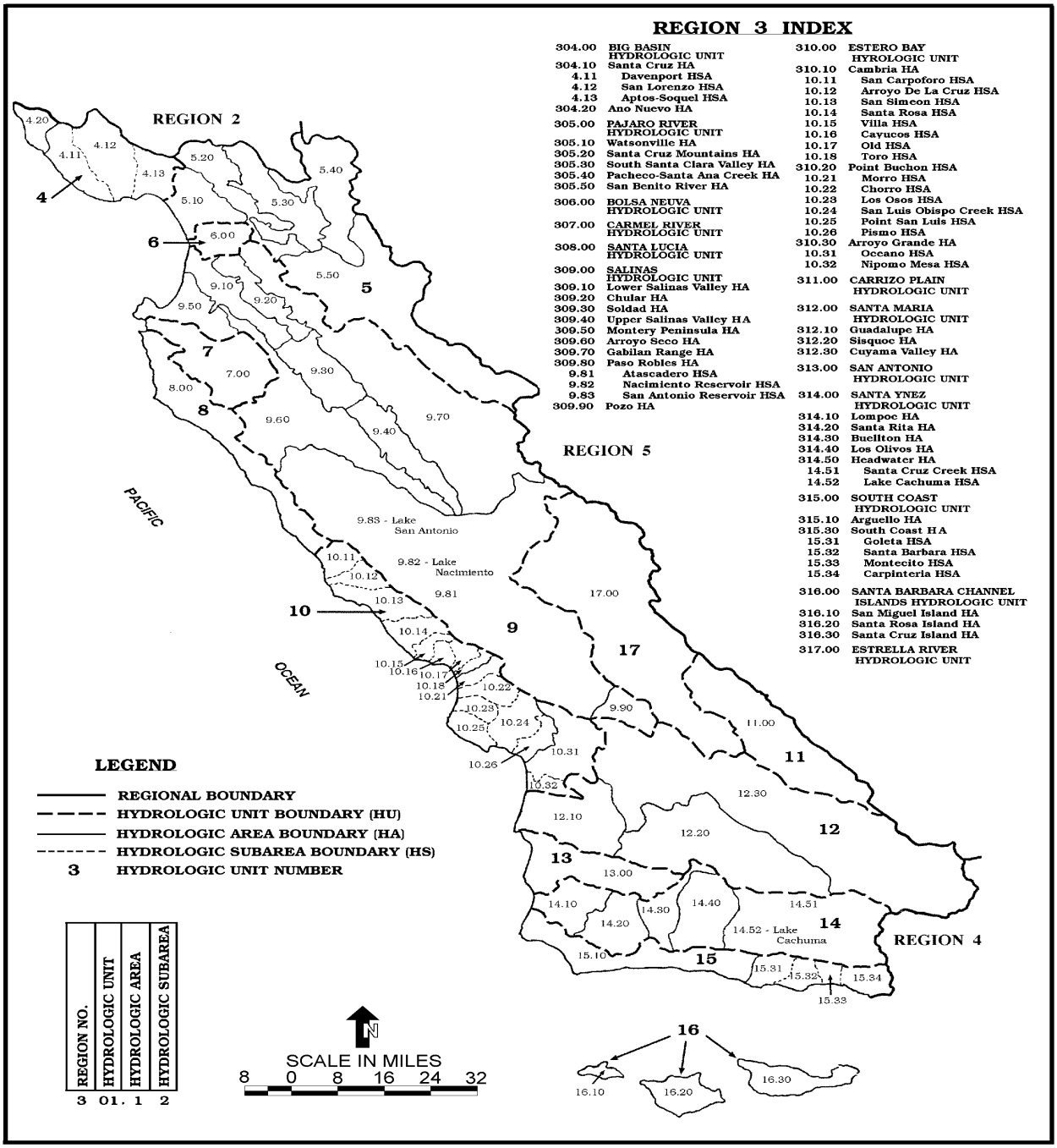

FIGURE 2-1. CENTRAL COAST HYDROLOGIC PLANNING AREA

Figure 2-2. Central Coast Groundwater Basins

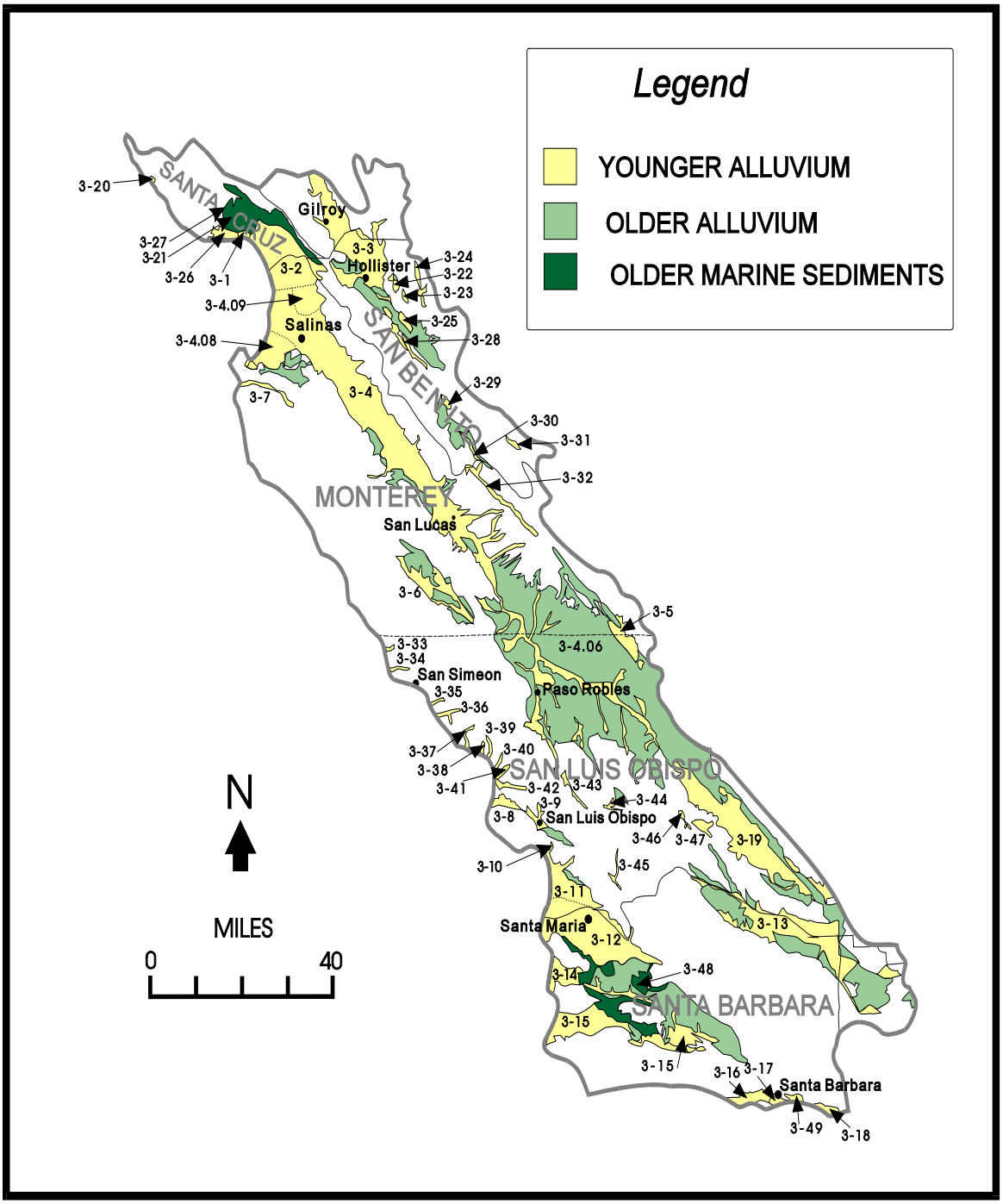

FIGURE 2-2. GROUND WATER BASINS - CENTRAL COASTAL HYDROLOGIC STUDY AREA

Chapter 3. Water Quality Objectives

Section 13241, Division 7 of the California Water Code specifies that each Regional Water Quality Control Board shall establish water quality objectives which, in the Regional Board's judgment, are necessary for the reasonable protection of beneficial uses and for the prevention of nuisance.

Section 303 of the 1972 Amendments to the federal Water Pollution Control Act requires the State to submit to the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) for approval, all new or revised water quality standards which are established for surface and ocean waters. Under federal terminology, water quality standards consist of beneficial uses enumerated in Chapter Two and water quality objectives contained in this chapter.

Water quality objectives contained herein are designed to satisfy all State and federal requirements.

As new information becomes available, the Regional Board will review the appropriateness of objectives contained herein. These objectives are subject to public hearing at least once during each three-year period following adoption of this plan for the purpose of review and modification as appropriate.

I. Considerations in Selecting Water Quality Objectives

The aforementioned 1972 Amendments to the federal Water Pollution Control Act declare that a national goal is elimination of discharge of pollutants into navigable waters.

A prerequisite to water quality control planning is the establishment of a base or reference point. The base in this instance was various general and specific water quality criteria previously found acceptable for particular beneficial uses or selected sources of waste. Current technical guidelines, available historical data, and enforcement feasibility were given full consideration in formulating water quality objectives.

A distinction is made here between the terms "water quality objectives" and "water quality standards". Water quality objectives have been adopted by the State and, when applicable, extended as federal water quality standards. Water quality standards, previously mentioned in this chapter's introduction, pertain to navigable waters and become legally enforceable criteria when accepted by the U.S. EPA Regional Administrator.

Point and nonpoint water pollution sources described herein have the same meaning as defined in the federal Water Pollution Control Act. Point sources are waste loads from identifiable sources such as municipal discharges, industrial discharges, vessels, controllable storm waters, fish hatchery discharges, confined animal operations, and agricultural drains. Nonpoint sources are waste loads resulting from land use practices where wastes are not collected and disposed of in any readily identifiable manner. Examples include: urban drainage, agricultural runoff, road construction activities, mining, grassland management, logging and other harvest activities, and natural sources such as effects of fire, flood, and landslide. The distinction between point sources and diffuse sources is not always clear but generally applies to the practicality of waste load control.

Water quality objectives for the Central Coastal Basin satisfy State and federal requirements to protect waters for the beneficial uses in Chapter Two and are consistent with all existing statewide plans and policies.

II. Water Quality Objectives

The water quality objectives which follow supersede and replace those contained in the 1967 Water Quality Control Policies; the Interim Water Quality Control Plan for the Central Coastal Basin adopted by the Regional Board in 1971, including all existing revisions; and the Water Quality Control Plan Report for the Central Coastal Basin, adopted by the Regional Board in 1974.

Controllable water quality shall conform to the water quality objectives contained herein. When other conditions cause degradation of water quality beyond the levels or limits established as water quality objectives, controllable conditions shall not cause further degradation of water quality.

Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled.

Water quality objectives are considered to be necessary to protect those present and probable future beneficial uses enumerated in Chapter Two of this plan and to protect existing high quality waters of the State. These objectives will be achieved primarily through the establishment of waste discharge requirements and through implementation of this water quality control plan.

In setting waste discharge requirements, the Regional Board will consider the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives. The Regional Board will make a finding of beneficial uses to be protected and establish waste discharge requirements to protect those uses and to meet water quality objectives.

Several water quality objectives listed herein originate from the California Code of Regulations, Title 22. If Title 22 concentrations are amended, Basin Plan objectives are automatically amended to correspond with the new regulations.

II.A. Anti-Degradation Policy

Wherever the existing quality of water is better than the quality of water established herein as objectives, such existing quality shall be maintained unless otherwise provided by the provisions of the State Water Resources Control Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," including any revisions thereto. A copy of this policy is included in the Appendix.

II.A.1. Objectives for Ocean Waters

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan), "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan), and any revisions thereto shall apply in their entirety to affected waters of the basin. The Ocean and Thermal Plans shall also apply in their entirety to Monterey Bay and Carmel Bay. Copies of these plans are included verbatim in the Appendix.

In addition to provisions of the Ocean Plan and Thermal Plan, the following objectives shall also apply to all ocean waters, including Monterey and Carmel Bays:

Dissolved Oxygen

The mean annual dissolved oxygen concentration shall not be less than 7.0 mg/l, nor shall the minimum dissolved oxygen concentration be reduced below 5.0 mg/l at any time.

pH

The pH value shall not be depressed below 7.0, nor raised above 8.5.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

II.A.2. Objectives for All Inland Surface Waters, Enclosed Bays, and Estuaries

II.A.2.a. General Objectives

The following objectives apply to all inland surface waters, enclosed bays, and estuaries of the basin:

Color

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. Coloration attributable to materials of waste origin shall not be greater than 15 units or 10 percent above natural background color, whichever is greater.

Tastes and Odors

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

Floating Material

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

Suspended Material

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

Settleable Material

Waters shall not contain settleable material in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

Oil and Grease

Waters shall not contain oils, greases, waxes, or other similar materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Biostimulatory Substances

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

Sediment

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

Increase in turbidity attributable to controllable water quality factors shall not exceed the following limits:

1. Where natural turbidity is between 0 and 50 Jackson Turbidity Units (JTU), increases shall not exceed 20 percent.

2. Where natural turbidity is between 50 and 100 JTU, increases shall not exceed 10 JTU.

3. Where natural turbidity is greater than 100 JTU, increases shall not exceed 10 percent.

Allowable zones of dilution within which higher concentrations will be tolerated will be defined for each discharge in discharge permits.

pH

For waters not mentioned by a specific beneficial use, the pH value shall not be depressed below 7.0 or raised above 8.5.

Dissolved Oxygen

For waters not mentioned by a specific beneficial use, dissolved oxygen concentration shall not be reduced below 5.0 mg/l at any time. Median values should not fall below 85 percent saturation as a result of controllable water quality conditions.

Temperature

Temperature objectives for Enclosed Bays and Estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" including any revisions thereto. A copy of this plan is included in the Appendix.

Natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.

Toxicity

All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board.

Survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality conditions, shall not be less than that for the same water body in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with the requirements for "experimental water" as described in Standard Methods for the Examination of Water and Wastewater, latest edition. As a minimum, compliance with this objective shall be evaluated with a 96-hour bioassay.
In addition, effluent limits based upon acute bioassays of effluents will be prescribed where appropriate, additional numerical receiving water objectives for specific toxicants will be established as

sufficient data become available, and source control of toxic substances is encouraged.

The discharge of wastes shall not cause concentrations of unionized ammonia (NH3) to exceed 0.025 mg/l (as N) in receiving waters.

Pesticides

No individual pesticide or combination of pesticides shall reach concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

For waters where existing concentrations are presently nondetectable or where beneficial uses would be impaired by concentrations in excess of nondetectable levels, total identifiable chlorinated hydrocarbon pesticides shall not be present at concentrations detectable within the accuracy of analytical methods prescribed in Standard Methods for the Examination of Water and Wastewater, latest edition, or other equivalent methods approved by the Executive Officer.

Chemical Constituents

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and other relevant local controls.

Other Organics

Waters shall not contain organic substances in concentrations greater than the following:

Methylene Blue Activated Substances	0.2 mg/l
Phenols	0.1 mg/l
PCB's	0.3 μg/l
Phthalate Esters	0.002 μg/l

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

Municipal and Domestic Supply (MUN)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Organic Chemicals

All inland surface waters, enclosed bays, and estuaries shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Article 4, Chapter 15, Section 64435, Tables 2 and 3 as listed in Table 3-2.

Phenol

Waters shall not contain phenol concentrations in excess of 1.0 μg/L.

Radioactivity

Waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Sections 64441 and 64443, Table 4.

Agricultural Supply (AGR)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Dissolved Oxygen

Dissolved oxygen concentration shall not be reduced below 2.0 mg/l at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents in amounts which adversely affect the agricultural beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3.

In addition, waters used for irrigation and livestock watering shall not exceed concentrations for those chemicals listed in Table 3-4. Salt concentrations for irrigation waters shall be controlled through implementation of the anti-degradation policy to the effect that mineral constituents of currently or potentially usable waters shall not be increased. It is

emphasized that no controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity.

Where wastewater effluents are returned to land for irrigation uses, regulatory controls shall be consistent with Title 22 of the California Code of Regulations and with relevant controls for local irrigation sources.

Water Contact Recreation (REC-1)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100 ml, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 ml.

Non-Contact Water Recreation (REC-2)

pH

The pH value shall neither be depressed below 6.5 nor raised above 8.3.

Bacteria

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 2000/100 ml, nor shall more than ten percent of samples collected during any 30-day period exceed 4000/100 ml.

Cold Freshwater Habitat (COLD)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Temperature

At no time or place shall the temperature be increased by more than $5^{o}F$ above natural receiving water temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5.

Warm Freshwater Habitat (WARM)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 5.0 mg/l at any time.

Temperature

At no time or place shall the temperature of any water be increased by more than $5^{o}F$ above natural receiving temperature.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of the limits listed in Table 3-5.

Fish Spawning (SPWN)

Cadmium

Cadmium shall not exceed 0.003 mg/l in hard water or 0.0004 mg/l in soft water at any time. (Hard water is defined as water exceeding 100 mg/l CaCO3.)

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Table 3-1. Organic Concentrations Not to be Exceeded in Domestic or Municipal Supply

Constituent	Maximum Contaminant Level (MCL), mg/l
(a) Chlorinated Hydrocarbons	
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
(b) Chlorophenoxys	
2,4-D	0.1
2,4,5-TP Silvex	0.01
(c) Synthetics	
Atrazine	0.003
Bentazon	0.018
Benzene	0.001
Carbon Tetrachloride	0.0005
Carbofuran	0.018
Chlordane	0.0001
1,2-Dibromo-3-chloropropane	0.0002
1,4-Dichlorobenzene	0.005
1,1-Dichloroethane	0.005
1,2-Dichloroethane	0.0005
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
1,1-Dichloroethylene	0.006
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Di(2-ethylhexyl) phthalate	0.004
Ethylbenzene	0.680
Ethylene Dibromide	0.00002
Glyphosate	0.7
Heptachlor	0.00001
Heptachlor epoxide	0.00001
Molinate	0.02
Monochlorobenzene	0.030
Simazine	0.010
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
Thiobencarb	0.07
1,1,1-Trichloroethane	0.200
1,1,2-Trichloroethane	0.032
Trichloroethylene	0.005
Trichlorofluromethane	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
Vinyl Chloride	0.0005
*Xylenes	1.750

* MCL is for either a single isomer or the sum of the isomers.

Table 3-2. Inorganic and Fluoride Concentrations Not to be Exceeded in Domestic or Municipal Supply

	Limiting Concentration ,mg/l			
Constituent	Lower	Optimum	Upper	Maximum Contaminant Level
Temperature °F*	Fluoride			
53.7° and below	0.9	1.2	1.7	2.4
53.8° to 58.3°	0.8	1.1	1.5	2.2
58.4° to 63.8°	0.8	1.0	1.3	2.0
63.9° to 70.6°	0.7	0.9	1.2	1.8
70.7° to 79.2°	0.7	0.8	1.0	1.6
79.3° to 90.5°	0.6	0.7	0.8	1.4
Inorganic Chemicals				Maximum Contaminant Level
Aluminum				1
Arsenic				0.05
Barium				1
Cadmium				0.010
Chromium				0.05
Lead				0.05
Mercury				0.002
Nitrate (as NO3)				45
Selenium				0.01
Silver				0.05

*Annual Average of Maximum Daily Air Temperature, ^{o}F based on temperature data obtained for a minimum of five years.

Table 3-3. Guidelines for Interpretation of Quality of Water for Irrigation[a]

Problem and Related Constituent	Water Quality Guidelines		
	No Problem	Increasing Problems	Severe
Salinity[b]			
EC of irrigation water, mmho/cm	<0.75	0.75 - 3.0	>3.0
Permeability			
EC of irrigation water, mmho/cm	>0.5	<0.5	<0.2
SAR, adjusted[c]	<6.0	6.0 - 9.0	>9.0
Specific ion toxicity from root absorption [d]			
Sodium (evaluate by adjusted SAR)	<3	3.0 - 9.0	>9.0
Chloride			
me/l	<4	4.0 - 10	>10
mg/l	<142	142 - 355	>355
Boron, mg/l	<0.5	0.5 - 2.0	2.0 - 10.0
Specific ion toxicity from foliar absorption[e] (sprinklers)			
Sodium			
me/l	<3.0	>3.0	--
mg/l	<69	>69	--
Chloride			
me/l	<3.0	>3.0	--
mg/l	<106	>106	--
Miscellaneous[f]			
NH4 - N, mg/l for sensitive crops	<5	5 - 30	>30
NO3 - N, mg/l for sensitive crops	<5	5 - 30	>30
HCO3 (only with overhead sprinklers)			
me/l	<1.5	1.5 - 8.5	>8.5
mg/l	<90	90 - 520	>520
pH	Normal range	6.5 - 8.4	--

a Interpretations are based on possible effects of constituents on crops and/or soils. Guidelines are flexible and should be modified when warranted by local experience or special conditions of crop, soil, and method of irrigation.

b Assumes water for crop plus needed water for leaching requirement (LR) will be applied. Crops vary in tolerance to salinity. Refer to tables for crop tolerance and LR. The mmho/cm x 640 = approximate total dissolved solids (TDS) in mg/l or ppm; mmho x 1,000 = micromhos.

c Adjusted SAR (sodium adsorption ratio) is calculated from a modified equation developed by U.S. Salinity Laboratory to include added effects of precipitation and dissolution of calcium in soils and related to CO_3 + HCO_3 concentrations.

To evaluate sodium (permeability) hazard: Adjusted SAR = $Na/[1/2\ (Ca + Mg)]^{1/2}[1+ (8.4 - pHc)]$.
Refer to Appendix for calculation assistance.

SAR can be reduced if necessary by adding gypsum. Amount of gypsum required (GR) to reduce a hazardous SAR to any desired SAR (SAR desired) can be calculated as follows:

$$GR = \left[\frac{2(Na)^2}{SAR^2\, desired} - (Ca + Mg) \right] 234$$

Note: Na and Ca + Mg should be in me/L. GR will be in lbs. of 100 percent gypsum per acre foot of applied water.

d Most tree crops and woody ornamentals are sensitive to sodium and chloride (use values shown). Most annual crops are not sensitive (use salinity tolerance tables). For boron sensitivity, refer to boron tolerance tables.

e Leaf areas wet by sprinklers (rotating heads) may show a leaf burn due to sodium or chloride absorption under low humidity/high evaporation conditions. (Evaporation increases ion concentration in water films on leaves between rotations of sprinkler heads.)

f Excess N may affect production or quality of certain crops; e.g., sugar beets, citrus, avocados, apricots, etc.
(1 mg/l NO_3 - N = 2.72 lbs. N/acre foot of applied water.) HCO_3 with overhead sprinkler irrigation may cause a white carbonate deposit to form on fruit and leaves.

Table 3-4. Water Quality Objectives for Agricultural Water Use

ELEMENT	Maximum Concentration (mg/l)[a] Irrigation supply[b]	Livestock watering
Aluminum	5.0	5.0
Arsenic	0.1	0.2
Beryllium	0.1	--
Boron	0.75	5.0
Cadmium	0.01	0.05
Chromium	0.10	1.0
Cobalt	0.05	1.0
Copper	0.2	0.5
Fluoride	1.0	2.0
Iron	5.0	--
Lead	5.0	0.1[c]
Lithium	2.5[d]	--
Manganese	0.2	--
Mercury	--	0.01
Molybdenum	0.01	0.5
Nickel	0.2	--
Nitrate + Nitrite	--	100
Nitrite	--	10
Selenium	0.02	0.05
Vanadium	0.1	0.10
Zinc	2.0	25

a. Values based primarily on "Water Quality Criteria 1972" National Academy of Sciences-National Academy of Engineers, Environmental Study Board, ad hoc Committee on Water Quality Criteria furnished as recommended guidelines by University of California Agriculture Extension Service, January 7, 1974; maximum values are to be considered as 90 percentile values not to be exceeded.

b. Values provided will normally not adversely affect plants or soils; no data available for mercury, silver, tin, titanium, and tungsten.

c. Lead is accumulative and problems may begin at threshold value (0.05 mg/l).

d. Recommended maximum concentration for irrigation citrus is 0.075 mg/l.

Table 3-5. Toxic Metal Concentrations not to be Exceeded in Aquatic Life Habitats, mg/l[a,b]

	Freshwater (COLD, WARM)	
METAL	HARD (> 100 mg/l CaCO3)	SOFT (< 100 mg/l CaCO3)
Cadmium[c]	.03	.004
Chromium	.05	.05
Copper	.03	.01
Lead	.03	.03
Mercury[d]	.0002	.0002
Nickel[e]	.4	.1
Zinc	.2	.004

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "d."

b. Revision of Table 3-5 is currently in progress by the Regional Board.

c. Lower cadmium values not to be exceeded for crustaceans and waters designated SPWN are 0.003 mg/l in hard water and 0.0004 mg/l in soft water.

d. Total mercury values should not exceed 0.05 μg/l as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total B.O.D. burden of 0.5 μg/l wet weight.

e. Value cited as objective pertains to nickel salts (not pure metallic nickel).

Marine Habitat (MAR)

pH

The pH value shall not be depressed below 7.0 or raised above 8.5.

Changes in normal ambient pH levels shall not exceed 0.2 units.

Dissolved Oxygen

The dissolved oxygen concentration shall not be reduced below 7.0 mg/l at any time.

Chemical Constituents

Waters shall not contain concentrations of chemical constituents known to be deleterious to fish or wildlife in excess of limits listed in Table 3-6.

Table 3-6. Toxic Metal Concentrations Not to be Exceeded in Marine Habitats, mg/l[a]

Metal	Marine (MAR)
Cadmium	0.0002
Chromium	0.05
Copper	0.01
Lead	0.01
Mercury[c]	0.0001
Nickel[d]	0.002
Zinc	0.02

a. Based on limiting values recommended in the National Academy of Sciences-National Academy of Engineers "Water Quality Criteria 1972." Values are 90 percentile values except as noted in qualifying note "c."
b. Revision of Table 3-6 is currently in progress by the Regional Board.
c. Total mercury values should not exceed 0.05 μg/L as an average value; maximum acceptable concentration of total mercury in any aquatic organism is a total B.O.D. burden of 0.05 μg/L net weight.
d. Value cited as objective pertains to nickel salts (not pure metallic nickel).

Shellfish Harvesting (SHELL)

Chromium

The maximum permissible value for waters designated SHELL shall be 0.01 mg/l.

Bacteria

At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution test or 330/100 ml when a three-tube decimal dilution test is used.

II.A.3. Water Quality Objectives for Specific Inland Surface Waters, Enclosed Bays and Estuaries

Certain water quality objectives have been established for selected surface waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. Median values, shown in Table 3-7 for surface waters, are based on available data.

It must be recognized that the median values indicated in Table 3-7 are values representing gross areas of a water body. Specific water quality objectives for a particular area may not be directly related to the objectives indicated. Therefore, application of these objectives must be based upon consideration of the surface and ground water quality naturally present; i.e., waste discharge requirements must adhere to the previously stated objectives and issuance of requirements must be tempered by consideration of beneficial uses within the immediate influence of the discharge, the existing quality of receiving waters, and water quality objectives. Consideration of beneficial uses includes: (1) a specific enumeration of all beneficial uses potentially to be affected by the waste discharge, (2) a determination of the relative importance of competing beneficial uses, and (3) impact of the discharge on existing beneficial uses. The Regional Board will make a judgment as to the priority of dominant use and minimize the impact on competing uses while not allowing the discharge to violate receiving water quality objectives.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral and nutrient constituents where sufficient information is presently not available for the establishment of such objectives.

II.A.4. Objectives for Ground Water

II.A.4.a. General Objectives

The following objectives apply to all ground waters of the basin.

Tastes and Odors

Ground waters shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.

Radioactivity

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life; or result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life.

Municipal and Domestic Supply (MUN)

Bacteria

The median concentration of coliform organisms over any seven-day period shall be less than 2.2/100 ml.

Organic Chemicals

Ground waters shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22, Chapter 15, Article 5.5, Section 64444.5, Table 5 and listed in Table 3-1.

Chemical Constituents

Ground waters shall not contain concentrations of chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4, Section 64435, Tables 2 and 3.

Radioactivity

Ground waters shall not contain concentrations of radionuclides in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 5, Section 64443, Table 4.

Agricultural Supply (AGR)

Ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effect shall be as derived from the University of California Agricultural Extension Service guidelines provided in Table 3-3.

In addition, water used for irrigation and livestock watering shall not exceed the concentrations for those chemicals listed in Table 3-4. No controllable water quality factor shall degrade the quality of any ground water resource or adversely affect long-term soil productivity. The salinity control aspects of ground water management will account for effects from all sources.

II.A.5. Objectives for Specific Ground Waters

Certain water quality objectives have been established for selected ground waters; these objectives are intended to serve as a water quality baseline for evaluating water quality management in the basin. The median values for ground waters are shown in Table 3-8.

The restrictions specified for Table 3-7 are applicable to the values indicated in Table 3-8; i.e., the values are at best representative of gross areas only. Ground waters in the Upper Valley of the Salinas River Sub-basin have average Total Dissolved Solids (TDS) concentrations that range from 300 mg/l to over 3000 mg/l. Therefore, application of these objectives must be consistent with the objectives previously stated in this chapter and synchronously reflect the actual ground water quality naturally present. The Regional Board must afford full consideration to: (1) present and probable future beneficial uses affected by the waste discharge; (2) competing beneficial uses; (3) degree of impact on existing beneficial uses; (4) receiving water quality; and (5) water quality objectives, before adjudging priority of dominant use and promulgating waste discharge requirements.

As part of the State's continuing planning process, data will be collected and numerical water quality objectives will be developed for those mineral constituents where sufficient information is presently not available for the establishment of such objectives.

Table 3-7. Surface Water Quality Objectives, mg/l[a]

Sub-Basin/Sub-Area	TDS	Cl	SO4	B	Na
Santa Ynez					
Cachuma Reservoir	600	20	220	0.4	50
Solvang	700	50	250	0.4	60
Lompoc	1000	100	350	0.4	100
Santa Maria					
Cuyama River (Near Garey)	900	50	400	0.3	70
Sisquoc River (Near Garey)	600	20	250	0.2	50
Estero Bay					
Santa Rosa Creek	500	50	80	0.2	50
Chorro Creek	500	50	50	0.2	50
San Luis Obispo Creek	650	100	100	0.2	50
Arroyo Grande Creek	800	50	200	0.2	50
Salinas River					
Salinas River					
Above Bradley	250	20	100	0.2	20
Above Spreckles	600	80	125	0.2	70
Gabilan Tributary	300	50	50	0.2	50
Diablo Tributary	1200	80	700	0.5	150
Nacimiento River	200	20	50	0.2	20
San Antonio River	250	20	80	0.2	20
Carmel River	200	20	50	0.2	20
Monterey Coastal					
Big Sur River	200	20	20	0.2	20
Pajaro River					
at Chittenden	1000	250	250	1.0	200
San Benito River	1400	200	350	1.0	250
Llagas Creek	200	10	20	0.2	20
Big Basin					
Boulder Creek	150	10	10	0.2	20
Zayante Creek	500	50	100	0.2	40
San Lorenzo River					
Above Bear Creek	400	60	80	0.2	50
At Tait Street Check Dam	250	30	60	0.2	25

a Objectives shown are annual mean values. Objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.

Table 3-8. Median Ground Water Objectives, mg/l[a]

Sub-basin/Sub-Area	TDS	Cl	SO_4	B	Na	N[b]
South Coast						
Goleta	1000	150	250	0.2	150	5
Santa Barbara	700	50	150	0.2	100	5
Carpinteria	700	100	150	0.2	100	7
Santa Ynez						
Santa Ynez	600	50	10	0.5	20	1
Santa Rita	1500	150	700	0.5	100	1
Lompoc Plain[f]	1250	250	500	0.5	250	2
Lompoc Upland[f]	600	150	100	0.5	100	2
Lompoc Terrace[f]	750	210	100	0.3	130	1
San Antonio Creek	600	150	150	0.2	100	5
Santa Maria[c]						
Upper Guadalupe[f]	1000[d]	165	500[d]	0.5	230	1.4[e]
Lower Guadalupe[f]	1000[d]	85	500[d]	0.2	90	2.0[e]
Lower Nipomo Mesa[f]	710	95	250	0.15	90	5.7[e]
Orcutt[f]	740	65	300	0.1	65	2.3[e]
Santa Maria[f]	1000[d]	90	510	0.2	105	8.0[e]
Cuyama Valley	1500	80	--	0.4	--	5
Soda Lake	[e]	[e]	[e]	[e]	[e]	[e]
Estero Bay						
Santa Rosa	700	100	80	0.2	50	5
Chorro	1000	250	100	0.2	50	5
San Luis Obispo	900	200	100	0.2	50	5
Arroyo Grande	800	100	200	0.2	50	10
Salinas River						
Upper Valley[f]	600	150	150	0.5	70	5
Upper Forebay[f]	800	100	250	0.5	100	5
Lower Forebay[f]	1500	250	850	0.5	150	8
180 foot Aquifer[f]	1500	250	600	0.5	250	1
400 foot Aquifer[f]	400	50	100	0.2	50	1
Paso Robles[g]						
Central Basin[f]	400	60	45	0.3	80	3.4
San Miguel[f]	750	100	175	0.5	105	4.5
Paso Robles[f]	1050	270	200	2.0	225	2.3
Templeton[f]	730	100	120	0.3	75	2.7
Atascadero[f]	550	70	85	0.3	65	2.3
Estrella[f]	925	130	240	0.75	170	3.2
Shandon	1390	430	1025[h]	2.8	730	2.3
Pajaro River						
Hollister	1200	150	250	1.0	200	5
Tres Pinos	1000	150	250	1.0	150	5
Llagas	300	20	50	0.2	20	5
Big Basin						
Near Felton	100	20	10	0.2	10	1
Near Boulder Creek	250	30	50	0.2	20	5

a Objectives shown are median values based on data averages; objectives are based on preservation of existing quality or water quality enhancement believed attainable following control of point sources.
b Measured as Nitrogen
c Basis for objectives is in the "Water Quality Objectives for the Santa Maria Ground Water Basin Revised Staff Report, May 1985" and February 1986, Staff Report.
d These are maximum objectives in accordance with Title 22 of the Code of Regulations.
e Ground water basin currently exceeds usable mineral quality.
f Ground water basin boundary map available in appendix.
g Basis for objectives is in the report "A Study of the Paso Robles Ground Water Basin to Establish Best Management Practices and Establish Salt Objectives", Coastal Resources Institute, June 1993.
h Standard exceeds California Secondary Drinking Water Standards contained in Title 22 of the Code of Regulations. Water quality standard is based upon existing water quality. If water quality degradation occurs, the Regional Board may consider salt limits on appropriate discharges.

Chapter 4. Implementation Plan

A program of implementation to protect beneficial uses and to achieve water quality objectives is an integral component of this Basin Plan. The program of implementation is required to include, but is not limited to:

- A description of the nature of actions which are necessary to achieve the objectives, including recommendations for appropriate action by any entity, public or private.
- A time schedule for the actions to be taken.
- A description of surveillance to be undertaken to determine compliance with objectives.

Additional surveillance activities to determine compliance with objectives are described in Chapter Six, "Surveillance and Monitoring".

This chapter includes discussions of:

- Regional Water Quality Control Board Goals;
- General Control Actions and Related Issues;
- Waste Discharge Regulation;
- Hazardous Waste Compliance Issues; and
- Nonpoint Source Measures.

Detailed descriptions of waterbodies with their specific water quality problems and recommended control actions are included in the Region's Water Quality Assessment database and Fact Sheets.

This chapter is organized in the following manner:

I. Regional Water Quality Control Board Goals
II. General Control Actions and Related Issues
III. Control Actions under State Board Authority
IV. Control Actions to be Implemented by Other Agencies with Water Quality or Related Authority
V. Control Actions under Regional Board Authority
    A. Waste Discharge Restrictions
        1. Water Quality Certification
        2. National Pollutant Discharge Elimination System
        3. Waste Discharge Requirements
        4. Waivers
        5. Prohibitions and Prohibition Exemptions
        6. Enforcement Actions
        7. Best Management Practices
        8. Compliance Schedules
    B. Nonpoint Source Program
VI. Waste Discharge Program Implementation
    A. Effluent Limits
        1. Stream Disposal
        2. Estuarine Disposal
        3. Ocean Disposal
        4. Land Disposal
        5. Reclamation and Reuse
        6. Pretreatment Programs
        7. Sludge Treatment
    B. Municipal Wastewater Management Plans (arranged by hydrologic subarea)
    C. Industrial Wastewater Management
    D. Solid Waste Management
    E. Storm Water Management
    F. Bay Protection and Toxic Cleanup Program
    G. Military Installations
    H. Spills, Leaks, Investigations, and Cleanup Program
    I. Underground Tank Storage Tank Program
    J. Aboveground Petroleum Storage Tanks
    K. California Code of Regulations, Title 23, Chapter 15
        1. Solid and Liquid Waste Requirements (Landfills and Surface Impoundments)
        2. Wastewater Sludge (Septage Management)
        3. Mining Activities (Nonfuel Commodities)
        4. Other Industrial Activities
    L. Resource Conservation and Recovery Act (Subtitle D)
    M. Solid Waste Water Quality Assessment Test
VII. Hazardous Waste Compliance Issues
    A. Reportable Quantities of Hazardous Waste and Sewage Discharges
    B. Proposition 65
VIII. Nonpoint Source Measures
    A. Coastal Zone Act Reauthorization Amendments
    B. Urban Runoff Management
    C. Agricultural Water and Wastewater Management
    D. Individual, Alternative, and Community Disposal Systems
    E. Land Disturbance Activities

I. Regional Water Quality Control Board Goals

To insure that the water resources of the Central Coastal Basin are preserved for future generations of Californians, the California Regional Water Quality Control Board, Central Coast Region, determined it was desirable to establish certain planning goals. These goals pertain to utilization of the basin's water resources and guidelines for control of waste discharges, as follows:

1. Protect and enhance all basin waters, surface and underground, fresh and saline, for present and anticipated beneficial uses, including aquatic environmental values.

2. The quality of all surface waters shall allow unrestricted recreational use.

3. Manage municipal and industrial wastewater disposal as part of an integrated system of fresh water supplies to achieve maximum benefit of fresh water resources for present and future beneficial uses and to achieve harmony with the natural environment.

4 Achieve maximum effective use of fresh waters through reclamation and recycling.

5. Continually improve waste treatment systems and processes to assure consistent high quality effluent based on best economically achievable technology.

6. Reduce and prevent accelerated (man-caused) erosion to the level necessary to restore and protect beneficial uses of receiving waters now significantly impaired or threatened with impairment by sediment.

II. General Control Actions and Related Issues

The Regional Water Quality Control Board (Regional Board) regulates the sources of water quality related problems which could result in actual or potential impairment or degradation of beneficial uses or degradations of water quality. The Regional Board regulates both point and nonpoint source discharge activities. A point source discharge generally originates from a single identifiable source, while a nonpoint source discharge comes from diffuse sources. To regulate the point and nonpoint sources, control actions are required for effective water quality protection and management. Such control actions are set forth for implementation by the State Water Resources Control Board (State Board), by other agencies with water quality or related authority, and by the Regional Board.

III. Control Actions under State Water Resources Control Board Authority

The State Board has adopted several water quality plans and policies which complement or may supersede portions of the Water Quality Control Plan. These plans and policies may include specific control measures. See Chapter Five, "Plans and Policies" for summaries of the most significant State Board plans and policies which affect the Central Coast Region.

IV. Control Actions to be Implemented by other Agencies with Water Quality or Related Authority

Water quality Management Plans prepared under Section 208 of the federal Water Pollution Water Control Act (Clean Water Act) have been prepared by various public agencies. These Section 208 plans, as well as other plans adopted by federal, State, and local agencies, may affect the Regional Board's water quality management and control activities. A summary of relevant water quality management plans is included in Chapter Five, "Plans and Policies".

V. Control Actions under Regional Board Authority

Control measures implemented by the Regional Board must provide for the attainment of this Basin Plan's beneficial uses and water quality objectives. These uses and objectives can be found in Chapters Two and Three, respectively. In addition the control measures must be consistent with State Board and

Regional Board plans, policies, agreements, prohibitions, guidance, and other restrictions and requirements contained within this document.

To prevent water quality problems, waste discharge restrictions are often used. The waste discharge restrictions can be implemented through Water Quality Certification, National Pollutant Discharge Elimination System (NPDES) permits, waste discharge requirements/permits (WDRs), discharge prohibitions, enforcement actions, and/or "Best Management Practices".

V.A. Waste Discharge Restrictions

V.A.1. Water Quality Certification

Clean Water Act Section 401 Water Quality Certification gives the State extremely broad authority to review proposed federal activities in and/or affecting the Region's waters. The Regional Board can recommend to the State Board that it grant, deny, or condition certification of federal permits or licenses that may result in a discharge to "waters of the United States".

V.A.2. National Pollutant Discharge Elimination System (NPDES)

NPDES permits are issued to regulate discharges of waste from point sources to "waters of the United States" including discharges of storm waters from urban separate storm sewer systems and certain categories of industrial activity. Waters of the United States are surface waters such as rivers, intermittent streams, dry stream beds, lakes, bays, estuaries, oceans, etc. The permits are authorized by Section 402 of the Clean Water Act and Section 13370 of the California Porter-Cologne Water Quality Control Act. The permit content and the issuance process are contained in 40 Code of Federal Regulations Part 122 and Chapter 9 of the California Code of Regulations. Regional Water Boards are authorized to take a variety of enforcement actions to obtain compliance with an NPDES permit. Enforcement actions the Regional Board may take are described below.

The U.S. Environmental Protection Agency (U.S. EPA) has approved the State's program to regulate discharges of waste water from point sources to "waters of the United States". The State, through the Regional Water Boards, issues the NPDES permits, reviews discharger self-monitoring reports, performs independent compliance checking, and takes enforcement actions as needed.

NPDES permits are required to prescribe conditions of discharge which will ensure protection of beneficial uses of the receiving water. The Regional Board uses this Basin Plan, the Ocean Plan, and water quality control policies adopted by the State Board to develop permits for specific types of discharges or uses of waste water.

In addition to regulating discharges of waste water to surface waters, NPDES permits also require municipal sewage treatment systems to conduct pretreatment programs if their design capacity is greater than five million gallons per day. Smaller municipal treatment systems may be required to conduct pretreatment programs if there are significant industrial users of their systems. The pretreatment programs must comply with 40 Code of Federal Regulations Part 403. The pretreatment program is further described under separate heading in the "Waste Discharge Regulation" Section further in this chapter.

V.A.3. Waste Discharge Requirements (WDRs)

The California Porter-Cologne Water Quality Control Act authorizes Regional Boards to regulate discharges to protect ground and surface water quality. Regional Boards issue WDRs in accordance with Section 13263 of the California Porter-Cologne Water Quality Control Act. Regional Boards are required to review WDRs periodically based on the complexity and threat to water quality. WDRs seek to protect the beneficial uses of ground and surface water. Regional Boards issue WDRs, review self-monitoring reports submitted by the discharger, perform independent compliance checking, and take necessary enforcement action. The California Porter-Cologne Water Quality Control Act authorizes Regional Boards to issue enforcement actions (see below) ranging from orders requiring relatively simple corrective action to monetary penalties in order to obtain compliance with WDRs.

V.A.4. Waivers

Regional Boards may waive issuance of WDRs pursuant to California Porter-Cologne Water Quality Control Act Section 13269 if the Regional Board determines that such waiver is in the public interest. The requirement to submit a Report of Waste Discharge can also be waived. WDRs can be waived

for a specific discharge or types of discharges. A waiver of WDRs is conditional and may be terminated at any time by the Regional Board. Regional Boards may delegate their power to waive WDRs to the Regional Board Executive Officer in accordance with policies adopted by the Regional Board and approved by the State Board. The Regional Board's general policy regarding waivers is described in Chapter Five, "Plans and Policies". Regional Boards may not waive NPDES permits.

V.A.5. Prohibitions and Prohibition Exemptions

The Regional Board can prohibit specific types of discharges to certain areas (California Porter-Cologne Water Quality Control Act Section 13243). These discharge prohibitions may be revised, rescinded, or adopted as necessary. Discharge prohibitions are described in pertinent sections of Chapter Four, "Implementation Plan" and Chapter Five, "Plans and Policies" in the Regional Board Discharge Prohibition Section. Prohibitions can be found by referring to the Table of Contents.

V.A.6. Enforcement Actions

To facilitate water quality problem remediation or Basin Plan violation remediation, the Regional Board can use different types of enforcement measures. These measures can include:

Notice of Violation

A Notice of Violation is a letter formally advising the discharger that the facility is in noncompliance and that additional enforcement actions may be necessary, if appropriate actions are not taken.

Time Schedule

A Time Schedule (California Porter-Cologne Water Quality Control Act Section 13300) is a time schedule for specific actions a discharger shall take to correct or prevent violations of requirements. A Time Schedule is issued by the Regional Board for situations in which the Regional Board is reasonably confident that the problem will be corrected.

Cleanup or Abatement Order

A Cleanup or Abatement Order (California Porter-Cologne Water Quality Control Act Section 13304) is an order requiring a discharger to clean up a waste or abate its effects or, in the case of a threatened pollution or nuisance, take other necessary remedial action. A Cleanup or Abatement Order can be issued by the Regional Board or by the Regional Board Executive Officer. Cleanup or Abatement Orders are issued for situations when action is needed to correct a problem caused by regulated or unregulated discharges which are creating or threatening to create a condition of pollution or nuisance. A Cleanup or Abatement Order is also used by the Regional Board to establish the acceptable level of cleanup.

Cease and Desist Order

A Cease and Desist Order (California Porter-Cologne Water Quality Control Act Section 13301) is an order requiring a discharger to comply with Waste Discharge Requirements or prohibitions according to a time schedule. If the violation is threatening water quality, a Cease and Desist Order can be used to require appropriate remedial or preventative action. A Cease and Desist Order is issued by the Regional Board when violations of requirements or prohibitions are threatened, are occurring, or have occurred and probably will continue in the future. Issuance of a Cease and Desist Order requires a public hearing.

Administrative Civil Liabilities

Administrative Civil Liabilities (monetary liabilities or fines) may also be imposed administratively by the Regional Board after a public hearing.

State Attorney General Referral

State Attorney General referral is used under certain circumstances. Enforcement actions may be referred to either the General or District Attorney.

V.A.7. Best Management Practices

Property owners, managers, or other dischargers may implement "Best Management Practices" to protect water quality. (Implementation and enforcement of Best Management Practices are discussed below under the "Nonpoint Source Measures" section of this chapter). The term "Best Management Practices" is used in reference to control measures for nonpoint source water pollutants and is analogous to the terms "Best Available Technology/Best Control Technology" used for control of point source pollutants. The U.S. EPA (40 Code of Federal Regulations Section 103.2[m]) defines Best Management Practices as follows:

> "Methods, measures, or practices selected by an agency to meet its nonpoint source control needs. Best Management Practices include, but are not limited to structural and

nonstructural controls and operation and maintenance procedures. Best Management Practices can be applied before, during, and after pollution producing activities to reduce or eliminate the introduction of pollutants into receiving waters."

U.S. EPA regulations (40 Code of Federal Regulations Section 103.6[b][4][i]) provide that Basin Plans:

"...shall describe the regulatory and nonregulatory programs, activities, and Best Management Practices which the agency has selected as the means to control nonpoint source pollution where necessary to protect or achieve approved water uses. Economic, institutional, and technical factors shall be considered in a continuing process of identifying control needs and evaluating and modifying the Best Management Practices as necessary to achieve water quality goals."

Best Management Practices fall into two general categories:

1. Source controls which prevent a discharge or threatened discharge.

These may include measures such as recycling of used motor oil, fencing stream banks to prevent livestock entry, fertilizer management, street cleaning, revegetation and other erosion controls, and limits on total impervious surface coverage. Because the effectiveness of Best Management Practices is often uncertain, source control is generally preferable to treatment. It is also often less expensive.

2. Treatment controls which remove pollutants from a discharge before it reaches surface or ground waters.

Examples include infiltration facilities, oil/water separators, and constructed wetlands.

Several important points about Best Management Practices must be emphasized;

- Best Management Practices are not officially considered "best" practices for use in California unless they have been certified by the State Board.

- The use of Best Management Practices does not necessarily ensure compliance with effluent limitations or with receiving water objectives. Because nonpoint source control has been a priority only since the 1970's, the long-term effectiveness of some Best Management Practices has not yet been documented. Some source control Best Management Practices (e.g., waste motor oil recycling) may be 100 percent effective if implemented properly. Monitoring and evaluation of Best Management Practice effectiveness is an important part of nonpoint source control programs.

- The selection of individual Best Management Practices must take into account specific site conditions (e.g., depth to ground water, quality of runoff, infiltration rates). Not all Best Management Practices are applicable at every location. High ground water levels may preclude the use of runoff infiltration facilities, while steep slopes may limit the use of wet ponds.

- To be effective, most Best Management Practices must be implemented on a long term basis. Structural Best Management Practices (e.g., wet ponds and infiltration trenches) require periodic maintenance, and may eventually require replacement.

- The "state-of-the-art" for Best Management Practices design and implementation is expected to change over time. The State planning process will include periodic review and update of Best Management Practices certifications.

General information on recommended nonpoint source management practices is provided under different water quality problem categories throughout this chapter. For detailed information on the design, implementation, and effectiveness of specific Best Management Practices, the reader should consult the appropriate Best Management Practices Handbook for the project type or location.

V.A.8. Compliance Schedules

The California Porter-Cologne Water Quality Control Act (Section 13242[b]) requires a Basin Plan's implementation program for achieving water quality objectives to include a "time schedule for the actions to be taken". Regional Board prohibitions are effective upon adoption, unless specifically mentioned otherwise. The Regional Board issues discharge permits. Each includes an effective date. (Often compliance is effective upon Regional Board adoption). Waste discharge permits for construction projects generally require implementation of Best Management Practices during and immediately after construction. Long-term maintenance of permanent Best Management Practices is expected. Regional

Board enforcement orders for specific problems also generally include compliance schedules.

The 1975 Basin Plans included recommendations that specific studies be carried out by specific dates on community wastewater collection and treatment facilities needs in certain areas of the Central Coast Region. These plans also recommended that some communities construct specific facilities by the given dates. Most of these schedules were not met. Because expected year-to-year changes in availability of and priorities for funding will ensure that long term schedules are unrealistic, this Basin Plan does not include such recommendations. Priorities are set on a short term basis for studies through the State Board's use of the Clean Water Strategy ranking system various grant programs, and for facilities construction through the State Board Division of Clean Water Programs needs assessment process for loans and grants. Once funding is allocated, completion schedules are set through the contract process.

V.B. Nonpoint Source Program

Nonpoint source pollution has been identified as a major cause of water pollution throughout the United States, and the California Central Coast Region is no exception. Nonpoint sources of water pollution are generally defined as sources which are diffuse (spread out over a large area). These sources are not as easily regulated or controlled as are point sources. Nonpoint source pollution is caused by land use activities or anthropomorphic activities. Deposition of pollutants may occur in lakes, rivers, wetlands, coastal waters, or ground waters.

In order to address the nonpoint source pollution problem nationwide, the U.S. Congress incorporated Section 319 into the 1987 amendments to the Clean Water Act. By amending the Clean Water Act, Congress shifted the federal emphasis from nonpoint source pollution planning and problem identification to a new nonpoint source action program. Section 319 of the federal Clean Water Act required each state to develop a State Nonpoint Source Management Program describing the measures the State would take to address nonpoint sources of pollution. In November 1988, the State Water Resources Control Board adopted a Nonpoint Source Management Plan which outlined steps to initiate the systematic management of nonpoint sources in California. For effective management of nonpoint sources the Management Plan required:

- An explicit long-term commitment by the State Board and Regional Boards;
- More effective coordination of existing State Board and Regional Board nonpoint source related programs;
- Greater use of Regional Board regulatory authority coupled with nonregulatory Regional Board programs;
- Stronger links between the local, State, and federal agencies which have authority to manage nonpoint sources; and
- Development of new funding sources.

The 1988 State Board Nonpoint Source Management Plan advocates three approaches for addressing nonpoint source management:

1. Voluntary implementation of Best Management Practices

Property owners or managers may volunteer to implement Best Management Practices. Implementation could occur for economic reasons and/or through awareness of environmental benefits.

2. Enforcement of Best Management Practices

Although the California Porter-Cologne Water Quality Control Act constrains Regional Boards from specifying the manner of compliance with water quality standards, there are two ways in which Regional Boards can use their regulatory authorities to encourage implementation of Best Management Practices.

First, the Regional Board may encourage Best Management Practices by waiving adoption of waste discharge requirements on condition that discharges comply with Best Management Practices. Alternatively, the Regional Board may enforce Best Management Practices indirectly by entering into management agency agreements with other agencies which have the authority to enforce Best Management Practices.

The Regional Board will generally refrain from imposing effluent requirements on discharges that are implementing Best Management Practices in accordance with a waiver of waste discharger requirements, and approved Management Agency Agreements, or other State or Regional Board formal action.

3. Adoption of Effluent Limitations

The Regional Board can adopt and enforce requirements on the nature of any proposed or existing waste discharge, including discharges from nonpoint sources. Although the Regional Board is precluded from specifying the manner of compliance with waste discharge limitations, in appropriate cases, limitations may be set at a level which, in practice, requires implementation of Best Management Practices.

Not all of the categories of nonpoint source pollution follow this three-tiered approach. For example, silviculture activities on non-federal lands are administered by the California Department of Forestry. The State Board has entered into a Management Agency Agreement with California Department of Forestry which allows the Regional Boards to review and inspect timber harvest plans and operations for implementation of Best Management Practices for protection of water quality.

The Regional Board approach to addressing or regulating categories of nonpoint source pollution is discussed in various sections throughout this chapter.

VI. Waste Discharge Program Implementation

Water Quality Control Plans to regulate wasteloads in the Central Coastal Basin have been developed to insure protection of beneficial uses of water described in Chapter Two, as well as water quality objectives described in Chapter Three.

VI.A. Effluent Limits

Effluent limitations for disposal of wastes are based on water quality objectives for the area of effluent disposal and applicable State and federal policies and effluent limits. Water quality objectives and policies are based on beneficial uses established for receiving waters. Decisions in treatment process selection are discussed for four general disposal modes considered: stream disposal, estuarine disposal, ocean disposal, and land disposal. There is no discussion provided for disposal to lakes or confined sloughs since these water bodies are protected by discharge prohibitions. Separate discussions of treatment for wastewater reclamation and reuse and sludge processing and disposal are also provided.

Management Principles and Regional Board Policies contained in Chapter Five should be reviewed for further information concerning discharge to surface waters.

VI.A.1. Stream Disposal

Most streams in the Central Coastal Basin are ephemeral in character. During summer months, there is little or no flow in stream channels. In several instances, flow during the dry season is composed of irrigation runoff or, in a very few cases, wastewater treatment plant effluent. Usually, these flows infiltrate into the stream bed a short distance downstream of discharges. In such instances, the concept of receiving water assimilative capacity has little meaning. Disposal of wastewater in ephemeral streams must be accomplished in a manner that safeguards public health and prevents nuisance conditions. Where possible, discharges should be beneficial as stream flow augmentation. When recharge of a useful ground water basin occurs through stream channel recharge, impacts on ground water quality must be considered.

There are a few streams in the basin which flow on a year-round basis and support an inland fishery. Disposal of wastewater to such streams requires that essentially all oxygen demanding substances and toxicity be removed.

Principal factors governing treatment process selection for stream disposal are federal effluent limits, State public health regulations, and water quality requirements for beneficial use protection. As a minimum, secondary treatment, as defined by the Environmental Protection Agency (EPA), is required in all cases. Where rapid percolation occurs, conventional secondary treatment is currently adequate. EPA guidelines for best practicable treatment would also apply in these cases. Where water contact recreational use is to be protected, the

California Department of Health Services (DOHS) recommends coagulation, filtration, and disinfection providing a median coliform MPN of 2.2/100 ml. Detoxification is required where fishery protection is a concern. Detoxification would include effluent limits for identified toxicants, pursuant to Section 307 of the federal Water Pollution Control Act. Source control of specific toxicants may be necessary to comply with the Act.

VI.A.2. Estuarine Disposal

Water quality objectives applying to estuaries are contained in Chapter Three.

Receiving waters considered estuaries are one of two groups: (1) shallow waters of an open bay, and (2) confined tidal estuaries or lagoons. Flushing action is usually present in a shallow open bay and natural dispersion and dilution is available on a limited scale. In confined waters, flushing action is limited or nonexistent except during high stream inflow or storms. Since these shorelines frequently are heavily developed and waters are extensively used, requirements for wastewater disposal into such areas are the most stringent of any for marine receiving waters. The "Water Quality Control Policy for Enclosed Bays and Estuaries of California," adopted by the State Water Resources Control Board, prohibits discharge of waste to most enclosed bays and estuaries in the State, unless the discharge will enhance water quality.

Water quality objectives in Chapter Three prevent discharges that could raise natural nutrient levels to an extent that nuisance algal blooms or other aquatic growths occur. Excessive eutrophication in coastal estuaries of California often is characterized by floating and stranded mats of green marine seaweeds Enteromorpha and Ulva. These algae generally grow on mud or other substrates in estuarine water and can produce nuisance conditions along shorelines. These algae have a high sulfur content and emit foul smelling hydrogen sulfide and mercaptans during decomposition. Caution should be given in determining control measures for estuaries, as many of the seasonal algal growths that occur on mud flats are natural and may not be significantly affected by waste discharges in the watershed. Where eutrophication problems are apparent, secondary treatment with denitrification, or phosphorus removal and disinfection should be provided prior to discharge.

VI.A.3. Ocean Disposal

Water quality objectives applicable to ocean waters are contained in Chapter Three.

Federal guidelines for secondary treatment apply to ocean discharges. The State Water Resources Control Board's Water Quality Control Plan for Ocean Waters of California (Ocean Plan) establishes effluent limits achievable by alternative processes, such as advanced primary treatment. The Ocean Plan contains water quality objectives, requirements for effluent quality and management of waste discharges, and discharge prohibitions (including Areas of Special Biological Significance). Effluent quality requirements establish limitations for grease and oil, solids, turbidity, pH, and toxicity. Limits are also established for heavy metals, chlorine residual, various chlorinated pesticides, PCBs, toxaphene and radioactivity outside the zone of initial dilution.

For municipal discharges, the Clean Water Act allows waiver of secondary treatment standards on a case-by-case basis. Secondary treatment waivers are further discussed as they apply to specific discharges in the following section on Municipal Wastewater Management. If full secondary treatment is required but funding is inadequate, treatment levels should be achieved through staged construction. Ocean Plan objectives can be achieved as an interim measure. Secondary treatment must be added later if a waiver is not issued, or if receiving water monitoring indicates additional treatment is necessary to protect ocean waters. Industrial wastewater management is discussed later in this chapter.

VI.A.4. Land Disposal

To protect ground water resources, the Regional Board allows few waste discharges to land. Those that are permitted are closely regulated under existing laws and regulations to maintain and to protect ground water quality and beneficial uses.

Disposal of waste to land in the Central Coast Region is regulated by California Code of Regulations, Title 23, Chapter 15; the federal Resource Conservation and Recovery Act; the Toxic Pits Cleanup Act; the Porter-Cologne Water Quality Control Act; and State Health Department Regulations. Types of land disposal operations being regulated by the Central Coast Region include landfills, surface impoundments, septage and sludge disposal, mining operations, confined animal facilities, and some oil field exploration and production facilities.

California Code of Regulations, Title 23, Chapter 15

All land disposal operations are regulated by Chapter 15. Formerly called Subchapter 15. This is the most significant regulation used by the Regional Board in regulating hazardous and nonhazardous waste treatment, storage, and disposal. These regulations include very specific siting, construction, monitoring, and closure requirements for all existing and new waste treatment, storage, and disposal facilities. Chapter 15 requires operators to provide assurances of financial responsibility for initiating and completing corrective action for all known or reasonably

foreseeable releases from waste management units. Detailed technical criteria are provided for establishing water quality protection programs, and corrective action programs are mandated for releases from waste management units.

Resource Conservation and Recovery Act

The State implements Resource Conservation and Recovery Act's Subtitle C (Hazardous Waste Regulations for Treatment, Storage, and Disposal) through the Department of Toxic Substances Control and the Regional Boards. In August 1992, the U.S. EPA formally delegated the Act program implementation authority to Department of Toxic Substances Control. As described above, regulation of hazardous waste discharges is also included in California Code of Regulations, Title 23, Chapter 15. (Chapter 15 monitoring requirements were also amended in August 1991 so as to be equivalent to Act requirements). These will be implemented through the adoption of Waste Discharge Requirements for hazardous waste sites covered by the Act. The discharge requirements will then become part of a State Resource Conservation and Recovery Act permit issued by Department of Toxic Substances Control.

Federal regulations required by Resource Conservation and Recovery Act Subtitle D have been adopted for Municipal Solid Waste landfills (40 Code of Federal Regulations Parts 257 & 258). The California Integrated Waste Management Board is the State lead agency for Subtitle D implementation. The State Board and the California Integrated Waste Management Board received U.S. EPA State program approval. Delegation of authority for the State Board to implement Subtitle I (Underground Storage Tanks) will occur after U.S. EPA approval of the State's program application. (The Underground Storage Tank Section is discussed later in this chapter).

Toxic Pits Cleanup Act

The Toxic Pits Cleanup Act of 1984 required all impoundments containing liquid hazardous wastes or free liquids containing hazardous waste be retrofitted with a liner/leachate collection system, or dried out by July 1, 1988. Impoundments "dried out" were closed to remove all contaminants and/or to stabilize any residual contamination.

VI.A.4.a. Wastewater Disposal

Principal factors affecting treatment process selection for land disposal are the nature of soils and ground waters in the disposal areas and, where irrigation is involved, the nature of crops. Wastewater characteristics of particular concern are total salt content, nitrate, boron, pathogenic organisms, and toxic chemicals. Where percolation alone is considered, the nature of underlying ground waters is of particular concern. Treatment processes should be tailored to insure that local ground waters are not degraded.

Nitrate removal is required in many cases where percolation is to usable ground water basins. Percolation basins operated in alternating wet and dry cycles can provide significant nitrogen removal through nitrification/denitrification processes in the soil column. Finer textured soils are more effective than coarse soils. Nitrate removal would not necessarily be required, and secondary treatment may be adequate where recharge is for other purposes such as prevention of seawater intrusion or where soil percolation constraints do not require further treatment. Monitoring in the immediate vicinity of the disposal site is required in either case. Where the need for nitrate removal is not clear, removal could be considered at a possible future stage depending on monitoring results. Where well controlled irrigation is practiced, nitrate problems in the dry season will be controlled. Vegetative uptake will utilize soluble nitrates which would otherwise move into ground water under a percolation operation. Demineralization techniques or source control of total dissolved solids may be necessary in some inland areas where ground waters have been or may be degraded. Presence of excessive salinity, boron, or sodium could be a basis for rejection of crop irrigation with effluent.

State Health Department regulations, described in Title 22 of the California Code of Regulations, stipulate disinfection levels required for specific crops. In some cases, such as pasture for milking animals, the California Code of Regulations requires oxidation with disinfection to a median number of coliform organisms of 23 MPN/100 ml. Environmental Protection Agency guidelines for secondary treatment do not apply to land disposal cases. However, municipal treatment facilities must provide effective solids removal and some soluble organics removal for percolation bed operations and for reduction of nuisance in wastewater effluent irrigation operations. Disinfection requirements are dictated by the disposal method. Oxidation ponds may be cost-effective in some remote locations and may be equivalent to secondary treatment.

VI.A.5. Reclamation and Reuse

Water shortages in California are resulting in increased demand for reclamation. Reclamation and

reuse is encouraged where feasible and beneficial. Where practicable, land disposal by spray irrigation shall be accomplished by proper reclamation techniques rather than by over-irrigation. This will aid water shortages and maximize nutrient removal.

Treatment process selection for reclamation of wastewater is dependent upon the intended reuse. Where irrigation reuse or ground water recharge is intended, treatment requirements will depend on conditions described under land disposal. Clearly, the nature of the crop to be irrigated, soil percolation, and water characteristics are important considerations. Title 22 of the California Code of Regulations provides wastewater reclamation criteria to regulate specific uses of reclaimed water. Where reuse is extended to water contact recreation, secondary treatment with coagulation, filtration, and disinfection is required. Where golf course irrigation is practiced, this level of treatment minus coagulation and filtration may be adequate. More stringent measures may be necessary with increased risk of public exposure (for example, residents adjacent to fairways). However, where more complete reclamation is envisioned, such as creation of recreational lakes for fishing, swimming, and water skiing, nutrient removal may also be required to minimize algae growths and to encourage fish propagation. Comparable treatment may also be needed for industrial water supplies used for cooling and uses where algae growth in transfer channels or cooling towers is of concern. Nitrogen removal and demineralization processes may also be necessary for selected reclamation projects as discussed under land disposal.

To meet the increased demand for reclamation, existing regulations contained in the California Code of Regulations, Title 22, are being expanded. California Code of Regulations, Title 22, are hereby incorporated as applicable reclamation requirements.

Dual water systems may be feasible in some instances. Reclaimed wastewater should be investigated as an alternative water source for toilets.

Management Principles contained in Chapter Five should be reviewed for further reclamation information. This section is located after the "Recommended State Water Resources Control Board Actions" section.

VI.A.6. Pretreatment Programs

State and federal regulations require certain municipalities to develop and administer pretreatment programs to control the discharge of industrial wastes to the treatment plant. All municipal plants discharging to navigable waters with design flows greater than 5.0 mgd are required to develop and implement a pretreatment program. Other municipalities may be required to develop a pretreatment program if circumstances warrant such a program. The Environmental Protection Agency has established specific industrial subcategories of industries which discharge certain quantities or concentrations of pollutants to municipal systems. Pretreatment is required to meet effluent standards established for each industrial category. The objectives of a pretreatment program are to: (1) prevent introduction of pollutants into publicly-owned treatment works which will interfere with treatment operations and/or use or disposal of municipal sludge, (2) prevent introduction of pollutants into publicly owned treatment works which will pass through treatment works or be incompatible with treatment techniques, (3) increase feasibility of recycling and reclaiming municipal and industrial wastewaters and sludges, and (4) enforce applicable EPA Categorical Standards.

A pretreatment program must include: (1) a local pretreatment ordinance, (2) a use permit system, (3) a program of monitoring and inspection to insure compliance with the ordinance and use permit, and (4) an enforcement program sufficient to obtain compliance with provisions of the ordinance or use permit. Pretreatment programs are further discussed as they apply to specific dischargers in the section on Municipal Wastewater Management.

Municipalities required to comply with federal pretreatment regulations in the Central Coast Region are:

City of Santa Cruz,
Cities of Gilroy/Morgan Hill,
City of Watsonville,
Monterey Regional Wastewater Treatment Plant,
City of Salinas Industrial Plant,
City of San Luis Obispo,
City of Santa Maria,
City of Lompoc, and
City of Santa Barbara

VI.A.7. Sludge Treatment

Sludge management is a difficult aspect of wastewater treatment. The methods used for sludge disposal or reuse tend to determine the sludge processing methods. Major goals of sludge treatment include pathogen destruction, vector attraction reduction, odor reduction, moisture removal, and contaminant removal. Treated sludge is commonly referred to as "Biosolids."

Solids removed during wastewater treatment include grit, primary sludge, and biological sludges. Grit is typically removed in a grit chamber and is usually inert and easily dewatered, so landfilling is usually the preferred management option. Primary sludges are generally solids that readily float or sink, whereas biological sludges are suspended organic materials and necessitate biological treatment (e.g., trickling filter, activated sludge, or oxidation pond) to float or sink. Polymers are widely used to increase settling and thickening efficiencies and to reduce chemical sludge handling problems. Primary and biological sludges are usually combined prior to final treatment. Anaerobic digestion and lagoon stabilization are common sludge treatment methods, but methods which can render sludge pathogen and odor free, such as lime stabilization, composting, thermophylic aerobic digestion, and heat treatment, are becoming increasingly popular. Public acceptance of beneficial sludge uses, such as spreading on farm land and reclamation of strip mines, may be improved by advanced sludge treatment technologies.

Sludge treatment methods are evolving as disposal is discouraged and beneficial reuse is encouraged. Ocean disposal of sludge is prohibited by the California Ocean Plan. Landfilling of sludge is generally allowed if the sludge is nonhazardous and meets specific moisture content requirements. Sludge may be disposed in Class I and Class II waste management units, but this practice is uncommon due to its high cost. Disposal of sludge is becoming less attractive as landfill capacity decreases, recycling mandates (Assembly Bill 939) must be met, and society becomes aware that sludge can be a valuable resource as a soil amendment/fertilizer.

VI.B. Municipal Wastewater Management

Municipal wastewater conveyance, treatment, and disposal facilities recommended for the Central Coastal Basin are described in the following pages. Recommended plans for municipal facilities are described in geographic sequence by hydrographic units. Hydrographic units are identified in Chapter Two, Figure 2-1. Numbers in parentheses throughout the chapter refer to design capacity unless otherwise stated. Pretreatment programs and modifications to secondary treatment are discussed as part of the recommended plan where applicable. Further discussion of these topics can be found under the subheadings "Ocean Disposal" and "Pretreatment Programs" at the beginning of this chapter.

Further specific municipal management information can be found in the Management Principles section of Chapter Five. General municipal wastewater management information is also included in the State Water Resources Control Board Plans and Policies section, Discharge Prohibitions section, Control Actions section, and Regional Board Policies section.

VI.B.1. Big Basin Hydrologic Unit

The Big Basin Hydrologic Unit includes discharges from the City of Santa Cruz and the City of Scotts Valley, in addition to unsewered areas and several small waste dischargers. Table 4-1 displays summarized Big Basin Hydrologic Unit dischargers.

Table 4-1. Big Basin Hydrologic Unit Summarized Municipal Dischargers

Davenport County Sanitation District
California Department of Parks and Recreation -Big Basin State Park
California Department of Forestry - Ben Lomond Conservation Facility
City of Santa Cruz
City of Scotts Valley
Santa Cruz County Service Area No. 7 - Boulder Creek Golf and Country Club
Santa Cruz County Service Area No. 10 - Rolling Woods Subdivision
San Lorenzo Valley Water District - Bear Creek Estates
Big Basin Woods
Santa Cruz County Service Area No. 5 - Sand Dollar Beach and Canon del Sol
Santa Cruz County Service Area No. 20 - Trestle Beach
Individual Septic Tank Systems

The City of Santa Cruz operates a wastewater collection, primary treatment, and ocean disposal system with a capacity of 21 mgd. Sewerage service is provided to the City of Santa Cruz, Santa Cruz County Sanitation District (SCCSD), and the City of Scotts Valley. The SCCSD serves East Cliff, Capitola, Aptos, and Seacliff areas. The recommended plan for the City is to upgrade the existing treatment plant at Neary's Lagoon to secondary level treatment. A new outfall was completed in 1988. The new outfall is 12,250 feet long terminating in 100 feet of water about one mile offshore. It replaces a 2,000 foot outfall which was a source of many complaints due to its proximity to the shore water-contact recreation area.

Mitigation measures to offset environmental impacts to Neary's Lagoon and an adjacent park must be resolved before the plant can proceed. The City has implemented a pretreatment program affecting the City of Santa Cruz, and Santa Cruz County Sanitation District.

Wastewaters from sewered areas of the City of Scotts Valley are transported to Scotts Valley's secondary treatment plant. Effluent is transported through a land outfall to the City of Santa Cruz marine outfall for disposal to the Pacific Ocean. A recommended plan for Scotts Valley includes: (1) increasing wastewater treatment capacity from 0.65 mgd to 0.95 mgd, (2) providing reclaimed water to Pasatiempo Golf Course and other green belt areas for irrigation purposes, and (3) transporting excess wastewater through the Scotts Valley land outfall to the City of Santa Cruz ocean outfall. An alternative plan is to transport raw wastewater through the Scotts Valley land outfall to the Santa Cruz wastewater treatment plant for treatment and disposal through the ocean outfall. Local water agencies (Scotts Valley Water District and San Lorenzo Valley Water District) may benefit from reclamation efforts and should be involved in reuse planning.

Davenport County Sanitation District (DCSD) was created in 1979 to provide sewer and water services to the Davenport-Newtown area located on the coast north of Santa Cruz. Davenport-Newtown area has interceptors and an aerated wastewater lagoon on property owned by Lone Star Industries. Disposal is through evaporation/ percolation and industrial reuse. DCSD is responsible for wastewater collection, treatment, and disposal.

The State Department of Parks and Recreation is responsible for Big Basin State Park facilities (.04 mgd). Discharge provides stream flow augmentation. The wastewater treatment plant includes secondary treatment with sand filtration and coagulation. This stream discharge qualifies as an acceptable wastewater reclamation project. The discharge is upstream from a popular swimming hole, so this plan emphasizes the need to enhance water quality and protect beneficial uses in Waddell Creek. The Department of Parks and Recreation must correct wastewater system deficiencies in order to protect public health and the beneficial uses of Waddell Creek and tributaries.

The recommended plan for the Ben Lomond Conservation Facility is to retain the existing septic tank, evaporation/percolation ponds, and spray field. Existing facilities are adequate so long as operation and maintenance are effective.

Wastewater management in San Lorenzo Valley (SLV) is provided by three community treatment and disposal facilities (Bear Creek Estates, Big Basin Woods, and Boulder Creek Golf and Country Club). Remaining areas are served by individually owned septic tank and soil absorption systems. Bear Creek Estates uses septic tank treatment with disposal to a soil absorption system. This facility is the responsibility of San Lorenzo Valley Water District and Bear Creek Estates.

The recommended plan for Big Basin Woods Subdivision is to retain the existing extended aeration treatment facility with leachfield disposal, presently operating at approximately ten percent of total capacity (.35 mgd). Flow from County Service Area No. 7 has been diverted to Big Basin Woods' leachfield during equipment repair periods. Leachfield capacity is adequate to serve both Big Basin Woods and CSA No. 7. Existing facilities are adequate so long as operation and maintenance are effective. This plan will be implemented by Big Basin Sanitation Company, Big Basin Woods Subdivision, and the San Lorenzo Valley Water District.

The recommended plan for Boulder Creek Golf and Country Club is to retain the existing activated sludge treatment facility with leachfield disposal and add filtration for golf course irrigation. Existing facilities are adequate so long as operation and maintenance are effective. Operation and maintenance of the system is the responsibility of the Santa Cruz County Department of Public Works. This plan will be implemented by Santa Cruz County Service Area No. 7 through Santa Cruz County Department of Public Works and San Lorenzo Valley Water District.

Rolling Woods Subdivision, Santa Cruz County Service Area No. 10, provides treatment with a redwood bark biofilter and disposes treated effluent through percolation pits. This facility should be replaced with an interceptor that would convey wastes to the City of Santa Cruz for treatment and disposal.

Individually owned septic tank leachfield systems in the San Lorenzo Valley have been inspected and monitored from 1986 through 1994. Problem areas have been identified and the suitability of these problem areas for the continued use of septic systems has been determined as documented in the County of Santa Cruz, Environmental Health Services reports (1) Preliminary Report, An Evaluation of Wastewater Disposal and Water Quality in the San Lorenzo Watershed, September, 1989; (2) Final Project Report, Boulder Creek Wastewater Feasibility Study, October, 1991; and (3) Final Project Report, San Lorenzo Valley Community Wastewater

Feasibility Studies, March, 1994. Alternatives have been evaluated and solutions proposed to reduce septic system problems in certain areas of the valley. Solutions are contained in the "Wastewater Management Plan for the San Lorenzo River Watershed, County of Santa Cruz, Health Services Agency, Environmental Health Service", February 1995 and "San Lorenzo Nitrate Management Plan, Phase II Final Report", February 1995, County of Santa Cruz, Health Services Agency, Environmental Health Service (Wastewater Management Plan). The Wastewater Management Plan documented standards and conditions that shall be met for the protection and enhancement of beneficial uses.

Dischargers in the Aptos-Soquel area include Santa Cruz County Service Area No. 5 (Sand Dollar Beach and Canon del Sol), SCCSA No. 20 (Trestle Beach), and Monterey Bay Academy. Flows from Aptos and East Cliff are conveyed through interceptors and pumping stations for treatment at the City of Santa Cruz Wastewater Treatment Plant.

The recommended plan for SCCSA No. 5 is to retain the existing extended aeration package treatment plant and disposal to seepage pits. Wastewater treatment and disposal at Canon del Sol will be by the same methods as Sand Dollar Beach. Facilities will be adequate so long as operation and maintenance are effective. This plan will be implemented by SCCSA No. 5 through Santa Cruz County Department of Public Works.

Wastewater treatment at Trestle Beach (SCCSA No. 20) will be provided by an extended aeration package treatment plant with disposal to seepage pits. This plan will be implemented by SCCSA No. 20 through the Santa Cruz County Department of Public Works. It is recommended that CSA No. 5 and No. 20 be connected to regional collection systems when service is extended to adjacent areas.

The recommended plan for the Monterey Bay Academy is to retain the existing settling pond with disposal to a series of evaporation-percolation ponds.

VI.B.2. Pajaro River Hydrologic Unit

Summarized municipal dischargers in the Pajaro River Hydrologic Unit include the City of Gilroy/ Morgan Hill, City of Hollister, City of San Juan Bautista, and the City of Watsonville. Table 4-2 displays dischargers summarized for the Pajaro River Hydrologic Unit.

Table 4-2. Pajaro River Hydrologic Unit Summarized Municipal Dischargers

Unsewered San Martin
City of Gilroy/Morgan Hill
San Benito County Facilities
Sunnyslope County Water District
Tres Pinos County Water District
City of Hollister
City of San Juan Bautista
City of Watsonville

The Gilroy area includes the unsewered San Martin area and the City of Gilroy's advanced primary treatment and land disposal facilities serving the Cities of Gilroy and Morgan Hill. The Cities are currently attempting to develop facilities to resolve disposal capacity deficiencies. Primary treatment provided via two oxidation ponds with surface aeration. Effluent disposal is to a series of evaporation/percolation ponds. Wastewater reclamation facilities were constructed in 1977 to alleviate water shortages during drought conditions. When reclamation facilities are in use (seasonally), primary effluent is provided further treatment in an aeration pond. Effluent is then screened, chlorinated, and pumped through nine miles of distribution pipe to various users (for irrigation purposes). The reclamation system's economics have not been favorable. Industrial flows of 6.3 mgd are treated and disposed of in a separate series of sedimentation, oxidation, and percolation ponds.

The recommended plan for the Gilroy-Morgan Hill wastewater treatment facilities is to continue geohydrological assessments to determine impacts of continued effluent disposal by percolation at the Gilroy site. If beneficial uses of surface and ground waters are not adequately protected, other treatment and/or disposal methods must be used. Disposal will continue to be by percolation, evaporation, and reclamation. Before a discharge to surface waters is considered, the City will be required to evaluate feasible land disposal options. If current percolation practices are not causing receiving water problems, feasibility of existing disposal area expansion should be considered. The Cities are also evaluating stream disposal. Currently, the Cities of Gilroy and Morgan Hill are responsible for collection, treatment, and disposal of wastewater. They are also responsible for operating the wastewater reclamation facilities. Santa Clara Valley Water District is responsible for administrative tasks for the reclamation system. In addition, the Cities of Gilroy and Morgan Hill have implemented a pretreatment program since 1983.

Individual on-site systems are used for sewage disposal in the San Martin area. Twenty percent of the area's wells exceed the nitrate drinking water objective. This is a significant problem since this area serves as the sole recharge area for the Santa Clara Valley. Methods of providing a water supply that is free of excessive nitrate concentration should be investigated and implemented. Nitrate loadings from various sources should be calculated for the area to determine the contribution from various sources. The need for on-site system restrictions should be determined.

Small discharges (less than 0.10 mgd) in the Hollister area include flows from San Benito County Facilities, Sunnyslope County Water District, and Tres Pinos County Water District. City of Hollister wastewater is treated at the City of Hollister Wastewater Treatment Facilities (1.2 mgd). San Juan Bautista wastewater is treated at the City of San Juan Bautista Wastewater Treatment Facilities (0.15 mgd).

The recommended plan for Tres Pinos is to retain the existing evaporation/percolation ponds. The recommended plan for San Benito County Hospital Facilities and Sunnyslope County Water District is to study the feasibility of constructing interceptors to the Hollister facilities or consolidating into a single subregional system. Existing facilities consisting of aerated pond treatment followed by land disposal to evaporation/percolation ponds may be maintained if project level studies determine this to be the more feasible method of wastewater treatment and disposal. Sunnyslope County Water District owns and operates a wastewater treatment and disposal system serving approximately 300 homes in Ridgemark Estates subdivision located approximately 2-1/2 miles south-east of Hollister. Wastewater is treated in two aerated ponds and disposed of in evaporation/percolation ponds. Effluent may be used in the future to irrigate a golf course.

The recommended plan for the City of Hollister is to retain the existing advanced primary treatment facilities and percolation ponds which started operating in 1979. The Hollister industrial system is to be maintained separately to receive seasonal flows from the spinach and tomato processing operations. The recommended plan for the City of San Juan Bautista is development of a land disposal system. The City currently discharges secondary effluent to a drainage ditch tributary to Pajaro River.

Land disposal of wastewaters in the Hollister region must be monitored carefully to assure ground water quality is protected. Source control of salt must be stressed to reduce effluent salinity to levels acceptable for disposal to local ground waters.

Wastewaters in the Watsonville area are transported to regional treatment facilities in the City of Watsonville with a design capacity of 13.4 mgd. Collection, primary treatment, and disposal to Monterey Bay are provided for the City of Watsonville, and the local sewering entities of Freedom County Sanitation District, Pajaro County Sanitation District, and Salsipuedes Sanitary District. The City submitted an application to EPA for waiver of secondary treatment requirements and the Regional Board has approved a waiver permit. Project level studies determined ocean disposal to be the most feasible method of waste disposal. Ocean outfall improvements and a phased approach to secondary treatment are included in Watsonville's Clean Water Grant Project. If a waiver from secondary treatment is granted, the project will provide advanced primary treatment. Local sewering entities retain ownership and direct responsibility for wastewater collection and transport systems up to the point of discharge to interceptors owned and operated by Watsonville. The City is implementing a pretreatment program and the Regional Board has approved a waiver permit.

VI.B.3. Carmel River Hydrologic Unit

Summarized municipal dischargers in the Carmel River Hydrologic Unit include Carmel Sanitary District. Table 4-3 displays dischargers summarized for the Carmel River Hydrologic Unit.

Table 4-3. Carmel River Hydrologic Unit Summarized Municipal Dischargers

Carmel Sanitary District
Carmel Valley Sanitation District
Village Green
White Oaks
Carmel Valley Ranch
Carmel Highlands Inn
Carmel Sanitary Association

The Carmel Sanitary District operates a secondary wastewater treatment plant with ocean disposal serving Carmel-by-the-Sea, Del Monte Forest, and a few adjacent areas. The outfall system terminates within a portion of Carmel Bay that is designated an Area of Special Biological Significance (ASBS). The District is developing a reclamation project for irrigation of Monterey Peninsula Golf Courses. A high concentration of golf courses in a water short area makes reclamation particularly desirable and attractive.

Carmel Valley Sanitation District operates three facilities in Carmel Valley. These include community septic tank/subsurface disposal systems at Village Green and White Oaks and a tertiary type treatment plant with golf course reclamation at Carmel Valley Ranch. No changes are recommended unless public health or water quality problems develop. Should the need arise for specific septic system maintenance in Carmel Valley, local agencies should be considered for management responsibilities.

Comprehensive studies to determine the feasibility of establishing separate treatment plants have been completed for the Carmel Valley area. These studies conclude that on-site septic systems should remain operational until further ground water monitoring data shows sewers are necessary. Wastewater treatment and reuse on the Carmel Valley Ranch Golf Course provides an optimal way of managing waste generated in the area.

Carmel Highlands wastewaters should continue to be treated in on-site wastewater systems except at the Highlands Inn and the Carmel Highlands Sanitary Association. Both of these systems will continue to discharge treated secondary quality effluent to the Pacific Ocean.

VI.B.4. Santa Lucia Hydrologic Unit

The U.S. Navy's Point Sur wastewater facilities and the State Department of Parks and Recreation Pfeiffer Big Sur State Park facilities are the only significant facilities in this hydrologic unit. Ocean discharge from the U. S. Navy is being discontinued and is being replaced with a subsurface land disposal system. The subsurface land disposal system at Pfeiffer Big Sur State Park also seems adequate. If expansion to this facility is considered or if ground or surface water degradation from this discharge is detected, other means of disposal, such as reclamation, are recommended.

VI.B.5. Salinas River Hydrologic Unit

The extensive Salinas River Hydrologic Unit includes the Monterey Peninsula and southern coastal area of Monterey Bay, the City of Salinas, agricultural and small urban centers of the Salinas Valley, and recreational developments in the upper watersheds. Major dischargers in the Salinas River Hydrologic Unit include the Monterey Regional Water Pollution Agency (MRWPCA). Table 4-4 displays dischargers summarized below for the Salinas River Hydrologic Unit.

Table 4-4. Salinas River Hydrologic Unit Summarized Municipal Dischargers

Monterey Regional Water Pollution Control Agency (MRWPCA)
U.S. Army Fort Hunter Liggett
California Army National Guard - Camp Roberts
King City
City of Paso Robles
City of Atascadero
San Luis Obispo County Service Area No. 7A Oak Shores
San Luis Obispo County Service Area No. 19 Heritage Ranch Development

The recommended plan for the Monterey Peninsula-Salinas area calls for consolidation of Monterey Peninsula, Salinas, Castroville, and other Monterey Bay municipal wastewater flows into a regional wastewater treatment plant and outfall. Discharge is to central Monterey Bay outside the prohibition zone described in Chapter 5 "Discharge Prohibitions" under "Waters Subject to Tidal Action." Upon completion of the regional plant, wastewater treatment plants in Monterey, Salinas (2), Castroville, and Fort Ord will be taken out of service. The Monterey Regional Water Pollution Control Agency (MRWPCA) was established to manage and implement regional consolidation.

It is recommended MRWPCA implement wastewater reclamation. MRWPCA plans to provide reclaimed water to the Castroville Irrigation Project which involves irrigating food crops in the Castroville area with water reclaimed at the regional plant blended with water diverted from the Salinas River.

New major residential developments proposed within the service area of the Regional Project should connect to the regional system unless studies can show that water quality and public health concerns can be properly mitigated. Sewerage feasibility studies and aerial ground water studies should continue in this sub-basin to assure that adequate sewage treatment and disposal capabilities are maintained for both existing and proposed development.

Recommended plans for Salinas Valley communities, the U. S. Army's Fort Hunter Liggett, the California Army National Guard's Camp Roberts, and recreational areas in the upper watershed involve separate wastewater treatment and disposal facilities.

Dischargers along the Salinas River should remain as separate treatment facilities with land disposal to evaporation/percolation systems and land application (irrigation) systems where possible. Disposal should be managed to provide maximum nitrogen reduction (e.g., through crop irrigation or wet and dry cycle percolation). Facility expansions shall include means for nitrogen reduction. Shallow ground water monitoring at these facilities will determine if additional improvements are necessary. King City should consider expanding its service area to include Pine Canyon if development continues in that area.

The City of Paso Robles owns and operates a secondary treatment plant (4.9 mgd) utilizing trickling filtration followed by oxidation ponds. Disposal is by evaporation and percolation from the oxidation ponds and by discharging from the last pond to the Salinas River channel. Use of reclaimed water should be investigated and implemented, if feasible. A reduction of inorganic salt in the effluent would increase its desirability to potential users. A report, "Water Quality in the Paso Robles Area," published by the California Department of Water Resources in 1981 made water quality control recommendations, including a recommendation for more stringent control of total dissolved solids and sodium in the City's wastewater treatment plant discharge. A Regional Board Salt Balance Study is planned to further define the need and methods of salt reduction.

The City of Paso Robles also owns and operates the wastewater facility serving the California Youth Authority and Paso Robles Airport Wastewater treatment plant (0.10 mgd). Disposal is to a series of oxidation-percolation ponds located adjacent to Huerhuero Creek. Wastewater reclamation uses should be investigated. An effluent pump exists at the plant in case wastewater reclamation potential develops. The City is planning an interceptor sewer to eliminate this facility and provide all treatment and disposal at its main City facility.

The City of Atascadero (1.67 mgd) owns and operates a wastewater collection, treatment, and disposal system serving part of the City. Pond treatment is provided followed by land disposal to percolation ponds and by irrigation of a golf course. San Luis Obispo County Health Department has documented public health problems and water quality problems arising from failing on-site sewage disposal systems in areas within the City. The City was sewered in the most significant problem areas, but additional sewering is needed.

Dischargers in the Nacimiento Reservoir area include San Luis Obispo County Service Area No. 7A, Oak Shores Development (0.1 mgd); and, San Luis Obispo County Service Area No. 19, Heritage Ranch Development (0.40 mgd). Wastewater facilities for the Oak Shores Development consist of two aerated treatment ponds and spray disposal. Part of the collection system is located below the spillway elevation of Nacimiento Reservoir. This has been a source of excessive infiltration in the past and the problem has been corrected. This area should be watched closely as reservoir level rises and wastewater flows increase to insure infiltration and/or exfiltration do not reoccur. Major expansion of wastewater facilities is expected in the future. As the development grows, new disposal facilities should be relocated well away from Nacimiento Lake.

Wastewater at Heritage Ranch is treated in aerated lagoons at the development. Discharge is to a holding pond, filtered, and then discharged to a drainageway located outside the Nacimiento Reservoir watershed.

Camp Roberts is a U. S. Army installation that is leased by the California National Guard as a major training site. Wastewater flows that vary from 3000 gpd in winter to nearly 1.0 mgd in summer are treated to secondary levels prior to disposal in a series of percolation/evaporation ponds located near the Salinas River. The facility was upgraded in 1980 and there are no additional recommendations.

Dischargers in the San Antonio Reservoir watershed include Monterey County's Department of Parks and Recreation and the U.S. Army's Fort Hunter Liggett. There are no recommended changes to facilities operated by the Monterey County Department of Parks and Recreation. The U.S. Army, Fort Hunter Liggett operates wastewater treatment facilities located adjacent to the San Antonio River. The recommended plan is to maintain the existing facilities with improvement of the spray disposal area.

VI.B.6. Estero Bay Hydrologic Unit

Municipal wastewater management plans for the Estero Bay Hydrologic Unit are described for each of these four areas: North Coast, Morro Bay, San Luis Obispo Creek, and South County Regions. Table 4-5 displays dischargers summarized below.

Table 4-5. Estero Bay Hydrologic Unit Summarized Dischargers

Cambria Community Services District
San Simeon Acres Community Services District
City of Morro Bay and Cayucos Sanitary District
California Men's Colony
Los Osos septic tank/leachfield systems
City of San Luis Obispo
Avila Beach County Water District
San Luis Obispo County Service Area No. 18-Country Club Estates
City of Pismo Beach
South San Luis Obispo County Sanitation District
Lopez Recreation Area Wastewater Treatment Plant

Dischargers in the North San Luis Obispo Coast include Cambria Community Services District (1.0 mgd) and San Simeon Acres Community Services District (0.2 mgd).

Secondary treatment facilities at Cambria have a design capacity of 1.0 mgd and include a land outfall and spray irrigation system for effluent disposal, and an effluent holding reservoir. Excess effluent that cannot be spray-irrigated is pumped to the reservoir for later land disposal or discharged during wet weather through a sand filter bed to Van Gordon Creek. The District is evaluating land disposal improvements. Implementation of this plan is the responsibility of Cambria Community Services District.

San Simeon Acres Community Services District owns and operates a secondary treatment (activated sludge) plant with design capacity of 0.2 mgd. Wastewater visitor complex generated at Hearst Castle and within the community is treated and discharged to the Pacific Ocean through an ocean outfall. The recommended plan is to retain the treatment plant.

Dischargers in the Morro Bay area include the City of Morro Bay and Cayucos Sanitary District (2.1 mgd), California Men's Colony (CMC) (1.2 mgd), and Los Osos- Baywood septic tank leachfield systems.

The City of Morro Bay and the Cayucos Sanitary District jointly own treatment facilities with ocean outfall disposal. Wastewater is being treated by a newly constructed plant and discharged through a newly constructed ocean outfall. In order to maximize plant capacity and meet Ocean Plan requirements, part of the effluent receives primary treatment only and part receives secondary treatment. Primary and secondary quality effluents are blended before disposal to the Pacific Ocean in compliance with a secondary treatment waiver.

Recently renovated wastewater treatment facilities at California Men's Colony also serve the California National Guard Camp, Cuesta College, the County Educational Center, and the County Operational Facility. Secondary treatment with coagulation/filtration, and subsequent disposal to Chorro Creek (stream flow augmentation) are provided. Effluent is also used to irrigate fodder crops on nearby lands owned by California State Polytechnic University.

Development on small lots in Los Osos-Baywood has resulted in one of the most densely populated areas without public sewers on the central coast. Septic tank effluent is discharged in predominantly sandy soil over a ground water basin which is the sole source of water for the area. Some shallow wells have approached and exceeded the public health maximum nitrate concentration limit. The County of San Luis Obispo conducted a Clean Water Grant funded study of this situation. Study findings resulted in a Basin Plan Prohibition of discharges effective November 1, 1988. The County has not implemented the recommended project of sewering the area. (A new septic system discharge prohibition now exists for the area).

Dischargers in the San Luis Obispo Creek area include the City of San Luis Obispo (5.1 mgd), Avila Beach County Water District (0.1 mgd), and San Luis Obispo County Service Area (CSA) No. 18, Country Club Estates (0.12 mgd).

The City of San Luis Obispo wastewater treatment facilities serve as a regional plant for the City and certain proximal unincorporated county areas. Trickling filters provide secondary treatment before disposal to San Luis Obispo Creek. Infiltration and inflow in the wastewater collection system causes excessive wet weather flows and intermittent discharges to San Luis Obispo Creek of partially treated wastewater. The recommended plan for San Luis Obispo is improving the collection and treatment facilities capacity to eliminate these discharges. The City's Wastewater Management Plan should be implemented to provide treatment necessary to comply with stringent permit requirements.

The small community of Avila Beach is served by a small advanced primary trickling filter wastewater treatment facility owned and operated by the Avila Beach County Water District. Design capacity of the plant was originally 0.18 mgd, but was downgraded in 1986 to 0.1 mgd as the NPDES permit was revised to include secondary treatment standards for tickling

filters. Current average flow is only 0.07 mgd. Wastewater disposal is through an ocean outfall to the Pacific Ocean. Additional treatment and/or outfall modification will be necessary as flow increases. Oceanographic studies would be required to determine appropriate modifications (e.g., lengthen the outfall and add a multiport diffuser).

Country Club Estates (CSA No. 18) is a small subdivision in South San Luis Obispo County that historically relied on septic tank systems for wastewater treatment and disposal. A septic tank system performance survey completed in January, 1981, identified significant public health hazards from numerous failing septic tank systems in the subdivision. The septic systems were replaced in 1988 by a small secondary treatment plant (0.12 mgd) with effluent disposal via golf course irrigation at the San Luis Obispo Golf and Country Club.

Dischargers in the South San Luis Obispo County Region include the City of Pismo Beach (1.2 mgd), South San Luis Obispo County Sanitation District (3.0 mgd) (serving the City of Arroyo Grande, City of Grover City, and Ocean Community Services District), and Lopez Recreation Area wastewater treatment plant (0.10 mgd). These dischargers provide secondary treatment of wastewater through three separate facilities. Pismo Beach has a land outfall to the South San Luis Obispo County Sanitation District ocean outfall. Plant reliability improvements were made in 1987. Future treatment plant enlargements should provide duplicate process units for improved operation and maintenance. A long range solids management plan must be developed and implemented.

South San Luis Obispo County Sanitation District disposes of secondary effluent through an ocean outfall to the Pacific Ocean. The District has enlarged its facilities to 3.0 mgd and changed from activated sludge to fixed film reactor. A long range solids management plan is also needed for this plant.

The Lopez Recreation Area treatment facilities serve County facilities adjacent to Lopez Lake. Lopez Lake serves as a municipal water supply for downstream coastal communities. It is recommended land disposal of wastes be continued. Ground water quality monitoring should be used to provide warning of any potential ground water problems downstream of the disposal area. Implementation of this plan is the responsibility of the County of San Luis Obispo.

VI.B.7. Carrizo Plain Hydrologic Unit

There are no municipal sewerage systems in the Carrizo Plain Hydrologic Unit; recommended practices for individual disposal systems will pertain to this area.

VI.B.8. Santa Maria River Hydrologic Unit

The municipal wastewater management plans for the Santa Maria Valley and the Cuyama Valley are described separately for the City of Guadalupe, the City of Santa Maria, the Laguna County Sanitation District, Nipomo, and the New Cuyama wastewater treatment plant.

It is recommended that separate wastewater treatment and disposal/reclamation facilities be maintained by the City of Guadalupe (0.5 mgd), the City of Santa Maria (7.8 mgd), and the Laguna County Sanitation District (3.2 mgd). Discharge will be to land in each case.

The City of Guadalupe provides primary treatment followed by mechanically aerated lagoons. An unincorporated neighborhood known as the Gularte Tract is located adjacent to Guadalupe. A lift station and interceptor have been constructed to transport Gularte's wastewater to the City's collection system.

The recommended plan for Guadalupe is to complete additional storage ponds and disposal facilities to insure containment of wastewaters during wet weather and accommodate planned growth and to continue effluent discharge to land. Use of reclaimed water to irrigate nearby pasture lands is encouraged and should be maximized. Implementation of this plan is the responsibility of the City of Guadalupe. The County of Santa Barbara will be responsible for wastewater collection and transport systems for Gularte Tract up to the point of discharge to interceptors owned and operated by Guadalupe.

The City of Santa Maria provides wastewater collection, treatment, and disposal services to the City of Santa Maria, Santa Maria Airport District, and part of Laguna County Sanitation District. Biological secondary treatment is provided with disposal to percolation ponds and irrigation lands. The recommended plan for Santa Maria is to retain the existing treatment and disposal facilities. Since the Santa Maria ground water basin is in a state of adverse dissolved solids balance, it is imperative that quantities of total dissolved solids, sodium, chloride,

nitrogen, and nitrogen compounds be kept to a minimum by implementing a strict source control ordinance. Additional measures—importing better quality water, drilling new wells, partial desalting, etc.—may be required in the future to provide a suitable water supply for the area. Laguna County Sanitation District retains ownership and direct responsibility for wastewater collection and transport systems up to the point of discharge into interceptors owned and operated by the City of Santa Maria.

A secondary wastewater treatment plant owned and operated by Laguna County Sanitation District treats most of the wastewater generated within the District. Wastewater is discharged to approximately 2,250 acres of private lands located adjacent to the facility. The landowners and the County have a 30-year agreement for irrigation of fodder, fiber, and seed crops. The recommended plan for Laguna is to improve plant performance and increase capacity through a staged construction plan. Enough land is available to allow expansion and continue reclamation. Recommended improvements include increasing capacity and reliability of the Orcutt Lift Station, increasing sludge drying bed area, and expanding effluent, pumping, storage, and conveyance facilities. Funding of future improvements and plant expansions would be through connection and user charges. Laguna County Sanitation District is responsible for implementation of the recommended plan. Impact of salts must be minimized by implementing a strict source control ordinance and discharging to areas outside the main ground water recharge area.

Failing individual on-site sewage disposal systems in the community of Nipomo resulted in a treatment facility being completed in 1987. Treatment is by aerated lagoons and disposal is by percolation beds. Sewer service is provided to downtown Nipomo and County operated systems of Nipomo Palms, Black Lake Estates, and Galaxy Subdivisions. The recommended plan is to extend the sewer system to small lot areas as growth allows.

Existing facilities at the New Cuyama Wastewater Treatment Plant provide primary treatment of wastewater, with some aeration. Effluent is chlorinated before discharge to Salisbury Creek. The recommended plan for New Cuyama is to study existing facilities, determine future needs of the community, and, since water is in short supply, explore wastewater reclamation alternatives. Cuyama Community Services District is the responsible party for wastewater and water supply facilities in New Cuyama. It is recommended that exploratory wells be drilled to find a higher quality water supply. If a lower salt content water is not available, the existing water supply should be partially demineralized.

VI.B.9. San Antonio Creek Hydrologic Unit

Los Alamos Community Services District owns and operates a wastewater treatment and disposal facility to serve the Los Alamos community. Wastewater (0.1 mgd) is treated in mechanically aerated ponds and discharged to disposal ponds and a spray reclamation area.

VI.B.10. Santa Ynez River Hydrologic Unit

Municipal wastewater management plans for the Santa Ynez River Hydrologic Unit are described below. Table 4-6 displays dischargers discussed below.

Table 4-6. Santa Ynez River Hydrologic Unit Summarized Municipal Dischargers

City of Lompoc
Mission Hills Community Services District
Vandenberg Air Force Base
U. S. Department of Justice, Bureau of Prisons
Buellton Community Services District
City of Solvang
Cachuma County Sanitation District

Parts of Lompoc Valley ground water basin are in a state of adverse salt balance because of municipal and agricultural discharges. It is imperative that impacts of point source waste discharges to land be reduced by continuing to implement strict salt limitations, source control programs, and other salt management practices.

The City of Lompoc operates a secondary treatment facility (5.0 mgd) and discharges treated effluent to Santa Ynez River. The City also provides service to Vandenberg Village Community Services District and sewered areas of Vandenberg Air Force Base. The recommended plan for Lompoc is to control mineral concentrations in the effluent by enforcing strict limits on discharges to the sewer system and to continue to implement a pretreatment program. Implementation of this plan is the responsibility of the City of Lompoc. Vandenberg Air Force Base and Vandenberg Village Community Services District retain ownership and direct responsibility for wastewater collection and transport systems up to the point of discharge into

the wastewater treatment plant and/ or interceptors owned and operated by the City of Lompoc.

In 1980, the Mission Hills Community Services District (0.4 mgd) was formed, assuming ownership and responsibility for water supply and sewage disposal in Mission Hills. The District expanded and upgraded its La Purisima Plant and eliminated the Rucker Road Plant. Wastewater is treated in mechanically aerated ponds and discharged to a series of evaporation/percolation ponds and reclamation areas. Separate water reclamation requirements were adopted for Mission Belle Dairy as a primary user of reclaimed water for pasture and fodder crop irrigation.

There are isolated areas of Vandenberg Air Force Base that are not served by the Base's collection system. Separate treatment and disposal systems exist to serve these areas. Due to the isolation of these systems, it is recommended that they be retained. Efficient operation and maintenance of these systems will protect public health and water quality.

The United States Department of Justice, Bureau of Prisons, owns and operates existing facilities at the U.S. Penitentiary (0.6 mgd) which provide secondary treatment of wastewater. Treated wastewater is reclaimed for irrigation of forage crop land.

It is recommended that facilities be maintained separately at Buellton Community Services District (0.65 mgd), City of Solvang (1.0 mgd), and Cachuma County Sanitation District (0.22 mgd). Secondary treatment prior to land disposal coupled with a strict source control program will be necessary to protect local ground waters in these three areas.

The City of Solvang operates a secondary wastewater treatment facility to serve the City and Santa Ynez Community Services District with effluent disposal to evaporation/percolation ponds. Since the disposal ponds are located in a flood-prone area, it is imperative that sufficient disinfection capacity be available to disinfect effluent during wet weather. Expansion of capacity should be considered for ongoing growth in areas adjacent to present City and District boundaries. Implementation of this plan is the responsibility of both the City of Solvang and Santa Ynez Community Services District. Need for, and feasibility of providing, sewerage facilities for the Los Olivos-Ballard areas should be investigated by the County of Santa Barbara. Treatment and disposal service for this area be contracted with the City of Solvang.

The recommended plan for Cachuma County Sanitation District is to continue to treat and dispose of wastewater in percolation ponds and spray fields outside the Cachuma Reservoir watershed. Since ground waters down gradient from the spray field are used for domestic water supply, sampling of the nearest down gradient well is recommended to insure that water supply quality is not adversely affected by the discharge.

VI.B.11. South Coast Hydrologic Unit

Summarized municipal wastewater treatment and disposal agencies in the South Coast Hydrologic Unit are described separately for the Goleta Sanitary District (9.7 mgd), City of Santa Barbara (11.0 mgd), Montecito Sanitary District (1.5 mgd), Summerland Sanitary District (0.20 mgd), and, Carpinteria Sanitary District (2.0 mgd) wastewater treatment plants.

Goleta Sanitary District operates a wastewater collection system within the District and a treatment and ocean disposal system to provide service to Goleta Sanitary District, Isla Vista Sanitary District, University of California at Santa Barbara, Santa Barbara Municipal Airport, and facilities of Santa Barbara County. EPA granted the District a waiver from secondary treatment requirements. The waiver permit limits flow to 7.9 mgd provided mass emission rates do not exceed limits based on a flow of 7.3 mgd. In order to meet EPA's conditions and Ocean Plan criteria, part of the effluent receive primary treatment only and part receives secondary treatment. Primary and secondary effluent are blended before disposal to the Pacific Ocean. The District implements a pretreatment program. Isla Vista Sanitary District, University of California at Santa Barbara, Santa Barbara Municipal Airport, and Santa Barbara County retain ownership and direct responsibility for wastewater collection and transport systems up to the point of discharge into interceptors owned and operated by Goleta Sanitary District. A long range solids management plan is needed to assure sludge disposal needs are met.

The recommended plan for the City of Santa Barbara is to retain El Estero Wastewater Treatment Plant, with disposal to the Pacific Ocean, along with implementation of the City of Santa Barbara wastewater reclamation project. The City could consider implementing a cost-effective composting program to reduce transportation costs. The City implements a pretreatment program and also provides service to an unincorporated community in Mission Canyon located above the City.

The recommended plan for Montecito Sanitary District is to continue secondary treatment with disposal to the Pacific Ocean.

The recommended plan for Summerland Sanitary District is to expand and upgrade existing facilities to insure reliable plant operations and to accommodate planned growth. Recommended improvements are addition of standby power, dual processes, and continuous monitoring of total chlorine residual.

The recommended plan for Carpinteria Sanitary District is to retain existing secondary treatment facilities with disposal to the Pacific Ocean.

VI.C. Industrial Wastewater Management

In general, the alternatives available to industrial discharges are the following: (1) ocean discharge and compliance with the State Ocean Plan, the State Thermal Plan, and Public Law 92-500; (2) containment of nonsaline and non-toxic wastes on land; (3) reinjection of oil and gas production brines; (4) inland surface water discharge, if other alternatives are proved infeasible; and, (5) abandonment of the treatment facility and connection to a publicly owned treatment works. In most cases, alternatives will be limited by standards of performance and pretreatment standards being developed by EPA. It should also be noted that federal guidelines will be subject to regional considerations such as important fishery resources or wildlife areas which could necessitate making regional industrial discharge requirements more stringent than national performance standards.

Specific effluent limitations are being promulgated for existing industrial waste discharges together with standards of performance and pretreatment standards of performance for new sources pursuant to sections 304(b), 306 (b), and 307(b), of the federal Water Pollution Control Act. Effluent limitations were being circulated for comment by the EPA. Waste source categories of particular interest in the basin which will be covered by those sections of the federal law include:

Meat product and rendering processing

Dairy product processing

Canned and preserved fruits and vegetables processing

Canned and preserved seafood processing

Cement Manufacturing

Feedlots

Electroplating

Beet sugar processing

Petroleum production and refining

Steam electric power plants

Leather tanning and finishing

Further information pertaining to industrial discharges can be found in the Management Principles and Control Actions Section of Chapter 5. The State Water Resources Control Board Plans and Policies Section, Discharge Prohibition Section, and Regional Board Policies Section are likely to apply (depending on site specific circumstances).

VI.D. Solid Waste Management

The protection and maintenance of water resources requires consideration and regulation of solid waste management practices. This section discusses present and future solid waste production, existing disposal practices and their effect on water quality, and proposed plans for solid waste disposal within the study area.

Land disposal is regulated by the California Code of Regulations, Title 23, Chapter 15 (Chapter 15). In the vernacular of Chapter 15, wastes are classified as either hazardous waste, designated waste, nonhazardous solid waste, or inert waste. Waste Management Units (WMUs) are classified as either Class I, II, or III depending on the type of waste to be disposed of in the unit. Class I WMUs have the most restrictive siting criteria and must be constructed to provide optimum conditions for isolation of wastes from waters of the State. A double liner and a leachate collection and removal system (LCRS) is required for all Class I units. Class II WMUs also have relatively restrictive siting and construction standards and are designed to totally isolate wastes from the environment. Double liners and LCRSs are typically, but not always, required for Class II units. Class III WMUs must be sited and constructed such that no impairment of beneficial uses of surface or ground water beneath or adjacent to the site occurs. Siting and construction standards for Class III units are the least restrictive of the three, but the requirements are still considerable.

Wastes are considered hazardous if they meet the criteria defined in CCR Title 22, Section 66300. Examples of wastes that are considered hazardous include: waste solvents, waste pesticides, and waste

electroplating solutions, to name a few. Hazardous wastes must be discharged only at Class I WMU.

Wastes are classified as designated if, under ambient conditions at the WMU, they may be released in concentrations in excess of applicable water quality objectives or cause degradation of waters of the State. Some examples of designated waste include, wet sewage treatment plant sludge, oil field wastes, and some drilling muds. Designated wastes must be disposed of only at Class I WMU's, or at Class II WMU's which are approved for that particular type of waste.

Nonhazardous solid wastes consist of the more typical household and industrial wastes including: trash; rubbish; ashes; demolition and construction wastes; discarded home and industrial appliances; manure; and vegetable or animal solid or semi-solid wastes provided they do not meet the criteria mentioned above for hazardous or designated wastes. Nonhazardous solid waste may be disposed of at any classified WMU, but normally it is disposed of only at Class III WMUs to conserve the diminishing volume in the few operating Class I and Class II WMUs.

Inert waste does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives and does not contain significant quantities of decomposable waste. Some examples of inert wastes include: broken up concrete rubble and excess clean earth fill. Inert wastes do not necessarily need to be disposed of at classified waste management units (i.e., Class I, II or III), but waste discharge requirements may be issued for the discharge at the discretion of the Regional Board.

There are 28 authorized active waste disposal sites regulated by the Central Coast Regional Board. Of the 28 sites, 26 are Class III landfills, with one Class I landfill, and one Class II surface impoundment. Additional information regarding a specific waste management unit can be found in the respective County Waste Management Plan in which the unit is located.

In recent years, data indicates municipal solid waste landfills may be having a greater impact on water resources than was previously anticipated. Legislation was passed in 1984 which requires all owners of active, inactive, or former landfills to initiate a study to determine if the landfilling operation has had an impact on waters of the State. Approximately 150 sites are evaluated per year throughout the State, with approximately nine sites per year coming from the Central Coastal Region. Further studies and/or corrective actions are initiated at all sites impacting State waters.

A recent report from the Assembly Office of Research has documented California's dwindling remaining landfill capacity. In general, remaining landfill capacity within the Central Coastal Region is higher than most areas of the State. However, the ratio of landfill closures to landfill expansions or opening of new landfills within the region for the last five years is approximately 4:1. This ratio will probably remain the same or increase with the more stringent regulatory requirements and the time consuming permitting process required for siting of new waste management units. In order to avoid a landfill capacity crisis similar to the situation on the East Coast, our solid waste handling and disposal practices should be reevaluated and a more environmentally sound management practice should be developed.

The Toxic Pits Cleanup Act of 1984 (TPCA) declares that discharges of liquid hazardous wastes or hazardous wastes containing free liquids into lined or unlined impoundments pose a serious threat to the quality of the waters of the State. Therefore, the legislature enacted TPCA as Article 9.5 (Surface Impoundments) of Chapter 6.5 (Hazardous Waste Control) of Division 20 of the California Health and Safety Code with the intent of insuring that existing surface impoundments were either made safe or were closed.

The effect of TPCA was to prohibit discharge (defined to include storage) of liquid hazardous wastes and hazardous wastes containing free liquids to surface impoundments, which did not satisfy specific construction and monitoring standards, by June 30, 1988, or December 31, 1988, depending on the location and characteristics of the impoundment. TPCA allows specific exemptions with varying application and granting deadlines. However, on and after January 1, 1989, all discharge of liquid hazardous wastes and of hazardous wastes containing free liquids to surface impoundments which had not been granted exemptions, and which did not meet specific construction and monitoring standards, was prohibited. There is a rare set of circumstances which may exempt a surface impoundment from the January 1, 1989, deadline.

TPCA is fulfilling its goal of reducing the threat of liquid hazardous wastes to the waters of the State.

VI.D.1. Solid Waste Discharge Prohibitions

Discharge is prohibited as follows:

1. Any Class I solid waste material to any location other than Class I solid waste disposal site.

2. Any Class II solid waste materials to any location other than Class I or II solid waste disposal sites.

3. Solid wastes shall not be discharged to rivers, streams, creeks, or any natural drainage ways or flood plains of the foregoing.

VI.E. Storm Water Management

Storm water runoff can be a significant pollution source. The United States Environmental Protection Agency (U.S. EPA) estimates that at least 33% of all contamination in lakes and estuaries and 10% of all river contamination are caused by storm water runoff. Sources of pollution include runoff from industrial facilities, construction sites, and urban municipalities.

Federal regulations (40 Code of Federal Regulations 122.26) require certain industrial facility owners and/or operators to obtain storm water discharge permits. The specific types of facilities that need coverage is dependent upon the facility's Standard Industrial Classification Code. The program is primarily directed at manufacturing facilities, oil and gas extraction facilities, transportation maintenance facilities (trucking and mass transit), and construction sites (with greater than five acres of land disturbance). In addition, municipalities with populations greater than 100,000 must participate in a municipal storm water permitting program.

In August and September 1992, the State Water Resources Control Board (State Board) adopted the statewide General Construction Activity Storm Water

Permit and amended the statewide General Industrial Activities Storm Water Permit. The statewide permits expire five years after adoption. At that time, Regional Boards will most likely adopt Region specific General Permits.

The storm water program objectives include identification and elimination of pollutant contact with storm water by implementation of Best Management Practices. To obtain coverage under a General Permit, an applicant (i.e., those facilities required under 40 Code of Federal Regulations 122.26) must submit a Notice of Intent and the appropriate fee. The Notice of Intent is an agreement accepting the discharge specifications and monitoring requirements of the General Permit.

General Industrial Permit Requirements include the development of a Storm Water Pollution Prevention Plan and storm water runoff monitoring. The Storm Water Pollution Prevention Plan is a facility specific document which includes: a site description, facility processes, pollutant sources, storm water management system, employee education and training program, and measures proposed to eliminate non-storm water discharges. Minimum monitoring and reporting requirements include: sampling and analysis of four pollutant indicator parameters, wet and dry weather storm water conveyance system inspections, and annual reporting. The Regional Board can recommend additional monitoring parameters based on the presence of specific pollutant sources.

The Construction Permit has similar requirements regarding development of a storm water pollution prevention plan, but mainly deals with reducing pollutant sources associated with erosion and sediment transfer and chemicals used at construction sites. The monitoring requirements are less stringent and no sampling is required.

Annual monitoring reports required by the Industrial permit are due July 1 of each year. Sampling results and annual report information will be used to prioritize Regional Board staff education and enforcement efforts and to develop future group general permits. Compliance is measured through implementation of pollution prevention Best Management Practices, reduction in pollutant loadings, and accurate and timely report submittal.

VI.F. Bay Protection and Toxic Cleanup Program

The State Water Resources Control Board (State Board) established the Bay Protection and Toxic Cleanup Program in response to legislation enacted in 1989 (Chapter 269; Senate Bill 475 Torres) which added Chapter 5.6, Sections 13390 through 13396, to the California Porter-Cologne Water Quality Control Act. The Bay Protection and Toxic Cleanup Program is a statewide program that is coordinated with the California Department of Fish and Game and California Environmental Protection Agency's Office of Environmental Health Hazard Assessment. The Water Code requires the State and Regional Water Quality Control Boards to do the following to attain the goals of the Bay Protection and Toxic Cleanup Program:

1. Develop and maintain a program to identify toxic hot spots, plan for their cleanup or mitigation, and

amend Water Quality Control Plans/Policies to abate toxic hot spots;

2. Formulate and adopt a Water Quality Control Plan for enclosed bays and estuaries;

3. Review and, if necessary, revise Waste Discharge Requirements to conform to the Plan;

4. Develop a database of toxic hot spots;

5. Develop an ongoing monitoring and surveillance program;

6. Develop sediment quality objectives;

7. Develop criteria for assessment and priority ranking of toxic hot spots; and

8. Fund the program through fees on point and nonpoint dischargers. (California Code of Regulations, Title 17, Section 2236, authorizes the fee program).

   Funds for the Bay Protection and Toxic Cleanup Program will come from user fees, as proposed by State Board staff. User fees have been drafted for the following:

1. All NPDES and WDR dischargers to the ocean, bays, or estuaries;

2. Counties or cities which operate a storm drain system which discharges to the ocean, a bay, or estuary;

3. Dischargers of agricultural drainage to the ocean, bays, or estuaries;

4. Boat construction and repair facilities;

5. Boat marinas and recreational facilities;

6. Operators of commercial harbors and ports; and

7. Operators of dredging discharges.

The fees are based on threat to water quality, as defined by the Waste Discharge System (WDS) ranking system (threat to water quality and complexity criteria).

The Central Coast Regional Board has identified 17 potential toxic hot spots to be addressed under this program. These 17 sites are identified in the Appendix. An assessment/monitoring plan has been developed for potential toxic hot spots. Potential hot spots are ranked according to threat to beneficial uses. The assessment/monitoring plan includes the following:

1. Definition of the extent of degradation;

2. Analysis of existing point and nonpoint discharges in the area;

3. Identification of contaminant sources; and

4. Development of options for removing the threat to beneficial uses, including consideration of additional effluent limits on point and nonpoint discharges and actual cleanup.

VI.G. Military Installations

Military installations throughout the country include some of the largest and most complex contamination problems. In 1987, President Reagan signed into law Executive Order No. 12580 directing all federal facilities to investigate and remediate areas of environmental contamination. As a result, the U.S. Department of Defense has assumed responsibility for investigation and remediation at military bases. Certain environmental restoration projects involving hazardous materials and wastes from past military activities are being addressed through what is known as the U.S. Department of Defense Program. Although U.S. Department of Defense has assumed environmental restoration responsibility, the Regional Board is an active oversight participant.

From its inception, the Regional Board has been involved with a variety of military installation activities. Since 1990, this Regional Board has been actively and extensively involved in U.S. Department of Defense Program investigations and remedial activities at numerous military facilities within its jurisdiction. Active military installations in the Region addressed by the U.S. Department of Defense Program (current as of 1993) include Fort Ord, Presidio of Monterey, Monterey Naval Post Graduate School, Fort Hunter Liggett, Camp Roberts, Estero Bay Defense Fuel Supply Point, and Vandenburg Air Force Base. Fort Ord is unique since it is a closing base and has been identified as a federal superfund site. Four formerly used defense sites in the Region undergoing U.S. Department of Defense remediation (as of 1993) include: Camp San Luis Obispo - California National Guard, Camp San Luis Obispo - San Luis Obispo County, Paso Robles Airport, and Santa Barbara Airport. Potentially additional military facilities can be added to the U.S. Department of Defense Program.

Program Background

Decades of intense military activities have generated significant quantities of hazardous waste. As a result of insufficient internal control, improper handling and disposal practices, and inadequate regulation, military installations are now considered one of the Nation's most significant environmental polluters. Pollution problems are exacerbated by the large base size, the complex and varying missions, as well as routine personnel changes and inconsistent regulation and control. Many bases are actually small to midsize, totally contained communities providing complete services for base operations. Services vary from base to base, but range from aircraft, vehicle, or shop maintenance and repair facilities to laundry services, photo shops, gas stations, and other typical municipal services (e.g., utilities, streets, water supply, sewerage, and solid waste disposal).

Past waste disposal practices in both government and private industries were insufficient to protect public health and the environment. Environmental laws and regulation developed in the 1970s addressed many deficiencies, but federal operations, especially the military, remained inadequately addressed. The military was adamant that sovereign immunity protected them from State and local environmental regulation. Enforcement actions to force the military to comply with State and federal regulation were often protracted or disregarded. In 1976, U.S. Department of Defense developed its Installation-Restoration Program to help identify, investigate, and cleanup contamination from past operations. Due to funding and timing, Program activities were initiated at most military facilities in the early 1980s.

In 1980, the federal Comprehensive, Environmental Response, Compensation, and Liability Act (CERCLA), which is also referred to as "Superfund" was enacted to address cleanup of hazardous substance disposal and spill sites. The Superfund Amendments and Reauthorization Act was enacted in 1986 to enhance hazardous waste cleanup. The Superfund Amendments and Reauthorization Act, in part, mandated the Defense Environmental Restoration Program specifically to address cleanups at U.S. Department of Defense facilities. The Defense Environmental Restoration Program included an Inland Restoration Program as a component. To carry out required environmental restoration at its military facilities, U.S. Department of Defense established the Defense Environmental Restoration Account as the funding mechanism.

Executive Order No. 12580 was enacted in 1987 to intensify investigation and remediation of environmental problems. The Executive Order directed all federal agencies to ensure environmental restoration. To comply with this Executive Order, U.S. Department of Defense has assumed lead responsibility to cleanup military bases throughout the world. California has the largest number of active military bases covered by the military cleanup plan.

As a result of Executive Order No. 12580 and growing public awareness, U.S. Department of Defense is now actively pursuing environmental restoration at military facilities. U.S. Department of Defense has demonstrated its restoration sincerity by providing oversight reimbursement to the State. The Defense/State Memorandum of Agreement signed by U.S. Department of Defense and State of California officials, provides State oversight cost reimbursement to a maximum of one percent (1%) of the total cleanup cost. The Memorandum of Agreement requires preparation and administration of a cooperative agreement between the State and Corp of Engineers to verify funding and services for remedial responses. The Memorandum of Agreement lists specific sites for which the State will receive federal funding for its oversight and regulatory involvement. In California, Regional Boards and the Department of Toxic Substances Control share State regulatory responsibility and reimbursement dollars allocated to the U.S. Department of Defense Program.

To ensure proper regulatory compliance and environmental restoration, Executive Order No. 12580 requires all federal agencies to complete cleanup pursuant to "Superfund." This means cleanups at all military installations must comply with the stringent federal CERCLA requirements, whether or not the base is a listed Superfund site. The Act requires federal facilities which are placed on the Superfund National Priorities List by the U.S. Environmental Protection Agency (U.S. EPA), to conduct cleanup following the National Contingency Plan and U.S. EPA procedures and standards. In this Region, Fort Ord is the only currently listed U.S. Department of Defense Superfund National Priority List site.

In addition to following federal CERCLA requirements, Superfund National Priority List sites must be conducted pursuant to agreements called Federal Facility Agreements. These agreements are between the federal agency owning the base (e.g., Department of the Army at Fort Ord) and the U.S. EPA. The agreements may include certain State agencies. The Fort Ord Federal Facility Agreement includes the Regional Board and Department of Toxic Substances Control as signatories.

By federal law non-Superfund military sites must cleanup hazardous waste releases pursuant to federal Comprehensive, Environmental Response, Compensation, and Liability Act requirements and to State laws. Federal non-Superfund facilities may enter into a State compliance agreement. Such an agreement is called a Federal Facility Site Remediation Agreement. At Vandenburg Air Force Base (a non-Superfund site), a Federal Facility Site Remediation Agreement was signed by the Department of the Air Force, the Regional Board, and Department of Toxic Substances Control in June 1991. Both Federal Facility Agreements and Federal Facility Site Remediation Agreements identify roles, responsibilities, dispute resolution procedures, and schedules.

By signing an agreement (Federal Facility Agreement and Federal Facility Site Remediation Agreement), and following federal CERCLA requirements, site remediation is modified from typical State procedures. The modification eliminates the need for State and local permits and enforcement action. Generally, Waste Discharge Requirements, Cleanup of Abatement Orders, and local agency permits are not imposed. Such provisions were included to ensure compliance with stringent federal cleanup standards, while limiting permit and enforcement involvement by local or State Agencies. In some parts of the Country, local and State involvement slowed or obstructed cleanup efforts.

The federal CERCLA (Section 121) does require compliance with State and federal laws and regulations which are more stringent than the CERCLA, and which are necessary to ensure site-specific environmental and public health protection. This compliance process is referred to as "Applicable" or "Relevant and Appropriate" requirements, because it allows consideration of either "Applicable" or "Relevant and Appropriate" requirements pursuant to State or federal law and regulations. At Superfund sites, U.S. EPA has final authority to approve "Applicable" or "Relevant and Appropriate" requirements. At non-Superfund sites, the lead State agency is responsible to ensure "Applicable" or "Relevant and Appropriate" requirements are identified.

Federal Comprehensive, Environmental Response, Compensation, and Liability Act (Superfund) Response Process

Although cleanup pursuant to the federal CERCLA is quite complex, it was developed with the intent of simplifying regulatory requirements in a uniform manner and expediting environmental cleanup and restoration. The Act, although similar, is significantly more complex than the Regional Board's typical cleanup procedures pursuant to the California Porter-Cologne Water Quality Control Act. Following is a very simplified summary of the basic "Superfund" response process.

Many initial past military installation investigations included a Preliminary Assessment/Site Inspection. The Preliminary Assessment is an assessment based on existing, readily available information. The Preliminary Assessment attempts to evaluate the magnitude of a potential hazard and identify the source and nature of hazard release. The Site Inspection includes a site visit and possibly sample collection, soil borings, and well installation. The Site Inspection is intended to better characterize the problem and determine the need for further action. Often, information from the Preliminary Assessment/Site Inspection is used to place a site on the Superfund list.

Once a site has been Superfund listed, or has been identified as requiring remedial activities, more in-depth characterization is required. The next phase of remedial activities-site characterization is called the Remedial Investigation/Feasibility Study. The Remedial Investigation is the mechanism for collecting detailed site data to define fully the nature and extent of contamination. During the Remedial Investigation, treatability studies may be conducted to evaluate available treatment technologies in support of remedy selection. The Feasibility Study focuses on developing and screening specific remedial alternatives. The Feasibility Study goal is to identify preferred cleanup alternatives. The Remedial Investigation/Feasibility Study includes risk assessment, identifies "Applicable" or "Relevant and Appropriate" requirements, and develops cleanup goals.

The next phase is the Proposed Plan, which presents the preferred cleanup alternatives and allows public input. After public comments are considered, a Record of Decision is prepared at Superfund sites. The Record of Decision establishes cleanup levels and discharge standards and is based, in part, on identified "Applicable" or "Relevant and Appropriate" requirements. When the Record of Decision is complete and acceptable, the selected remedy is administratively approved by the military department, U.S. EPA, and the State (Regional Boards and Department of Toxic Substances Control). The final cleanup levels are established and "frozen" in the Record of Decision. Agencies that signed the Federal Facility Agreements also sign the Final Record of Decision. At non-Superfund sites in California, the typical document establishing the cleanup levels and discharge standards is called the Remedial Action Plan. The Remedial Action Plan is signed by the agencies that signed the Federal

Facility Site Remediation Agreement. Decision Documents are used sometimes to identify cleanup levels for individual sites at non-Superfund installations. Agencies and the public can petition U.S. EPA to change the Record of Decision levels (or the State to change the Remedial Action Plan), if substantial evidence is available demonstrating that an established cleanup level is not protective of human health and the environment.

Once the Record of Decision (or Remedial Action Plan) is signed, Remedial Design plans are prepared to implement the Record of Decision. Remedial Action, the long-term remediation, begins when Remedial Design and construction are complete. Operation and maintenance, including monitoring, evaluate long term performance and ensure that the Remedial Action is carried out as intended. Long term remediation (e.g., ground water cleanup) continues until conditions of the Record of Decision (or Remedial Action Plan) have been met. Remediation progress must be evaluated at least every five years.

The federal CERCLA includes the Removal Action process to allow remediation of small/limited areas of contamination or time critical cleanups. A Removal Action may be undertaken at any time to address problems that do not require a full scale remediation project. Removal Actions are short term activities that remove immediate threats to public health or that can be implemented in a timely manner.

Generally, Removal Actions are limited to $2 million and are completed in twelve months or less (e.g., removal and proper disposal of a small volume of surface soil contamination).

It is worthy to note that environmental assessment is addressed during the Remedial Investigation/Feasibility Study process. All military installations must comply with the National Environmental Policy Act by preparing an Environmental Impact Statement or Finding of No Significant Impact. An Environmental Impact Statement is similar to an Environmental Impact Report and a Finding of No Significant Impact is similar to a Negative Declaration in California. In California, National Environmental Policy Act compliance may not be sufficient to address all environmental impacts; thus, environmental assessment must also comply with the California Environmental Quality Act.

Regional Board Responsibility

The federal Clean Water Act and the California Porter-Cologne Water Quality Control Act give the Regional Board regulatory responsibility and authority to protect water quality, including waters within and beneath federal lands. The primary role of the Regional Board and its staff, relative to military installations (U.S. Department of Defense Program) is to ensure that waters of the State are adequately protected. Involvement includes review and direction of all investigation and remediation documents, site visits to guide field activities, and oversight to ensure that cleanup/remediation is carried out properly to protect beneficial uses of water resources. Identification of "Applicable" or "Relevant and Appropriate" requirements and direction on cleanup level establishment require considerable involvement by the Regional Board and its staff.

Typically, the U.S. EPA is the lead regulatory agency at Superfund sites (e.g., Fort Ord). The Regional Board and Department of Toxic Substances Control are responsible State agencies. In the past, at non-Superfund sites (all other military installations in the Region) either the Regional Board or Department of Toxic Substances Control has been the lead regulatory agency. At military installations where water quality and public health is threatened or impacted due to the release of hazardous substances, the Regional Board and Department of Toxic Substances Control may have overlapping jurisdiction. A Memorandum of Understanding exists between the State Water Resources Control Board, the Regional Boards, and Department of Toxic Substances Control specifying roles and responsibilities in hazardous waste cleanups where overlap may occur. In September 1993, the California Environmental Protection Agency requested the overall State "lead" become Department of Toxic Substance Control's responsibility. This transition should not impact the basic responsibilities. In general, Regional Boards have primary regulatory responsibility for water and soils directly related to water quality protection. Department of Toxic Substances Control has primary regulatory responsibility for public health protection, soil (where waters are not involved), air, and hazardous waste treatment and storage.

In this Region, the Regional Board has been the lead State agency at six of the currently active (1993) U.S. Department of Defense facilities (Vandenberg Air Force Base, Estero Bay Defense Fuel Supply Point, Camp Roberts, Fort Hunter Liggett, Monterey Naval Post-Graduate School, and Presidio of Monterey). These sites are shown in Figure 4-1. The lead may be shared with Department of Toxic Substances Control at Fort Hunter Liggett, since there are several federal Resource Conservation and Recovery Act sites requiring investigation. In California, U.S. EPA has authorized Department of Toxic Substances Control to implement Resource Conservation and Recovery Act program compliance.

Agreements have been signed only at Fort Ord and Vandenberg Air Force Base in this Region. The Federal Facility Agreements for Fort Ord identifies the Regional Board as a support agency since the U.S. EPA is the lead regulatory agency. The current Federal Facility Site Remediation Agreement identifies the Regional Board as the lead agency at Vandenberg Air Force Base. Agreements could be negotiated at other military installations, or re-negotiated when they currently exist, if and when it becomes necessary to clarify roles and responsibilities. Changes are being considered in California to streamline regulatory processes associated with military installation cleanup, particularly at closing bases. The California Environmental Protection Agency has recently designated (September 1993) Department of Toxic Substances Control as the overall State lead at military installations. This designation will impact program activities, roles, and responsibilities.

VI.H. Spills, Leaks, Investigations and Cleanup Program

The Spills, Leaks, Investigations, and Cleanup program was established to allow Regional Boards to address water quality problems and potential problems resulting from discharges not covered by other State programs. Investigations and cleanups of Spills, Leaks, Investigations, and Cleanup program sites proceed as described in State Board Resolution No. 92-49 explained in the "Hazardous Waste Compliance Issues" section later in this chapter.

Spill, Leak, and Complaint Responses

Regional Board staff responds to complaints of nuisance conditions (e.g., odors from sewage treatment plants) and discharges or threatened discharges of substances which may impact ground and/or surface water quality. Complaints are followed up as soon as feasible. Proper response to a complaint includes the following:

- Completion of a Central Coast Region spill report form.
- Notification to other responsible agencies, or interested parties, as needed.
- Site inspection to determine validity of the complaint and to assess the situation, including determination of responsible party/parties.
- Written follow-up as needed (letters, cleanup or abatement orders, and/or waste discharge requirements)
- Except in cases where anonymity is requested, notification to complainant of findings and subsequent actions, if any.

Except for a discharge in compliance with waste discharge requirements, any person who causes or permits any reportable quantity of hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is or probably will be discharged into or on any waters of the State, shall, as soon as possible, notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan. The person shall also immediately notify the State Board or the appropriate Regional Board of the discharge (California Porter-Cologne Water Quality Control Act Section 13271).

Similarly any person who discharges any oil or petroleum product under the above stated conditions shall, as soon as possible, notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan. Immediate notification of an appropriate agency of the federal government, or of the appropriate Regional Board (in accordance with the reporting requirements set under California Porter- Cologne Water Quality Control Act Section 13267 or 13383) shall satisfy the oil spill notification requirements of this paragraph (California Porter-Cologne Water Quality Control Act Section 13272).

The Regional Board staff will assist other agencies and work cooperatively at large-scale hazardous material releases resulting from surface transportation accidents. The Regional Board staff's role is primarily to provide immediate, on-site technical assistance concerning water quality in order to minimize the potential damage to the public health and safety, and the environment. In cases of railroad incidents, Regional Board staff will work with other agencies pursuant to the Office of Emergency Services Railroad Accident Prevention and Immediate Deployment Plan. Specifically, Regional Board staff are required to:

- Provide information on existing downstream beneficial uses and potential impacts from released substances.
- Provide toxicity information about released substances.

Figure 4-1. Active Military Installations in the Central Coast Region

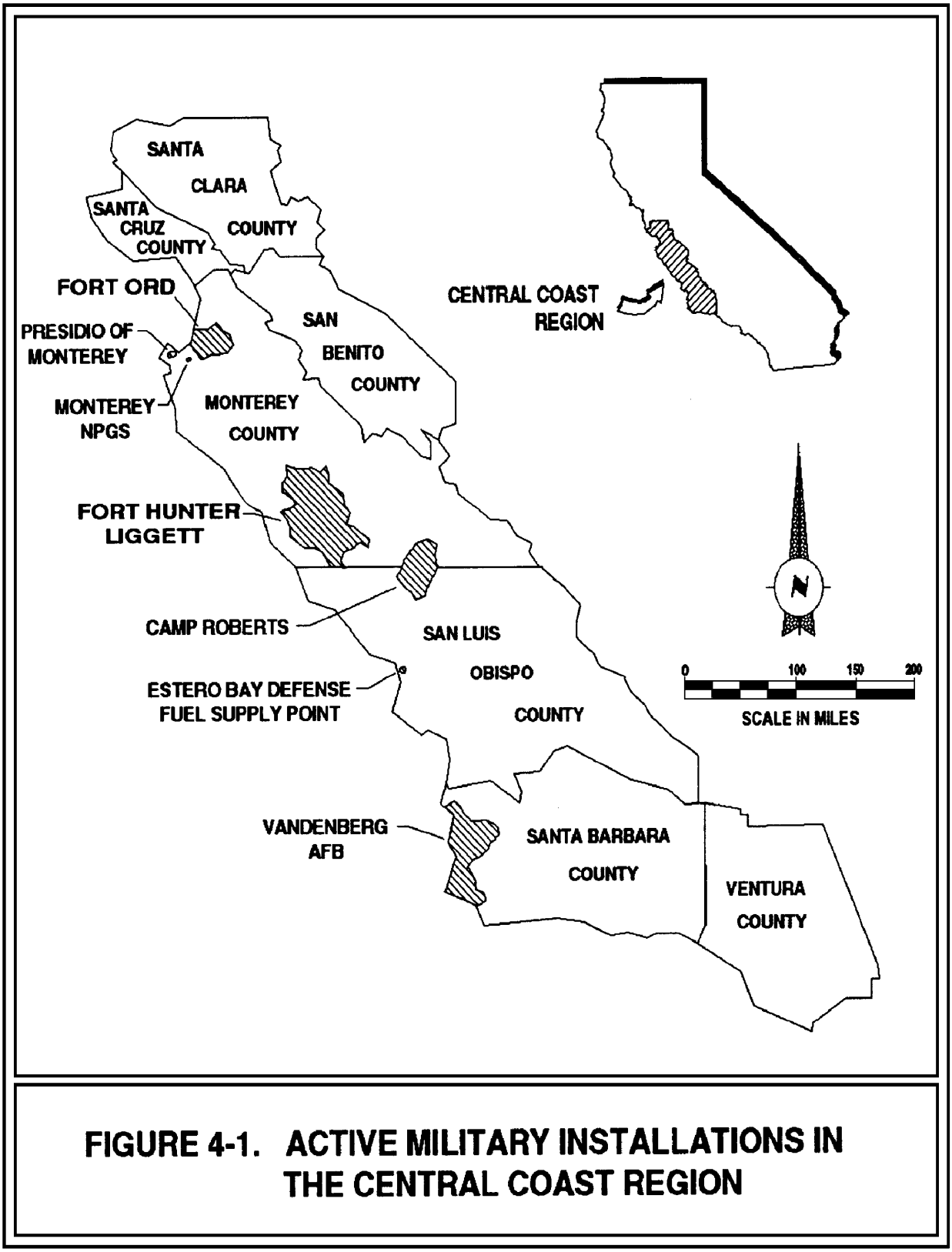

FIGURE 4-1. ACTIVE MILITARY INSTALLATIONS IN THE CENTRAL COAST REGION

- Set up water sediment monitoring program.
- Collect water samples or provide technical assistance for others to collect samples.
- Coordinate available resources and equipment.

VI.I. Underground Storage Tank Program

In 1981, citizens of Santa Clara County determined the cause of numerous birth defects to be polluted ground water. The source of pollution was traced to underground storage tanks leaking chlorinated solvents. This revelation prompted the San Francisco Bay Regional Water Quality Control Board to investigate numerous other underground storage tanks, the majority of which were found to be leaking. The Santa Clara County Fire Chiefs Association then sponsored a task force which developed, in 1982, a Model Hazardous Material Storage Permit Ordinance. The Ordinance addressed materials regulated, secondary containment, permits, inspections, and so forth.

Recognizing the problem was a statewide problem, the Legislature passed the initial State underground storage tank law in 1983, and numerous counties and cities followed with local ordinances to regulate underground storage of hazardous materials. The State law contains a sunset provision with a termination date of January 1, 1998.

Since 1985, over 21,000 leaking tank sites have been reported statewide and over 1250 have been reported within the Central Coast Region. Of the reported cases, approximately 90% are petroleum product cases and one-third have impacted ground water. As one might expect, Regions with the larger cities (thus more gasoline stations) have the largest number of reported leaks. The same holds true in the Central Coast Region. Santa Barbara County has almost fifty percent of the cases in this Region (up from 37% a few years ago) and San Benito County has only four percent; Monterey County has about twenty percent.

The Health and Safety Code gives both Regional Boards and local agencies authority to oversee investigation and cleanup of leaky Underground Petroleum Storage Tank sites. The California Code of Regulations, Title 23, Chapter 16, Article 11 requires local agencies to oversee leak reporting and tank closures. Two agencies within the Central Coast Region, Santa Clara and Santa Barbara Counties, also provide oversight for cleanup of leaky Tank sites under a Local Oversight Program contract with the State Board.

Unauthorized releases from underground tanks are reported to the Regional Board by local agencies or private parties. Generally, investigation and cleanup of leaky Underground Petroleum Storage Tank sites is shared between the Regional Board and local agencies. Typically the Regional Board oversees cases involving impact to surface and ground water and local agencies oversee impacts to soil. However, in some circumstances the Regional Board oversees both soil and ground water cleanup, and, in Santa Barbara and Santa Clara Counties, Local Oversight Programs oversee both soil and ground water cleanup.

Investigations and cleanup of leaky Tanks are carried out in a manner similar to investigations and cleanups in the Spills, Leaks, Investigations, and Cleanup Program mentioned earlier.

To assist responsible parties to pay for cleanups and to meet federal financial responsibility requirements, the State has established a Tank Cleanup Fund. Money for the fund is generated by a fee paid for each gallon of petroleum delivered to Tanks. Owners and operators of Tanks may draw upon the fund after paying for the initial $10,000 in cleanup costs. The Fund will pay up to $990,000 per cleanup.

Underground Petroleum Storage Tank regulations regarding construction, monitoring, repair, release reporting, and corrective action are found in the California Code of Regulations, Title 23, Division 3, Chapter 16. Regulations regarding the State's Underground Petroleum Storage Tank Cleanup fund are found in California Code of Regulations, Title 23, Division 3, Chapter 18, and regulations regarding underground testers are found in California Code of Regulations Title 23, Division 3, Chapter 17.

VI.J. Aboveground Petroleum Storage Tanks

Above ground petroleum storage tanks and associated piping leaks have been found to cause impacts to surface and ground water. Prior to 1990, above ground tank sites were regulated by the United States "Environmental Protection Agency Regulations on Oil Pollution Prevention", 40 Code of Federal Regulations Section 112, as amended. On January 1, 1990, the Above Ground Petroleum Storage Act became effective as Chapter 6.67 (commencing with Section 25270), Division 20, of the Health and Safety Code and amendment to Section

3106 of the Public Resources Code. The regulations require:

- Regional Boards to inspect above ground storage tanks used for crude oil and its fractions;
- Owners or operators of tank facilities to prepare and initiate a spill prevention control and countermeasure plan in accordance with Part 112, Subchapter D, Chapter I, Title 40 of the Code of Federal Regulations by January 1, 1991 and any required monitoring program within 180 days later;
- Tank facility owners or operators to report releases of crude oil and its fractions in excess of one barrel; and
- Owners or operators of tank facilities to submit a storage statement and appropriate filing fee every two years.

The Above Ground Petroleum Storage Act provides for recovery of cost incurred by Regional Board staff for oversight of above ground tank site cleanups.

VI.K. California Code of Regulations, Title 23, Chapter 15

The California Code of Regulations, Title 23, Chapter 15 (Chapter 15) contains minimum, prescriptive standards for proper management of applicable wastes. Landfills, surface impoundments, septage and sludge disposal, mining operations, confined animal facilities, and some oil field exploration and production facilities are regulated according to Chapter 15. Regional Boards may impose more stringent requirements to accommodate regional and/or site-specific conditions. Factors affecting site specific considerations include: depth to ground water, permeability of underlying soils, geologic structure, importance of underlying ground water uses, waste characteristics, ability to remediate leaks, adequacy of the monitoring system, proximity of beneficial uses such as aquatic life, and others.

Dischargers may propose engineering alternatives to the construction or prescriptive standards contained in Chapter 15 if they can show the prescriptive standard is not feasible (i.e., too difficult or costly to implement, or not likely to perform adequately under the given circumstances). The proposed alternative must be able to provide equivalent management of the waste, and must not be less stringent than the prescribed standards.

Discharges to land which may be exempt from Chapter 15 are listed in the Basin Plan Waiver Policy in Chapter Five.

Wastes fall into four categories under the current classification system. These four categories are: Hazardous, Designated, Non-Hazardous, and Inert, and are defined in Article 2 of Chapter 15. Hazardous and Designated wastes can often be generated by the same source and may differ only by their concentrations of given constituents.

Wastes must be disposed of differently depending on their liquids content and the waste category into which they fall. A table containing the Summary of Waste Management Strategies for Discharge of Waste to Land is provided in the appendix.

Receiving water monitoring is required at all waste management units. Article 5 discusses the monitoring requirements for the various classes of waste management units, and describes the progressive phases of monitoring.

The routine ground water monitoring conducted during the entire compliance period of a project's life is referred to as "detection monitoring". If a release (leak) is detected during the course of detection monitoring, an "evaluation monitoring" program must be established. If the evaluation monitoring verifies the presence of a leak, a decision must be made as to whether the release represents a significant enough threat to water quality and the environment to warrant corrective action. If the leak is a significant water quality threat, a "corrective action program" must be established, including monitoring of the effectiveness of corrective action, and conducted until the problem has been successfully corrected.

Vadose zone monitoring must be conducted at all waste management units where feasible. Article 5 discusses the minimum requirements for an acceptable vadose zone monitoring program.

Special requirements for confined animal facilities are discussed in Article 6 of Chapter 15 and in Chapter 5 of this Basin Plan. These facilities are also subject to other portions of Chapter 15 as applicable.

Under Chapter 15, mining waste discharges are only subject to the requirements of Article 7, or other portions of Chapter 15 as referenced by Article 7. (Mining wastes are also subject to regulation under the Surface Mining and Reclamation Act, Public Resources Code Title 14, Division 2, Chapter 9).

Discharges of hazardous and nonhazardous waste, and the waste management units at which the wastes

are discharged (e.g., landfills, surface impoundments), are regulated by the Regional Board through Waste Discharge Requirements to properly contain the wastes, and to ensure effective monitoring is undertaken to protect water resources of the Region. These waste discharges are also concurrently regulated by other State and local agencies. Local agencies implement the State's solid waste management programs as well as local ordinances governing the siting, design, and operation of solid waste disposal facilities (usually landfills) with the concurrence of the California Integrated Waste Management Board.

The California Integrated Waste Management Board also has direct responsibility for review and approval of plans for closure and post-closure maintenance of solid waste landfills. The Department of Toxic Substance Control issues permits for all hazardous waste management, treatment, storage, and disposal facilities. The State Board, Regional Boards, California Integrated Waste Management Board, and Department of Toxic Substances Control have entered into Memorandums of Understanding to coordinate their respective roles in the concurrent regulation of these discharges.

The laws and regulations governing both hazardous and nonhazardous solid waste disposal have been revised and strengthened in recent years.

An inactive waste management unit can still pose a threat to water quality. In fact, due to the nature of some wastes and the characteristics of some disposal sites, sometimes water quality problems do not become evident until years after a site has closed. Therefore, Chapter 15 requires all waste management units have a plan for acceptable closure procedures and post-closure maintenance and monitoring.

VI.K.1. Solid and Liquid Waste Requirements (Landfills and Surface Impoundments)

Solid wastes are usually disposed of in a landfill or Solid Waste Disposal Site. A landfill, as defined in Chapter 15, is a waste management unit at which waste is discharged in or on land for disposal. A landfill may be classified as Class I, II, or III, depending on the type of waste being accepted, but the term "landfill" typically refers to a Class III municipal solid waste landfill which accepts only inert or non-hazardous, municipal solid waste. Class I units are for hazardous wastes, Class II units are for designated wastes, and Class III landfills are for nonhazardous wastes as defined in Chapter 15, Article 3. Landfills are an integral component of many communities in the Central Coast Region. Hazardous and/or designated solid wastes must be disposed of in Class I or II landfills or waste piles, respectively, also referred to as Resource Conservation and Recovery Act or non-Resource Conservation and Recovery Act solid waste management units.

Liquid wastes may not be disposed of to Class III waste management units. Rather, liquid wastes must be discharged to Class I or II surface impoundments, depending on the waste classification.

Discharges from solid and liquid waste management units can impact both ground and surface waters. The receiving water most likely to be at risk from a waste management unit is the ground water beneath the site. Precipitation or runoff may enter the unit and contact the waste, percolate through it, and travel to ground water, carrying constituents of the waste with it to the vadose zone or ground water beneath the unit. Solid waste may contain enough free liquids to form a leachate which can migrate to ground water. Vapors may migrate from a waste management unit into the soils and ground water below the unit. Gases forming in a closed waste management unit may pressurize the unit and force contaminants into the ground water. A liquid waste impoundment may leak its content into the soils and ground water beneath the unit. Liquids may exit a waste management unit and travel to nearby surface waters. Uncontained solid waste may also be transported to surface waters by wind.

The Regional Board regulates all the active waste management units and some of the closed units in the Region under Waste Discharge Requirements which contain pertinent Chapter 15 regulations. Some of the applicable requirements include:

1. Waste management units must be sited in locations where they will not extend over a known Holocene fault, other areas of rapid geologic change or into areas with inadequate separation from ground water.

2. Waste management units must be constructed to minimize (Class III) or prevent (Class I and II) the possibility of leachate contacting ground water. The probability of accomplishing this goal may be improved by siting the unit in an area where the depth to ground water is very great or where natural geologic features will provide containment. A Class III waste management unit is required to have a composite clay and synthetic liner with a leachate collection and removal system, in accordance with federal Subtitle D requirements. New Class I and II units

must also be lined. A discharger may propose engineered alternatives to the Chapter 15 and Subtitle D containment requirements, but the alternatives must provide equal or greater protection to the receiving waters at the site, per Article One.

3. To minimize or prevent the formation of leachate, solid waste management units shall be covered periodically (typically daily) with soil or other approved materials. The importance of effective interim cover is illustrated by recent improvements to some landfill interim covers which resulted in an apparent cessation of ground water degradation. Rainwater surface flow from offsite should be prevented from entering a waste management unit and contacting the wastes in the unit.

4. The potential receiving waters shall be monitored. A waste management unit shall have sufficient ground water monitoring wells at appropriate locations and depths to yield ground water samples from the uppermost water bearing strata with continued saturation at depth, to provide the best assurance of the earliest possible detection of a release from the waste management unit. Perched ground water zones shall also be monitored. Background monitoring should be conducted for at least one year prior to opening a new waste management unit.

   Chapter 15 requires vadose zone monitoring at all new sites and at any existing site, unless it can be shown to the satisfaction of the Regional Board no vadose zone monitoring devices would work at the site, or that installation of vadose zone monitoring devices would require unreasonable dismantling or relocating of permanent structures.

5. All operating waste management units must have an approved closure/post-closure monitoring and maintenance plan and their operators must provide the Regional Board with assurance sufficient funds are irrevocably committed to ensure the site will be properly reclaimed and maintained.

6. The operator of a waste management unit must obtain and maintain assurances of financial responsibility for known and foreseeable releases from the unit.

VI.K.2. Wastewater Sludge/Septage Management

Wastewater sludge (biosolids) is a by-product of wastewater treatment. Treated domestic sludge is now referred to as biosolids to encourage using this material for fertilizer and soil amendment. Raw sludge usually contains 93 to 99.5 percent water with the balance being solids present in the wastewater and added to or cultured by wastewater treatment processes. Most Publically Owned Treatment Works treat the sludge prior to ultimate use or disposal. Normally, this treatment consists of dewatering and/or digestion.

Treated and untreated sludges may contain high concentrations of heavy metals, organic pollutants, pathogens, and nitrates. Improper storage and disposal of municipal sludges on land can result in degradation of ground and surface water. Therefore, sludge handling and disposal must be regulated.

Septage and grease are usually considered liquid waste, so landfill disposal is usually restricted. Septage, the residual solids periodically pumped from septic tanks, is commonly applied to farm land as fertilizer. Grease waste is usually recycled, but grease trap pumpings are commonly rejected by grease recyclers. Grease and septage usually must be disposed in a Class I or II waste management unit.

The Regional Board will regulate disposal of sludge and septage pursuant to Chapter 15 and Department of Health Services standards for sludge management.

Sludge containing less than 50% solids by weight may be placed in a Class III landfill (see section on Chapter 15) if it can meet the following requirements, otherwise it must be placed in a Class II surface impoundment:

1. The landfill is equipped with a leachate collection and removal system;

2. The sludge must contain at least 20 percent solids if primary sludge, or at least 15 percent solids if secondary sludge, mixtures of primary and secondary sludges, or water treatment sludge; and

3. A minimum solids-to-liquid ratio of 5:1 by weight must be maintained to ensure that the co-disposal will not exceed the initial moisture-holding capacity of the nonhazardous solid waste. The Regional Board may require that a

more stringent solids-to-liquid ratio be maintained, based on site-specific conditions.

4. Non-hazardous sludge containing greater than 50% solids by weight is generally considered solid waste.

Beneficial reuse of sludge/septage is increasing in popularity. Sludges and septage, (including composted, liquid, dewatered and dried sludges) have been successfully used as a soil amendment/fertilizer on farmland, orchards, forest lands, pasture, land reclamation projects (e.g., strip mines and landfills), parks and home gardens. As the concentrations of heavy metals has dropped in municipal sludge, and as advanced sludge treatment methods are utilized, the public's acceptance of beneficial reuse projects has improved. However, improper land application of sludge/septage can cause significant odor nuisance, attract flies, contain high levels of pathogens and heavy metals, and be aesthetically offensive due to the presence of plastics.

Currently, regulation of sludge and septage management projects is under the jurisdiction of the Regional Board. Handling and disposal of sludge/septage can be regulated under Chapter 15 of Title 23, California Code of Regulations and California Department of Toxic Substance Control Standards for hazardous waste management. If sludge is used beneficially, the project may be exempted from Chapter 15, but the Regional Board may issue waste discharge requirements.

The U.S. Environmental Protection Agency (U.S. EPA) has promulgated a policy of promoting those municipal sludge management practices that provide for the beneficial use of sludge and septage while maintaining or improving environmental quality and protecting public health. On February 19, 1993, the U.S. EPA published final sewage sludge regulations in 40 Code of Federal Regulations 503. The 503 regulations are intended to assure that use and disposal of sewage sludges and septage comply with federal sludge use and disposal criteria developed by the U.S. EPA. The State Board or the California Integrated Waste Management Board may develop a State sludge management program consistent with the U.S. EPA's policy and criteria for land application, surface disposal, and incineration of sludge to seek federal authorization to implement the 40 Code of Federal Regulations 503 sludge regulations.

VI.K.3. Mining Activities (Nonfuel Commodities)

The Central Coast has had a rich and varied mining history. Currently extracted products include asbestos, decomposed granite, diatomite, dimension stone, dolomite, gypsum, limestone, sand and gravel, shale, specialty sand and stone. The hundreds of inactive metal mines and prospects appear to be the worst polluters though. Mercury, used partly to amalgamate gold ore, was mined from the Little Bonanza deposit, San Luis Obispo County, as early as 1862. The Buena Vista Mine, which ceased production in 1970 or 1971, is believed to have been the last mercury producer in the Central Coast Region. Chromite deposits have been mined in San Luis Obispo County since about 1870. By 1944, and probably until the demise of production possibly 20 years ago, San Luis Obispo County produced more chromite than any other California county. Other products mined or prospected for historically include gold, silver, manganese, magnesium, antimony, copper, nickel, iron, barite, coal, feldspar, gemstones, biotite, molybdenum, peat, phosphate, sodium sulfate, sulfur, titanium, uranium, zircon, and possibly platinum.

The extent of environmental degradation by all mining ventures is not yet known. Active operations are regulated individually pursuant to the California Code of Regulations, Chapter 15, the Porter-Cologne Water Quality Control Act, the California Surface Mining and Reclamation Act and/or the federal Clean Water Act (including the NPDES permit program). About 25 active mines currently hold Waste Discharge Requirements and/or NPDES surface water discharge permits and a few operations have been granted waivers. Chapter 15 land disposal requirements are imposed as required.

Inactive operations with responsible parties fall under the same purview, as warranted. Inactive mines, with or without responsible parties (those without are considered abandoned) may be remediated as federal Superfund sites pursuant to federal Comprehensive, Environmental Response, Compensation, and Liability Act, or as State Board Cleanup and Abatement Account sites. Low interest loans or government or academic grants may, in rare cases, be applied to inactive mine remediation.

Mines are subject to the Resource Conservation and Recovery Act, although comprehensive regulations have not yet been written. If hazardous constituents are present, Resource Conservation and Recovery Act, Subtitle C, and California Code of Regulations Title 22 may apply to active and inactive sites.

VI.K.4. Other Industrial Activities

Cement Industry -- Concrete manufacturing operations generate two significant types of solid waste, kiln dust and "off-specification" concrete. The first, kiln dust, is classified as a designated waste under Title 22 and is typically disposed of in Class II or III landfills operated by the concrete manufacturers. The second waste, "off-spec" concrete, is generated in much greater quantities and, while classified as a hazardous waste due to its very high pH (often ranging from 12.5 to 13.5 pH units), is frequently dumped on-site at the concrete plants and spread.

Cement batch plants generate large quantities of liquid and semi-solid wastes from rinsing of cement trucks and/or cement covered equipment. This waste, referred to as "washout" is very alkaline (pH may be as high as 12.5 in fresh cement), is high in total dissolved solids, and may contain assorted heavy metals. Washout may also contain various air-entrainment additives or other chemicals.

The Regional Board regulates cement kiln dust disposal and all ready mix cement plants where water quality could be impacted. Wastewater from cement batch plants is considered to be a designated waste, and may need to be discharged to a lined impoundment, if site-specific characteristics (e.g., soil type, depth to ground water, ground water quality, etc.) will not protect ground water from degradation. The Regional Board will consider, on a case-by-case basis, the need to line cement wastewater ponds. Solid or semi-solid wastes should be deposited in landfills or other legal points of disposal unless the discharger can demonstrate the waste will not pose a threat to water quality if deposited onsite.

Asphalt production -- Asphalt batch plants generally involve mixing heavy long chain hydrocarbons with aggregates. Occasionally other hydrocarbon sources (diesel and gasoline contaminated soil) are mixed with asphalt as a beneficial reuse. Diesel fuel and other solvents are used to clean equipment and as "lubricants" to prevent asphalt from sticking to equipment. Large quantities of these materials are generally stored on-site. Water quality can be significantly degraded if these materials reach water courses. Waste control measures are fairly straightforward at such sites. Petroleum products should be stored in tanks, and the tanks placed in lined holding areas. If spillage to soil occurs, contaminated soils should be scraped up, stored on a liner, and incorporated into asphalt as soon as possible. A berm (or other runoff control) should be placed down gradient from earthen material stockpiles.

Oil Field Exploration and Production Facilities -- Oil exploration and production is a thriving business in the Central Coast Region. Although drilling muds are exempt from Resource Conservation and Recovery Act, Oil Exploration and Production Operations are often subject to the requirements of Chapter 15 because they represent a threat to water quality. Due to the significant Chapter 15 workload, remote oil operations may not reach the top of the regulatory priority list. The Interstate Oil and Gas Compact Commission recently recommended:

"The review team recommends State Board obtain the resources necessary to fully discharge its responsibilities...seek adequate resources from the legislature or use some other mechanism to enable Regional Boards to process applications for WDRs in a timely manner...One option is to remove or raise the statutory cap on discharger fees so that State Board may restructure its fee system to improve its equity and cure substantial resource shortcomings."

The Interstate Oil and Gas Compact Commission also commended the Central Coast Regional Board for having a road spreading policy. This policy, Resolutions No. 73-05 and 89-04, is located in the appendix.

VI.L. Resource Conservation Recovery Act (Subtitle D)

Policy for Regulation of Discharges of Municipal Solid Waste

On June 17, 1993, the State Water Resources Control Board (State Board) adopted Resolution 93-62, entitled Policy For Regulations Of Discharges Of Municipal Solid Waste. A copy of this policy is available in the appendix.

The Policy implements the State Board's regulations governing the discharge of waste to land, California Code of Regulations, Title 23, Chapter 15 (23 California Code of Regulations Section 2510 et seq., "Chapter 15"), and implements those water quality related portions of the federal regulations governing the discharge of municipal solid waste at landfills (40 Code of Federal Regulations Section 258.1 et seq., "federal municipal solid waste regulations") that are not addressed by Chapter 15. The federal municipal solid waste regulations apply to all landfills that receive waste on or after October 9, 1991; the

majority of the federal provisions become effective on October 9, 1993 (federal deadline).

The Policy directs Regional Boards to revise-or adopt, as appropriate-prior to the Federal Deadline, the waste discharge requirements (WDRs) for each landfill subject to the federal municipal solid waste regulations. The revised WDRs must implement those regulations in the manner described in the Policy and must implement the Chapter 15 regulations as well.

Landfills are subject to Subtitle D in California beginning October 9, 1993 or October 9, 1995 depending on landfill size and whether it is within one mile of a drinking water intake.

These federal regulations apply to municipal solid waste landfills (Class III landfills, under Chapter 15). The Subtitle D regulations outline the classification of municipal landfills, siting criteria, design criteria, operation procedures, water quality monitoring parameters and standards, closure and post-closure care requirements, and financial assurance guidelines similar to Chapter 15. U.S. EPA considers Subtitle D to be minimum standards for landfill operation. States may have equal or more stringent requirements, but may not have less stringent requirements. If a state's landfill regulation program meets U.S. EPA's approval, that state may apply to become an U.S. EPA "approved state" for landfill regulation.

California received Subtitle D approval in October 1993 and will be able to consider engineering alternatives to certain provisions of Subtitle D.

VI.M. Solid Waste Water Quality Assessment Test

In 1984, California Porter-Cologne Water Quality Control Act Section 13273 was adopted to require operators (and/or owners) of active and inactive solid waste disposal sites to perform a Solid Waste Assessment Test investigation. About 150 sites per year are to be analyzed statewide. The State Board has approved a statewide ranked list including 2,242 sites in 15 ranks. It has prioritized all sites on the basis of the potential threat to water quality and has established schedules for Investigation Workplan (Workplan) and Solid Waste Assessment Test report's submittals. The Central Coast Region's 15 ranks include 131 sites. Test reports are due the first day of July each year, depending on their ranking. Rank One sites were due July 1, 1987.

If monitoring information conclusively demonstrates hazardous waste is migrating, or has migrated to State waters, the site owner/operator may request a waiver of the Test reporting requirements pursuant to Water Code Section 13273(c). Waiver requests are usually requested within 120 days of the notification date. Water Code Section 13273.1 allows the site operator to request an exemption from Test reporting requirements by submitting a Solid Waste Assessment Questionnaire. Questionnaires may be submitted if a site contains less than 50,000 cubic yards of waste and is not known nor suspected of containing hazardous substances, other than household hazardous wastes. Based on this Questionnaire, the Regional Board may exempt the Operator from all or part of the Solid Waste Assessment reporting requirements.

Solid Waste Assessment Test reports are required to contain:

1. An analysis of the surface and ground water on, under, and within one mile of the solid waste disposal site to provide a reliable indication whether there is any leakage of hazardous waste.

2. A chemical characterization of the soil-pore liquid in those areas which are likely to be affected if the solid waste disposal site is leaking, as compared to geologically similar areas near the solid waste disposal site which have been affected by leakage or waste discharge (Porter-Cologne §13273[b]).

3. A finding whether hazardous waste is leaching into surface or ground water on, under, and within one mile of the disposal site.

If hazardous waste has migrated, the Regional Board must notify the Department of Health Services and the Integrated Waste Management Board, and take appropriate remedial action (Porter-Cologne §13273[e]).

More than eighty percent of Test sites (mostly unlined) evaluated in all climates and geologic terrain in California have been found to impact ground water quality as part of the Solid Waste Assessment Test program.

From the beginning, the Test program was supported by the California General Fund. In recent years, agencies with programs with such funding have been under increasing pressure to find alternative funding or face elimination. These pressures resulted in the Test Program being understaffed and, in the summer of 1991, eliminated. At that time, almost 200 Test Reports had been accepted and reviewed by the

Regional Water Boards. However, a backlog of nearly 300 additional Test Reports had been submitted and had not been reviewed. The Central Coast Region had reviewed and accepted 29 reports, however 14 were backlogged.

In 1992, the Legislature adopted Assembly Bill 3348 (Eastin) which allocated $2,500,000 from the Integrated Waste Management Board's "Solid Waste Disposal Site Cleanup and Maintenance Account" to the State and Regional Boards to fund the review of the above backlog. This law restricted these funds to the review of Solid Waste Assessment Reports from Ranks One through Five only and required the work be in accordance with a Memorandum of Understanding between the Regional Boards and the California Integrated Waste Management Board. This Memorandum of Understanding was signed by the Executive Directors of the two agencies in January 1993.

VII. Hazardous Waste Compliance Issues

The Regional Board obtains information regarding hazardous waste discharge through two reporting programs. These programs are "Reportable Qualities of Hazardous Waste and Sewage Discharges" and the "Proposition 65" program. These mechanisms are discussed below:

VII.A. Reportable Quantities of Hazardous Waste and Sewage Discharges

California Porter-Cologne Water Quality Control Act Section 13271 requires the State Board and the Department of Health Services to adopt regulations establishing reportable quantities for substances listed as hazardous wastes or hazardous materials pursuant to Section 25140 of the Health and Safety Code. Reportable quantities are those which should be reported because they may pose a risk to public health or the environment if discharged to ground or surface water.

Similarly, the State Board was required to adopt regulations establishing reportable quantities for sewage. These requirements for reporting the discharge of sewage and hazardous materials do not supersede waste discharge requirements or water quality objectives.

The regulations for reportable quantities adopted by the State Board are included in Subchapter 9.2 of the California Code of Regulations.

VII.B. Proposition 65

The Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) went into effect January 1, 1987. Proposition 65 is found in the Health and Safety Code, Section 25249.5, et seq. It prohibits discharges of chemicals known to the State to cause cancer or reproductive toxicity to a potential source of drinking water, with certain exceptions. The Governor is required to publish a list of such chemicals. The list must be updated yearly. The current list is found in 22 California Code of Regulations, Section 12000.

Section 25180 of the Health and Safety Code requires designated governmental employees to disclose information to the local Board of Supervisors and local health officer regarding an illegal discharge of hazardous waste if the discharge is likely to cause substantial injury to the public. A designated employee is one who is required to sign a conflict of interest statement. Any designated employee who knowingly or intentionally fails to report information, as required by Proposition 65, is subject to fines and imprisonment (Section 25180.7). The following information should be reported:

- Discharge type
- How discharge was discovered
- Location of discharge
- Probable discharger
- Possible contacts
- Concentration of contaminant in soil and/or water.

VIII. Nonpoint Source Measures

The State Nonpoint Source Management Plan initiated development of specific program objectives to be implemented at the State and Regional level. Currently, Regional Board staff are implementing the following State Board program objectives:

A. Control of Nonpoint Source pollution (urban runoff; agriculture; land disturbance activities such as road construction/maintenance, land construction, timber harvesting, and mining; hydrologic modification; and individual disposal systems). These activities include outreach, education, public participation, technical assistance, financial assistance, interagency coordination, demonstration projects, and regulatory activities such as imposing septic tank area prohibitions.

B. Preparation of contracts for projects selected for grant funding. Regional Board staff also participate in these projects by providing technical assistance and publicizing their results.

C. Implementation of the 1990 Coastal Zone Act Reauthorization Amendments, as developed by the State Board and the California Coastal Commission. This shall be an enforceable Nonpoint Source Management Program to control land use and anthropomorphic activities impacts that have a significant affect on coastal waters. (Further discussion of the Amendments is provided later.)

D. Initiation of nonpoint source watershed pilot programs.

Using State program objectives, Regional Board staff developed task-specific workplans to address nonpoint sources of pollution. For the Central Coastal Region, the following tasks are managed and implemented by the Nonpoint Source Program staff:

Task 1: Water Quality Assessment

Regional Board staff reviewed and updated the nonpoint source portion of the Water Quality Assessment and prepared water body fact sheets. (The Water Quality Assessment and water body fact sheets are discussed in Chapter Six.)

Task 2: Watershed Studies/Planning

Three impaired watersheds (Morro Bay Watershed, San Luis Obispo Creek Watershed, and San Lorenzo River Watershed) have been targeted for intensive activity. Major activities for San Luis Obispo Creek watershed include:

1. Develop a Demonstration "Total Maximum Daily Load" model.

2. Create a "San Luis Obispo Creek Riparian Task Force".

3. Implement a riparian corridor restoration project.

4. Identify major nonpoint pollutants and sources.

5. Develop a watershed management program.

For Morro Bay watershed, the activities include:

1. Develop a long term monitoring program to assess water quality improvements associated with the implementation of nonpoint source pollution control measures.

2. Develop funding for the long term monitoring program.

3. Implement a sediment reduction program using best management practices.

4. Participate in the Morro Bay Task Force.

For San Lorenzo River watershed, the activities include:

1. Develop a detailed assessment of Nonpoint Source impacts in the watershed.

2. Develop a wastewater management plan for on/off-site wastewater disposal.

3. Develop of a nutrient objective for the river.

4. Conduct experimental on-site wastewater treatment to reduce nitrogen discharge into the environment.

Task 3: Outreach Program

Staff meets regularly with individuals and local government agencies to promote education and solutions on Nonpoint Source problems. Additionally, the use of grant and loan resources to correct Nonpoint Source problems is emphasized during outreach activities.

Specific outreach activities include participation on the San Luis Obispo Creek Riparian Task Force, Morro Bay Task Force, and various 319(h)/205(j)/Basin Planning Technical Advisory Committees, and development of grant applications with local agencies.

Task 4: Project Tracking and Participation

Regional Board staff prepare contracts, coordinate with project proponents, track project progress, review and approve invoices, and provide technical support for Nonpoint Source grant funded projects.

VIII.A. Coastal Zone Act Reauthorization Amendments

In November 1990, Congress enacted Section 6217 of the Coastal Zone Act Reauthorization Amendments to help address the problem of nonpoint source pollution in coastal waters. Section 6217 requires that coastal states with federally approved coastal management programs develop Coastal Nonpoint Pollution Control Programs. The legislative history indicates that the central purpose of section 6217 is to strengthen the links between federal and State coastal zone management and water quality programs in order to enhance efforts to manage land use activities that degrade coastal beneficial uses. The State coastal zone management agency designated under Section 306 of the Amendments and nonpoint source management agency designated under section 319 of the Clean Water Act will have a dual and co-equal role and responsibility in developing and implementing the coastal nonpoint program.

The program gives the U.S. Environmental Protection Agency (U.S. EPA) and the National Oceanic and Atmospheric Administration joint authority to approve programs developed by the State to address 6217 requirements.

The State agencies chosen to develop California's Coastal Nonpoint Pollution Control Program are the State Board and the Coastal Commission. The statute requires that the State program be "coordinated closely with State and local water quality plans and programs." This means that the State's nonpoint source programs under Sections 208 and 319 of the Clean Water Act and the coastal program must be examined to determine if they comprehensively address land use activities and anthropomorphic effects that have a significant effect on coastal waters. In addition, the State agencies are charged with developing a coordinated program that:

- identifies categories of nonpoint sources that adversely impact coastal waters;
- describes management measures to be implemented;
- identifies the land uses and critical coastal areas that will require more stringent or additional management measures;
- describes the State-developed additional management measures to be implemented in critical areas;
- documents the authorities the State will use to implement both the guidance and additional management measures, including designation of a lead agency for each source category and/or subcategory; and
- sets forth a schedule to achieve full implementation of the guidance management measures within three years of program approval by U.S. EPA and National Oceanic and Atmospheric Administration, and full implementation of additional management measures within six years of program approval.

The Coastal Commission and the State Board staff have been working on a strategy to develop the required Coastal Nonpoint Pollution Control Program plan. Recently, the State Board directed staff to review and revise the statewide Nonpoint Source Management Plan to include a strong coastal component. Revision of the Plan is intended to satisfy the requirements of Section 6217 within the existing framework of current nonpoint source activities.

On a Regional Board level, staff has been involved with the statewide program since 1991. A pilot project, "The New Coastal Nonpoint Pollution Control Program using the Morro Bay Watershed as a Model" was performed to assess the feasibility of establishing the Coastal Nonpoint Pollution Control Program in California. Regional Board staff supplied technical information and reviewed reports. Concerted planning and implementation efforts on target coastal watersheds such as Morro Bay will be major accomplishments to satisfy Coastal Nonpoint Pollution Control Program requirements. As the program goes statewide, Regional Board staff will attend technical advisory committee meetings and will work closely with staff of the State Board and other Regional Boards, as well as staff of other relevant local, State, and federal agencies to develop a workable Coastal Nonpoint Pollution Control Program.

Wastewater originating from nonpoint sources includes those from urban runoff, agricultural activities, on-site sewage disposal systems, and land disturbance activities. Management of these types of nonpoint source discharges are discussed in the following section. The Regional Board will be developing management practices for marinas and recreational boating; hydromodification facilities; and wetlands, riparian areas, and vegetated treatment systems at a future date.

VIII.B. Urban Runoff Management

The effect of urban runoff on receiving water quality is a problem which has only recently come to be recognized. Most of the work up to the present has centered on characterizing urban runoff: concentrations of various constituents have been measured, attempts to relate these to such factors as land use type and rainfall intensity have been made, and studies concerning the amounts of these constituents present on street surfaces have been conducted. It appears that considerable quantities of contaminants, heavy metals in particular, may enter the receiving waters through urban runoff. The federal Water Pollution Control Act Amendments of 1972 stress future "control of treatment of all point and nonpoint sources of pollution." Thus the federal government has concluded that nonpoint sources, such as urban runoff, are indeed deleterious to the aquatic environment and that measures should be taken to control such emissions.

There are four basic approaches to controlling pollution from urban runoff: (1) prevent contaminants from reaching urban land surfaces, (2) improve street cleaning and cleaning of other areas where contaminants may be present, (3) treat runoff prior to discharge to receiving waters, and (4) control land use and development. Which approach or combination of approaches is most effective or economical has not yet been studied extensively. Thus only the basic characteristics of each approach can be discussed. In addition to these direct approaches, measures to reduce the volume of runoff from urban areas are also available.

VIII.B.1. Source Controls

The first approach, which emphasizes source control, has many aspects. Tough effective air pollution laws can probably aid in reducing the amount of certain materials deposited on the land. An obvious example is lead in automobile exhaust emissions. Effective anti-litter ordinances and campaigns can aid in reducing floatable materials washed to surface waters. These materials are objectionable primarily from an aesthetics viewpoint, although water fowl can be affected by plastics. New construction techniques may reduce emissions to receiving waters. Erosion can be decreased by seeding, sodding, or matting excavated areas as quickly as practicable. Construction in certain critical areas can be limited to the dry season. Stockpiling of excavated material can be regulated to minimize erosion. Control of chlorinated hydrocarbon pesticide usage would reduce the amounts found on urban land surfaces and thus reduce the amounts washed to natural waters.

VIII.B.2. Street Cleaning

The second approach to reducing pollution from urban runoff involves improving street cleaning techniques. Generally, street cleaning as presently practiced is intended to remove large pieces of litter which are aesthetically objectionable. The removal of fine material which may account for most of the important contaminants is minimal. It may be possible to design mechanical sweepers to remove a greater fraction of the fine material. Alternatively, vacuum-type street cleaners could produce better results.

In addition to streets, sidewalks and roofs contribute large amounts of runoff. Controlling contaminants present on these surfaces would be more difficult and would be up to individuals. Advertising campaigns would probably be unproductive and legislation would be unworkable except perhaps in specific, localized situations. Therefore, contaminant removal will probably be limited to street surfaces.

In many areas, streets are cleaned by flushing with water from a tank truck. If catch basins are present, this material may be trapped in them. If catch basins do not exist, the material will be simply washed to the storm sewers where subsequent rainfall will carry them to surface waters. Where catch basins are regularly cleaned out, they can be effective in removing materials during runoff. Where they are allowed to fill up with material, they add to the pollution loading during a storm by discharging septic material. In any case, catch basins usually exist in older urban areas and have a rather low efficiency in removing contaminants from storm water.

VIII.B.3. Treatment

The third approach to reducing the effects of urban runoff on receiving water quality involves collecting and treating the runoff. Physical or physical-chemical treatment would be required; the intermittent nature of storm flows precludes biological treatment. Examples of possible treatment processes are simple sedimentation, sedimentation with chemical clarification, and dissolved air flotation. In addition to cost, a principal problem with this approach is collection. Present storm sewerage systems generally drain to open creeks and rivers or directly to tidal waters. Even if treatment facilities were located at various sites in the Basin, a massive collection system would have to be built.

The economic question of "treatment vs. transport" would have to be studied with specific regard to storm water runoff. Local sewage treatment plants abandoned in favor of regional facilities could possibly be utilized in such a program. One method of cutting down the peak flow capacity required is to provide storage volume in the collection system.

Solutions to the problem of preventing water quality degradation by urban runoff are only in the earliest stages of development and consist mostly of plausible hypothesis on how to deal with the problem. Therefore, it is not possible at this time to present a definite plan with regard to this subject. It is probable that research and study which up to now has emphasized defining and characterizing the problem, will turn to developing methods of control. The federal Water Pollution Control Act Amendments of 1972 state specifically that the EPA is authorized to conduct and assist studies "which will demonstrate a new or improved method of preventing, reducing, and eliminating the discharge into any waters of pollutants from sewers which carry storm water..." Considerable progress will be made during the next few years.

Information should be collected and studied so that a workable plan can be implemented in the future.

VIII.B.4. Control of Urbanization

A fourth approach is to encourage controls on urbanization which will either reduce the volume of runoff or at least not cause runoff to increase as a result of urban growth. The usual pattern is that increased urbanization leads to higher runoff coefficients, reflecting the many impervious surfaces associated with development. Roof drains to storm sewers, paved parking lots and streets, installation of storm sewers, filling of natural recharge areas, and increased efficiency in realigned and resurfaced stream channels all are characteristics of urban growth. Development near streams and on steep slopes is deleterious to water resources; it is less disruptive to develop the lower portions of a watershed than the headwater areas, both from the standpoint of the length of channel affected and the extent of channel enlargement necessary to convey storm water. Use of porous pavements and less reliance on roof connections to storm drains and more emphasis on local recharge would reduce the peak volume of runoff from storms. Areal mass emissions of urban drainage constituents should be quantified. Urban planning should be more cognizant of land constraints to permit greater natural recharge where possible and feasible and to discourage intensive development of steep land particularly in headwater areas.

VIII.C. Agricultural Water and Wastewater Management

Agricultural wastewaters and the effect of agricultural operations are a result of land use practices; controls should ultimately be developed from land use plans. Controls are required to minimize adverse effects from agricultural practices. The following discussion is confined to recommended improvements in practices and to the scope of federal-state permit programs which will regulate certain agricultural activities. The discussion of practices is limited here to animal confinement and irrigation practices. Although Public Law 92-500 defines a confined animal operation as a point source, this plan presents it in the traditional manner of dispersed nonpoint sources. Pesticide use and limits on fertilizer applications are not specifically considered; these materials are covered by appropriate water quality objectives.

VIII.C.1. Federal-State Permits Governing Agricultural Operations

Dischargers of wastes are managed in part by the NPDES permit program. Any person proposing to discharge waste that could affect the quality of the waters of the State must file a report of waste discharge with the appropriate regional board. The Regional Board will prescribe discharge requirements. The requirements implement water quality control plans and take into consideration beneficial uses to be protected.

Public Law 92-500 directed the Environmental Protection Agency to set up a permit system for all dischargers. Agriculture is specifically considered and permits are required for:

1. Feed lots with 1,000 or more slaughter steers and heifers.

2. Dairies with 700 head or more, including milkers, pregnant heifers, and dry mature cows, but not calves.

3. Swine facilities with 2,500 or more swine weighing 55 pounds or more.

4. Sheep feedlots with 10,000 head or more.

5. Turkey lots with 55,000 birds, unless the facilities are covered and dry.

6. Laying hens and broilers, with continuous flow watering, and 100,000 or more birds.

7. Laying hens and broilers, with liquid manure handling systems, and 30,000 or more birds.

8. Irrigation return flow from 3,000 or more continuous acres of land when conveyed to navigable waters from one or more point sources.

The law also provides that the State may administer its own permit program if EPA determines such program is adequate to carry out the objective of the Law. On March 26, 1973, this authority was transferred from the EPA to the State of California for waters within the State. Thus, the Regional Board issues discharge requirements to the agricultural operations covered under the aforementioned guidelines. The State may require discharge permits from any discharger, regardless of size.

VIII.C.2. Animal Confinement Operations

Animal confinements such as feedlots and dairy corrals present a surface runoff problem during wet winter flows. Runoff water passes through hillside operations to sometimes contribute manure loads to the surface streams. Stockpiled manure may also add to the problem. Disposing of washwater and manures from dairies in such a manner that ground waters are not degraded can be a problem. Most dairies have some associated land for waste disposal. The land is devoted to crops and pasture and its assimilative capacity will depend upon the size, crop, crop yield, and the season. During intensive growth periods, crops can utilize more nutrients than in slow growth period. Small dairies with adequate crop land in close proximity may be able to use washwaters year round as a source of nutrients. Large dairies with smaller acreage will view the slurry wastes as a disposal problem, not a resource. Thus, there theoretically exists a threshold size for waste disposal. Regulations to achieve this size would be impractical and unenforceable. Crop land is expensive in the basin and would be difficult to acquire. However, a combination of crop patterns and pasture land best suited for each size operation should be determined and the dairymen should be encouraged to follow such a pattern. Where acreage is not available, mutually advantageous agreements between the dairymen and a neighbor cultivator could be formed for disposal of dairy wastes.

Sumps, holding ponds, and reservoirs holding manure wastes should be protected from flood flows. No pipes, drains or ditches from the milk barn should be allowed to drain in or near a stream channel.

Specific Regional Board policies pertaining to animal confinement operations can be found under "Control Actions" in Chapter Five.

VIII.C.3. Irrigation Operations - Need for Salt Management

Salts originate by dissolution of the more soluble portions of rocks and soil particles in rain water (weathering). Such salts are transported in solution, but are concentrated in soils, waters, and so-called salt sinks due to evaporation from soil and water surfaces and transpiration (use) by crops (plants). This removal of water by evaporation or transpiration leaves salts behind. Salts are concentrated by each successive evaporative loss of water. In time, accumulations of salt can go from no- problem to extreme-problem levels unless some controls are applied.

For irrigated agriculture to continue production into the foreseeable future, this problem of gradual accumulation of salts in soils and waters must be faced and kept under control at acceptable levels. Otherwise, production will decline even under the best management, and no added amount of good management will be able to continue production of the quantities of food crops needed. In most of California's water basins, the rate of export or removal of salts from the basin will need to be increased to more closely match or exceed the rate of salt accumulation. For each basin, not only do the rates of import and export of salts need to be in reasonably close balance, but the balance must also be maintained at a sufficiently low level of salinity to meet the quality demands of the various designated beneficial uses. This is often referred to as maintenance of a "favorable salt balance."

The rate of water quality degradation within a basin which results from inadequate salt exports is slow. It may be so slow that the need for control of salts is believed to be far into the future and of no concern to present planning. However, just as degradation may be a slow process, correction of a critical basin-wide salinity problem is also an extremely slow process. Good planning, now, to control this long-term, slow degradation of our soil and water resources seems the better course of action, rather than to wait until the problem becomes critical. Decisions made, or not made, now can be critical to control in the future.

Agriculture's need for salt management is both for on-farm management and for off-farm (basin-wide)

management. The absolute need for discharge of salts by agriculture will create conflicts with other water users - even other agricultural water users.

Compromises and trade-offs will be necessary to reconcile these conflicts; however, necessary motivation for change in management at the farm level will need to be tied to dollars and the economic consequences of "no- change." If required agricultural management changes for essential pollution control result in added costs to the farmer, he has the same hard choices of any other businessman:

1. Absorb the cost with reduced profit

2. Pass on the cost in increased prices to consumers

3. Accept some form of public subsidy to off-set cost

4. Go out of business

5. Change crops grown

In coastal higher rainfall areas, irrigated agriculture could probably continue almost indefinitely, since irrigation would be used primarily during dry summer periods to supplement winter rainfall. Rainfall would be sufficient to flush salts through soils and provide adequate recharge and outflow from the underground water basin toward the ocean for salt control. There is more cause for concern in the drier inland areas such as the Salinas River Sub-basin and in the naturally mineralized ground water areas such as the Santa Maria Valley.

VIII.C.4. Improved Salt Management Techniques

A concept of minimal degradation should be considered in some areas, but this will need to be coupled with management of the surface and ground water supplies to minimize and correct the effects of degradation that may occur. If complete correction is not possible, improved management will delay the time when salts reach critical levels. Several options available to correct degradation through improved salt management follow.

Improved irrigation efficiency would reduce both potential and actual pollutants in the water moving from surface to ground. Improved efficiency would also reduce total quantities of salts leaching to the water table and cut down on withdrawals or diversions from the limited water supply. Present statewide efficiency of water use may average 50 to 60 percent, but individual uses will vary from an estimated low of 30 percent where water is plentiful and inexpensive to a high of 95 percent where water quantity is limited and/or the price is high. Implementation of the Leaching Requirement reported by U.S. Salinity Laboratory, Riverside, will help improve efficiency of irrigation. Other research data by this same laboratory has been reported on the effects of low leaching fractions in reduction of salt loads leaching to water tables. The new data offers real incentives to agriculture to improve irrigation efficiency in the form of real dollars saved by the farmer. Real water saved by agriculture can then be used for dilution, recharge, or nonagricultural uses. True, the salts moving to the water table under these low leaching fractions will be more concentrated, but due to low solubilities of certain salts, a progressive precipitation and removal from solution occurs as the salt concentration in the percolating soil solution rises. As the concentration rises, considerable portions of the low solubility salts come out of solution, e.g., the relatively insoluble lime, dolomite, and slightly soluble gypsum.

With these low leaching fractions, salt load to the underground may be reduced as much as 50 percent in some cases. Sodium salts (sodium chloride, and sulfate) are not affected, so in relation to calcium and magnesium salts these sodium salts in the percolating waters increase. The compounds which precipitate are deposited in the lower root zone or below and cause no problem to agriculture except for a few specialized situations which are correctable (lime induced chlorosis). The increased proportions of sodium salts (higher SAR) will not reduce permeabilities of subsoils since salinity remains high enough to continue normal permeabilities of subsoils. The higher sodium (SAR) reaching water tables may reduce hardness slightly, but is not expected to be a problem to users of the underground waters.

Crop production can continue into the foreseeable future in the low rainfall areas if the minimal degradation that almost inevitably will occur is offset (a) by recharge and replenishment of the underground which will furnish dilution water for the added salts and (b) by drainage or removal of degraded waters at a sufficient rate to maintain low salt levels and achieve a satisfactory balance between salts coming into the basin and salts leaving the basin.

To help in recharge and dilution, additional winter runoff can be stored in surface reservoirs for later use for either surface stream or underground water quantity/quality enhancement or maintenance, e.g., Nacimiento and Twitchell reservoirs. Possible future reservoirs may be located on the Arroyo Seco and

Carmel rivers. Or winter runoff could be used directly for ground water recharge to enhance flushing and flow-through dilution of salts and pollutants.

Drainage wells which discharge to drains leading to salt sinks are a possibility in removing salty waters, but these have had only limited success in draining high water table areas. However, they might be well adapted to ground water quality maintenance. Such wells could be drilled and operated to recover the salty top layers of water tables where salts are believed to accumulate as a layer of poorer quality water over the better quality deeper layers. Since most of the movement within water tables is thought to be horizontal and down slope, and vertical mixing is relatively slow, the possibility of recovering polluted upper layers of water tables should be explored as a quality maintenance tool or rejuvenation procedure for degraded water supplies.

Underdrains (tile systems) can aid in both water and salt management. Perched water tables intercept percolating salts, nutrients, and other pollutants and offer real possibilities as an aid in management and protection of the overall water quality of a basin. A "perched" water table is held up and separated from deeper aquifers by a relatively impermeable barrier (soil, rock, hardpan). This barrier often protects the deeper waters from pollution by preventing leakage of polluted waters from above. Perched water tables exist in portions of several basins. Salts and nutrients collected in these perched water tables may be tapped by underdrains (tile systems) and transported through the basin drainage system to disposal sites.

Basin-wide or area-wide drainage systems will be needed in order to move unusable wastewaters to acceptable temporary or permanent disposal sites (salt sinks). On- farm drainage problems will normally be solved at individual farmer expense because of the economics involved--the cost is not prohibitive and the costs of "not-solving" the problem (reduced yields, changing cropping patterns, or going out of business) are unacceptable. The off- farm part of drainage, however, is too big for individual farmers to solve, and some form of collective, organized large scale action is needed. The off- farm problems include collection of discharges, rights-of-way for conveyance, building and maintenance of a drainage system, disposal site acquisition, and management for compliance with discharge requirements.

Acceptable temporary or permanent salt disposal sites (salt sinks) must be designated and used. The Pacific Ocean is the only acceptable sink for most of the Central Coastal Basin; however, Soda Lake and certain highly mineralized ground water basins may be acceptable. To be able to remove salts as required to maintain a low salinity level in any one basin, there must be some other basin or site that will accept the salts. These acceptor areas are known as salt sinks. Without acceptable salt sinks, salt management becomes a long-term losing battle and a frustrating exercise in futility.

Other salt inputs to a basin can be reduced by improved management of other salt sources such as fertilizer, animal wastes, and soil amendments. Regulation may be required but an appreciable improvement can be expected by education of farmers to better understand and better utilize existing information and guidelines. A salt routing approach could be used in areas such as Pancho Rico Creek to permit discharge of highly mineralized wastewater during periods of high flow.

VIII.C.5. Mushroom Farm Operations

Mushroom farm operations present surface or ground water problems if not properly managed.

VIII.C.5.a. Typical Mushroom Farm Operation

Compost is needed as a growing base medium to produce mushrooms. Typically compost is produced on-site from straw, horse manure, cottonseed meal, or other organic matter. During composting, the organic material breaks down into a useable protein source for mushrooms. Water, added to assist the composting process, is constantly leaching through compost piles. Once compost is ready for use, it is placed in mushroom growing trays. After mushroom harvesting, steaming and fumigation sterilize the growing house and spent compost. Spent compost is then removed to "spent compost storage areas" and marketed as a soil additive or disposed of in some other manner.

VIII.C.5.b. Types of Wastes Discharged

Composting operations are typically carried out on concrete composting slabs. Compost is frequently sprayed with water. Excess water typically drains into a sump. Normally, excess water is recycled by pumping it back to spray the pile. In summer very little runoff or leachate is produced from composting. During the rainy season the sump collects more runoff from the compost slab than is recycled. Discharge to drainage ways or containment sumps may result.

When mushroom beds are irrigated, excess water drains from concrete floors to drainage ways or disposal sumps. This water contains peat moss, soluble substances from beds, salt from salt pans (used to "sanitize" the footwear of persons entering the cultivating room), and whatever is on the floor, such as pesticide residues and mushroom stems, at the time the floor is washed.

Steam is used for tray sterilization and to heat and sterilize growing houses. Prior to entering boilers, water is softened and treated with an organic or inorganic corrosion and scale inhibitors. Salt is used as a water softener regenerant. Discharge of water softener regenerant and boiler blowdown to drainage ways or disposal sumps may occur.

Solid wastes consisting of pesticide bags, mushroom roots and stumps, cardboard boxes, spent compost, and general debris are generated by mushroom farms.

Some of the disinfectants, fungicides, and pesticides being sprayed on the floor, walls, and mushrooms are occasionally washed off during washdown of the facility. Generally, pesticides used in this business have a relatively short life.

VIII.C.5.c. Possible Water Quality Problems

Compost leachate and irrigation/ washwater is high in biochemical oxygen demand (BOD). BOD is generally considered high if the concentration exceeds 30 mg/l, but this can vary from situation to situation. If discharged to surface waters, these wastes may depress dissolved oxygen to a critical level, and provide a nutrient source for undesirable aquatic growth. Improper disposal may also cause impacts on ground water. Nitrates are a particular concern.

Discharges of water softener regenerant and boiler blowdown may degrade surface and ground waters if improperly disposed. These wastes are high in Total Dissolved Solids, Sodium, and Chloride concentrations. Boiler blow-down may also contain organic or inorganic corrosion and scale inhibitors which could present toxicity problems if improperly disposed. Solid wastes can be a problem if improperly disposed.

Disinfectants, fungicides, and pesticides do not appear to present water quality problems based on inspections and limited sampling. These biocides can be a problem if handled improperly. Surface water runoff entering mushroom farm operations can become contaminated if runoff contacts any of the sources described above.

VIII.C.5.d. Additional Concerns

Wastes can create a nuisance. Public health can be jeopardized if vectors develop among solid wastes. Further, odors resulting from storage of wastes can become offensive and may obstruct the free use of neighboring property.

VIII.C.5.e. Recommendations

1. Spent irrigation/washwater and compost leachate may be reused to spray compost piles.

2. Spent irrigation/washwater, compost leachate, and contaminated surface water runoff should be collected for treatment, storage, and disposal in lined ponds, unless shown by geohydrologic analysis that ground water will not be affected. If needed, aeration should be provided to stabilize organic substances and prevent odor problems. Dissolved oxygen of 1.0 mg/l or more is recommended for storage ponds.

3. Mushroom farm wastes, excluding water softener regenerant, may be used to irrigate farm crops during dry weather months. When salt is properly handled, the sodium and chloride content of these waters should be suitable for this purpose. The discharger must demonstrate to the Regional Board that irrigation water will not degrade beneficial water uses.

4. When irrigation is utilized, application rates and irrigation practices should be suitable to the crops irrigated.

5. Water softener regenerant and boiler blowdown should be disposed of separately from spent irrigation/washwater. Since its volume is small and concentration of pollutants is high, it is best to evaporate the liquid on a lined drying bed, or provide a documented test by a registered Engineer or laboratory that the soils permeability in the disposal area is 10-6 cm/sec or less. Two drying beds should be used for the purpose of holding salt/regenerant liquid and boiler blowdown waste. Discharges to beds are alternated to allow sufficient drying time.

6. Drying bed residue from any disposal pond should be disposed at a suitable solid waste disposal site.

7. As an alternative, water softener regenerant and boiler blowdown can be hauled in liquid form to a suitable disposal site, or discharged to the ocean through a suitable outfall.

8. Chemical alternatives for sanitizing footwear to replace salt pans should be investigated by farm operators.

9. If used, salt sanitation pans should be at least 4 inches deep and elevated to prevent contact between salt and water. Salt solution should remain in pans until disposed. Spent salt should be dumped into a sealed container and disposed at a suitable site.

10. Solid waste should be routinely collected and disposed at a suitable site.

VIII.C.5.f. Prohibitions

The following activities are prohibited at mushroom farms:

1. Discharge of inadequately treated waste, including leachate, high BOD, high nutrient waste, and contaminated surface water runoff to drainage ways, surface waters, and ground waters.

2. Discharge of untreated water softener regenerant and boiler blowdown waste in a manner that pollutes any non-saline surface or ground water.

3. Discharge and/or storage of waste, including spent compost, in a manner promoting nuisance and vector development.

4. Disposal of sludges, salt residues, pesticide residues, and solid waste in a manner not accepted by the Regional Board.

VIII.C.6. Range Management

Rangeland is the most extensive land use type in California, accounting for more than 40 million acres of the State's 101 million acres. As most of the rangelands are located between forested areas and major river systems, nearly all surface waters in the State flow through rangelands. Thus, rangeland activities can greatly impact water quality. In this section, grazing activities are discussed.

VIII.C.6.a. Grazing

Grazing activities (particularly overgrazing), by contributing excessive sediment, nutrients, and pathogens, can adversely impact water quality and impair beneficial uses. Soil erosion and sedimentation are the primary causes of lowered water quality from rangelands. When grazing removes most of the vegetative cover from pastures and rangelands, the soil surface is exposed to erosion from wind and water. With runoff, eroded soil becomes sediment which can impair stream uses and alter stream channel morphology and results in decreased recharge capacity through clogging of channel bottoms. With steep slopes, highly erodible soils and interim storm events, the sediment delivery ratio (a measure of the amount of eroded soil delivery to a waterbody) on rangeland can be very high. Streambank erosion and lakeshore erosion are other sources of sediment on rangelands. Lakeshores, streambanks, and associated riparian zones are often subjected to heavy livestock use. Trampling and grazing of vegetation contribute to lakeshore and streamside instability as well as accelerated erosion.

Sediments can contribute large amounts of nutrients to surface water. Nutrients, mainly nitrogen and phosphorous, from manure and decaying vegetation also enter surface waters, particularly during runoff periods. Very critical nutrient problems can develop where livestock congregate for water, feed, salt, and shade. Pasture fertilization can also be a source of nutrients to surface waters, as well as a source of pesticides, particularly if flood irrigation techniques are used on rangelands.

Stream zone and lakeshore areas are important for water quality protection in that they can "buffer" (intercept and store nutrients which have entered surface and ground waters from upgradient areas). These "buffer zones" are more sensitive to processes which can increase nutrient discharges such as soil compaction, soil erosion, and vegetation damage than other areas of the rangeland.

Localized contamination by pathogens that could impact human health in surface water, ground water, and soils can result from livestock in pastures and rangelands. Rangeland streams can show increased coliform bacterial levels with fecal coliform levels tending to increase as intensity of livestock use increases. Fecal coliform serve as indicators that pathogens could exist and flourish. The extent of contamination is usually determined by livestock density, sizing, and frequency of grazing, and access to the surface waters.

Grazing Control Measures

Grazing activities occur on both public and private lands in the Central Coast Region. Regulation of grazing on federal lands differs from that on private lands.

Federal lands -- Grazing activities on federal lands are regulated by the responsible land management agency, such as the U. S. Bureau of Land Management or the U.S. Forest Service. Through Memorandum of Understandings and Management Agency Agreements, the Regional Board recognizes the water quality authority of the U.S. Forest Service and U.S. Bureau of Land Management in range management activities on federal lands. Both these agencies require allotment management plans to be prepared for a specific area and for an individual permittee. The Regional Board relies on the water quality expertise of these agencies to include appropriate water quality measures in the allotment management plans. Most allotment management plans include specific Best Management Practices to protect water quality and existing and potential beneficial uses.

Non-federal (private) lands -- The Range Management Advisory Committee is a statutory committee which advises the California Board of Forestry on rangeland resources. The Committee has identified water quality protection as a major rangeland issue and has assumed a lead role in developing a Water Quality Management Plan for private rangelands in California. Regional Board staff is participating in the Plan's development. Sections proposed for inclusion in the Plan are status of water quality and soil stability on State rangelands, authority, mandates, and programs for water quality and watershed protection, local water quality planning guidelines, sources of assistance, development of management measures (Best Management Practices), State agency water quality responsibilities, and monitoring guidelines. Upon its completion, the Plan will be submitted to the State Board. On private lands whose owners request assistance, the U.S. Soil Conservation Service, in cooperation with the local Resource Conservation Districts, can provide technical and financial assistance for range and water quality improvement projects. A Memorandum of Understanding is in place between the U.S. Soil Conservation Service and the State Board for planning and technical assistance related to water quality actions and activities undertaken to resolve nonpoint source problems on private lands.

On both public and private lands, the Regional Board encourages grazing strategies that maintain adequate vegetative cover to reduce erosion and sedimentation. The Regional Board promotes dispersal of livestock away from surface waters as an effective means of reducing nutrient and pathogen loading. The Regional Board encourages use of Best Management Practices to improve water quality, protect beneficial uses, protect stream zone and lakeshore areas, and improve range and watershed conditions including:

- Implementing rest-rotation grazing strategies,
- Changing the season of use (on/off dates),
- Limiting the number of animals,
- Increasing the use of range riders to improve animal distribution and use of forage,
- Fencing to exclude grazing in sensitive areas,
- Developing non-lakeshore and non-stream zone watering sites,
- Constructing physical improvement projects such as check dams, and
- Restoring riparian habitat.

These same Best Management Practices may result in improved range and increased forage production, resulting in increased economic benefit to the rancher and land owner. The Regional Board also encourages land owners to develop appropriate site-specific Best Management Practices using the technical assistance of the U.S. Soil Conservation Service and the U.S. EPA.

In addition to relying on the grazing management expertise of agencies such as the U.S. Forest Service, U.S. Bureau of Land Management, or Range Management Advisory Committee, the Regional Board can directly regulate grazing activities to protect water quality. Actions available to the Regional Board include:

1. Require that a Report of Waste Discharge be filed, that allotment management plans for specific federal lands be prepared, or that a Coordinated Resource Management Plan be adopted within one year of problem documentation. Such problems indicate impairment of beneficial uses or violation or threatened violation of water quality objectives.

2. Require that all allotment management plans (utilized for federal lands) and Coastal Resource Management Plans contain Best Management Practices necessary to correct existing water

quality problems or to protect water quality so as to meet all applicable beneficial uses and water quality objectives contained in Chapters Two and Three, respectively, of this Basin Plan. Corrective measures would have to be implemented within one year of submittal of the allotment management plan or Coastal Resource Management Plan, except where staged Best Management Practices are appropriate. Implementation of a staged Best Management Practice must commence within one year of submittal of the allotment management plan or Coastal Resource Management Plan.

3. Require that each allotment management plan (utilized for federal lands) or Coastal Resource Management Plan include specific objectives, actions, and monitoring and evaluation procedures. The discussion of actions must establish the seasons of use, number of livestock permitted, grazing system(s) to be used, a schedule for rehabilitation of ranges in unsatisfactory condition, a schedule for initiating range improvements, and a schedule for maintenance of range improvements must include priorities and planned completion dates. The discussion of monitoring and evaluation must propose a method and timetable for reporting of livestock forage conditions, watershed condition, and surface and ground water quality.

4. Require that all allotment management plans and Coastal Resource Management Plans be circulated to interested parties, organizations, and public agencies.

5. Consider adoption of waste discharge requirements if an allotment management plan or Coastal Resource Management Plan is not prepared or if the Executive Officer and the landowner do not agree on Best Management Practices proposed in an allotment management plan or Coastal Resource Management Plan.

6. Decide that allotment management plans and Coastal Resource Management Plans prepared to address a documented watershed or water quality problem may be accepted by the Regional Board's Executive Officer in lieu of adoption of Waste Discharge Requirements.

7. Oversee monitoring of water quality variables and beneficial uses. Provide data interpretation.

8. Encourage the U.S. Bureau of Land Management, U.S. Forest Service, Resource Conservation District, and private landowners to develop watering sites for livestock away from Lake shores, stream zones, and riparian areas.

9. Encourage private landowners to request technical and financial assistance from U.S. Soil Conservation Service, in cooperation with the local Resource Conservation Districts, in the preparation of allotment management plans and the implementation or construction of grazing and water quality improvements.

10. Continue to coordinate with the Range Management Advisory Committee in the development of a water quality management plan for private rangelands.

VIII.D. Individual, Alternative, and Community Onsite Wastewater Systems

VIII.D.1. Onsite Wastewater System Requirements

Requirements for siting, design, operation, maintenance, and management of onsite wastewater systems are specified in the State Water Resources Control Board's *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy). The OWTS Policy sets forth a tiered implementation program with requirements based upon levels (tiers) of potential threat to water quality. The OWTS Policy includes a conditional waiver of waste discharge requirements for onsite systems that comply with the policy.

The OWTS Policy, including future revisions, is incorporated into this Basin Plan and shall be implemented according to the policy's provisions.

VIII.D.2. Discharge Prohibitions

In order to achieve water quality objectives, protect present and future beneficial water uses, protect public health, and prevent nuisance, discharges of waste are prohibited in the following areas:

1. Discharges from individual sewage disposal systems are prohibited in portions of the community of Nipomo, San Luis Obispo County, which are particularly described in Appendix A-27.

2. Discharges from individual sewage disposal systems within the San Lorenzo River Watershed shall be managed as follows:

   Discharges shall be allowed, providing the County of Santa Cruz, as lead agency, implements the "Wastewater Management Plan for the San Lorenzo River Watershed, County of Santa Cruz, Health Services Agency, Environmental Health Service", February 1995 and "San Lorenzo Nitrate Management Plan, Phase II Final Report", February 1995, County of Santa Cruz, Health Services Agency, Environmental Health Service (Wastewater Management Plan) and assures the Regional Board that areas of the San Lorenzo River Watershed are serviced by wastewater disposal systems to protect and enhance water quality, to protect and restore beneficial uses of water, and to abate and prevent nuisance, pollution, and contamination.

   In fulfilling the responsibilities identified above, the County of Santa Cruz shall submit annual reports beginning on January 15, 1996. The report shall state the status and progress of the Wastewater Management Plan in the San Lorenzo River Watershed. The County of Santa Cruz annual report shall document the results of:

   a. Existing disposal system performance evaluations,
   b. Disposal system improvements,
   c. Inspection and maintenance of on-site systems,
   d. Community disposal system improvements,
   e. New development and expansion of existing system protocol and standards,
   f. Water quality monitoring and evaluation,
   g. Program administration management, and
   h. Program information management.

   The report shall also document progress on each element of the Nitrate Management Plan, including:

   a. Parcel size limit,
   b. Wastewater Management Plan implementation,
   c. Boulder Creek Country Club Wastewater Treatment Plant Upgrade,
   d. Shallow leachfield installation,
   e. Enhanced wastewater treatment for sandy soils,
   f. Enhanced wastewater treatment for large on-site disposal systems,
   g. Inclusion of nitrogen reduction in Waste Discharge Permits,
   h. Livestock and stable management,
   i. Protection of ground water recharge areas,
   j. Protection of riparian corridors and erosion control,
   k. Nitrate control for new uses,
   l. Scotts Valley nitrate discharge reduction, and
   m. Monitoring for nitrate in surface and ground water.

   The County of Santa Cruz shall submit for approval by May 13, 2016, a Local Agency Management Program to be implemented in lieu of the Wastewater Management Plan for the San Lorenzo River Watershed, referenced above. Beginning in 2017 annual reports shall be consistent with the requirements specified in the OWTS Policy and the Regional Board approved Local Agency Management Program in lieu of reporting requirements stated above.

3. Discharges of waste from individual and community sewage disposal systems are prohibited effective November 1, 1988, in the Los Osos/Baywood Park area, and more particularly described as: Groundwater Prohibition Zone. (Prohibition Boundary Map included as Attachment "A" of Resolution No. 83-13 which can be found in Appendix A-30.)

   Failure to comply with any of the compliance dates established by Resolution 83-13 will prompt a Regional Board hearing at the earliest possible date to consider adoption of an immediate prohibition of discharge from additional individual and community sewage disposal systems.

VIII.D.3 Subsurface Disposal Exemptions

The Regional Board or Executive Officer may grant exemptions to prohibitions of waste discharges from new or existing on-site systems within the specific prohibition areas cited above. Such exemptions may be granted only after presentation by the discharger of sufficient justification, including geologic and hydrologic evidence that the continued operation of such system(s) in a particular area will not individually or collectively, directly or indirectly, result in pollution or nuisance, or affect water quality adversely.

Requests for exemptions will not be considered until the local agency has reviewed the system and submitted the proposal for Regional Board review. Dischargers requesting exemptions must submit a Report of Waste Discharge. Exemptions will be

subject to filing fees as established by the State Water Code.

Further information concerning individual, alternative, or community on-site sewage disposal systems can be found in Chapter 5 in the Management Principles and Control Actions sections. State Water Resources Control Board Plans and Policies, Discharge Prohibitions, and Regional Board Policies may also apply depending on individual circumstances.

VIII.E. Land Disturbance Activities

Construction, mining, and other soil disturbance activities which may disturb or expose soil or otherwise increase susceptibility of land areas to erosion are difficult to regulate effectively. Construction or timber harvesting may often begin and end with no obvious impairment of stream quality; however, erosion or land slides the following winter may be directly related to earlier land disturbance or tree cutting. Mining and quarrying activities are generally longer in duration.

Under contract with the Regional Board, the California Association of Resource Conservation Districts completed a study entitled, "Erosion and Sediment in California Central Coast Watersheds - A study of Best Management Practices" (Erosion Study), dated June, 1979. This Erosion Study, funded under Section 208 of the Clean Water Act, assesses impacts of erosion and sedimentation on water quality and beneficial uses in nondesignated planning areas (San Benito, San Luis Obispo, and Santa Barbara Counties) of the Central Coast Region. This Erosion Study and supporting documents have been used by the Regional Board in developing erosion and sedimentation control policy.

Nonpoint source pollution in the remainder of the Region is addressed by designated planning agencies through their respective Area wide Waste Treatment Management Plans. Designated agencies and the areas affected within this Region include: Association of Bay Area Governments (portions of San Mateo and Santa Clara Counties), Association of Monterey Bay Area Governments (Santa Cruz and Monterey Counties), and Ventura County Board of Supervisors (portion of Ventura County). The policy herein described is compatible with those plans and is within the scope of the Regional Board authority.

The Erosion Study and Area wide Waste Treatment Management Plans identify examples of accelerated erosion resulting from insufficient land management of soil cultivation, grazing, silvaculture, construction, and off-road vehicle activities, as well as wildfires.

Adverse impacts of sediment are identified, in part, as: impairment of water supplies and ground water recharge, siltation of streams and reservoirs, impairment of navigable waters, loss of fish and wildlife habitat, degradation of recreational waters, transport of pathogens and toxic substances, increased flooding, increased soil loss, and increased costs associated with maintenance and operation of water storage and transport facilities. Recommendations based on conclusions of the Erosion Study and practices recommended in Area wide Waste Treatment Management Plans are a means to reduce unnecessary soil loss due to erosion and to minimize adverse water quality impacts resulting from sediment.

When a practice or combination of practices is found to be the most effective, practical (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals, it is designated a Best Management Practice (BMP). BMPs are determined only after problem assessment, examination of alternative practices, and appropriate public participation in the BMP development process.

General recommendations based on conclusions of the Erosion Study are discussed below. These recommendations are considered to be Best Management Practices (BMPs) by the Regional Board as are the Area wide approved water quality management plans.

1. Soil conservation control measures should be used to minimize impacts that would otherwise result from soil erosion. Control measures are identified according to systems, which are then broken down into subsystems of erosion control techniques or component measures.

   For example, a system for control of erosion from construction sites would identify component measures such as debris basins, access roads, hillside ditches, etc. Other conservation control systems include: conservation cropping, conservation irrigation, roadside erosion control, critical area treatment, diversions and ditches, grade stabilization, pasture and range management, runoff and sediment control ponds and basins, stream bank and channel protection, and watershed, wildlife, and recreation land improvement. These control measures are comparable to the USDA Soil Conservation

Services' Resource Management Subsystem approach as referenced in AMBAG's "Water Quality Management Plan for the Monterey Bay Region," dated July 1978, and in ABAG's, "Handbook of Best Management Practices, "dated October 1977.

Experience has shown that no one control measure best solves an existing, or prevents a potential, pollution problem - especially in the area of soil erosion and sedimentation. As land use, the land user, and various situations change, so does the need for control measures. Before application, an on-site investigation with the land user is necessary to determine which practice or set of practices will be most effective and acceptable.

2. Erosion control should be implemented in a reasonable manner with as much implementation responsibility remaining with existing local entities and programs as is possible and consistent with water quality goals.

3. The Regional Board and local units of government should establish a clear policy for control of erosion, including consideration of off-site and cumulative impacts and the imposition of performance standards according to the sensitivity of the area where land is to be disturbed.

4. Effective ordinances and regulatory programs should be adopted by local units of government. Effective programs would allow only land disturbance actions consistent with the waste load capacity of the watershed, require preparation of erosion and sediment control plans with specific contents and with attention to both offsite/on-site impacts, identify performance standards, be at least comparable to the model ordinance in the "Erosion and Sediment Control Handbook," dated May 1978, and have provisions for inspection follow-up, enforcement, and referral.

5. Watersheds with critical erosion and sediment problems should be identified by one or more concerned agencies such as the California Department of Fish and Game, the Regional

   Board, the local Environmental Health, Planning, or Engineering Departments, the local Flood Control District, or the local Resource Conservation District, and then referred to the remaining agencies by a designated local coordinating agency for determining the scope, nature, and significance of the identified problem. The designated local agency would evaluate the adequacy and appropriateness of the total assessment, including an assessment of the problem and causes, alternatives considered, recommended interim and permanent control measures, and the amount and sources of funding. The evaluation would then be submitted as an Impact Findings Report for consideration and decision by the local governing body.

6. Comprehensive and continuous training should be mandatory for building and grading inspectors, engineers, and planners involved in approving, designing, or inspecting erosion control plans and on-site control measures. The training program would preferably be conducted on an inter-county/agency basis and be administered through a USDA Soil Conservation Service cooperative training arrangement or through seminars conducted by the USDA Soil Conservation Service and the University of California Cooperative Extension seminars. The Soil Conservation Society of America should be requested to assist in establishing an effective training program, including public education to heighten awareness of the adverse affects of erosion and sediment on soil and water resources.

7. More intensive erosion controls should be considered within four watersheds (Lauro Reservoir and Devereaux Ranch Slough in Santa Barbara County and Pismo Lake and Morro Bay in San Luis Obispo County) with apparent critical erosion and sediment problems. Alternative practices that may be implemented to effect the necessary level of control are assigned a relative priority.

VIII.E.1. Land Disturbance Prohibitions

The discharge or threatened discharge of soil, silt, bark, slash, sawdust, or other organic and earthen materials into any stream in the basin in violation of best management practices for timber harvesting, construction, and other soil disturbance activities and in quantities deleterious to fish, wildlife, and other beneficial uses is prohibited.

The placing or disposal of soil, silt, bark, slash, sawdust, or other organic and earthen materials from timber harvesting, construction, and other soil disturbance activities at locations above the anticipated high water line of any stream in the basin where they may be washed into said waters by rainfall or runoff in quantities deleterious to fish, wildlife, and other beneficial uses is prohibited.

Soil disturbance activities not exempted pursuant to Regional Board Management Principles contained in Chapter Five are prohibited:

1. In geologically unstable areas,

2. On slopes in excess of thirty percent (excluding agricultural activities), and

3. On soils rated a severe erosion hazard by soil specialists (as recognized by the Executive Officer) where water quality may be adversely impacted;

   Unless,

a. In the case of agriculture, operations comply with a Farm Conservation or Farm Management Plan approved by a Resource Conservation District or the USDA Soil Conservation Service;

b. In the case of construction and land development, an erosion and sediment control plan or its equivalent (e.g., EIR, local ordinance) prescribes best management practices to minimize erosion during the activity, and the plan is certified or approved, and will be enforced by a local unit of government through persons trained in erosion control techniques; or,

c. There is no threat to downstream beneficial uses of water, as certified by the Executive Officer of the Regional Board.

The controllable discharge of soil, silt, or earthen material from any grazing, farm animal and livestock, hydromodification, road, or other activity of whatever nature into waters of the State within the Pajaro River watershed is prohibited.

The controllable discharge of soil, silt, or earthen material from any grazing, farm animal and livestock, hydromodification, road, or other activity of whatever nature to a location where such material could pass into waters of the State within the Pajaro River watershed is prohibited.

The above two prohibitions do not apply to any discharge regulated by National Pollutant Discharge Elimination System permits, Waste Discharge Requirements or waivers of Waste Discharge Requirements.

The above two prohibitions do not apply to any grazing, farm animal and livestock, hydromodification, or road activity if the owner or operator:

i. Submits a Nonpoint Source Pollution Control Implementation Program, consistent with the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, May 20, 2004*, that is approved by the Executive Officer, or

ii. Demonstrates there is no activity that may cause soil, silt, or earthen material to pass into waters of the state within the Pajaro River watershed, as approved by the Executive Officer.

This Land Disturbance Prohibition takes effect three years following approval of the TMDL by the U.S. Environmental Protection Agency.

VIII.E.2. Construction Activities

Road construction is often a cause of water quality impairment; all too often roads are located near streams, estuaries, or ocean waters where side fills may be eroded by flood waters. Construction within stream beds will inevitably cause turbidity; however, the timing of such activities should be established with reference to environmental sensitivity factors such as fish migrations, spawning or hatching, and minimum stream flow conditions. Sediment loads can be reduced by proper timing, bank and channel protection, and use of settling ponds to catch silt.

Construction debris should not be left in the flood plain; revegetation of cuts and fills should be encouraged. California Department of Transportation (CALTRANS) has prepared a document entitled “Best Management Practices for Control of Water Pollution (Transportation Activities)," that sets forth procedures used by CALTRANS to address transportation activities which might impact water quality. These procedures are summarized under "Control Actions" in the Plans and Policies chapter. Past and potential impacts from CALTRANS activities may result from the above problems and may include impacts resulting from questionable maintenance practices, chemical spills, and discharges of silt and cement.

Land development projects in sensitive areas should be scheduled so as to minimize the areal extent of land exposed to erosive forces. Where water quality impairment is likely, permits should be issued by the Regional Water Quality Control Board which will insure against water quality degradation. Cooperation of local approving agencies should be obtained in order that approvals of significant subdivisions in environmentally sensitive areas, particularly the upper reaches of watersheds and lands near riparian habitats, are appropriately conditioned. For example, proposed subdivisions of

50 lots or more in such areas should be (1) covered by environmental impact reports on the development and its impact on waste loads and water quality, (2) be in conformance with regional or county master plans, and (3) include provisions for establishment of a public agency responsible for environmental monitoring and maintenance where such subdivisions are outside other appropriate public jurisdictions.

VIII.E.3. Mining Activities

Pollution control at the hundreds of inactive mine sites riddling the Coast Ranges is in its infancy. Accurate regional inventories are being compiled, isolated mine cases are addressed individually, and several polluting mines are under direct regulation. Regional Board assistance and consultation are aiding several proactive responsible parties and focused study of inactive mine effects on four Central Coast watersheds has been funded by the Clean Water Act, Water Quality Planning Program.

About a decade ago Toxic Substances Monitoring Program data revealed elevated mercury concentrations in Lake Nacimiento, a high priority municipal and agricultural water storage reservoir in San Luis Obispo County. The Lake is fed by the Las Tablas Creek system (among others), which receives discharge water from the Buena Vista Mine, a mercury mine inactive since 1970 or 1971. An academic study (conducted by respected Cal Poly scientists—team leader, Dr. Thomas J. Rice) of lake Nacimiento mercury sources recently concluded up to 78% of the fluvial mercury transport to the Lake is contributed by the Las Tablas Creek system. Further, the inactive Buena Vista and Klau Mines were identified as the primary point sources of Las Tablas Creek mercury. Based on these conclusions and other independent supporting data, the Regional Board on May 14, 1993, adopted four orders requiring strict implementation of NPDES surface water discharge standards and California Code of Regulations Title 23 mine waste management and mine closure standards at the Buena Vista Mine and the adjacent Klau Mine.

The U. S. Bureau of Land Management and Forest Service are addressing several inactive mercury mines on their properties pursuant to the federal "Superfund" process. Sample analyses data generated by Regional Board staff have been instrumental in aiding these investigations.

Two sequential studies of inactive mines in four watersheds of northwest San Luis Obispo County are underway. Funded partially by the Clean Water Act Water Quality Planning Program, the studies address all inactive mines in the Las Tablas Creek, Santa Rosa Creek, San Simeon Creek (all primarily mercury mines), and Chorro Creek (primarily chromium) watersheds. The primary goals of the watershed studies are:

- identification of all inactive mines
- attribution of specific water quality problems to specific mines, and
- determinations of the best methods of abating contaminant sources and remediating already emplaced surface contamination, based on field and possibly lab experiments.

These are considered pilot studies and the Regional Board ultimately plans to conduct such studies for the complete Region and to implement the findings, resulting in abatement of inactive mines as surface and ground water contaminant sources and remediation of contaminated media.

VIII.E.4. Timber Harvesting Activities

The Regional Board has regulatory responsibility to prevent adverse water quality impacts from timber harvest activities. Impacts usually consist of temperature, turbidity, and siltation effects caused by logging and associated activities. These can have deleterious impacts on fish and water flow.

Sensitivity of all watercourses, lakes, estuaries, or ocean waters in the basin to timber harvesting operations should be identified following rigorous analysis of geological, pedological, hydrological, and biological data as confirmed by field inspections. Relative sensitivity could then be portrayed on a large map. The sensitivity would also reflect beneficial uses which are not directly associated with ecological systems.

Upon receiving a timber harvest plan, the Regional Board staff could locate the operation on the sensitivity map and determine the relative risk involved. This information could enable the board to better evaluate the proposed method of operation and the adequacy of proposed mitigation actions or other special considerations. The success of this process depends upon the degree of cooperation provided by the Department of Forestry. Timber harvest plans must contain sufficient detail for evaluation, and the Regional Board must be allowed an ample amount of time for review before start of timber harvesting operations.

The timber yarding and road building methods used at each operation is a function of the terrain, soils, species and other timber considerations including economics. The aforementioned are usually compatible with water quality management, but in cases where water quality may be degraded, mitigating measures to preserve the character and quality of the water course must be taken. Since the Department of Forestry is familiar with the limitations and relative degradation potential of the various harvest methods, it has the lead role in incorporating necessary mitigation measures into the permits and seeing that they are enforced.

The Department of Forestry administers provisions of the Z'berg-Nejedly Forest Practice Act of 1973. The Act provides an opportunity for Regional Boards involved with timber harvesting activities to participate on the Timber Harvest Plan permit process review team. A 1987 Clean Water Act amendment requires States to implement Water Quality Management Plans to control nonpoint sources of pollution, including silviculture. As part of that directive, the State Board has executed a Management Agency Agreement (MAA) with the Board of Forestry and Department of Forestry. It provides a better opportunity for water quality concerns to be incorporated into timber harvesting practices and regulations.

Several possibilities exist to deal with negligent or incompetent operators. The Department of Forestry can revoke the Registered Professional Foresters or Licensed Timber Operator's License. The Regional Board can also implement enforcement action. While these actions can be necessary and effective, they are after-the-fact methods rather than for deterring roles. Thus, the major emphasis must be placed on control measures rather than enforcement actions.

VIII.E.5. Agency Activities

To insure that impacts on water quality from nonpoint sources of pollution are held to a minimum and that goals and management principles of the Regional Board are met, water quality management programs for implementation by land managing agencies have been developed through the Area wide planning process. For nonpoint sources of pollution, this required identification of Best Management Practices (BMP's).

Within the Central Coast Region, federal and State agencies control substantial portions of land. All retain their own land management programs, but are required by regulation to cooperate and give support to State planning agencies in formulating and implementing water quality management plans. Federal law also directs federal agencies to comply with requirements formulated to meet the objectives of the federal act.

Practices and procedures in the U. S. Forest Service's, U.S. Bureau of Land Management's (BLM's) and California Department of Transportation's (CALTRANS') 208 reports described below constitute proper management for water quality protection and are considered BMP's. Further, these agencies have expressed a willingness and capability to implement practices and to revise practices which are currently inadequate. Management agency agreements have been prepared between the State Board and each of these agencies which designates the Forest Service, the BLM, and CALTRANS as management agencies responsible for implementing BMPs for water quality protection on lands under the control of each of these respective agencies. The management agency agreement further provides for State/Regional Board working relationships with each agency and establishes a mechanism by which the State and Regional Boards will, on a continuing basis and in conjunction with each of these agencies, identify and address water quality management issues of concern to all parties.

The management agency agreements, as approved by the State Water Resources Control Board and each of the agencies, are a part of this Water Quality Control Plan by reference. Management agency agreements will be reviewed and updated periodically to reflect recent achievements, new information, and new concerns.

VIII.E.5.a. United States Forest Service

The United States Forest Service has prepared a report entitled, "Water Quality Management Plan for the National Forest Systems Lands Within the Non-designated Planning Areas of California," dated April, 1979. The report assesses water quality problems, evaluates current practices, and sets forth procedures used by the Forest Service to address activities that might affect water quality. About 72 percent of Los Padres National Forest (which encompasses 1,964,408 gross acres) is within the Central Coast Region. Water and watershed protection were the chief reasons the forest was established. Approximately 1.5 million acre feet of water per year are used by people living adjacent to the forest for domestic and agricultural purposes. Less than five percent of the area is commercial forest land and most wood production is fuel wood sales.

A qualitative assessment of water quality problems on National Forest lands within the Central Coast Region was conducted primarily from information gathered by Forest Service and Regional Board staff. Fire management and recreation are activities with the greatest influence on water quality. Other major activities with potential impact on water quality include road construction, road maintenance, and grazing. Fire management can cause degradation from sediments, nutrients, and bacteria, but the major cause might well be off-road vehicles and misuse of unimproved roads by all vehicles. Road construction has been a source of problems along the Cuyama River. No significant affects from overgrazing or silvacultural practices were noted.

During preparation of the Forest Service's "Water Quality Management Plan for the National Forest Systems Lands Within the Nondesignated Planning Area of California," adopted April, 1979, Forest Service manuals, guidelines, regulations, etc., were reviewed for identification of those practices which are directly or indirectly for the purpose of protecting water quality. The report identifies and discusses ninety-eight such practices in eight activity categories (i.e., timber harvesting, road and building site construction, mining, recreation, vegetative manipulation, fire supervision and prescribed burning, watershed management, and grazing). Ninety-four of the practices are presented as BMPs, while four practices need improvement, and four practices need development. A course of action for improving inadequacies of current practices and for development of new practices is identified.

The practices/procedures contained in the Forest Service 208 plan are at a level of detail appropriate for all Forest Service operations statewide. These practices must be flexible to account for varying geographic conditions. The plan also includes a description of the "decision- making" process which leads to the actual selections of management solutions on a project-specific basis. There are several steps in this process at which Regional Boards can be involved and there is a public involvement program to identify and respond to concerns of interested public. The most critical point of involvement is Step 1, identification of issues, concerns, and opportunities. Once this step is completed, the need for and time of future involvement in subsequent steps can be identified.

VIII.E.5.b. United States Bureau of Land Management

The United States Department of the Interior, Bureau of Land Management (BLM), has management responsibility for approximately 320,000 acres within the Central Coast Region. Management activities occurring on this land have potential for significantly affecting water quality (e.g., mining, grazing, recreation, road construction, off-road vehicles, etc.). The BLM prepared and submitted to the State a report entitled, "BLM California 208 Report." The report includes: (a) a discussion of existing or potential water quality problems on BLM lands, (b) a discussion of current BLM practices and policies including a description of the BLM planning process, (c) a description of the "decision-making process" which leads to the actual selection of management solutions on a project-specific basis, and (d) general policies.

The problem assessment identifies nonpoint sources of water pollution originating on lands administered by the BLM. Problems were qualitatively assessed by BLM with information provided primarily by Regional Board staff. Most of the identified water quality problems on BLM lands within the Central Coast Region result from recreation.

There is improper grazing management on the Temblor range in east San Luis Obispo County (BLM's Bakersfield District) that is causing sedimentation of retention structures for beneficial uses.

The process for determining management practices on a site- specific basis applies to all BLM activities and is divided into three major phases; (1) consideration of site characteristics and water quality concerns, (2) definition and application of BMP's through contract clauses, leases, stipulations, etc., and (3) evaluation of BMP effectiveness and practice modification, if necessary.

VIII.E.5.c. California Department of Transportation

Water Quality Studies

In developing control measures for CALTRANS projects, three basic types of studies are conducted for water quality protection:

1. Transportation System Planning - Emphasizes broad scale water quality problems. The focus is

   on regional factors such as variations in regional surface and ground water hydrology, existing water quality, and land use. Such studies are not site- specific.

2. Project Level Planning - Emphasis is on runoff associated problems (erosion and sedimentation). Detailed hydrologic and

hydraulic analyses are made where warranted. Information is used in selecting project alternatives.

3. Construction - This type is usually associated with waste discharge requirements (issued by Regional Board). The intent is to monitor and control the contractor's operations.

Construction Control

Standard specifications for water pollution control have been prepared by CALTRANS, are set forth in CALTRANS' BMP document, and are incorporated as part of project design. Where warranted, special specifications are prepared by CALTRANS on a project- by-project basis. For every project, contractors must submit a plan for water pollution control to the CALTRANS resident engineer. During the course of any construction project, operations may be temporarily halted if inadequate provision has been made for water quality protection. Remedial work may be required.

In addition to CALTRANS specifications, federal and State permits (including waste discharge requirements) are made a part of project requirements.

Operation and Maintenance

1. Accidental Chemical Spills - A procedural manual has been developed by each CALTRANS district to standardize cleanup procedures. CALTRANS maintenance personnel are equipped and trained to handle such situations.

2. Erosion Control - Where slopes show evidence of erosion, remedial stabilization measures must be taken. Debris is disposed of at approved disposal site.

VIII.E.5.d. Other Agencies Programs

Resource Conservation Districts (RCD's) and the U.S.D.A. Soil Conservation Service are organizations that assist property owners in applying effective conservation and land management practices. The program includes technical, educational, and planning services to property owners and local governments who request assistance. It has been relatively successful considering its voluntary nature and resource limitations. The Soil Conservation Service has a major role in the Rural Clean Water Program.

The U.S.D.A. Agricultural Stabilization and Conservation Service administers the cost-sharing aspects of the Agricultural Conservation Program, allocating available monies to farmers and ranchers for erosion and sedimentation control and water conservation projects.

Cities and Counties, as general purpose governments, have broad powers to adopt specific and general plans; to regulate land use, subdividing, grading, and private construction; and to construct and operate public works facilities. Local authority to regulate existing and potential discharges of sediment has been exercised to varying degrees throughout the region.

Many cities and counties within the coastal zone have developed Local Coastal Programs. These programs may include land use and grading restrictions designed to protect long-term productivity of soils and waters within the coastal zone. Regulation by the California Coastal Commission provides this protection where Local Coastal Programs are inadequate.

The State Department of Fish and Game promotes the protection and improvement of streams, lakes, and natural habitat areas for fish and wildlife. It also regulates stream alteration and compels cleanup of fouled streams.

VIII.E.6. Watsonville Slough Watershed Livestock Waste Discharge Prohibition

1. The direct or indirect discharge of livestock animal waste from any grazing operations, non-sterile manure application, farm animal and livestock facilities including paddocks, pens, corrals, barns, sheds, or other activity of whatever nature into waters of the State within the Watsonville Slough Watershed is prohibited.

   The above prohibition does not apply to any farm animal or livestock facility and/or any facility where non-sterile manure is applied if the owner or operator:

   i. Submits a Nonpoint Source Pollution Control Implementation Program, consistent with the *Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program*, that is approved by the Executive Officer, or

   ii. Demonstrates to the satisfaction of the Executive Officer that its activities do not cause livestock waste to pass into waters of the state within the Watsonville Slough Watershed, or

iii. Is regulated under Waste Discharge Requirements or an NPDES permit, or a conditional waiver of waste discharge requirements that explicitly addresses compliance with the Watsonville Slough TMDL for Pathogens.

This Livestock Waste Discharge Prohibition takes effect two years following approval of the TMDL by the U.S. Environmental Protection Agency.

IX. Total Maximum Daily Loads

IX.A. Morro Bay Total Maximum Daily Load for Sediment (Including Chorro Creek, Los Osos Creek and the Morro Bay Estuary)

This TMDL was adopted by the Regional Water Quality Control Board on May 16, 2003.
This TMDL was approved by:
The State Water Resources Control Board on September 16, 2003.
The California Office of Administrative Law on December 3, 2003 (effective date).
The U.S. Environmental Protection Agency on January 20, 2004.

TMDL Elements

Element	
Problem Statement	Over time, all estuaries eventually fill with sediment due to the natural processes of erosion and sedimentation. In Morro Bay these natural processes have been accelerated due to anthropogenic watershed disturbances, resulting in impairment of Beneficial Uses, principally biological resources, but also recreational uses, including: RARE, MIGR, SPWN, WILD, EST, MAR, BIOL, REC1, REC2, NAV. This impairment indicates an exceedance of the Basin Plan narrative objective for sediment, which states that: "the suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses."

Numeric Targets	Parameter	Numeric Target
	Chorro and Los Osos Creeks and Tributaries Streambed Sediment	
	Residual Pool Volume[1]	V* (a ratio) = Mean values ≤ 0.21 (mean of at least 6 pools per sampling reach) Max values ≤ 0.45
	Median Diameter (D_{50}) of Sediment Particles in Spawning Gravels	D_{50} = Mean values ≥ 69 mm Minimum values ≥ 37 mm
	Percent of Fine Fines (< 0.85 mm) in Spawning Gravels	Percent fine fines ≤ 21%
	Percent of Coarse Fines (all fines < 6.0 mm) in Spawning Gravels	Percent coarse fines ≤ 30%
	Morro Bay and Estuary	
	Tidal Prism Volume	4,200 acre-feet

1 Residual Pool Volume refers to the portion of a pool in a stream that is available for fish to occupy. Pool habitat is the primary habitat for steelhead in summer. Overwintering habitat requirements include deeper pools, undercut banks, side channels, and especially large, unembedded rocks, which provide shelter for fish against the high flows of winter. V* gives a direct measurement of the impact of sediment on pool volume. It is the ratio of the amount of pool volume filled in with fine, mobile sediment, to total scour pool volume. Qualifying pools are those having a gradient less than 5%, a minimum depth twice the riffle-crest depth, a fairly even spacing between tributaries, and are located on streams fifth order or smaller.

Loading Allocations[2] (TMDL expressed as annual load)	Watershed	Total (tons/year, rounded to nearest ton)
	Chorro Creek at Reservoir	6,541
	Dairy Creek	440
	Pennington Creek	966
	San Luisito Creek	7,315
	San Bernardo Creek	10,270
	Minor Tributaries	4,489
	Chorro Creek	30,021
	Los Osos Creek	3,052
	Warden Creek and Tributaries	1,812
	Los Osos Creek	4,864
	Morro Bay Watershed	34,885

2 These loading allocations are 50% of the estimated current sediment loading to Morro bay.

Implement-ation	The sediment load to Morro Bay, Los Osos Creek and Chorro Creek derives from nonpoint sources (NPS) and point sources. As such, implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements (Porter Cologne). At this time, implementation emphasizes the activities of the Morro Bay National Estuary Program, Coastal San Luis Resources Conservation District, and other public and private groups that are not currently identified as dischargers responsible for sediment loading, to implement self-determined activities (see Table IX.A-1: Trackable Implementation Actions). Other actions, currently required because of another program, will be evaluated to make sure progress is taking place (see Table IX.A-1: Trackable Implementation Actions identifying Responsible Dischargers). Regional Board Staff will meet annually with the implementing parties identified in the list of Trackable Implementation Actions to provide technical assistance and to evaluate and track progress (see Implementation Schedule for details). If at the end of year three, implementing parties fail to complete these self-determined activities or resulting management practices fail to reduce sediment loads, then Regional Board staff may conduct inspections and investigations to identify individual responsible dischargers (e.g., landowners or public agencies). Regional Board staff may rely on Section 13267 of the California Water Code or other appropriate authorities for investigation and identification of individual responsible dischargers. Regional Board staff will also rely on Section 13267 of the California Water Code to require reporting and/or monitoring to determine the level of implementation of identified activities to reduce erosion and sediment. If necessary, the Regional Board may rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean-up and abate sediment discharges and/or prevent the threat of discharges on a case-by case basis. Additionally, Implementation Actions (in the Table IX.A-1 of Implementation Actions) may be required as conditions of compliance with storm water permits and Waste Discharge Requirements. If at the end of the third year, self-determined actions have not been completed, staff will develop a regulatory approach (rather than a self-determined approach) and present a revised implementation plan to the Regional Board as a Basin Plan Amendment. Direct measurement of sediment loading is not proposed for this TMDL. Numeric Targets, which characterize the effect of loading are to be measured in lieu of loadings. The 50-year schedule for achieving the TMDL acknowledges that implementation actions taken in the near term are expected to take years to produce a response as measured through Numeric Target monitoring. Allocations will achieve the targets because over the long term, these allocated sediment loads are expected to result in changes in sediment distributions in the channel and the estuary that meet water quality objectives. Numeric targets and other parameters will be monitored to ensure that numeric targets are met. The Regional Board will rely on existing or planned efforts for this monitoring (e.g., Morro Bay National Estuary Program, Central Coast Ambient Monitoring Program).
Margin of Safety	An implicit margin of safety has been incorporated into this TMDL through the use of conservative assumptions throughout the source analysis and characterization of beneficial use impacts. The margin of safety is required due to uncertainty in calculations of sediment loading and of the effects of this loading on beneficial uses of the Morro Bay Estuary, Chorro Creek and Los Osos Creek.

Table IX.A-1. Trackable Implementation Actions

PROJECT NAME		ACTION	SCHEDULE	IMPLEMENTING PARTY
1	Hollister Ranch Acquisition	Design and construct floodplain restoration project	January 2002-May 2005	CSLRCD and MBNEP
2	Los Osos Creek Wetland Restoration Project	Design and construct Los Osos Creek wetland restoration project	Fall 2000-Spring 2004	CSLRCD and MBNEP
3	Watershed Crew Curriculum	Develop a curriculum that will provide training for a year-round crew of Civilian Conservation Corps	Winter 2001-Fall 2001	CCC
4	Catalogue of Erosion Control Projects	Develop a list of areas in need of erosion control projects	Spring 2001-Fall 2001; on-going	MBNEP
5	Project Clearwater	Provide technical assistance and cost sharing to install BMPs	2001-June 2004; on-going	CSLRCD
6	Agricultural Water Quality Program	Develop and implement a voluntary, cost-effective, and landowner/manager-directed program	2001-2002; on-going	Farm Bureau
7	Land Acquisitions and Conservation Easements	Acquire or otherwise protect lands in cooperation with willing land owners	2000-2010; on-going	MBNEP
8	Fire Management Plan	Develop and implement a Fire Management Plan	2001-2006; on-going	CDF
9	Maintenance of Sediment Basins Above Chorro Reservoir	Continue maintenance of the sediment basins above Chorro Reservoir	on-going	California Army National Guard
10	Road Maintenance	Increase the use of management measures for road maintenance and construction	2001-2006; on-going	County of San Luis Obispo, Public and Private Landowners; California Department of Transportation
11	Sediment Traps	Install sediment traps	2000-2007; on-going	CSLRCD; Natural Resource Conservation Service; DFG; Public and Private Land Owners
PROJECT NAME		ACTION	SCHEDULE	RESPONSIBLE DISCHARGERS
12	Primera Mine Rehabilitation and Erosion Control	Remediation of Primera Mine	2003	California Army National Guard
13	Stormwater Sediment Control on Roads	Include specific road sediment control measures in County stormwater management plan prior to enrollment in Stormwater Permit; track implementation of BMPs	Prior to March 2003; on-going	County of San Luis Obispo
14		Track implementation of BMPs in Stormwater Permit	On-going	Caltrans
15	Water Quality Management Plans on Chorro Creek Ranches	Implement Waste Discharge Requirements to address Chorro Creek Ranches	Fall 2002-Fall 2003	California Polytechnic State University

Implementation Schedule

At End of Implementation Year:	IMPLEMENTATION MILESTONE			MONITORING ACTIVITY		
	Chorro Creek	*Los Osos Creek*	*Morro Bay*	*Chorro Creek*	*Los Osos Creek*	*Morro Bay*
1	RB and MBNEP Staff meet to review progress. RB and County Staff meet to review inclusion of road erosion control measures in Stormwater Management Plan.			Baseline Streambed Parameters3, Turbidity		
2	*As above*					
3	RB and MBNEP Staff meet to review progress; RB requests implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
4	RB and MBNEP Staff meet to review progress			Baseline Streambed Parameters, Turbidity		
5	RB and MBNEP Staff meet to review progress		RB Staff calculate: 5-year changes to Bay area and volume	Baseline Streambed Parameters, Turbidity		Bathymetry survey
6	RB and MBNEP Staff meet to review progress; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
7	RB and MBNEP Staff meet to review progress			Baseline Streambed Parameters, Turbidity		
8	*As above*					
9	RB and MBNEP Staff meet to review progress; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Baseline Streambed Parameters, Turbidity		
10	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data		RB Staff calculate: 5-year changes to Bay area and volume	Baseline Streambed Parameters, Turbidity		Bathymetry survey
11	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data			Streambed Parameters, Turbidity		
12	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions			Streambed Parameters, Turbidity		
13	RB and MBNEP Staff meet to review progress; RB Staff calculates 10-year rolling average of Streambed Sediment data			Streambed Parameters, Turbidity		
14	As above					

3 Streambed Parameters, which are the Numeric Targets, include Residual Pool Volume, Median Diameter of Sediment Particles, Percent Fine Sediment, and Percent Coarse Sediment.

At End of Implementation Year:	IMPLEMENTATION MILESTONE		MONITORING ACTIVITY	
15	RB and MBNEP Staff meet to review progress; RB Staff calculate 10-year rolling average of Streambed Sediment data; RB request implementation tracking report from Implementing Parties if not provided; RB staff consider modifications to Trackable Implementation Actions	RB Staff calculate: 5-year changes to Bay area and volume	Streambed Parameters Turbidity	Bathymetry survey
16-49	Repeat as above with 3-, 5- and 10-year milestones.			
50	Numeric targets achieved; load reduction achieved			

IX.B. San Lorenzo River Total Maximum Daily Load for Sediment (Including Carbonera Creek, Lompico Creek, and Shingle Mill Creek)

This TMDL was adopted by the Regional Water Quality Control Board on May 16, 2003.
This TMDL was approved by:
The State Water Resources Control Board on September 16, 2003.
The California Office of Administrative Law on December 18, 2003.
The U.S. Environmental Protection Agency on February 19, 2004.

TMDL ELEMENTS

Problem Statement

The natural processes of erosion and sedimentation in the San Lorenzo River Watershed have been accelerated due to anthropogenic watershed disturbances. Studies conducted by various authors have concluded that erosion rates were two to four times natural rates. These studies have also documented and quantified the decline in anadromous fisheries and the quality of fish habitat. Excessive Sedimentation has interfered with the beneficial uses of these waterbodies including, Fish and Wildlife (RARE, MIGR, SPWN, WILD).

Numeric Targets (interpretation of the narrative water quality objectives for settleable solids and sediment):

Because the sediment objectives in the Basin Plan are narrative, rather than numeric, this Basin Plan amendment establishes numeric targets as indicators of water quality that are supportive of beneficial uses. The numeric targets serve to interpret the narrative water quality objectives and provide a measure with which to determine if the objectives and the TMDL are being met. The combination of these parameters is considered an effective approach in lieu of directly measuring sediment loading to the listed waterbodies. Attainment of Numeric Targets will be measured over a ten-year rolling time period. Numeric targets for the listed waterbodies and compliance points on tributaries are as follows:

Parameter	**Numeric Target**[1]
Residual Pool Volume[2]	V* = Mean values $\leq$ 0.21 Max values $\leq$ 0.45
Median Diameter (D_{50}) of Sediment Particles in Spawning Gravels	D_{50} = Mean values $\geq$69 mm Minimum values $\geq$ 37 mm
Percent of Fine Fines (< 0.85 mm) in Spawning Gravels	Percent fine fines $\leq$ 21%
Percent of Coarse Fines (< 6.0 mm) in Spawning Gravels	Percent coarse fines $\leq$ 30%

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1 Target values are for sampling reach(es) within an individual waterbody.

2 Residual Pool Volume refers to the portion of a pool in a stream that is available for fish to occupy. Pool habitat is the primary habitat for steelhead in summer. Overwintering habitat requirements include deeper pools, undercut banks, side channels, and especially large, unembedded rocks, which provide shelter for fish against the high flows of winter. V* gives a direct measurement of the impact of sediment on pool volume. It is the ratio of the amount of *pool volume filled by fine, mobile sediment*, to *total pool volume*. Qualifying pools are those having a gradient less than 5%, a minimum depth twice the riffle-crest depth, a fairly even spacing between tributaries, and are located on streams fifth order or smaller.

Total Maximum Daily Load and Load Allocations

The Total Maximum Daily Load (expressed here as an annual load) was based on reductions necessary to achieve desired conditions of streambed sediment parameters (embeddedness and fraction of sediment particles less than 4mm in diameter). Desired conditions taken from values published in the scientific literature were 27% lower on average for the San Lorenzo River, Carbonera Creek and Shingle Mill Creek, and 24% lower on Lompico Creek, than measured values in these waterbodies, respectively. Load allocations were based on percent attainable reductions in each sediment source category.

Natural background sediment load was not calculated as a separate allocation of the TMDL. The Mass Wasting and Channel/Bank Erosion categories account for natural and anthropogenic loads associated with these processes. The load from Timber Harvest Plan Roads, Public/Private Roads, Timber Harvest Plan Lands and Other Urban and Rural Lands is assumed to be entirely anthropogenically derived and controllable.

Sediment Source Category	Allocations (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
Upland Timber Harvest Plan (THP) Roads	0	420	362	25,215
Streamside THP Roads on Steep Slopes	0	182	164	10,949
Upland Public/Private Roads	146	1,233	367	13,835
Streamside Public/Private Roads on Steep Slopes	77	135	239	6,178
THP Land	0	23	16	1,057
Other Urban and Rural Land	310	2,622	965	43,368
Mass Wasting	0	4,082	6,440	157,388
Channel/Bank Erosion	324	3,030	989	48,149
Total Allocation = TMDL[3]	857	11,728	9,542	306,139

Implementation Plan

The sediment load to the San Lorenzo River, Lompico Creek, Carbonera Creek, and Shingle Mill Creek derives from nonpoint sources (NPS) and point sources. As such, implementation to achieve the TMDL will rely on the State's Plan for NPS pollution control (CWC §13369) and on existing and anticipated independent regulatory programs for regulated storm water discharges.

At this time implementation emphasizes the activities of the Santa Cruz County Departments of Planning and Public Works, the Santa Cruz County Resource Conservation District, and other public and private groups, not currently identified as dischargers responsible for causing erosion, to implement self-determined activities (Implementation Actions C through R, see following list, Trackable Implementation Actions). Regional Board staff will meet annually with these "Implementing Parties" identified in the list of Trackable Implementation Actions to provide technical assistance, and to evaluate and track progress (See following Implementation Compliance Schedule).

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3 The term "Total Maximum Daily Load" or "TMDL" is used here for familiarity. The allowable loads for the San Lorenzo River and its tributaries are actually expressed as a Total Annual Loads (tons/year). This expression of load accounts for seasonal variation in sediment loads explained by the seasonality of rainfall in this region of the Central Coast.

By the end of the first year of implementation, the Regional Board and the implementing parties will establish a time schedule for completion of Trackable Implementation Actions C through R. If these entities fail to complete these Tier 1, self-determined activities or resulting management practices to reduce sedimentation per the time schedule established, Regional Board staff intends to conduct inspections and investigations to identify individual responsible dischargers (e.g., landowners or regulated public agencies). Regional Board staff may rely on Section 13267 of the California Water Code for investigation and identification of individual responsible dischargers. Regional Board staff will also rely on Section 13267 of the California Water Code to require reporting and/or monitoring to determine the level of implementation of management practices to reduce sedimentation. If necessary, the Regional Board may rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean up and abate sediment discharges and/or prevent the threat of discharges. The Implementation Actions identified in this Implementation Plan do not identify the specific management practices that will result in sediment reduction. As such the management practices developed through pursuit of the Implementation Actions are not intended to be independently enforceable by the Regional Board. Therefore, the Regional Board will rely on scheduled 3-year reviews to track Implementation Actions and the effectiveness of management practices to determine whether to continue with Tier 1, self-determined implementation. This portion of the implementation program currently relies on voluntary compliance and so is not regulatory. If, in future years, evaluation of progress indicates regulatory mechanisms are needed to implement actions that will result in attainment of the numeric targets, this will be achieved on a case-by-case basis using existing authority or if necessary, by amending the TMDL implementation program through a Basin Plan amendment.

To regulate sediment discharges derived from regulated storm water discharges, implementation relies on National Pollutant Discharge Elimination System (NPDES) general permits covering municipalities and construction activities anticipated to be in place by March 2003. Implementation Actions S, T and U (see following list, Trackable Implementation Actions) identify actions that will be required of entities enrolling in these general permits. These entities are identified as “Responsible Dischargers” on this list. These actions will be required pursuant to the terms of the general permits, so this portion of the implementation program also does not impose any new regulatory requirements. To the extent the discharge is addressed by a Storm Water Permit, the Regional Board anticipates that management practices developed from any of the Implementation Actions (in the list of Trackable Implementation Actions) will be included in Storm Water Management Plans and Storm Water Pollution Prevention Plans. If the management practices are not included in these Plans, the Regional Board will work with dischargers to condition the Plans on an individual basis, will consider issuing individual Storm Water permits or waste discharge requirements, and/or, if necessary take actions to enforce the terms of the permits or waste discharge requirements. The Regional Board will take any such actions on a case-by-case basis using existing authority or if necessary, by amendment of the TMDL implementation program.

Margin of Safety

A margin of safety has been established implicitly in the TMDL calculation through conservative assumptions used in establishing the percent reduction from existing loads necessary to protect beneficial uses.

Monitoring

The TMDL will be evaluated by monitoring the four numeric targets specified above, as well as by tracking progress in implementation of voluntary and required implementation actions. Responsibility for tracking, reporting status, and evaluating the effectiveness of voluntary implementation actions, is shared by the Regional Board and participating members of the San Lorenzo River Technical Advisory Committee. Initially the Regional Board will be responsible for monitoring numeric targets. Any monitoring undertaken by members of the Committee, including turbidity monitoring by the San Lorenzo Valley Water District and the City of Santa Cruz Water Agency, as well as “comprehensive” monitoring of parameters affecting cold water fisheries conducted by various agencies, will be on a voluntary basis. Monitoring efforts pursuant to existing or anticipated regulatory programs or other voluntary efforts will be evaluated along with monitoring for numeric targets. The Board will evaluate progress on implementation actions in consultation with the San Lorenzo River Technical Advisory Committee. As more information is obtained concerning sources, locations and rates of sedimentation, TMDL numeric targets and implementation projects may be amended or modified through an amendment to the Basin Plan, as appropriate.

Trackable Implementation Actions to Address Sources of Erosion and Sedimentation

Source Category	Implementation Action	Implementing Party
Roads: Upland and Streamside Timber Harvest Plans	A Increase presence at Pre-Harvest Inspections to 100% of Class I and Class II watercourses (watercourses supporting use for domestic water supply, fish, and/or aquatic habitat for non-fish aquatic species).	Regional Water Quality Control Board (RWQCB)
	B Perform Post-Harvest Inspections 3 to 5 years after harvest on Timber Harvest Plans with Class I and Class II watercourse crossings.	RWQCB
	C Convene a Working Group of federal, state, and local agencies, and timberland owners and foresters to develop specific timber harvesting management practices for the San Lorenzo River Watershed.	National Marine Fisheries Service (NMFS), California Department of Forestry and Fire Protection (CDF), Santa Cruz County (County) Planning, RWQCB, Timber Owners and Foresters
	D Enforce erosion control ordinance following 3-year Timber Harvest Plan maintenance period.	County Planning
	E Develop strategy for more effective enforcement of County code violations pertaining to erosion control and sedimentation prevention throughout the San Lorenzo Watershed.	County Planning
	F RWQCB will review evidence of Timber Harvest Plan Best Management Practices developed pursuant to Section 916.9 of 2001 Forest Practices Act during Pre-Harvest and Post-Harvest Inspections.	CDF, Timber Harvest Plan Submitter, RWQCB
Roads: Upland and Streamside Public/Private	E See above	
	G Create public road database to inventory and prioritize problems for correction.	County Public Works, Caltrans, Cities of Santa Cruz and Scotts Valley
	H Develop a Public Road Maintenance Best Management Practices (BMP) Program.	County Public Works and Planning
	I Improve public road spoils management and disposal: develop spoils disposal site(s) in or near the San Lorenzo Watershed.	County Public Works and Caltrans
	J Assess State Park roads and trails for erosion into San Lorenzo River and tributaries. Develop a program for funding and addressing any identified problems.	California Department of Parks and Recreation
	K Develop and implement private road improvement program.	Santa Cruz Resource Conservation District (RCD)-lead, Natural Resources Conservation Service, County Department of Environmental Health, RWQCB, California Department of Fish and Game, landowners
Developed Parcels: THP Lands	A-F See above	
	E See above	

Source Category	Implementation Action		Implementing Party
Developed Parcels: Other Urban and Rural Land	L	Evaluate need to revise erosion control provisions in County Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	County Planning
	M	Evaluate need to revise erosion control provisions in City of Scotts Valley Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	City of Scotts Valley
	N	Evaluate need to revise erosion control provisions in City of Santa Cruz Grading Regulations and Erosion Control Ordinance to better protect sandy-soil areas.	City of Santa Cruz
	O	Promote improved livestock management practices to reduce discharge of sediment.	RCD, Santa Cruz Horsemen, County Planning, County Environmental Health Services, Livestock Owners
	P	Implement education programs and modify policies and procedures to improve riparian corridor protection, maintain channel integrity, implement alternatives to hard bank protection, and retain woody material.	County Planning, DFG, Cities
Mass Wasting	Q	Develop strategy to reduce erosion from discrete sources, including Mount Hermon slide, Bean Creek Road slides, McEnery Road, Skypark, Rancho Rio and Monte Fiore.	County, City of Scotts Valley
	R	Develop strategy to address accelerating the mitigation of quarry impacts at Hanson Aggregates site.	County Planning, California Division of Mines and Geology
Streambanks	A-H, J-N, P *See above*		
Source Category	Implementation Action		Responsible Dischargers
All Roads, Developed, and Developing Parcels	S	Develop and implement Storm Water Management Plans (SWMPs) and Storm Water Pollution Prevention Plans (SWPPPs) consistent with NPDES Phase II Storm Water regulations.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.
	T	Identify the San Lorenzo River Watershed as a priority for site inspection and enforcement of control measures in SWMPs and SWPPPs. Establish mechanism by which operators and owners of one-acre and greater construction projects are notified of the requirement to prepare SWPPPs.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.
	U	Consider incorporation of sediment control programs/projects into SWMPs and SWPPPs.	County Planning and Public Works, City of Santa Cruz, City of Scotts Valley, construction site operators and owners.

Implementation Compliance Schedule

At End of Implementation Year:	IMPLEMENTATION MILESTONE	MONITORING ACTIVITY[4]
	San Lorenzo River Mainstem and Tributaries	***San Lorenzo River Mainstem and Tributaries***
1	Regional Board (RB) staff and San Lorenzo River Technical Advisory Committee (SLR TAC) meet to: a) review progress on implementation actions; b) adopt Comprehensive Monitoring Program; and c) establish time schedules for Implementation Actions. RB and County staff meet to review inclusion of high priority status of San Lorenzo Watershed in Stormwater Management Plan.	Refine sampling strategy for comprehensive monitoring plan; Turbidity by water agencies.
2	RB staff and SLR TAC meet to review progress on implementation actions and monitoring.	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
3	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
4	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
5	RB staff and SLR TAC meet to review progress on implementation actions;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
6	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
7	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
8	RB staff and SLR TAC meet to review progress on implementation actions;	Full suite on compliance points; Turbidity by water agencies.
9	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided;	Turbidity by water agencies.
10	RB staff and SLR TAC meet to review progress on implementation actions;	Turbidity by water agencies.
11	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.

4 Direct measurement of sediment loading is not proposed for this TMDL. Parameters characterizing the effect of loading are to be measured instead, and are identified as Numeric Targets. This 25-year schedule for achieving the TMDL acknowledges that implementation actions taken in the near term are expected to take years to produce a response as measured through Numeric Target monitoring.

At End of Implementation Year:	IMPLEMENTATION MILESTONE	MONITORING ACTIVITY[4]
12	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
13	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
14	RB staff and SLR TAC meet to review progress on implementation actions; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Full suite of Numeric Target Parameters at compliance points; Turbidity by water agencies.
15	Implementing Parties submit report on progress of actions; RB staff and SLR TAC meet to review progress on implementation actions and monitoring; RB staff consider modifications to Trackable Implementation Actions; RB requests implementation tracking report from Implementing Parties if not provided; RB staff calculate 10-year rolling average of streambed sediment data and turbidity;	Turbidity by water agencies.
16-24	*Repeat as above with 1- and 3-year milestones*	
25	Numeric Targets Achieved; Load reduction Achieved	

IX.E. Total Maximum Daily Loads for Pathogens for Morro Bay and Chorro and Los Osos Creeks

The Regional Water Quality Control Board adopted this TMDL on May 16, 2003.
This TMDL was approved by:
The State Water Resources Control Board on September 16, 2003.
The California Office of Administrative Law on November 11, 2003.
The U.S. Environmental Protection Agency on January 20, 2004.

TMDL Elements

<table>
<tr><th>Element</th><th></th></tr>
<tr><td>Problem Statement</td><td>Numeric water quality objectives for fecal coliform set by the Regional Board and standards enforced by the California Department of Health Services (DHS) pursuant to the United States Department of Health Services Food and Drug Administration's National Shellfish Sanitation Program have been exceeded for shellfish harvesting and water contact recreation in Morro Bay. Elevated levels of fecal coliform in Morro Bay and Chorro and Los Osos Creeks indicate that pathogens are impairing water contact recreation and shellfish harvesting in these water bodies. High levels of pathogens may cause disease in humans and may also adversely affect marine animals. Portions of Morro Bay have been closed by DHS for commercial shellfish harvesting since 1996, and advisories have been posted to warn the public to avoid water contact activities. Morro Bay was identified as impaired for pathogens on the 1998 Clean Water Act Section 303(d) list of impaired water bodies.</td></tr>
<tr><td>Numeric Targets</td><td>Numeric targets for Morro Bay, based on regulations[1] that DHS follows
<table>
<tr><th colspan="2">Fecal Coliform</th></tr>
<tr><th>Geometric Mean</th><th>Maximum</th></tr>
<tr><td>14 MPN/100 ml[a]</td><td>43 MPN/100 ml[b]</td></tr>
</table>
a: Based on the geometric mean of monthly sampling
b: No more than 10% of total samples may exceed this number

Numeric targets for Chorro and Los Osos Creeks and fresh water seeps[2] to Morro Bay, based on Basin Plan objective
<table>
<tr><th colspan="2">Fecal Coliform</th></tr>
<tr><th>Geometric Mean</th><th>Maximum</th></tr>
<tr><td>200 MPN/100 ml[a]</td><td>400 MPN/100 ml[b]</td></tr>
</table>
a: Geometric mean of not less than five samples over a period of 30 days
b: Not more than 10% of total samples during a period of 30 days exceed</td></tr>
</table>

1 National Shellfish Sanitation Program, Model Ordinance. Chapter IV, 0.02, D
2 Seeps are defined as any surfacing ground water flowing into Morro Bay from the east shore of the Bay, south of Los Osos Creek.

Allocations and TMDL	This TMDL is expressed as concentrations that are equal to the numeric targets. For Bay waters, a geometric mean of 14 MPN/100 ml must be achieved and no more than 10% of the samples may be over 43 MPN/100 ml for fecal coliform. For tributaries (Chorro and Los Osos Creeks and fresh water seeps) to the Bay, the geometric mean shall not exceed 200 MPN/100 ml over a 30-day period nor shall 10% of the samples exceed 400 MPN/100 ml over any 30-day period for fecal coliform. Point and nonpoint sources cannot exceed the concentrations specified above. Therefore, the wasteload allocations and load allocations, which include background levels, are also equal to the numeric targets.
Margin of Safety	A margin of safety has been established implicitly through the use of protective numeric targets.
Linkage Analysis	Allocations are equal to the numeric targets which equal the water quality objectives.
Implementation	The bacterial load to Morro Bay derives from nonpoint sources (NPS) and point sources. As such, implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements (Porter Cologne). Implementation emphasizes the activities of the Morro Bay National Estuary Program, Coastal San Luis Resources Conservation District, Farm Bureau, University of California Cooperative Extension, Natural Resources Conservation Service, Public/Private Landowners, Morro Bay Harbor Department, California Department of Fish and Game, City of Morro Bay, United States Coast Guard, San Luis Obispo County, Division of Animal Services, all of whom are not currently identified as dischargers responsible for bacterial loading, to implement self-determined activities (see Table IX.E-1: Trackable Implementation Actions (self-determined)). Other actions, currently required because of another Regional Water Quality Control Board (Regional Board) regulatory program, will be evaluated to make sure progress is taking place (see Table IX.E-1: Trackable Implementation Actions identified under existing regulatory programs). Regional Board Staff will meet annually with the implementing parties identified in the list of Trackable Implementation Actions Table IX.E-1 to provide technical assistance and to evaluate and track progress (see Table IX.E-2: Morro Bay TMDL for Pathogens Implementation Schedule for details). If at the end of year three, implementing parties fail to complete these self-determined activities and/or resulting management practices fail to reduce bacterial loads and/or the numeric targets are not being met, then Regional Board staff will conduct inspections and investigations to identify individual responsible dischargers (e.g., landowners or public agencies). Regional Board staff may rely on Section 13267 of the California Water Code for investigation and identification of individual responsible dischargers. Regional Board staff will also rely on Section 13267 of the California Water Code to require reporting and/or monitoring to determine the level of implementation of identified activities to reduce bacteria. If necessary, the Regional Board may rely on enforcement authority, pursuant to California Water Code Section 13304, to require dischargers to clean-up and abate bacterial discharges and/or prevent the threat of discharges on a case-by case basis. Additionally, Implementation Actions (in the Table IX.E-1 of Implementation Actions) may be identified as conditions of compliance with storm water permits and Waste Discharge Requirements. If at the end of the third year, self-determined actions have not been initiated, staff will develop a regulatory approach (rather than a self-determined approach) and present a revised implementation plan to the Regional Board as a Basin Plan Amendment.

Monitoring	Monitoring will be performed and evaluated by the DHS according to their regulations, the Morro Bay National Estuary Volunteer Program and the Regional Board to ensure that numeric targets are met and implementation actions are taking place. Should the Morro Bay National Estuary Volunteer Program be unable to sample, the Regional Board will sample to the extent practicable. Regional Board staff will review data on a triennial basis, at a minimum, and determine if progress towards fecal coliform reduction is adequate and whether changes to implementation actions are warranted (as described above).

Table IX.E-1. Trackable Implementation Actions (self-determined)

PROJECT NAME	ACTION	SCHEDULE	IMPLEMENTING PARTIES
Grazing Management	Implement grazing management measures that reduce bacterial levels	Ongoing - 2012	MBNEP, CSLRCD, Farm Bureau, UCCE, NRCS, Public/Private Landowners
Boat Management, Pump-outs	Upgrade pump-out facilities, provide new facilities, improve accessibility	2002-2005	MBHD
Remove unpermitted moorings	Remove illegal moorings and prevent future ones	Ongoing - 2007	CDFG, MBNEP
Remove derelict boats	Remove abandoned, derelict boats and vessels in back bay	Ongoing - 2007	CDFG, MBNEP
Manage live aboard boating situation	Continue issuing permits to live aboards, continue with inspections	Ongoing - 2012	City of Morro Bay, USCG, CDFG, MBHD
Educate Public about proper boat waste disposal	Educate public about proper waste disposal	Ongoing - 2012	MBNEP, MBHD
Pet waste management	Create an off leash dog park, provide supplies to pick-up pet waste, ordinance	Ongoing - 2012	MBNEP, City of Morro Bay, San Luis Obispo County
Septic System Maintenance	Inspect and maintain all septic systems throughout the watershed	2004 - continuous	San Luis Obispo County, LOCSD
Spay/neuter pets	Educate public to promote spaying and neutering pets	Ongoing - 2012	Division of animal services
Reduce the number of feral dogs/cats	Reduce the number of feral dogs/cats	Ongoing - 2012	Division of animal services, feral cat caretakers

CDFG – California Department of Fish and Game
CSLRCD – Coastal San Luis Resources Conservation District
MBHD – Morro Bay Harbor Department
MBNEP – Morro Bay National Estuary Program
NRCS – Natural Resources Conservation Service
UCCE – University of California Cooperative Extension
USCG – United States Coast Guard
LOCSD – Los Osos Community Services District

Table IX.E-1 (continued). Trackable Implementation Actions (under existing regulatory programs)

PROJECT NAME	ACTION	SCHEDULE	RESPONSIBLE DISCHARGERS
Phase II stormwater permit	Incorporate actions to reduce bacteria loading into Morro Bay by implementing a stormwater management plan for the City of Morro Bay and the Community of Los Osos	March 2003 - 2008	City of Morro Bay LOCSD, San Luis Obispo County
Los Osos Community Waste Water Treatment Plant	Construct and maintain a wastewater treatment plant pursuant to Waste Discharge Requirements, R3-2003-0007, Waste Discharge Identification no. 3 401078001	Ongoing - 2007	LOCSD

Table IX.E-2. Implementation Schedule for Morro Bay TMDL for Pathogens

At End of Implementation Year:	Implementation Milestone	Monitoring Activity	Chorro Creek TMDL	Los Osos Creek TMDL	Morro Bay TMDL
1	• RWQCB evaluates data collected over past year, evaluates progress on actions • Meet with VMP, MBNEP, LOCSD, City of MB, County of SLO, DHS, MBHD, State Parks, CDFG, Farm Bureau to discuss progress • LOCSD waste water treatment plant WDR issued • Submittal of stormwater management plan and permit coverage (City of MB, LOCSD)	Fecal coliform			
2	• RWQCB evaluates data collected; evaluates progress on actions				
3	• RWQCB evaluates data collected; evaluates progress on actions • Regional Board evaluates the monitoring of septic system maintenance in the watershed with the County of San Luis Obispo • RWQCB, MBNEP, VMP, LOCSD, City of MB, County of SLO, DHS, MBHD, State Parks, CDFG, Farm Bureau meet to determine TMDL progress.				
4	• RWQCB evaluates data collected; evaluates progress on actions				
5	• RWQCB evaluates data collected; evaluates progress on actions				
6	• RWQCB evaluates data collected; evaluates progress on actions • LOCSD sewer installed • RWQCB, MBNEP, VMP, LOCSD, City of MB, County of SLO, DHS, MBHD, State Parks, CDFG, Farm Bureau meet to determine TMDL progress				
7	• RWQCB evaluates data collected; evaluates progress on actions				
8	• RWQCB evaluates data collected and evaluates progress on actions				
9	• RWQCB evaluates data collected and evaluates progress on actions • RWQCB, MBNEP, VMP, LOCSD, City of MB, County of SLO, DHS, MBHD, State Parks, CDFG, Farm Bureau meet to determine TMDL progress		REC-1 standards achieved	REC-1 standards achieved	DHS Standards, SHELL achieved
10	• RWQCB evaluates data collected and evaluates progress on actions				
	Load Reduction Achieved; Numeric Targets Achieved				

CDFG – California Department of Fish and Game
DHS – Department of Health Services
LOCSD – Los Osos Community Services District
MB – Morro Bay
MBHD – Morro Bay Harbor Department
MBNEP – Morro Bay National Estuary Program
RWQCB – Regional Water Quality Control Board
SLO – San Luis Obispo
VMP – Volunteer Monitoring Program
WDR – Waste Discharge Requirements

IX.G. Total Maximum Daily Load for Pathogens for San Luis Obispo Creek

The Regional Water Quality Control Board adopted this TMDL on December 3, 2004.
This TMDL was approved by:
The State Water Resources Control Board on May 19, 2005.
The California Office of Administrative Law on July 25, 2005 (effective date).
The U.S. Environmental Protection Agency on September 23, 2005.

Problem Statement

The beneficial uses of non-contact water recreation and water contact recreation are not being supported because fecal coliform concentration in San Luis Obispo Creek exceeds existing Basin Plan numeric objectives protecting these beneficial uses.

Numeric Target

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100ml, nor shall more than ten percent of total samples collected during any 30-day period exceed 400 MPN per 100ml.

Source Analysis

The fecal coliform sources contributing to the problems identified in the Problem Statement are, in decreasing order of contribution: urban, human, birds and bats roosting in the tunnel, livestock, and background. DNA analysis of samples drawn between sites 10.3 and 10.9 (see map in Figure IX.F-1) in San Luis Obispo Creek indicate that the following sources and corresponding frequencies are present: human (41%), avian (17%), combined sewer overflow (15%), canine (11%), rodent (5%), dog (4%), raccoon (3%), feline (3%), opossum (1%).

TMDL and Allocations

The TMDL is a receiving water concentration equal to the numeric target. The TMDL is considered achieved when the allocations assigned to individual reaches are consistently met or numeric targets are consistently met in all reaches.

Allocations are expressed as receiving water fecal coliform concentration. Table IX.G-1 shows the allocations with respect to location and responsible party. The reaches referred to in Table IX.G-1 are illustrated in Figure IX.G-1.

Locations of the sites illustrated in Figure IX.F-1 are described as follows:

- Site 10.0: located along the main stem of San Luis Obispo Creek (Creek) at the bridge crossing the Creek on Marsh Street. This location is downstream of the confluence of the main stem of the Creek with Stenner Creek.
- Site 10.3: located along the main stem of the Creek at Mission Plaza, immediately downstream of the downstream end of the tunnel.
- Site 10.9: located along the main stem of the Creek at the upstream end of the tunnel.
- STEN0.0: located at the mouth of Stenner Creek before its confluence with San Luis Obispo Creek.
- STEN1.5: located in Stenner Creek at its crossing with Highland Drive on the campus of Cal Poly.
- BRIZ1.0: located in Brizziolari Creek at its crossing with Via Carte Drive on Cal Poly campus; this site is located downstream of the bull-test animal unit.
- Site 12.5: located along the main stem of the Creek at Cuesta Park near the Highway 101 bridge.

Waste Load Allocations: Allocations to the City of San Luis Obispo are waste load allocations (WLAs). The WLAs will be implemented by the City's NPDES permit for the Water Reclamation Facility for control of sewer sources.

The WLAs will also be implemented by the City's General Municipal Stormwater permit for the control of urban sources as well as animal sources from the tunnelized area of the Creek.

Allocations to the County of San Luis Obispo are WLAs. The WLAs will be implemented by the County's General Municipal Stormwater permit for the control of urban sources.

A portion of the total allocation to California Polytechnic State University, San Luis Obispo (Cal Poly) is a WLA. The allocation at site STEN1.5 shown in Table IX.G-1 is a WLA. The WLA will be implemented by Cal Poly's General Municipal Stormwater permit for the control of urban sources.

Load Allocations: Cal Poly is allocated a load allocation (LA) for the livestock sources along Brizziolari Creek. The LA will be implemented by Cal Poly's WDR permit for the control of animal sources (see site BRIZ1.0 in Table IX.G-1).

Allocation for Background: The allocation to Background is included in the WLAs and LA. The background allocation is a receiving water concentration of 81 MPN/100 mL. Therefore, the allocations in Table IX.G-1 include the allocation to background.

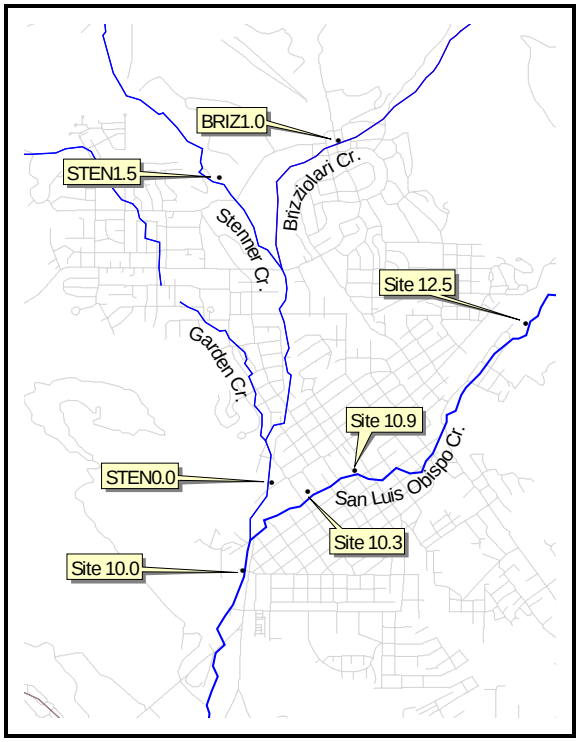

Figure IX.G-1: Allocation Sites

Table IX.G-1 Allocations and Responsible Parties

Allocations in San Luis Obispo Creek				Receiving Water Fecal Coliform Concentration (MPN/100mL)[1]
From Site:	To Upstream Site:	Responsible Party [2, 3, 4]	Allocation Type[5]	
12.5	All upstream sites	County	WLA	≤ 200
10.9	12.0	City	WLA	≤ 200
10.0	10.9	City	WLA	≤ 200
Allocations in Stenner and Brizziolari Creeks				Receiving Water Fecal Coliform Concentration (MPN/100mL)[1]
From Site:	To Upstream Site:	Responsible Party [2, 3, 4]	Allocation Type[5]	
STEN1.5	All upstream sites	Cal Poly	WLA	≤ 200
STEN0.0	STEN1.5	City	WLA	≤ 200
BRIZ1.0	All upstream sites	Cal Poly	LA	≤ 200
Allocations for reaches not specifically noted above: For stream reaches not specifically noted above, the allocation for any discharge loading fecal coliform into San Luis Obispo Creek or any of its tributaries is as follows: Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100mL, nor shall more than 10% of the total samples during any 30-day period exceed 400 MPN per 100mL.				
[1] As log mean of 5 samples taken in a 30-day period occurring within each season. [2] County implies County of San Luis Obispo [3] City implies City of San Luis Obispo [4] Cal Poly implies California Polytechnic State University, San Luis Obispo Campus [5] WLA implies Waste Load Allocation, LA implies Load Allocation				

Margin of Safety

A margin of safety is incorporated in the TMDL through conservative assumptions. The conservative assumptions include: 1) assumption of zero bacterial die-off, 2) TMDL and allocation calculations are predominantly based on data collected during low-flow conditions, which, in the case of San Luis Obispo Creek, skews towards a worst-case scenario.

Implementation

The following actions will occur within one year of TMDL approval by the Office of Administrative Law.

HUMAN SOURCES

The City will implement actions described in Table IX.G-2, item 1F, to control human sources as currently required by the NPDES permit for the Water Reclamation Facility (WRF).

The Executive Officer (EO) or the Regional Board will amend the Monitoring and Reporting Program (M&RP) of the City's NPDES permit for the WRF to incorporate stream monitoring for fecal coliform. The EO or Regional Board will also amend the M&RP to incorporate reporting of such stream monitoring activities.

URBAN SOURCES

The City will amend its Storm Water Management Plan (SWMP) to include actions described in Table IX.G-2, items 1A, 1B, 1C, 1D, and 1E, pursuant to Section D of State Board Order No. 2003-005, NPDES General Permit No. CAS000004 for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Small MS4

Permit). The City will then describe the actions taken in Table IX.G-2 as part of its annual report required by the Small MS4 Permit. If the City does not make these changes by submittal of the next annual report, the Executive Officer will require such changes.

The Executive Officer or the Regional Board will amend the Monitoring and Reporting Program of the City's small MS4 Permit to incorporate stream monitoring of fecal coliform and reporting of such monitoring, if additional monitoring-beyond that amended to the Monitoring and Reporting Program for the City's NPDES Permit for the WRF-is necessary.

Cal Poly will amend their SWMP to include specific actions described in Table IX.G-2, items 3A, 3B, and 3D. Cal Poly will then describe actions taken in Table IX.G-2 as part of their annual report required by the Small MS4 Permit. If Cal Poly does not make these changes by submittal of next annual report for this permit, the Executive Officer will require such changes.

The County of San Luis Obispo (County) will amend its SWMP to include specific actions described in Table IX.G-2, items 2A, 2B, 2C, and 2D, pursuant to Section D of the Small MS4 Permit. The County will then describe actions taken in Table IX.G-2 as part of its annual report required by the Small MS4 Permit. If the County does not make these changes by submittal of next annual report for this permit, the Executive Officer will require such changes.

LIVESTOCK SOURCES

Cal Poly will eliminate discharges of animal waste from seepage to surface waters from irrigated wastewater and flow to surface waters from confined animal operations, as currently required by Cal Poly's Waste Discharge Requirements.

Cal Poly has agreed to use management practices described in Table IX.G-2, item 3C, as described in its Water Quality Management Plan.

Cal Poly will conduct stream monitoring and report results as currently required by the M&RP of Cal Poly's Waste Discharge Requirements.

Additionally, the EO will amend the M&RP associated with Cal Poly's Waste Discharge Requirements to require annual reporting of specific measures that have been identified in the Water Quality Management Plan and have been and/or will be taken to reduce fecal coliform loading from livestock and urban sources.

THREE-YEAR REVIEWS

Regional Board staff will conduct a review every three years beginning three years after TMDL approval by the Office of Administrative Law. Regional Board staff will utilize Annual Reports, as well as other available information, to review water quality data and implementation efforts of responsible parties and progress being made towards achieving the allocations and the numeric target. Regional Board staff may conclude and articulate that ongoing implementation efforts may be insufficient to ultimately achieve the allocations and numeric target. If staff makes this determination, staff will recommend that additional reporting, monitoring, or implementation efforts be required either through approval by the Executive Officer (e.g. pursuant to CWC section 13267 or section 13383) or by the Regional Board (e.g. through revisions of existing permits and/or a Basin Plan Amendment). Regional Board staff may conclude and articulate that to date, implementation efforts and results are likely to result in achieving the allocations and numeric target, in which case existing and anticipated implementation efforts should continue.

Three-year reviews will continue until the TMDL is achieved. The target date to achieve the TMDL is ten years after implementation commences.

Table IX.G-2. Implementation Actions ff Responsible Parties

Responsible Party	Item	Best Management Practice	Discussion
City of San Luis Obispo	1A	Public Participation and Outreach	Educate the public regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters. Educate the public regarding actions that individuals can take to reduce loading.
	1B	Pet Waste Management	Develop and implement enforceable means (e.g. an ordinance) of reducing/eliminating fecal coliform loading from pet waste.
	1C	Wild Animal Waste Management	Develop and implement strategies to reduce/eliminate fecal coliform loading from wild animals inhabiting the tunnelized area of the Creek.
	1D	Illicit Discharge Detection and Elimination	Develop and implement strategies to detect and eliminate illicit discharges (whether mistaken or deliberate) of sewage to the Creek.
	1E	Pollution Prevention and Good Housekeeping	Develop and implement strategies to reduce/eliminate fecal coliform loading from streets, parking lots, sidewalks, and other urban areas potentially collecting and discharging fecal coliform to the Creek.
	1F	Human Source Elimination and Prevention	Maintain the sewage collection system, including identification of sewage leaks, the correction of sewage leaks, and prevention of sewage leaks.
County of San Luis Obispo	2A	Public Participation and Outreach	Educate the public regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters. Educate the public regarding actions that individuals can take to reduce loading.
	2B	Pet Waste Management	Develop and implement enforceable means (e.g. an ordinance) of reducing/eliminating fecal coliform loading from pet waste.
	2C	Illicit Discharge Detection and Elimination	Develop and implement strategies to detect and eliminate illicit discharges (whether mistaken or deliberate) of sewage to the Creek.
	2D	Pollution Prevention and Good Housekeeping	Develop and implement strategies to reduce/eliminate fecal coliform loading from streets, parking lots, sidewalks, and other urban areas potentially collecting and discharging fecal coliform to the Creek.
Cal Poly State University	3A	Public Participation and Outreach	Educate the public regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters. Educate the public regarding actions that individuals can take to reduce loading.
	3B	Pet Waste Management	Develop and implement enforceable means of reducing/eliminating fecal coliform loading from pet waste.
	3C	Grazing Management	Develop and implement strategies to reduce/eliminate fecal coliform loading from livestock grazing.
	3D	Pollution Prevention and Good Housekeeping	Develop and implement strategies to reduce/eliminate fecal coliform loading from streets, parking lots, sidewalks, and other urban areas potentially collecting and discharging fecal coliform to the Creek.

IX.G. San Luis Obispo Creek Total Maximum Daily Load and Implementation Plan for Nitrate-Nitrogen

The Regional Water Quality Control Board adopted this TMDL on September 9, 2005.
This TMDL was approved by:
The State Water Resources Control Board on June 21, 2006.
The California Office of Administrative Law on August 4, 2006 (effective date).
The U.S. Environmental Protection Agency on January 10, 2007.

Problem Statement

The municipal and domestic supply of water beneficial use (MUN) is not being supported because nitrate-N concentrations in San Luis Obispo Creek exceed the existing Basin Plan numeric objective protecting the MUN beneficial use.

Numeric Target

The numeric target used to calculate the TMDL is a nitrate-N concentration of 10 mg/L-N.

Source Analysis

Nitrate-N sources contributing to the problem identified in the Problem Statement are, in decreasing order of contribution: City of San Luis Obispo Water Reclamation Facility (WRF), croplands, background, reservoirs, and residential areas.

TMDL and Allocations

The TMDL is a receiving water nitrate-N concentration equal to the numeric target. The following allocations are necessary to achieve the TMDL.

Wasteload Allocations:

- City of San Luis Obispo WRF effluent: The monthly mean nitrate-N concentration of effluent shall not exceed 10 mg/L-N.

Load Allocations:

- Croplands in Prefumo Creek Watershed: shall not cause nitrate-N concentration in receiving waters to exceed 10 mg/L-N.
- Background: Nitrate concentration of 0.1 mg/L-N.

Load and wasteload allocations to sources currently meeting water quality standards:

- The following wasteload and load allocations ensure that the receiving water will achieve compliance with water quality standards at the earliest possible date, continue to meet water quality standards after the above wasteload and load allocations are attained, and comply with state and federal anti-degradation requirements.
    - Residential Sources Wasteload Allocation:
        - Storm water discharge shall not cause an increase in receiving water nitrate-N concentration greater than the current increase in nitrate-N concentration resulting from the discharge.
    - Reservoir Sources Load Allocation (Laguna Lake):
        - Reservoir discharge shall not cause an increase in receiving water nitrate-N concentration greater than the current increase in nitrate-N concentration resulting from the discharge.

Margin of Safety

Nitrate concentration of 2.2 mg/L-N.

Implementation

The following actions will be taken to implement the TMDL.

WRF Source:

- The Central Coast Water Board will incorporate an effluent limit for nitrate-N in the City of San Luis Obispo's National Pollutant Discharge Elimination System permit (NPDES permit) for the WRF, consistent with the allocations described in the Wasteload Allocations section above. The effluent limit will be incorporated in the NPDES permit at the first permit renewal following TMDL approval by the Central Coast Water Board (expected in May 2007).
- The Central Coast Water Board intends to issue a Cease and Desist Order (CDO) or Time Schedule Order to the WRF concurrently with the NPDES permit, requiring the WRF to reduce nitrate-N concentration in the effluent. The CDO will contain a time schedule establishing the time allowed to comply with the order.
- The Central Coast Water Board will consider a revision of the wasteload allocation and corresponding effluent limit for the WRF if an amendment to the Basin Plan removing or revising the MUN beneficial use and corresponding numeric objective for nitrate is approved by USEPA.

Residential Source (Storm water):

- The City of San Luis Obispo, the County of San Luis Obispo, and Cal Poly State University will implement management practices consistent with and required by Small MS4 Permits regulating storm water discharge in San Luis Obispo Creek watershed, and will submit annual reports as required by such permits. If implementation actions are insufficient to achieve the TMDL, additional implementation actions will be required through approval by the Executive Officer (e.g., pursuant to CWC section 13267 or section 13383) or by the Central Coast Water Board (e.g., by requiring revisions of existing storm water management plans and/or a Basin Plan Amendment).

Reservoir Source

- Implementation measures to achieve the allocation to the reservoir source are carried out through the Residential Source (Storm water) implementation actions.

Cropland Source:

- Landowners and operators of irrigated lands in Prefumo Creek watershed will implement actions needed to achieve the allocations to croplands pursuant to the Conditional Waiver of Waste Discharge Requirements for Discharges to Irrigated Lands (Conditional Waiver). Implementation and monitoring requirements for parties engaged in agricultural activities are consistent with, and rely upon, the Conditional Waiver.
- Monitoring reports and data associated with the Conditional Waiver, as well as other information, will be used to determine whether management measures being taken are sufficient to achieve the TMDL by the year 2012. Central Coast Water Board staff will make this determination every three years as described in the Tracking and Monitoring section below. If implementation actions are insufficient to achieve the TMDL, additional implementation actions will be required through approval by the Executive Officer (e.g., pursuant to CWC section 13267 or section 13383) or by the Central Coast Water Board; the Executive Officer or the Central Coast Water Board will approve of additional actions as soon as practicable.

Monitoring

The following actions will be taken to implement monitoring requirements.

- The Executive Officer (EO) or the Central Coast Water Board will amend the Monitoring and Reporting Program (M&RP) of the City's NPDES permit for the WRF to incorporate effluent and stream monitoring for nitrate-N, and to incorporate reporting of these monitoring activities. The City of San Luis Obispo will comply with the amended M&RP as soon as the EO or the Water Board issues the revised program (anticipated to

occur at the next permit renewal following TMDL approval by the Central Coast Water Board [expected in May 2007]).

- Implementation and monitoring requirements for parties engaged in agricultural activities are consistent with, and rely upon, the Conditional Waiver.

Tracking and Monitoring

- Central Coast Water Board staff will conduct a review of implementation activities every three years, beginning three years after TMDL approval by the Office of Administrative Law, unless funding is unavailable. Central Coast Water Board staff will utilize annual reports associated with Small MS4 permits, as well as other available information, to review water quality data and implementation efforts of implementing parties and progress being made towards achieving the allocations and the numeric target. Central Coast Water Board staff may conclude that ongoing implementation efforts may be insufficient to ultimately achieve the allocations and numeric target. If staff makes this determination, staff will recommend that additional reporting, monitoring, or implementation efforts be required either through approval by the Executive Officer (e.g., pursuant to CWC section 13267 or section 13383) or by the Central Coast Water Board (e.g., through revisions of existing permits and/or a Basin Plan Amendment). Central Coast Water Board staff may conclude that to date, implementation efforts and results are likely to result in achieving the allocations and numeric target, in which case existing and anticipated implementation efforts will continue.

  Three-year reviews will continue until the TMDL is achieved, unless funding is unavailable. The target date to achieve the TMDL is during or before the year 2012.

IX.H. Pajaro River Total Maximum Daily Loads for Sediment Including Llagas Creek, Rider Creek, and San Benito River

The Regional Water Quality Control Board adopted this TMDL on December 2, 2005.
This TMDL was approved by:

The State Water Resources Control Board on September 21, 2006.
The California Office of Administrative Law on November 27, 2006 (effective date).
The U.S. Environmental Protection Agency on May 3, 2007.

Problem Statement

Anthropogenic watershed disturbances have accelerated the natural processes of erosion and sedimentation in the Pajaro River, including Llagas Creek, Rider Creek, and San Benito River. Special studies have identified a variety of watershed conditions that have lead to excessive sedimentation. Excessive sedimentation has caused an exceedance of the narrative, general water quality objective for sediment because sediment load and rate have interfered with the beneficial uses of these waterbodies including, fish and wildlife (COLD, MIGR, and SPWN).

The narrative objective states, “the suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.”

Numeric Targets (interpretation of the narrative water quality objective)

This TMDL establishes numeric targets as indicators of the narrative, general water quality objective for sediment. This TMDL uses two types of numeric targets: suspended sediment concentration-duration and streambed characteristics. Numeric targets for suspended sediment concentration-duration are presented in Table IX.H-1. Numeric targets for streambed characteristics are presented in Table IX.H-2.

Table IX.H-1 - Numeric Targets for Suspended Sediment Conditions

Major Subwatershed [a]	Exposure Category [b]		Exceedance Event Criteria		Numeric Targets [c]	
	Duration (consecutive days)	Suspended Sediment Concentration Range (mg/L) [d]	Duration (consecutive days)	Suspended Sediment Concentration (mg/L)	Maximum Number of Exceedance Events	Maximum Duration of any given Exceedance Event (consecutive days)
Tres Pinos	1	666 – 1808	2	>1808	15	22
	2	245 – 665	3	>665	42	44
	6	91 – 244	7	>244	36	51
	14	91 – 244	15	>244	20	51
	49	33 – 90	50	>90	5	108
San Benito	1	666 – 1808	2	>1808	9	9
	2	245 – 665	3	>665	30	21
	6	91 – 244	7	>244	29	35
	14	91 – 244	15	>244	14	35
	49	33 – 90	50	>90	2	60
Llagas	1	666 – 1808	2	>1808	0	0
	2	245 – 665	3	>665	0	1
	6	91 – 244	7	>244	9	15
	14	91 – 244	15	>244	1	15
	49	33 – 90	50	>90	0	28
Uvas	1	666 – 1808	2	>1808	1	3
	2	245 – 665	3	>665	12	8
	6	91 – 244	7	>244	12	15
	14	91 – 244	15	>244	1	15
	49	33 – 90	50	>90	0	18
Upper Pajaro	1	666 – 1808	2	>1808	0	1
	2	245 – 665	3	>665	3	3
	6	91 – 244	7	>244	2	9
	14	91 – 244	15	>244	0	9
	49	33 – 90	50	>90	0	33
Corralitos (includes Rider Creek)	1	666 – 1808	2	>1808	0	1
	2	245 – 665	3	>665	0	2
	6	91 – 244	7	>244	8	11
	14	91 – 244	15	>244	0	11
	49	33 – 90	50	>90	0	36
Mouth of Pajaro	1	666 – 1808	2	>1808	0	1
	2	245 – 665	3	>665	0	2
	6	91 – 244	7	>244	8	11
	14	91 – 244	15	>244	0	11
	49	33 – 90	50	>90	0	36

[a] Major subwatersheds of the Pajaro River.

[b] Five exposure categories per major subwatershed. Each exposure category is comprised two components: a duration (consecutive days) and a suspended sediment concentration (SSC) range in milligrams per liter (mg/L).

[c] Numeric targets are comprised of two components: a maximum number of exceedance events that may occur in any consecutive 15 years after development of the monitoring program and the maximum duration (consecutive days) in which the maximum SSC value for each range can be exceeded in 15 years. Exceedance events are specific to each exposure category and consist of consecutive days in which the duration and the maximum SSC value for each range is exceeded. Using the exposure category of 1-day, 666-1,808 mg/L SSC range for Tres Pinos as an example; the maximum number of exceedance events (e.g. 2-days or longer and greater than 1,808 mg/L) is 15. The maximum duration is 22 days. Using the same Tres Pinos example, numeric targets are not met if the number of exceedance events is 16 (or more) or if the maximum duration of any event is 23 consecutive days or longer.

[d] Numbers rounded to show measurable break in the range.

Table IX.H-2 - Numeric Targets for Streambed Characteristics

Parameter	Numeric Target[1]
Residual Pool Volume[2]	V* = Mean values ≤ 0.21 Max values ≤ 0.45
Median Diameter (D_{50}) of Sediment Particles in Spawning Gravels	D_{50} = Mean values ≥ 69 mm Minimum values ≥ 37 mm
Percent of Fine Fines (< 0.85 mm) in Spawning Gravels	Percent fine fines ≤ 21%
Percent of Coarse Fines (< 6.0 mm) in Spawning Gravels	Percent coarse fines ≤ 30%

1 Target values are for sampling reach(es) within an individual waterbody.

2 Residual Pool Volume refers to the portion of a pool in a stream that is available for fish to occupy. Pool habitat is the primary habitat for steelhead in summer. Overwintering habitat requirements include deeper pools, undercut banks, side channels, and especially large, unembedded rocks, which provide shelter for fish against the high flows of winter. V* gives a direct measurement of the impact of sediment on pool volume. It is the ratio of the amount of *pool volume filled by fine, mobile sediment*, to *total pool volume*. Qualifying pools are defined by Regional Board sampling protocol (2002).

Source Analysis

Sources of sediment include the following nonpoint and point source discharge activities occurring within the respective land use source categories. Nonpoint sources include irrigated agriculture activities upon crop, fallow and orchard lands; timber harvesting activities upon forested lands; grazing activities upon pasture and range lands; urban and rural residential development, roads, farm animal and livestock boarding upon urban lands; unpaved roads in the San Benito watershed, and paved and unpaved roads in the Corralitos Creek and Rider Creek watersheds upon lands in the roads landuse category; hydromodification-related activities upon all types of land use; off-road recreational vehicle areas; sand and gravel mining; as well as natural erosion and landslides. Point sources include the small Municipal Separate Storm Sewer Systems (MS4s) of Watsonville, Hollister, Gilroy, and Morgan Hill.

TMDLs and Allocations

TMDLs and load allocations are assigned to sources for seven watersheds as represented in Table IX.H-3. These allocations are modeled load values that are necessary to meet the suspended sediment concentration-duration targets. The Regional Board will determine that the TMDL is attained when the numeric targets are achieved. When numeric targets are achieved, the Regional Board will assume that these loads are met.

Margin of Safety

The total load includes an implicit margin of safety that was derived through conservative assumptions.

Table IX.H-3. TMDLs and Load Allocations

		Source Category							
Major Subwatershed	Allocations[1] (LA/WLA)	Crop, Fallow, and Orchard	Forest [2]	Pasture and Range	Urban Lands [3]	Roads	Barren [2]	Sand and Gravel Mining	Total Load
Tres Pinos	LA	477	352	41085	312		11551		53,778
	WLA				1				
San Benito	LA	1971	2083	19863	327	1180	14128	27	39,679
	WLA				100				
Llagas	LA	596	326	6978	354		144	0	9,185
	WLA				787				
Uvas	LA	946	989	12454	280		369		15,177
	WLA				139				
Upper Pajaro	LA	4114	1228	37664	356		425	3	43,951
	WLA				161				
Corralitos (including Rider Creek)	LA	3544	4536	2427	443	79	73	2	11,389[4]
	WLA				284				
Mouth of Pajaro	LA	3047	58	3055	383		500	35	7,268[4]
	WLA				191				

Notes:

1 Annual load allocations (LA) and waste load allocations (WLA) expressed in metric tons (1 metric ton equals 1,000 kilograms). Blank cells indicate no allocations for specified source category.

2 Forest includes loads from natural sources and from timber harvesting operations; Barren includes loads from natural sources only.

3 Load allocations for urban lands outside of NPDES Phase 2 urban boundaries. Waste load allocations for urban lands within NPDES Phase 2 urban boundaries.

4 Number rounded.

Implementation

The following actions will be taken to reduce sediment discharges from activities that occur within each of the land use source categories (headings) below. Regional Board staff intends to identify and notify the parties responsible for the activities according to the schedule below; however, if staff resources are insufficient or other water quality priorities emerge, this schedule will be modified.

Crop, Fallow, and Orchard Lands

Landowners and operators of crop, fallow, and orchard lands, where irrigated agricultural activities are conducted, will implement agricultural management measures and perform monitoring and reporting pursuant to the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands and the Monitoring and Reporting Program, Order No. R3-2004-0117. This is an existing, on-going activity.

Forest Lands

Landowners and operators of forest lands, where timber harvest activities are conducted, will implement timber harvest management measures and perform monitoring and reporting pursuant to the General Conditional Waiver of Waste Discharge Requirements for Timber Harvest Activities and the Monitoring and Reporting Program, Order No. R3-2005-0066. This is an existing, on-going activity.

Pasture and Range

Owners and operators of pasture and range lands, where grazing activities occur, must comply with the land disturbance prohibition.

Within one year following approval of the TMDLs by the Office of Administrative Law, the Executive Officer will notify the owners and operators of pasture and range lands of the prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Nonpoint Source Pollution Control Implementation Program (Program) or documentation submitted in compliance with the prohibition within six months of the submittal date. Should the Program or documentation require modification, or if a party fails to submit a Program or documentation, the Executive Officer may issue a civil liability complaint pursuant to section 13268 or 13350 of the CWC, or alternatively, propose individual or general waste discharge requirements to assure compliance with the prohibition.

Urban Lands

Urban lands include the small communities of Watsonville, Hollister, Gilroy, and Morgan Hill (cities), rural properties throughout the watershed with farm animals or livestock boarding (rural properties), and roads throughout the watershed. These lands do not include unpaved roads in San Benito River watershed, and paved and unpaved roads within the Corralitos Creek and Rider Creek subwatersheds (See Roads below).

The cities must obtain a Municipal Separate Storm Sewer System (MS4) permit. Their Storm Water Management Programs must include specific actions to reduce sediment discharges pursuant to Clean Water Act Section 402(p)(3)(B) and Section D of State Board Order No. 2003-005, NPDES General Permit No. CAS000004 for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems. The cities will then describe the actions taken as part of their annual report. If necessary, the Regional Board's Executive Officer can require more stringent sediment controls. This is an existing requirement and an on-going activity.

Owners and operators of rural properties and roads must comply with the land disturbance prohibition.

Within one year following approval of the TMDLs by the Office of Administrative Law, the Executive Officer will notify the owners and operators of rural properties and roads of the prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Program or documentation submitted in compliance with the prohibition within six months of the submittal date. Should the Program or documentation require modification, or if a party fails to submit a Program or documentation, the Executive Officer may issue a civil liability complaint pursuant to section 13268 or 13350 of the CWC, or alternatively, propose individual or general waste discharge requirements to assure compliance with the prohibition.

Roads

Within one year following approval of the TMDLs by the Office of Administrative Law, the Executive Officer will notify the owners and operators of unpaved roads within the San Benito River watershed and paved and unpaved roads within the Corralitos Creek and Rider Creek watersheds of the prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Program or documentation submitted in compliance with the prohibition within six months of the submittal date. Should the Program or documentation require modification, or if a party fails to submit a Program or documentation, the Executive Officer may issue a civil liability complaint pursuant to section 13268 or 13350 of the CWC, or

alternatively, propose individual or general waste discharge requirements to assure compliance with the prohibition.

Sand and Gravel Mining

Within six months following approval of the TMDLs by the Office of Administrative Law and pursuant to Section 13263(e) of the CWC, Regional Board staff will review existing waste discharge requirements (WDRs) for sand and gravel mining operations and revise or require activities to: 1) assess cumulative impacts, including fluvial geomorphic impacts, upon the beneficial uses of the San Benito River; 2) mitigate the impacts identified; and 3) monitor the effectiveness of mitigation activities. One year following approval of the TMDLs by the Office of Administrative Law, pursuant to Section 13267 of the CWC, the Executive Officer will require owners and operators of sand and gravel mining operations to submit a plan to assess cumulative impacts, including fluvial geomorphic impacts, upon the beneficial uses of the San Benito River. The Executive Officer will comply with the requirements of section 13267 when issuing the orders. Regional Board staff will encourage sand and gravel mining operators to conduct the cumulative impacts assessment cooperatively.

Streambank Erosion

Owners and operators of properties where hydromodification activities occur must comply with the land disturbance prohibition.

Within one year following approval of the TMDLs by the Office of Administrative Law, the Executive Officer will notify the owners and operators of properties where hydromodification activities occur of the prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Program or documentation submitted in compliance with the prohibition within six months of the submittal date. Should the Program or documentation require modification, or if a party fails to submit a Program or documentation, the Executive Officer may issue a civil liability complaint pursuant to section 13268 or 13350 of the CWC, or alternatively, propose individual or general waste discharge requirements to assure compliance with the prohibition.

Monitoring

Regional Board staff will develop a monitoring program to measure in-stream numeric targets within five years following TMDL approval. The program will be consistent with other Central Coast Region sediment TMDLs, regional sediment monitoring programs, and in cooperation with implementing parties. If Regional Board staff concludes that sediment contributions from individual landowners should be monitored in addition to in-stream numeric targets, the Executive Officer will establish such monitoring requirements in compliance with section 13267.

Tracking and Evaluation

Regional Board staff will conduct a review every three years beginning three years after TMDL approval by the Office of Administrative Law. Regional Board staff will utilize required reports, as well as other available information, to review implementation efforts of responsible parties and progress being made towards achieving the allocations. Regional Board staff will also review numeric target monitoring (see above) to determine progress towards TMDL achievement in the waterbody. The numeric targets, not actual loads or reductions in loads, will be measured, as they are a more direct indicator of beneficial use protection. Regional Board staff may conclude and articulate that ongoing implementation efforts may ultimately be insufficient to achieve the allocations and numeric targets. If staff makes this determination, staff will recommend that additional reporting, monitoring, or implementation efforts be required either by the Executive Officer (e.g. pursuant to CWC section 13267 or section 13383) or by the Regional Board (e.g. through revisions of existing permits and/or a Basin Plan Amendment). At any particular date, Regional Board staff may conclude and articulate that implementation efforts and results are likely to result in achieving the allocations and numeric target, in which case existing and anticipated implementation efforts should continue.

Three-year reviews will continue until the TMDLs are achieved. The target date to achieve the TMDLs is forty-five years after implementation commences.

IX.I. Total Maximum Daily Load for Pathogens for Watsonville Slough

The Regional Water Quality Control Board adopted this TMDL on March 24, 2006.
This TMDL was approved by:

The State Water Resources Control Board on September 21, 2006.
The California Office of Administrative Law on November 20, 2006 (effective date).
The U.S. Environmental Protection Agency on July 19, 2007.

Problem Statement

The beneficial uses of water contact recreation (REC-1) and non-contact water recreation (REC-2) are not supported in Watsonville Slough or its tributaries, Struve, Hanson, Harkins and Gallighan Sloughs, because fecal coliform concentrations there exceed existing Basin Plan numeric water quality objectives protecting these beneficial uses.

Numeric Target

Fecal coliform concentration, based on a minimum of five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100mL, nor shall more than ten percent of total samples collected during any 30-day period exceed 400 MPN per 100mL.

Source Analysis

Controllable sources of fecal coliform bacteria in Watsonville Slough and its tributaries include humans, pets, livestock, and land-applied non-sterile manure in irrigated agriculture. Genetic data indicate that the major sources of fecal coliform causing exceedance of the REC-1 standard are natural avian populations. Genetic analysis of Watsonville Slough water samples from both winter and summer periods confirmed birds, cows, and dogs (with birds contributing the most and dogs the least); human fecal coliform bacteria was confirmed in Harkins and Struve Sloughs, but in lower amounts than cow, bird and dog fecal coliform.

TMDL and Allocations

The TMDL for pathogens in Watsonville Slough is a receiving water concentration equal to the numeric target for fecal coliform. The allocation to each responsible party is the receiving water fecal coliform concentration equal to the TMDL. These allocations focus on reducing or eliminating the controllable sources of fecal coliform. The table below shows the allocations with respect to responsible party and waterbody.

The allocation to background (including natural sources from birds) is also the receiving water fecal coliform concentration equal to the TMDL. The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

ALLOCATIONS AND RESPONSIBLE PARTIES

WASTE LOAD ALLOCATIONS		**Receiving Water Fecal Coliform (MPN/100mL)[1]**
Waterbody	**Responsible Party**	
Watsonville, Struve, Harkins Sloughs	Santa Cruz County (Urban Stormwater)	≤ 200
Watsonville, Struve, Harkins, Gallighan, Hanson Sloughs	City of Watsonville (Urban Stormwater)	≤ 200
Harkins Slough	Santa Cruz Co. Freedom Sanitation District (Sanitary Sewer Collection System)	≤ 200
Watsonville & Struve Sloughs	City of Watsonville (Sanitary Sewer Collection System)	≤ 200
Gallighan Slough	Santa Cruz County (Landfill Stormwater)	≤ 200
LOAD ALLOCATIONS		**Receiving Water Fecal Coliform (MPN/100mL)[1]**
Watsonville & Harkins Sloughs	Operators or owners of irrigated lands who land-apply non-sterile manure	≤ 200
Watsonville & Harkins Sloughs	Operators or owners of livestock facilities and animals	≤ 200
[1] As log mean of five (5) samples taken in a 30-day period occurring within each season.		

The TMDL is considered achieved when the allocations assigned to the controllable and natural sources are met, or when the numeric targets are consistently met in all tributaries and Watsonville Slough.

Margin of Safety

A margin of safety is incorporated in the TMDL through conservative assumptions.

Implementation and Monitoring

Landfill Stormwater Monitoring

Within six months following adoption of this TMDL by the Office of Administrative Law, the Executive Officer will require the County of Santa Cruz to include fecal coliform monitoring in the Buena Vista Landfill Waste Discharge Requirements (Order No. 94-29), per Section 13267 of the CWC.

THE FOLLOWING ACTIONS WILL REDUCE FECAL COLIFORM BACTERIA LOADING FROM HUMANS AND PETS:

Urban Stormwater

The City of Watsonville (City) and County of Santa Cruz (County) must revise their Stormwater Management Plans to indicate how and when they will conduct public participation and outreach regarding specific actions that individuals can take to reduce pathogen loading and to indicate how and when they will develop and implement an enforceable means of reducing fecal coliform loading from pet waste (e.g., an ordinance). Within six months following adoption of this TMDL by the Office of Administrative Law, the Executive Officer will (i) issue a letter pursuant to Section 13383 of the California Water Code (CWC), requiring these changes to be described in the annual report required by the Small MS4 Permit (State Board Order No. 2003-005, NPDES General Permit No.CAS000004 for Municipal Separate Storm Sewer Systems) and (ii) require appropriate modifications to the Stormwater Management Plans pursuant to Section G of the General Permit.

The City and County public participation and outreach efforts must include the following tasks:

a. Educating the public about sources of fecal coliform and its associated health risks in surface waters.
b. Identifying and promoting specific actions that responsible parties can implement to reduce pathogen loading from sources such as homeless encampments, agricultural field workers, and homeowners who contribute waste from domestic pets.

The City and County must monitor receiving water and stormwater outfalls that may be contributing fecal coliform to the sloughs. Within six months following adoption of this TMDL by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 and/or 13383 of the CWC, requiring a technical report that describes a monitoring plan and schedule that includes sampling sites in receiving water and at stormwater outfalls. The City and County may submit the monitoring results in subsequent annual reports already required by the Small MS4 Permit or submit them in a separate technical report.

Sanitary Sewer Collection System

The City and County are required to improve maintenance of their sewage collection systems, including identification, correction, and prevention of sewage leaks, in portions of the collection systems that run through, or adjacent to, tributaries to Watsonville Slough (Action 1B, Table IX.I-1). Within six months following adoption of this TMDL by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the CWC, requiring a technical report that describes how and when they will conduct improved system maintenance in portions of the system most likely to affect the Sloughs. One year following adoption of this TMDL by the Office of Administrative Law, Water Board staff will evaluate proposed sewer system maintenance for the City and the County of Santa Cruz Freedom Sanitation District as described in the technical report and determine whether appropriate changes to the maintenance have been made or whether any changes to the Waste Discharge Requirements (currently, Order No. R3-2003-0041, and No. R3-2003-0040, respectively) are warranted.

THE FOLLOWING ACTIONS WILL REDUCE FECAL COLIFORM BACTERIA LOADING FROM LIVESTOCK AND LAND-APPLIED NON-STERILE MANURE:

Livestock Sources

Operators or owners of livestock facilities and animals must comply with the proposed Watsonville Slough Watershed Livestock Waste Discharge Prohibition to implement their load allocations. Within one year following approval of the TMDL by the Office of Administrative Law, the Executive Officer will notify the owners and operators of livestock facilities, and the owners of animals, of the proposed Watsonville Slough Watershed Livestock Waste Discharge Prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Nonpoint Source Pollution Control Implementation Program (Program) or documentation submitted in compliance with the prohibition within six months of the submittal date. Should the Program or documentation require modification, or if a party fails to submit a Program or documentation, the Executive Officer may issue a civil liability complaint pursuant to section 13268 or 13350 of the CWC, or alternatively, propose individual or general waste discharge requirements to assure compliance with the prohibition. Alternatively, dischargers may comply by immediately ceasing all discharges in violation of the Prohibition.

Responsible parties must submit monitoring data or other evidence that demonstrates compliance with the Watsonville Slough Watershed Livestock Waste Discharge Prohibition. The Executive Officer will determine whether the information submitted demonstrates compliance.

Irrigated Land Sources

Operators or owners of irrigated lands where non-sterile manure is applied must comply with the Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands to implement their load allocations. Staff expects management measures implemented pursuant to this waiver for irrigated lands will be adequate to reduce or eliminate pathogen discharges where farmers apply non-sterile manure to the land. However, compliance with the conditions in the waiver does not meet all of the requirements of the proposed Watsonville Slough Watershed Livestock Waste Discharge Prohibition. Since the Conditional Waiver does not include any regulation or monitoring of pathogen discharges, operators or owners of irrigated lands where non-sterile manure is applied must also submit reports that demonstrate that they do not discharge pathogens, or explain how pathogen discharges are being addressed.

Within six months following approval of the TMDL by the Office of Administrative Law, the Executive Officer will notify responsible parties of the proposed Watsonville Slough Watershed Livestock Waste Discharge Prohibition and conditions for compliance with the prohibition. The Executive Officer will review and approve, or request modification of, the Nonpoint Source Pollution Control Implementation Program (Program), or other documentation submitted in compliance with the prohibition, within six months of the submittal date. Should the

Program or documentation require modification, or if a responsible party fails to submit a Program or documentation, the Executive Officer may issue an administrative civil liability complaint pursuant to section 13268 or 13350 of the CWC, or alternatively, propose individual or general waste discharge requirements or conditional waivers to assure compliance with the prohibition. Alternatively, dischargers may comply by immediately ceasing all discharges in violation of the Prohibition.

Tracking and Evaluation

Water Board staff will conduct a review every three years beginning three years after TMDL approval by the Office of Administrative Law. Water Board staff will use Annual Reports and any other available information to determine progress toward compliance. Water Board staff may conclude that ongoing implementation efforts are insufficient to ultimately achieve the allocations and numeric target. If staff makes this determination, staff will recommend that additional reporting, monitoring, or implementation efforts be required either through authority of the Executive Officer (e.g. pursuant to CWC section 13267 or section 13383) or the Water Board (e.g. through revisions of existing permits and/or a Basin Plan Amendment). Water Board staff may also conclude that implementation efforts are likely to achieve compliance, and therefore existing implementation efforts should continue.

Responsible parties will continue monitoring according to this plan for at least three years, at which time Water Board staff will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that controllable sources of pathogens are not contributing to exceedance of water quality objectives in receiving waters. If this is the case, staff may consider re-evaluating the targets and allocations. For example, staff may propose a site-specific objective for Watsonville Sloughs, to be approved by the Water Board. The site-specific objective would be based on evidence that natural, or "background" sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal coliform.

Three-year reviews will continue until the TMDL is achieved. The target date to achieve the TMDL is ten years after implementation commences.

Table IX.I-1. Implementation Actions of Responsible Parties

Responsible Party	Source Category	Management Measure	Action
County of Santa Cruz and City of Watsonville	1A Human	Public Participation and Outreach	Educate the public, including the homeless, regarding sources of fecal coliform and associated health risks of fecal coliform in surface waters of the Watsonville Slough Watershed. Educate the public regarding actions that individuals can take to reduce pathogen loading in the Watershed. Revise Stormwater Management Plan and submit to Water Board for approval, monitor, and report.
	1B Human	Human Source Elimination and Prevention	Maintain the sewage collection system, including identification, correction, and prevention of sewage leaks into tributaries to Watsonville Slough. Revise Sewer System Management Plan and submit to Water Board for approval, monitor, and report.
	1C Pets	Pet Waste Management	Develop and implement enforceable means (e.g., an ordinance) of reducing/eliminating fecal coliform loading from pet waste. Educate the public regarding actions that individuals can take to reduce loading in the Watershed. Revise Stormwater Management Plan and submit to Water Board for approval, monitor, and report.
Operators or owners of livestock facilities and animals	2A Livestock	Farm Animal and Livestock Facilities Management	Develop and implement strategies to reduce/eliminate fecal coliform loading from farm animal and livestock facilities (e.g., pens, corrals, barns) into surface waters of the Watsonville Slough Watershed. Submit *Nonpoint Source Control Implementation Program* to the Executive Officer of the Water Board and monitor and report, or, document and report to the Water Board that no discharge is occurring from animal facilities.
	2B Livestock	Grazing Management	Protect sensitive areas (including streambanks, sloughs, wetlands, and riparian zones) by reducing direct loadings of animal wastes from grazing areas into surface waters of the Watsonville Slough Watershed. Submit *Nonpoint Source Control Implementation Program* to the Executive Officer of the Water Board and monitor and report, or, document and report to the Water Board that no discharge is occurring from grazing activities.
Operators or owners of irrigated lands who land-apply non-sterile manure	3 Land-Applied Non-Sterile Manure on Irrigated lands	Irrigated Land Management	Develop, implement and report on measures to reduce/eliminate fecal coliform loading from land-applied non-sterile manure into surface waters of the Watsonville Slough Watershed. Document and report to the Water Board that measures are in place and monitor to demonstrate effectiveness.

IX.J. Total Maximum Daily Loads for Pathogens in San Lorenzo Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek

The Regional Water Quality Control Board adopted these TMDLs on May 8, 2009.
These TMDLs were approved by:
The State Water Resources Control Board on: March 1, 2011.
The California Office of Administrative Law on: June 6, 2011.
The U.S. Environmental Protection Agency on: July 20, 2011.

Problem Statement

The beneficial use of water contact recreation is not protected in the impaired reaches of the San Lorenzo River Estuary (also known as San Lorenzo River Lagoon), San Lorenzo River , Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek because fecal coliform concentrations exceed existing Basin Plan numeric water quality objectives protecting this beneficial use. All reaches in these waterbodies are impaired with the exception of Carbonera Creek, where the impairment extends from the mouth of Carbonera Creek upstream to its intersection with Bethany Road.

Numeric Targets

The numeric targets used to develop the TMDLs and allocations are as follows:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL**.**

Source Analysis

San Lorenzo River Estuary
The relative order of controllable sources, in descending order, is:
1) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems), 2) storm drain discharges to municipally owned and operated separate storm sewer systems (MS4s) required to be covered by an NPDES permit, 3) pet waste in areas that do not drain to MS4s, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.

San Lorenzo River, and Lompico Creek
The relative order of controllable sources, in descending order, is:
1) Onsite wastewater disposal system discharges, 2) storm drain discharges to MS4s required to be covered by an NPDES permit, 3) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems) within the City limits of Santa Cruz [does not include Lompico Creek], 4) pet waste in areas that do not drain to MS4s, 5) homeless person/encampment discharges in areas that do not drain to MS4s, and 6) farm animal and livestock discharges.

Branciforte Creek,
The relative order of controllable sources, in descending order, is:
1) Storm drain discharges to MS4s required to be covered by an NPDES permit, 2) pet waste in areas that do not drain to MS4s, 3) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems) within the City limits of Santa Cruz, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) onsite wastewater disposal system discharges, and 6) farm animal and livestock discharges.

Carbonera and Camp Evers Creeks:
The relative order of controllable sources, in descending order, is:

1) Storm drain discharges to MS4s required to be covered by an NPDES permit, 2) pet waste in areas that do not drain to MS4s, 3) homeless person/encampment discharges in areas that do not drain to MS4s, 4) onsite wastewater disposal system discharges (only for Carbonera Creek) 5) farm animal and livestock discharges, and 6) City of Santa Cruz sanitary sewer collection system spills and leaks (including private laterals connected to municipal sanitary sewer collection systems; only for Carbonera Creek).

TMDLs and Allocations

The TMDLs are for the impaired reaches of the following water bodies, and are applicable for each day for all seasons:

San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek TMDLs:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

The allocations to responsible parties are shown in Table IX.J-1.

Table IX.J-1. Allocations and Responsible Parties

WASTE LOAD ALLOCATIONS		
Waterbody Assigned Allocation[1]	**Responsible Party** **(Source)** **NPDES/Order number**	**Receiving Water Fecal Coliform (MPN/100mL)**
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, and Carbonera Creek	City of Santa Cruz (Storm drain discharges to MS4s required to be covered by an NPDES permit) NPDES No. CAS000004	Allocation-1[a]
Camp Evers Creek and Carbonera Creek	City of Scotts Valley (Storm drain discharges to MS4s required to be covered by an NPDES permit) NPDES No. CAS000004	Allocation-1[a]
San Lorenzo River, Branciforte Creek, Lompico Creek, and Carbonera Creek	Santa Cruz County (Storm drain discharges to MS4s required to be covered by an NPDES permit) NPDES No. CAS000004	Allocation-1[a]
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, and Carbonera Creek	City of Santa Cruz (Sanitary sewer collection system spills and leaks) NPDES No. CA 0048194, Order R3-2005-003	Allocation-2[b]
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Carbonera Creek , and Lompico Creek	Owners of onsite wastewater disposal systems residing in the County of Santa Cruz (Onsite wastewater disposal system discharges)	Allocation-2[b]
LOAD ALLOCATIONS		
Waterbody	**Responsible Party** **(Source)**	**Receiving Water Fecal Coliform (MPN/100mL)**
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Carbonera Creek , and Lompico Creek	Owners of onsite wastewater disposal systems residing in the County of Santa Cruz (Onsite wastewater disposal system discharges)	Allocation-2[b]
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek , and Lompico Creek	Owners/operators of land used for/containing pets (Pet waste not draining to MS4s)	Allocation-1[a]
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Carbonera Creek, Camp Evers Creek, and Lompico Creek	Owners/operators of land used for/containing farm animals and livestock (Farm Animals and Livestock discharges)	Allocation-1[a]

San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Lompico Creek, Camp Evers Creek, and Carbonera Creek	Owners and/or operators of land that include homeless persons/encampments (Discharges from homeless persons/encampments not regulated by a permit for storm water discharges)	Allocation-2[b]
San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Lompico Creek, Camp Evers Creek, and Carbonera Creek	No responsible party (Natural sources)	Allocation-1[a]

1 All reaches of the following water bodies are assigned allocations, excepting Carbonera Creek, where the allocations are assigned from the mouth to the intersection with Bethany Road.

a Allocation 1 = Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100mL, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN/100 mL.

b Allocation 2 = Allocation of zero; no loading allowed from this source.

The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when the allocations assigned to all individual responsible parties are met or when the numeric targets are consistently met in the San Lorenzo River Estuary, San Lorenzo River, Branciforte Creek, Camp Evers Creek, Carbonera Creek, and Lompico Creek.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation Plan

SANITARY SEWER COLLECTION SYSTEM LEAKS

Entities with jurisdiction over sewer collection systems can demonstrate compliance with these TMDL allocations through Waste Discharge Requirements and/or NPDES permits.

The City of Santa Cruz and City of Scotts Valley must continue to implement their sewer Collection System Management Plans as required by their respective NPDES permits and Waste Discharge Requirements (WDR) (City of Santa Cruz NPDES No. CA 0048194 and WDR Order R3-2005-003; City of Scotts Valley NPDES No. CA 0048828, WDR Order R3 2002-0016).

In addition, the City of Santa Cruz is required to improve maintenance of their sewage collection system, including identification, correction, and prevention of sewage spills and leaks in portions of the collection systems that run through or adjacent to, impaired surface waters within the San Lorenzo River Estuary or San Lorenzo River. To this end, within six months following approval of these TMDLs by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the California Water Code requiring: 1) submittal within one year of a technical report that describes how and when the City of Santa Cruz will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with its TMDL allocation, 2) stream monitoring for fecal coliform or another fecal indicator bacteria and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the City of Santa Cruz is in compliance with the TMDL allocation.

PRIVATE LATERALS TO THE SANITARY SEWER COLLECTION SYSTEMS

The Central Coast Water Board has identified leaks from private laterals located in the City of Santa Cruz as a source of fecal indicator bacteria in municipal separate storm sewer systems (MS4s). Therefore, enrollees for the City of Santa Cruz' General Permit for the Discharges of Storm Water from Small Municipal Separate Storm

Sewer Systems will address fecal indicator bacteria from private lateral leaks in the Wasteload Allocation Attainment Program (as described in the following section).

STORM DRAIN DISCHARGES TO MUNICIPALLY OWNED AND OPERATED SEPARATE STORM SEWER SYSTEMS

The Central Coast Water Board will address fecal indicator bacteria (FIB), e.g., fecal coliform and/or other indicators of pathogens, discharged from the County of Santa Cruz and the Cities of Santa Cruz and Scotts Valley municipal separate storm sewer systems (MS4 entities) by regulating the MS4 entities under the provisions of the State Water Resources Control Board's General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit) (NPDES No. CAS000004). As enrollees under the General Permit, the MS4 entities must develop and implement Storm Water Management Plans (SWMPs) that control urban runoff discharges into and from their MS4s. To address the MS4 entities' TMDL wasteload allocations, the Central Coast Water Board will require the MS4 entities to specifically target FIB in urban runoff through incorporation of Wasteload Allocation Attainment Programs in their SWMPs.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to include descriptions of the actions that will be taken by the MS4 entities to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization (including leaks to storm sewers from private laterals);
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring program development and implementation;
5. Reporting, including evaluation whether current best management practices are progressing towards achieving the wasteload allocations within thirteen years of the date that the TMDLs are approved by the Office of Administrative Law.
6. Coordination with stakeholders; and
7. Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the MS4 entities' jurisdictions.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to be submitted at one of the following milestones, whichever occurs first:

1. Within one year of approval of the TMDLs by the Office of Administrative Law;
2. When required by any other Central Coast Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For those MS4 entities that are enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when they are submitted. For those MS4 entities that are not enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when the SWMPs are approved by the Central Coast Water Board.

The Executive Officer or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

PET WASTE, FARM ANIMALS AND LIVESTOCK DISCHARGES

Owners and/or operators of lands containing domestic animals (including pets, farm animals, and livestock) in the San Lorenzo River Watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In his notification, the Executive Officer will also describe the options owners/operators of lands containing domestic animals have for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition. Pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of lands containing domestic animals will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; clear evidence could be documentation submitted by the owner/operator to the Executive Officer validating current and continued compliance with the Prohibition.
2) A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocations to domestic animals, with the ultimate goal of achieving the load allocations no later than thirteen years after Office of Administrative Law approval of the TMDL. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of owners/operators of lands containing domestic animals.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

ONSITE WASTEWATER DISPOSAL SYSTEM DISCHARGES

Owners of onsite wastewater disposal systems in the San Lorenzo River Watershed must comply with the Human Fecal Material Discharge Prohibition.

Owners of onsite wastewater disposal systems must demonstrate to the satisfaction of the Executive Officer or the Central Coast Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will either 1) determine that the County of Santa Cruz is making adequate progress towards implementing an approved Santa Cruz County Onsite Wastewater Management Plan (or another Implementation Program to address onsite wastewater disposal systems) as it pertains to controlling the waste loads from onsite wastewater disposal systems in the San Lorenzo River Watershed, or 2) notify owners of onsite wastewater disposal systems (owners) in the area described above of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe owners' options for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be verification by the County of Santa Cruz, or similar, that the owner's onsite wastewater disposal system is in compliance with the Human Fecal Material Discharge Prohibition.
2) A schedule for compliance with the Human Fecal Material Discharge Prohibition. The compliance schedule must include a monitoring and reporting program and milestone dates demonstrating progress towards compliance with the Human Fecal Material Discharge Prohibition, with the ultimate milestone being compliance with the Human Fecal Material Discharge Prohibition no later than three years from the date of the Executive Officer's notification to the owner requiring compliance.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs).

4) Clear evidence of current or scheduled compliance with the Human Fecal Material Discharge Prohibition (as described in number 1 and number 2 above, respectively) through the submittal of the required information by the County of Santa Cruz, acting as the voluntary agents of owners of onsite wastewater disposal systems. Note that an owner of an onsite wastewater disposal system cannot demonstrate compliance with the Human Fecal Material Discharge Prohibition through this option if: 1) the County of Santa Cruz is not their voluntary agent, 2) if the owner of the onsite wastewater disposal system does not choose the County of Santa Cruz as their agent, or 3) the Executive Officer or Central Coast Water Board does not approve the evidence submitted by the County of Santa Cruz on behalf of the owners of onsite wastewater disposal systems.

HOMELESS PERSONS/ENCAMPMENT DISCHARGES NOT REGULATED BY A PERMIT FOR STORM WATER DISCHARGES

Owners of land that contain homeless persons and/or homeless encampments in the San Lorenzo River Watershed must comply with the Human Fecal Material Discharge Prohibition.

Owners of land with homeless persons must demonstrate to the satisfaction of the Executive Officer or the Central Coast Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners of land containing homeless persons of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe owners' options for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be documentation submitted by the owner to the Executive Officer validating current and continued compliance with the Prohibition.
2) A plan for compliance with the Human Fecal Material Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from homeless persons. The Plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocation for homeless persons, with the ultimate goal of achieving the load allocation no later than three years from the date of the Executive Officer's notification to the owner requiring compliance. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from homeless persons, and self-assessment of this progress.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress towards achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective based on evidence that natural or

background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving the TMDL numeric target is 13 years after the date of approval by the Office of Administrative Law.

IX.K. Total Maximum Daily Loads for Pathogens in Soquel Lagoon, Soquel Creek, and Noble Gulch

The Regional Water Quality Control Board adopted these TMDLs on May 8, 2009.
These TMDLs were approved by:
The State Water Resources Control Board on: July 6, 2010.
The California Office of Administrative Law on: September 5, 2010.
The U.S. Environmental Protection Agency on: November 17, 2010.

Problem Statement

The beneficial use of water contact recreation is not protected in the impaired reaches of Soquel Lagoon, Soquel Creek, and Noble Gulch because fecal coliform concentrations exceed water quality objectives protecting this beneficial use. The impaired reaches are:

1) Soquel Lagoon and Soquel Creek: beginning from the mouth of Soquel Lagoon, upstream and along Soquel Creek to the bridge at Porter Street.
2) All reaches of Noble Gulch.

Numeric Targets

The numeric targets used to develop the TMDLs and allocations are as follows:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Source Analysis

The controllable sources of fecal coliform contributing to impairment in Soquel Lagoon, Soquel Creek, and Noble Gulch are, in decreasing order of contribution:

1. Storm drain discharges to municipally owned and operated separate storm sewer systems (MS4s) required to be covered by an NPDES permit (including but not limited to discharges of fecal material from domestic animals and humans).
2. Sanitary sewer collection system spills and leaks (including but not limited to discharges from private laterals connected to municipal sanitary sewer collection systems).
3. Domestic animal waste discharges in areas that do not drain to MS4s (including but not limited to farm animals, livestock and pets).
4. Homeless person/encampment discharges in areas that do not drain to MS4s.

Total Maximum Daily Load (TMDL)

The TMDLs for the impaired reaches of the following water bodies are concentration based TMDLs applicable for each day for all seasons and are equal to the following:

Soquel Lagoon, Soquel Creek, and Noble Gulch:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Allocations and Responsible Parties

The allocations to responsible parties are shown in Table IX.K-1.

Table IX.K-1. Allocations to Responsible Parties

Waste Load Allocations		
Waterbody Subject to Allocation	**Responsible Party (Source) NPDES/ORDER Number**	**Receiving Water Fecal Coliform (MPN/100mL)**
Soquel Lagoon[1]	City of Capitola (Storm drain discharges to MS4s required to be covered by an NPDES permit) Storm Water General Permit NPDES No. CAS000004	Allocation-1[a]
Soquel Creek [2] Noble Gulch[3]	County of Santa Cruz and City of Capitola (Storm drain discharges to MS4s required to be covered by an NPDES permit) Storm Water General Permit NPDES No. CAS000004	Allocation-1[a]
Soquel Lagoon[1] Soquel Creek [2] Noble Gulch[3]	Santa Cruz County Sanitation District (Sanitary sewer collection system spills and leaks) Order No. R3-2005-0043	Allocation-2[b]
Load Allocations		
Waterbody Subject to Allocation	**Responsible Party (Source)**	**Receiving Water Fecal Coliform (MPN/100mL)**
Soquel Lagoon[1] Soquel Creek [2] Noble Gulch[3]	Owners and operators of land used for/containing pets (Pet waste not draining to MS4s)	Allocation-1[a]
Noble Gulch[3]	Owners and operators of land used for/containing farm animals and livestock (Farm Animals and Livestock discharges)	Allocation-1[a]
Soquel Lagoon[1] Soquel Creek [2] Noble Gulch[3]	Owners/operators of land that include homeless persons/encampments (Homeless person/encampment discharges not draining to MS4s)	Allocation-2[b]
Soquel Lagoon[1] Soquel Creek [2] Noble Gulch[3]	No responsible party (Natural sources)	Allocation-1[a]

1 All waters of the Soquel Lagoon.
2 Beginning and including the downstream most reach of Soquel Creek, up to and including Soquel Creek at the bridge crossing at Porter Street.
3 All reaches of Noble Gulch.
a Allocation 1: Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.
b Allocation 2: Allocation of zero; no loading allowed from this source.

The parties responsible for the allocations to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when the numeric target is consistently met in the impaired waters of Soquel Lagoon, Soquel Creek, and Noble Gulch.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation Plan

STORM DRAIN DISCHARGES:

The Central Coast Water Board will address fecal indicator bacteria (FIB), e.g., fecal coliform and/or other indicators of pathogens, discharged from the County of Santa Cruz and the City of Capitola by regulating the MS4 entities under the provisions of the State Water Resources Control Board's General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit) (NPDES No. CAS000004). As enrollees under the General Permit, the MS4 entities must develop and implement Storm Water Management Plans (SWMPs) that control urban runoff discharges into and from their MS4s. To address the MS4 entities' TMDL wasteload allocations, the Central Coast Water Board will require the MS4 entities to specifically target FIB in urban runoff through incorporation of Wasteload Allocation Attainment Programs in their SWMPs.

The Central Coast Water Board will require the Wasteload Allocation Attainment Programs to include descriptions of the actions that will be taken by the MS4 entities to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization (including leaks to storm sewers from private laterals);
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring program development and implementation;
5. Reporting; including evaluation whether current best management practices are progressing towards achieving the wasteload allocations within thirteen years of the date that the TMDLs are approved by the Office of Administrative Law;
6. Coordination with stakeholders; and
7. Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the MS4 entities' jurisdictions.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to be submitted at one of the following milestones, whichever occurs first:

1. Within one year of approval of the TMDLs by the Office of Administrative Law;
2. When required by any other Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For those MS4 entities that are enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when they are submitted. For those MS4 entities that are not enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when the SWMPs are approved by the Central Coast Water Board.

The Executive Officer or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

SANITARY SEWER COLLECTION SYSTEM SPILLS AND LEAKS:

Entities with jurisdiction over sewer collection systems can demonstrate compliance with these TMDL load allocations through Waste Discharge Requirements and/or NPDES permits.

The Santa Cruz County Sanitation District (SCCSD) must continue to implement their Collection System Management Plan, as required by Waste Discharge Requirements (WDRs) (Order No. R3-2005-0043).

In addition, the SCCSD is required to improve maintenance of their sewage collection system, including identification, correction, and prevention of sewage leaks in portions of the collection systems that run through, or adjacent to, impaired surface waters within the Soquel Lagoon Watershed.

To this end, within six months following approval of these TMDLs by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the California Water Code requiring: 1) submittal within one year of a technical report that describes how and when the SCCSD will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with its TMDL allocation, 2) stream monitoring for fecal coliform or another fecal indicator bacteria and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the SCCSD is in compliance with the TMDL allocation.

PRIVATE LATERALS TO THE SANITARY SEWER COLLECTION SYSTEM:

The Central Coast Water Board has identified leaks from private laterals located in the City of Capitola and County of Santa Cruz as a source of fecal indicator bacteria in Municipal Separate Storm Sewer Systems (MS4s). Therefore, enrollees for the City of Capitola and County of Santa Cruz General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems will address fecal indicator bacteria from private lateral leaks in the Wasteload Allocation Attainment Program (as described in the Storm Drain Discharges section).

DOMESTIC ANIMALS NOT REGULATED BY WQ ORDER NO. 2003-0005-DWQ [STORM WATER GENERAL PERMIT]:

Owners and/or operators of lands containing domestic animals (including pets, farm animals, and livestock) in the Soquel Lagoon Watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In his notification, the Executive Officer will also describe the options owners/operators of lands containing domestic animals have for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition. Pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of lands containing domestic animals will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; clear evidence could be documentation submitted by the owner/operator to the Executive Officer validating current and continued compliance with the Prohibition.
2) A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocations to domestic animals, with the ultimate goal of achieving the load allocations no later than thirteen years after Office of Administrative Law approval of these TMDLs. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of owners/operators of lands containing domestic animals.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

HOMELESS PERSON/ENCAMPMENT DISCHARGES NOT REGULATED BY WQ ORDER NO. 2003-0005-DWQ [STORM WATER GENERAL PERMIT:

Owners of land that contain homeless persons and/or homeless encampments in the Soquel Lagoon Watershed must comply with the Human Fecal Material Discharge Prohibition.

Owners of land with homeless persons must demonstrate to the satisfaction of the Executive Officer or the Central Coast Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners of land containing homeless persons of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe the options owners have for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be documentation submitted by the owner to the Executive Officer validating current and continued compliance with the Prohibition.
2) A plan for compliance with the Human Fecal Material Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from homeless persons. The Plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocation for homeless persons, with the ultimate goal of achieving the load allocation no later than three years from the date of the Executive Officer's notification to the owner requiring compliance. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from homeless persons, and self-assessment of this progress.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress towards achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving the allocations and numeric target required under these TMDLs is 13 years after the date of approval by the Office of Administrative Law.

IX.L. Total Maximum Daily Loads for Pathogens in Aptos Creek, Valencia Creek, and Trout Gulch

The Regional Water Quality Control Board adopted these TMDLs on May 8, 2009.
These TMDLs were approved by:

The State Water Resources Control Board on August 3, 2010.
The California Office of Administrative Law on October 29, 2010.
The U.S. Environmental Protection Agency on January 20, 2011.

Problem Statement

The beneficial use of water contact recreation is not being attained in Aptos Creek, Valencia Creek and Trout Gulch because fecal coliform concentrations exceed existing Basin Plan numeric water quality objectives protecting this beneficial use. Staff concluded Aptos Creek was impaired below the confluence with Valencia Creek. The entire reach of Trout Gulch was considered impaired. Staff also considered Valencia Creek impaired from its confluence with Aptos Creek, upstream to both the east and west forks. The east fork was impaired upstream to the intersection of McKay and Cox Roads. The west fork was impaired upstream to its intersection with Valencia Road.

Numeric Targets

The numeric targets used to develop the TMDLs and allocations are as follows:

> Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Source Analysis

The relative order of controllable sources, in descending order, contributing pathogens to Aptos Creek, Valencia Creek, and Trout Gulch are: (1) storm drain discharges to municipally owned and operated separate storm sewer systems (MS4s) required to be covered by an NPDES permit, (2) pet waste in areas that do not drain to MS4s, (3) County of Santa Cruz Sanitation District sanitary sewer collection system spills and leaks, (4) private sewer laterals connected to municipal sanitary sewer collection systems, and (5) farm animals and livestock discharges.

TMDLs and Allocations

The TMDLs for all impaired waters of Aptos Creek, Valencia Creek, and Trout Gulch are concentration based TMDLs applicable to each day of all seasons and are equal to the following:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

The allocations to responsible parties are shown in Table IX.L-1.

Table IX.L-1. Allocations and Responsible Parties

WASTE LOAD ALLOCATIONS		Receiving Water Fecal Coliform (MPN/100mL)
Waterbody	**Responsible Party** **(Source)** **NPDES/Order number**	
Aptos Creek[1], Trout Gulch[2], Valencia Creek[3]	Santa Cruz County (Storm drain discharges to MS4s required to be covered by an NPDES permit) Storm Water General Permit NPDES No. CAS000004	Allocation 1[a]
Aptos Creek[1], Trout Gulch[2], Valencia Creek[3]	Santa Cruz County Sanitation District (Sanitary sewer collection system spills and leaks) Order No. R3-2005-0043	Allocation 2[b]
LOAD ALLOCATIONS		**Receiving Water Fecal Coliform (MPN/100mL)**
Waterbody	**Responsible Party (Source)**	
Aptos Creek[1], Trout Gulch[2], Valencia Creek[3]	Owners/Operators of land used for/containing pets (Pet waste not draining to MS4s)	Allocation 1[a]
Aptos Creek[1], Trout Gulch[2], Valencia Creek[3]	Owners/Operators of land used for/containing farm animals and livestock (Farm Animals and Livestock discharges)	Allocation 1[a]
Aptos Creek[1], Trout Gulch[2], Valencia Creek[3]	Natural sources	Allocation 1[a]

1 Aptos Creek from the Pacific Ocean to the confluence of Aptos and Valencia Creeks
2 All reaches of Trout Gulch
3 Valencia Creek from the confluence with Aptos Creek upstream to the west fork, where it intersects with Valencia Road, and to the east fork at the intersection of McKay and Cox Roads.

a Allocation 1: Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100mL, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN/100 mL.

b Allocation 2: Allocation of zero; no loading allowed from this source.

The parties responsible for the allocations to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when the allocations assigned to all individual responsible parties are met, or when the numeric targets are consistently met in Aptos Creek, Valencia Creek, and Trout Gulch.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation Plan

STORM DRAIN DISCHARGES

The Central Coast Water Board will address fecal indicator bacteria (FIB), e.g. fecal coliform and/or other indicators of pathogens, discharged from the County of Santa Cruz' municipal separate storm sewer system (MS4) by regulating the MS4 under the provisions of the State Water Resources Control Board's General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit) (NPDES No. CAS000004). As an enrollee under the General Permit, the MS4 must develop and implement a Storm Water Management Plan (SWMP) that controls urban runoff discharges into and from its MS4. To address the MS4's TMDL wasteload allocations, the Central Coast Water Board will require the MS4 to specifically target FIB in urban runoff through incorporation of a Wasteload Allocation Attainment Program in its SWMP.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to include descriptions of the actions that will be taken by the MS4 to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization (including leaks to storm sewers from private laterals);
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring program development and implementation;
5. Reporting, including evaluation whether current best management practices are progressing towards achieving the wasteload allocations within thirteen years of the date that the TMDLs are approved by the Office of Administrative Law;
6. Coordination with stakeholders; and
7. Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the MS4 entity's jurisdiction.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to be submitted at one of the following milestones, whichever occurs first:

1. Within one year of approval of the TMDLs by the Office of Administrative Law;
2. When required by any other Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For an MS4 that is enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when they are submitted. For an MS4 that is not enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the SWMP is approved by the Central Coast Water Board.

The Executive Officer or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

SANITARY SEWER COLLECTION SYSTEM SPILLS AND LEAKS

Entities with jurisdiction over sewer collection systems can demonstrate compliance with these TMDL allocations through waste discharge requirements and/or NPDES permits.

The Santa Cruz County Sanitation District (SCCSD) must continue to implement its Collection System Management Plan, as required by Waste Discharge Requirements (WDRs) (Order No. R3-2005-0043).

In addition, the SCCSD is required to improve maintenance of their sewage collection system, including identification, correction, and prevention of sewage leaks in portions of the collection systems that run through, or adjacent to, impaired surface waters within the Aptos Creek Watershed.

To this end, within six months following approval of these TMDLs by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the California Water Code requiring: 1) submittal within one year of a technical report that describes how and when the SCCSD will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with its TMDL allocation, 2) stream monitoring for fecal coliform or another fecal indicator bacteria and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the SCCSD is in compliance with the TMDL allocation.

PRIVATE SEWER LATERAL DISCHARGES

The Central Coast Water Board has identified leaks from private laterals located in the County of Santa Cruz as a source of fecal indicator bacteria in municipal separate storm sewer systems (MS4s). Therefore, enrollees for the County of Santa Cruz' General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems will address fecal indicator bacteria from private lateral leaks in the Wasteload Allocation Attainment Program (as described in the above Storm Drain Discharges section).

PET WASTE, FARM ANIMALS AND LIVESTOCK DISCHARGES

Owners and/or operators of lands containing domestic animals (including pets, farm animals, and livestock) in the Aptos Creek Watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In his notification, the Executive Officer will also describe the options owners/operators of lands containing domestic animals have for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition. Pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of lands containing domestic animals will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

1) Clear evidence that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; clear evidence could be documentation submitted by the owner/operator to the Executive Officer validating current and continued compliance with the Prohibition.
2) A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocations to domestic animals, with the ultimate goal of achieving the load allocations no later than thirteen years after Office of Administrative Law approval of these TMDLs. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress toward achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of owners/operators of lands containing domestic animals.
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted

by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective, based on evidence that natural or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving this TMDL numeric target is 13 years after the date of approval by the Office of Administrative Law.

IX.M. Total Maximum Daily Loads for Fecal Coliform in Pajaro River Watershed Waters (Including Pajaro River, San Benito River, Llagas Creek, Tequisquita Slough, San Juan Creek, Carnadero/Uvas Creek, Bird Creek, Pescadero Creek, Tres Pinos Creek, Furlong (Jones) Creek, Santa Ana Creek, and Pacheco Creek)

The Regional Water Quality Control Board adopted these TMDLs on March 20, 2009.
These TMDLs were approved by:
The State Water Resources Control Board on April 20, 2010.
The California Office of Administrative Law on July 12, 2010.
The U.S. Environmental Protection Agency on August 3, 2010.

Problem Statement

The beneficial use of water contact recreation is not being protected in Pajaro River Watershed (including the following water bodies: Pajaro River, San Benito River, Llagas Creek, Tequisquita Slough, San Juan Creek, Carnadero/Uvas Creek, Bird Creek, Pescadero Creek, Tres Pinos Creek, Furlong (Jones) Creek, Santa Ana Creek, and Pacheco Creek) because fecal coliform concentrations exceed Basin Plan numeric water quality objectives designed to protect this beneficial use.

Numeric Target

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Source Analysis

The relative order of controllable sources contributing fecal coliform in the Pajaro River Watershed, in decreasing order of contribution are: (1) storm drain discharges to municipally owned and operated storm sewer systems required to be covered by an NPDES permit (MS4s); (2) domestic animal discharges that do not discharge to MS4s; (3) spills and leaks from Sanitary Sewer Collection and Treatment Systems; and (4) private sewer laterals connected to municipal sanitary sewer collection systems. Natural, uncontrollable sources also contribute fecal coliform in the Pajaro River Watershed.

TMDLs and Allocations

The TMDLs for the impaired waters of Pajaro River, San Benito River, Llagas Creek, Tequisquita Slough, San Juan Creek, Carnadero/Uvas Creek, Bird Creek, Pescadero Creek, Tres Pinos Creek, Furlong (Jones) Creek, Santa Ana Creek, and Pacheco Creek are concentration-based TMDLs applicable to each day of all seasons equal to the following:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

The allocations to responsible parties are shown in Table IX.M-1.

Table IX.M-1. Allocations and Responsible Parties

Waterbody Assigned Allocation	Responsible Party [NPDES and/or WDR number] (Source)	Receiving Water Fecal Coliform Allocation
WASTE LOAD ALLOCATIONS		
Pajaro River[1] San Benito River[2] Llagas Creek[3] Tequisquita Slough[4]	Santa Cruz, Santa Clara, and Monterey Counties. Cities of Hollister, Morgan Hill, Gilroy, and Watsonville [NPDES No. CAS000004] (Storm Drain Discharges To MS4s Required to be covered by an NPDES Permit)	Allocation 1
Pajaro River[1] San Benito River[2] Llagas Creek[3] Tequisquita Slough[4]	City of Hollister [WDR 87-47] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) City of Watsonville [WDR Order R3-2003-0040, NPDES No. CA0048216] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) Cities of Gilroy and Morgan Hill via South County Regional Wastewater Authority (SCRWA) [WDR Order R3-2004-0099, NPDES No. CA0049964] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) San Juan Bautista Wastewater Treatment Facility [WDR Order R3-2003-0087, NPDES No. CA0047902] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) Sunnyslope County Water District [WDR Order R3-2004-0065] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) Tres Pinos County Water District [WDR Order 99-101] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks) Pajaro County Sanitation District [WDR Order R3-2003-0041] (Sanitary Sewer Collection and Treatment Systems Spills and Leaks)	Allocation 2
Pajaro River[1] San Benito River[2] Llagas Creek[3] Tequisquita Slough[4]	Owners of Private Sewer Laterals (Private Laterals Connected to Municipal Sanitary Sewer Collection and Treatment Systems)	Allocation 2
LOAD ALLOCATIONS		
Waterbody	**Responsible Party (Source)**	
Pajaro River[1] San Benito River[2] Llagas Creek[3] Tequisquita Slough[4]	Owners/Operators of Land Used for/Containing Domestic Animals (Domestic Animal Discharges)	Allocation 1
Pajaro River[1] San Benito River[2] Llagas Creek[3] Tequisquita Slough[4]	Natural Sources	Allocation 1

Allocation 1: Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200/100mL, nor shall more than ten percent of total samples during any 30-day period exceed 400/100 mL.

Allocation 2: Allocation of zero; no loading allowed from this source.

1 The entire Pajaro River from the Pacific Ocean to San Felipe Lake outflow via the Miller's Canal drain. Including the entire San Juan Creek tributary from the uppermost reach of the waterbody to the confluence with Pajaro River, and Carnadero/Uvas Creek tributary from Hollister Road crossing to the confluence with Pajaro River.

2 San Benito River from confluence with Pajaro River to three miles above Old Hernandez Road at Arizona Crossing. Including Bird Creek tributary from the uppermost reach of the waterbody to the confluence with San Benito River, the Pescadero Creek tributary from the uppermost reach of the waterbody to the confluence with San Benito River, and Tres Pinos Creek tributary from the uppermost reach of the waterbody to the confluence with San Benito River.

3 Llagas Creek from confluence with Pajaro River to Oak Glen Avenue. Including Furlong (Jones) Creek tributary from the uppermost reach of the waterbody to confluence with Llagas Creek.

4 Tequisquita Slough from confluence with San Felipe Lake to the uppermost reach of the waterbody. Including Santa Ana Creek tributary from the uppermost reach of the waterbody to Tequisquita Slough, and Pacheco Creek tributary from the uppermost reach of the waterbody to San Felipe Lake.

The parties responsible for the allocations to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when the allocations assigned to all individual responsible parties are met, or when the numeric targets are consistently met.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation Program

MUNICIPAL SEPARATE STORM SEWER SYSTEM DISCHARGES

The Central Coast Water Board will address fecal indicator bacteria (FIB), e.g. fecal coliform and/or other indicators of pathogens, discharged from the Counties of Santa Cruz, Santa Clara, and Monterey, and the Cities of Hollister, Gilroy, Morgan Hill, and Watsonville municipal separate storm sewer systems (MS4 entities) by regulating the MS4 entities under the provisions of the State Water Resource Control Board's General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit) (NPDES No. CAS000004). As enrollees under the General Permit, the MS4 entities must develop and implement Storm Water Management Program (SWMPs) that control urban runoff discharges into and from their MS4s. To address the MS4 entities' TMDL wasteload allocations, the Central Coast Water Board will require the MS4 entities to specifically target FIB in urban runoff through incorporation of Wasteload Allocation Attainment Program in their SWMPs.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program describe the actions that will be taken by the MS4 entities to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization;
3. Best management practice identification, prioritization, implementation, analysis, and effectiveness assessment;
4. Monitoring program development and implementation;
5. Reporting; including evaluation whether current best management practices are progressing towards achieving the wasteload allocations by thirteen years after the TMDLs are approved by the Office of Administrative Law.
6. Coordination with stakeholders; and
7. Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the MS4 entities' jurisdictions.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to be submitted at one of the following milestones, whichever occurs first:

1. Within one year of approval of the TMDLs by the Office of Administrative Law;
2. When required by any other Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For an MS4 that is enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the Wasteload Allocation Attainment Program is submitted. For an MS4 entity that is not enrolled under the General Permit at the time of the Wasteload Allocation Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the SWMP is approved by the Central Coast Water Board.

The Executive Officer or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

SANITARY SEWER COLLECTION AND TREATMENT SYSTEMS SPILLS AND LEAKS

Entities with jurisdiction over sewer collection systems in the Pajaro River Watershed must comply with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with their load allocation for this TMDL.

To comply with the Human Fecal Material Discharge Prohibition, the Hollister Domestic Wastewater Treatment Facility (WDR Order 87-47), Sunnyslope County Water District, Ridgemark Estates Subdivision, Wastewater Treatment Plant (WDR Order R3-2004-0065), Tres Pinos County Water District (WDR Order 99-101), San Juan Bautista Wastewater Treatment Facility (WDR Order R3-2003-0087, NPDES CA0047902), South County Regional Wastewater Authority (SCRWA), Cities of Gilroy and Morgan Hill, (WDR Order R3-2004-0099, NPDES CA0049964), City of Watsonville Wastewater Treatment Facility (WDR Order R3-2003-0040, NPDES CA0048216), and Pajaro County Sanitation District (WDR Order R3-2003-0041) (herein referred to as sanitary collection system jurisdictions) must continue to implement their Collection System Management Plans, as required by their Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permits.

In addition, the sanitary collection system jurisdictions identified above and in Table IX.M-1 are required to improve maintenance of their sewage collection systems, including identification, correction, and prevention of sewage leaks in portions of the collection systems that run through or adjacent to, impaired surface waters within the Pajaro River Watershed.

To this end, within six months following adoption of this TMDL by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the CWC requiring: 1) submittal within one-year, a technical report that describes how and when the jurisdictions of the collection systems will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with the Human Fecal Material Discharge Prohibition, and 2) stream monitoring for fecal coliform or another fecal indicator bacteria, and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the sanitary collection system jurisdiction is in compliance with the Human Fecal Material Discharge Prohibition.

PRIVATE SEWER LATERAL DISCHARGES

Individual owners and operators of private laterals to sanitary sewer collection systems are ultimately responsible for maintenance of their private laterals and are, therefore, responsible for complying with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with their load allocation for these TMDLs.

The Central Coast Water Board requires immediate cessation of spills from private laterals. Within three years of

approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of private laterals to sanitary sewer collection systems (owners/operators of private laterals), in suspected problem areas, of this requirement and of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe the owner's/operator's of private laterals options for demonstrating compliance with the Human Fecal Material Discharge Prohibition; pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of private laterals will be required to submit the following for approval by the Executive Officer or the Water Board:

1) Clear evidence that the owner/operator of private lateral is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be certification by a sanitary collection system jurisdiction that owner/operator of private lateral is in compliance with the Human Fecal Material Discharge Prohibition, or
2) A schedule for compliance with the Human Fecal Material Discharge Prohibition. The compliance schedule must include a monitoring and reporting program and milestone dates demonstrating progress towards compliance with the Human Fecal Material Discharge Prohibition, with the ultimate milestone being compliance with the Human Fecal Material Discharge Prohibition no later than three years (the exact timeframe at the discretion of the Executive Officer) from the date of the Executive Officer's notification to the owner/operator requiring compliance, or
3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs or National Pollutant Discharge Elimination System (NPDES permit)), or
4) Clear evidence of current or scheduled compliance with the Human Fecal Material Discharge Prohibition (as described in number-1 and number-2 above, respectively) through the submittal of the required information by a sanitary collection system jurisdiction, acting as the voluntary agents of owners/operators of private laterals. Note that an owner/operator of a private lateral cannot demonstrate compliance with the Human Fecal Material Discharge Prohibition through this option if: 1) a sanitary collection system jurisdiction is not their voluntary agent, or 2) if the owner/operator of the private lateral does not choose the sanitary collection system jurisdiction as their agent, or, 3) the Executive Officer or Water Board does not approve the evidence submitted by the sanitary collection system jurisdictions on behalf of the owners/operators of private laterals.

DOMESTIC ANIMAL DISCHARGES NOT REGULATED BY A PERMIT FOR STORM WATER DISCHARGES

Owners and/or operators of lands containing domestic animals in the Pajaro River Watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In his notification, the Executive Officer will also describe the owner's/operator's of lands containing domestic animals options for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition; pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of lands containing domestic animals will be required to submit the following for approval by the Executive Officer or the Water Board:

1) Clear evidence that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; clear evidence could be documentation submitted by the owner/operator to the Executive Officer validating current and continued compliance with the Prohibition, or
2) A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices is likely to progressively achieve the load allocations to domestic animals, with the ultimate goal achieving the load allocations no later than thirteen years after Office of Administrative Law approval of these TMDLs. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progressive progress toward achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative,

organization, or government agency acting as the agents of owners/operators of lands containing domestic animals, or

3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs or National Pollutant Discharge Elimination System (NPDES permit).

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress towards achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural, or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving the TMDLs and numeric target is 13 years after the date of approval by the Office of Administrative Law.

IX.N. Total Maximum Daily Loads for Fecal Coliform in Corralitos and Salsipuedes Creeks

The Regional Water Quality Control Board adopted these TMDLs on March 20, 2009.
These TMDLs were approved by:
The State Water Resources Control Board on April 19, 2011.
The California Office of Administrative Law on September 8, 2011.
The U.S. Environmental Protection Agency on January 17, 2012.

Problem Statement

The Central Coast Water Board concludes that the beneficial use of water contact recreation is not being protected in Corralitos and Salsipuedes Creeks because fecal coliform concentrations exceed existing Basin Plan numeric water quality objectives designed to protect this beneficial use. The impaired reaches are: (1) All reaches of Corralitos Creek downstream of Browns Valley Bridge, and (2) All reaches of Salsipuedes Creek.

Numeric Target

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Source Analysis

The relative order of controllable sources contributing fecal coliform to Corralitos and Salsipuedes Creeks, in decreasing order of contribution, are: (1) storm drain discharges to municipally owned and operated storm sewer systems required to be covered by an NPDES permit (MS4s), (2) homeless person/encampment discharges (not regulated by a permit for storm water discharges), (3) pet waste (not regulated by a permit for storm water discharges), (4) farm animal and livestock discharges, (5) onsite wastewater system discharges, (6) sanitary sewer collection system spills and leaks, and (7) private sewer laterals connected to municipal sanitary sewer collection systems. Natural, uncontrollable sources also contribute fecal coliform in the Corralitos/Salsipuedes Creek watershed.

TMDLs and Allocations

The TMDLs for all impaired waters of Corralitos and Salsipuedes Creeks are concentration-based TMDLs applicable to each day of all seasons equal to the following:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

The allocations to responsible parties are shown in Table IX.N-1.

Table IX.N-1. Allocations and Responsible Parties

Waterbody Assigned Allocation	Responsible Party (Source Organism or Source Category)	Receiving Water Fecal Coliform Allocation
WASTE LOAD ALLOCATIONS		
Corralitos1 and Salsipuedes Creeks2	Santa Cruz County and City of Watsonville (Storm Drain Discharges to MS4s Required to be Covered by an NPDES Permit)	Wasteload Allocation 1

Corralitos1 and Salsipuedes Creeks2	Freedom County Sanitation District (Corralitos Creek only) and Salsipuedes Sanitary District (Salsipuedes Creek only) (Sanitary Sewer Collection System Spills and Leaks Required to be Covered by WDR Order No. R3-2003-0041)	Wasteload Allocation 2
Corralitos1 and Salsipuedes Creeks2	Owners of Private Sewer Laterals (Private Sewer Laterals Connected to Municipal Sanitary Sewer Collection System)	Wasteload Allocation 2
LOAD ALLOCATIONS		
Corralitos1 and Salsipuedes Creeks2	Owners and/or Operators of Land that have Homeless Persons/Encampments (Discharges From Homeless Persons/Encampments Not Regulated by a Permit for Storm Water Discharges)	Load Allocation 2
Corralitos1 and Salsipuedes Creeks2	Owners/Operators of Land Used for/Containing Pets (Pet Waste Not Regulated by a Permit for Storm Water Discharges)	Load Allocation 1
Corralitos1 and Salsipuedes Creeks2	Owners of Land Used for/Containing Farm Animals/Livestock (Farm Animals and Livestock Waste Discharges)	Load Allocation 1
Salsipuedes Creek (upstream of confluence with Corralitos Creek)	Owners of Onsite Wastewater Systems Whose Systems are Within the Specified Area3 (Onsite Wastewater System Discharges)	Load Allocation 2
Corralitos1 and Salsipuedes Creeks2	Natural Sources	Load Allocation 1
Wasteload/Load Allocation 1: Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100mL, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN/100 mL. Wasteload/Load Allocation 2: Allocation of zero; no fecal coliform bacteria load originating from human sources of fecal material is allowed.		

1 All reaches of Corralitos Creek downstream of Browns Valley Bridge.
2 All reaches of Salsipuedes Creek.
3 The specified area is within the boundaries of State Highway 152 to the southeast, Foothill Road to the northeast (excluding assessor parcel numbers 05155107 and 05155106), Salsipuedes Creek to the northwest, and up to, but not including The County Fairgrounds to the southwest.

The parties responsible for the allocations to controllable sources are not responsible for the allocation to natural sources.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation Program

STORM DRAIN DISCHARGES

The Central Coast Water Board will address fecal indicator bacteria (FIB), e.g., fecal coliform and/or other indicators of pathogens, discharged from the County of Santa Cruz's and City of Watsonville's municipal separate

storm sewer system (MS4) by regulating the County of Santa Cruz and City of Watsonville under the provisions of the State Water Resources Control Board's General Permit for the Discharges of Storm Water from Small Municipal Separate Storm Sewer Systems (General Permit) (NPDES No. CAS000004). As enrollees, the County of Santa Cruz and City of Watsonville must develop and implement a Storm Water Management Plan (SWMP) that controls urban runoff discharges into and from their MS4. To address the County of Santa Cruz's and City of Watsonville's TMDL waste load allocation, the Central Coast Water Board will require the County of Santa Cruz and City of Watsonville to specifically target FIB in urban runoff through incorporation of a Wasteload Allocation Attainment Program in their SWMP.

The Central Coast Water Board will require that the Wasteload Allocation Attainment Programs describe the actions that will be taken by the County of Santa Cruz and City of Watsonville to attain the TMDL wasteload allocations, and specifically address:

- Development of an implementation and assessment strategy;
- Source identification and prioritization;
- Best management practice identification, prioritization, implementation, analysis, and effectiveness assessment;
- Monitoring program development and implementation;
- Reporting, including evaluation whether current best management practices are progressing towards achieving the wasteload allocations by thirteen years after the TMDLs are approved by the Office of Administrative Law.
- Coordination with stakeholders; and
- Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the County of Santa Cruz's and City of Watsonville's jurisdiction.

The Central Coast Water Board will require that the Wasteload Allocation Attainment Program be submitted at one of the following milestones, whichever occurs first:

- Within one year of approval of the TMDLs by the Office of Administrative Law;
- When required by any other Central Coast Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For an MS4 that is enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the Wasteload Allocation Attainment Program is submitted. For an MS4 entity that is not enrolled under the General Permit at the time of the Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the SWMP is approved by the Central Coast Water Board.

The Executive Officer or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

HOMELESS PERSON/ENCAMPMENT DISCHARGES NOT REGULATED BY A PERMIT FOR STORM WATER DISCHARGES

Owners of land that contain homeless persons and/or homeless encampments in the Corralitos/Salsipuedes Creeks watershed must comply with the Human Fecal Material Discharge Prohibition.

Owners of land with homeless persons must demonstrate to the satisfaction of the Executive Officer or the Central Coast Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners of lands containing homeless persons of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe the options owners have for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water

Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

- Clear evidence that the owner/operator is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be documentation submitted by the owner to the Executive Officer validating current and continued compliance with the Prohibition, or a plan for compliance with the Human Fecal Material Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from homeless persons. The Plan must also describe how implementing the identified management practices is likely to progressively achieve the load allocation for homeless persons, with the ultimate goal of achieving the load allocation no later than three years from the date of the Executive Officer's notification to the owner requiring compliance. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from homeless persons, and self-assessment of this progress.
- Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs).

DOMESTIC ANIMAL DISCHARGES NOT REGULATED BY A PERMIT FOR STORM WATER DISCHARGES

Owners and/or operators of lands containing domestic animals in the Corralitos/Salsipuedes Creeks watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In his notification, the Executive Officer will also describe the owner's/operator's of lands containing domestic animals options for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition. Pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of lands containing domestic animals will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

- Clear evidence that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; clear evidence could be documentation submitted by the owner/operator to the Executive Officer validating current and continued compliance with the Prohibition.
- A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices is likely to progressively achieve the load allocations to domestic animals, with the ultimate goal of achieving the load allocations no later than thirteen years after Office of Administrative Law approval of these TMDLs. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress toward achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of owners/operators of lands containing domestic animals.
- Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs or National Pollutant Discharge Elimination System (NPDES permit).

ONSITE WASTEWATER SYSTEM DISCHARGES

Owners of onsite wastewater systems within the following described area must comply with the Human Fecal Material Discharge Prohibition. The subject area is within the boundaries of State Highway 152 to the southeast, Foothill Road to the northeast (excluding assessor parcel numbers 05155107 and 05155106), Salsipuedes Creek to the northwest, and up to but not including The County Fairgrounds to the southwest.

Owners of onsite wastewater systems must demonstrate to the satisfaction of the Executive Officer or the Central Coast Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will either 1) determine that the County of Santa Cruz is making adequate progress towards implementing an approved Santa Cruz County Onsite Wastewater Management Plan as it pertains to controlling the waste loads from onsite wastewater systems in Corralitos and Salsipuedes Creeks, or 2) notify owners of onsite wastewater systems (owners) in the area described above of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe owner's options for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

- Clear evidence that the owner is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be certification by the County of Santa Cruz, or similar, that the owner's onsite wastewater system is in compliance with the Human Fecal Material Discharge Prohibition.
- A schedule for compliance with the Human Fecal Material Discharge Prohibition. The compliance schedule must include a monitoring and reporting program and milestone dates demonstrating progress towards compliance with the Human Fecal Material Discharge Prohibition, with the ultimate milestone being compliance with the Human Fecal Material Discharge Prohibition no later than three years from the date of the Executive Officer's notification to the owner requiring compliance.
- Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs).
- Clear evidence of current or scheduled compliance with the Human Fecal Material Discharge Prohibition (as described in number-1 and number-2 above, respectively) through the submittal of the required information, e.g. by the County of Santa Cruz, acting as the voluntary agents of owners/operators of onsite wastewater systems. Note that an owner of an onsite wastewater system cannot demonstrate compliance with the Human Fecal Material Discharge Prohibition through this option if: 1) the County of Santa Cruz is not their voluntary agent, or 2) if the owner/operator of the onsite wastewater system does not choose the County of Santa Cruz as their agent, or, 3) the Executive Officer or Central Coast Water Board does not approve the evidence submitted by the County of Santa Cruz on behalf of the owners/operators of onsite wastewater systems.

SALSIPUEDES SANITARY DISTRICT AND FREEDOM COUNTY SANITATION DISTRICT SEWER COLLECTION SYSTEM SPILLS AND LEAKS

The Freedom County Sanitation District (FCSD) and the Salsipuedes Sanitary District (SSD) in the Corralitos/Salsipuedes Creeks watershed must comply with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with their allocation for this TMDL.

To comply with the Human Fecal Material Discharge Prohibition, the FCSD and the SSD must continue to implement their Collection System Management Plan and Infiltration/Inflow and Spill Prevention Program (herein referred to as the Plan and Program), respectively, as required by Waste Discharge Requirements (WDRs) (Order No. R3-2003-0041).

In addition, the FCSD and SSD are required to improve maintenance of their sewage collection systems, including identification, correction, and prevention of sewage leaks in portions of the collection systems that run through or adjacent to, impaired surface waters within the Corralitos/Salsipuedes Creek Watershed.

To this end, within six months following approval of this TMDL by the Office of Administrative Law, the Executive Officer will issue a letter pursuant to Section 13267 of the California Water Code requiring: 1) submittal within one-year, a technical report that describes how and when FCSD and SSD will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with the Human Fecal Material Discharge Prohibition, and 2) stream monitoring for fecal coliform or another fecal indicator bacteria, and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the FCSD and SSD are in compliance with the Human Fecal Material Discharge Prohibition.

PRIVATE SEWER LATERALS CONNECTED TO MUNICIPAL SANITARY SEWER COLLECTION SYSTEMS

Individual owners and operators of private laterals to sanitary sewer collection systems are ultimately responsible for maintenance of their private laterals and are, therefore, responsible for complying with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with their load allocation for these TMDLs.

The Central Coast Water Board requires immediate cessation of spills from private laterals. Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of private laterals to sanitary sewer collection systems (owners/operators of private laterals), in suspected problem areas, of this requirement and of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe the owner's/operator's of private laterals options for demonstrating compliance with the Human Fecal Material Discharge Prohibition. Pursuant to California Water Code section 13267 and within six months of the notification by the Executive Officer, owners/operators of private laterals will be required to submit one of the following for approval by the Executive Officer or the Central Coast Water Board:

- Clear evidence that the owner/operator of private lateral is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be certification by the County of Santa Cruz or City of Watsonville that owner/operator of private lateral is in compliance with the Human Fecal Material Discharge Prohibition.
- A schedule for compliance with the Human Fecal Material Discharge Prohibition. The compliance schedule must include a monitoring and reporting program and milestone dates demonstrating progress towards compliance with the Human Fecal Material Discharge Prohibition, with the ultimate milestone being compliance with the Human Fecal Material Discharge Prohibition no later than three years (the exact timeframe at the discretion of the Executive Officer, but not to exceed three years for compliance) from the date of the Executive Officer's notification to the owner/operator requiring compliance.
- Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements; WDRs or National Pollutant Discharge Elimination System (NPDES permit)).
- Clear evidence of current or scheduled compliance with the Human Fecal Material Discharge Prohibition (as described in number-1 and number-2 above, respectively) through the submittal of the required information by the County of Santa Cruz or the City of Watsonville, acting as the voluntary agents of owners/operators of private laterals. Note that an owner/operator of a private lateral cannot demonstrate compliance with the Human Fecal Material Discharge Prohibition through this option if: 1) the County of Santa Cruz or the City of Watsonville is not their voluntary agent, or 2) if the owner/operator of the private lateral does not choose the County of Santa Cruz or the City of Watsonville as their agent, or, 3) the Executive Officer or Central Coast Water Board does not approve the evidence submitted by the County of Santa Cruz or the City of Watsonville on behalf of the owners/operators of private laterals.

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the California Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of fecal indicator bacteria are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective based on evidence that natural or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving the TMDLs and numeric target is 13 years after the date of approval by the California Office of Administrative Law.

IX.O. Total Maximum Daily Loads for Fecal Coliform in Lower Salinas River Watershed (Including Lower Salinas River, Old Salinas River, Tembladero Slough, Salinas Reclamation Canal, Alisal Creek, Gabilan Creek, Natividad Creek, Salinas River Lagoon (North), Santa Rita Creek, Quail Creek, Chualar Creek, and Towne Creek)

The Regional Water Quality Control Board adopted these TMDLs on September 2, 2010.
These TMDLs were approved by:

The State Water Resources Control Board on September 19, 2011.
The California Office of Administrative Law on December 20, 2011.
The U.S. Environmental Protection Agency on January 31, 2012.

Problem Statement

The beneficial use of water contact recreation is not protected in the impaired reaches of the Lower Salinas River Watershed, including Lower Salinas River (from the Chualar River Road, downstream to the Salinas River Lagoon (North)), Old Salinas River, Tembladero Slough, Salinas Reclamation Canal, Alisal Creek, Gabilan Creek, Natividad Creek, Salinas River Lagoon (North), Santa Rita Creek, Quail Creek, Chualar Creek, and Towne Creek because fecal indicator bacteria concentrations exceed existing Basin Plan numeric water quality objectives and/or USEPA guidelines protecting this beneficial use. All reaches in these waterbodies are impaired.

The Ocean Plan and Basin Plan also contain Shellfish Harvesting (SHELL) and Non-contact Water Recreation (REC-2) water quality objectives. Waterbodies with SHELL beneficial use impaired by bacteria will be addressed in a separate TMDL project and/or standards action.

Numeric Target

The numeric targets used to develop the TMDLs and allocations are as follows:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL**.**

The numeric target is equal to the water quality objective protecting the water contact recreation beneficial use (REC-1), as described in Chapter 3 of this Basin Plan. If this water quality objective protecting REC-1 is amended, the numeric target for this TMDL will be equal to the amended water quality objective.

Source Analysis

Salinas Reclamation Canal, Lower: 1) discharges from Municipal Separate Storm Sewer Systems (MS4s), 2) domestic animals/livestock discharges in areas that do not drain to MS4s, 3) illegal dumping, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) sanitary sewer collection system leaks.

Reclamation Canal, Upper/Alisal Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping, 3) homeless person/encampment discharges in areas that do not drain to MS4s, 4) discharges from MS4s.

Old Salinas River: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping, 3) discharges from MS4s.

Tembladero Slough: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) discharges from MS4s, 3) illegal dumping, 4) sanitary sewer collection system leaks.

Santa Rita Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) discharges from MS4s, 3) illegal dumping, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) sanitary sewer collection system leaks.

Salinas River Lagoon (North): 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping 3) discharges from MS4s.

Lower Salinas River: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) discharges from MS4s, 3) illegal dumping.

Gabilan Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) discharges from MS4s, 3) illegal dumping, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) sanitary sewer collection system leaks.

Natividad Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) discharges from MS4s, 3) illegal dumping, 4) homeless person/encampment discharges in areas that do not drain to MS4s, 5) sanitary sewer collection system leaks.

Quail Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping.

Chualar Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping.

Towne Creek: 1) Domestic animals/livestock discharges in areas that do not drain to MS4s, 2) illegal dumping.

Natural uncontrollable sources of fecal coliform in the listed waterbodies are present and likely contributing to impairment at varying degrees by season and location.

TMDLs and Allocations

The TMDLs for all impaired waters of the Lower Salinas River, Old Salinas River, Tembladero Slough, Salinas Reclamation Canal, Alisal Creek, Gabilan Creek, Natividad Creek, Salinas River Lagoon (North), Santa Rita Creek, Quail Creek, Chualar Creek, and Towne Creek are set equal to the loading capacity of the waterbodies. They are concentration based TMDLs applicable to each day of all seasons and are set equal to the following:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

The TMDLs are equal to the water quality objective protecting the water contact recreation beneficial use (REC-1), as described in Chapter 3 of this Basin Pln. If this water quality objective protecting REC-1 is amended, the TMDLs for the water bodies subject to the TMDLs will be equal to the amended water quality objective.

The allocations to responsible parties are shown in Table IX.M-1.

Table IX.M-1. Allocations and Responsible Parties

WASTE LOAD ALLOCATIONS		
Waterbody	**Party Responsible for Allocation (Source) NPDES/WDR number**	**Receiving Water Fecal Coliform (MPN/100mL)**
Gabilan Creek[1] , Santa Rita Creek[3], Salinas Reclamation Canal[4], Natividad Creek[5], Lower Salinas River[6]	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981	Allocation-1
Gabilan Creek[1], Alisal Creek.[2], Santa Rita Creek.[3], Salinas Reclamation Canal[4], Natividad Creek[5], Lower Salinas River[6], Tembladero Slough[7], Old Salinas River[9], Salinas River Lagoon[10]	County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Allocation-1
Gabilan Creek[1] , Santa Rita Creek[3], Salinas Reclamation Canal[4], Natividad Creek[5]	City of Salinas (Sanitary sewer collection system spills and leaks) Statewide General WDR for Sanitary Sewer Systems WQO No. 2006-0003	Allocation-2
Tembladero Slough[7]	Castroville Community Services District (Sanitary sewer collection system spills and leaks) Statewide General WDR for Sanitary Sewer Systems WQO No. 2006-0003	Allocation-2
LOAD ALLOCATIONS		
Waterbody	**Responsible Party (Source)**	**Receiving Water Fecal Coliform (MPN/100mL)**
All twelve impaired water bodies[a]	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s))	Allocation-1
Salinas Reclamation Canal, Alisal Creek, Santa Rita Creek, Gabilan Creek, Natividad Creek	Owners and/or Operators of Land that have Homeless Persons/Encampments (Discharges From Homeless Persons/Encampments Not Regulated by a Permit for Storm Water Discharges)	Allocation-2
All twelve impaired water bodies[a]	Owners/operators of land used for/containing illegal dumping (Discharges from illegal dumping Not Regulated by a Permit for Storm Water Discharges)	Allocation-1

WASTE LOAD ALLOCATIONS		
Waterbody	**Party Responsible for Allocation (Source) NPDES/WDR number**	**Receiving Water Fecal Coliform (MPN/100mL)**
All twelve impaired water bodies[a]	No responsible party (Natural sources)	Allocation-1
Wasteload/Load Allocation 1 (Equal to the TMDL): Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100 mL, nor shall more than ten percent of total samples during any 30-day period exceed 400 MPN/100 mL. Wasteload/Load Allocation 2: Allocation of zero; no fecal coliform bacteria load originating from human sources of fecal material is allowed.		

[a] All twelve impaired water bodies: Lower Salinas River, Old Salinas River, Tembladero Slough, Salinas Reclamation Canal, Alisal Creek, Gabilan Creek , Natividad Creek, Salinas River Lagoon (north), Chualar Creek, Santa Rita Creek, Quail Creek, Towne Creek.

[1] Gabilan Creek: all reaches and its tributaries, which includes from the confluence with Carr Lake to the uppermost reaches of the waterbody, including but not limited to Towne Creek[12], Mudd Creek, and un-named creeks tributary to these.
[2] Alisal Creek : all reaches and its tributaries, which includes from the confluence with the Salinas Reclamation Canal to the uppermost reach of the waterbody.
[3] Santa Rita Creek: all reaches and its tributaries, which includes from the confluence with the Salinas Reclamation Canal to the uppermost reach of the waterbody.
[4] Salinas Reclmation Canal: all reaches and tributaries, which includes from confluence with Tembladero Slough, to upstream confluence with Carr Lake and Alisal Creek.
[5] Natividad Creek: all reaches and its tributaries, which includes from the confluence with Carr Lake to the uppermost reach of the waterbody.
[6] Lower Salinas River: all reaches and tributaries from Salinas River at Chualar River Road downstream to its confluence with the Salinas River Lagoon at Monte Road.
[7] Tembladero Slough: which includes all reaches and tributaries from the confluence with the Salinas Reclamation Canal downstream to its confluence with the Old Salinas River.
[8] Quail Creek: which includes all reaches and its tributaries, from the confluence with the Salinas River to the uppermost reach of the waterbody.
[9] Old Salinas River: all reaches and tributaries from the slide gate at the head of the Old Salinas River adjacent to Mulligan Hill, downstream to Potrero Road.
[10] Salinas River Lagoon (North): From Monte Road downstream to its confluence with Monterey Bay.
[11] Chualar Creek: which includes all reaches and its tributaries, from the confluence with the Salinas River to the uppermost reach of the waterbody.
[12] Towne Creek: all reaches and tributaries.

The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when the allocations assigned to all individual responsible parties are met or when the numeric targets are consistently met in the impaired reaches of the Lower Salinas River Watershed.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation

STORM DRAIN DISCHARGES TO MS4S:

The Central Coast Water Board will address fecal indicator bacteria (FIB), i.e., fecal coliform and/or other indicators of pathogens, discharged from the City of Salinas's and the County of Monterey's municipal separate storm sewer systems (MS4s) by regulating the MS4 entities under the provisions of an individual municipal stormwater permit, or the State Water Resource Control Board's General Permit for the Discharges of Storm

Water from Small Municipal Separate Storm Sewer Systems (General Permit). As enrollees under the an individual municipal stormwater permit or the General Permit, they must develop and implement a Storm Water Management Plan (SWMP) that controls urban runoff discharges into and from their MS4s. To address the MS4 TMDL wasteload allocations, the Central Coast Water Board will require the enrollees to specifically target FIB in urban runoff through incorporation of a Wasteload Allocation Attainment Program in their SWMPs.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization;
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring program development and implementation;
5. Reporting; including evaluation whether current best management practices are progressing towards achieving the wasteload allocations within thirteen years of the date that the TMDLs are approved by the Office of Administrative Law;
6. Coordination with stakeholders; and
7. Other pertinent factors.

The Wasteload Allocation Attainment Program will be required by the Central Coast Water Board to address each of these TMDLs that occur within the MS4 entities' jurisdictions.

The Central Coast Water Board will require the Wasteload Allocation Attainment Program to be submitted at one of the following milestones, whichever occurs first:

1. Within one year of approval of the TMDLs by the Office of Administrative Law;
2. When required by any other Water Board-issued storm water requirements (e.g., when the Phase II Municipal Storm Water Permit is renewed).

For MS4 entities that are enrolled under an individual municipal stormwater permit or the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMPs when they are submitted. For an MS4 that is not enrolled under the General Permit at the time of Wasteload Allocation Attainment Program submittal, the Wasteload Allocation Attainment Program must be incorporated into the SWMP when the SWMP is approved by the Central Coast Water Board.

The Executive Officer, pursuant to delegated authority, or the Central Coast Water Board will require information that demonstrates implementation of the actions described above, pursuant to applicable sections of the California Water Code and/or pursuant to authorities provided in the General Permit for storm water discharges.

DOMESTIC ANIMAL/LIVESTOCK DISCHARGES:

Owners and/or operators of lands containing domestic animals (including pets, farm animals, and livestock) in the Lower Salinas River watershed must comply with the Domestic Animal Waste Discharge Prohibition; compliance with the Domestic Animal Waste Discharge Prohibition is intended to result in compliance with the load allocation for these TMDLs.

Within three years of approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify owners and/or operators of lands used for/containing domestic animals of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. In the notification, the Executive Officer will describe the options that owners/operators of lands containing domestic animals have for demonstrating compliance with the Domestic Animal Waste Discharge Prohibition. Within six months of notification by the Executive Officer pursuant to California Water Code section 13261 or 13267, owners/operators of lands containing domestic animals will be required to submit one the following to the Water Board:

1) Sufficient evidence to demonstrate that the owner/operator of lands containing domestic animals is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition; Such evidence could include documentation submitted by the owner/operator to the Executive Officer that the

owner/operator is not causing waste to be discharged to the Creek resulting in violations of the Prohibition, or

2) A plan for compliance with the Domestic Animal Waste Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The plan must also describe how implementing the identified management practices are likely to progressively achieve the load allocations to domestic animals, with the ultimate goal achieving the load allocations no later than thirteen years after Office of Administrative Law approval of these TMDLs. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progressive progress toward achieving load allocations for discharges from domestic animals, and a self-assessment of this progress. The plan may be developed by an individual discharger or by or for a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of owners/operators of lands containing domestic animals, or

3) A Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

The estimated total median cost of TMDL implementation in the Lower Salinas River watershed to owners and operators of lands containing domestic animals is $143,900. This estimated total median cost represents the collective total cost to implement the TMDL by all responsible parties over the 13 year timeline to achieve the TMDL. Sources of financing are described in the Basin Plan, Chapter 4, in section IX.M.

HOMELESS PERSONS/ENCAMPMENT DISCHARGES

Owners of land that contain homeless persons and/or homeless encampments in the Lower Salinas River watershed must comply with the Human Fecal Material Discharge Prohibition.

Owners of land with homeless persons must demonstrate to the satisfaction of the Executive Officer or the Water Board that they are in compliance with the Human Fecal Material Discharge Prohibition; compliance with the Human Fecal Material Discharge Prohibition implies compliance with the load allocation for these TMDLs.

The Executive Officer will notify owners of lands containing homeless persons of the requirement to comply with the Human Fecal Material Discharge Prohibition. In his notification, the Executive Officer will also describe owners' options for demonstrating compliance with the Human Fecal Material Discharge Prohibition; pursuant to California Water Code 13267 and within six months of the notification by the Executive Officer, owners will be required to submit the following for approval by the Executive Officer or the Water Board:

1) Clear evidence that the owner/operator is and will continue to be in compliance with the Human Fecal Material Discharge Prohibition; clear evidence could be documentation submitted by the owner to the Executive Officer validating current and continued compliance with the Prohibition, or

2) A plan for compliance with the Human Fecal Material Discharge Prohibition. Such a plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from homeless persons. The Plan must also describe how implementing the identified management practices is likely to progressively achieve the load allocation for homeless persons, with the ultimate goal achieving the load allocation no later than three years from the date of the Executive Officer's notification to the owner requiring compliance. The plan must include monitoring and reporting to the Central Coast Water Board, demonstrating the progress towards achieving load allocations for discharges from homeless persons, and self-assessment of this progress, or

3) Submittal of a Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

In accordance with the Porter-Cologne Water Quality Control Act §13350 (c), responsible parties are shielded from civil liability in certain cases. Pursuant to Porter-Cologne Water Quality Control Act §13350(c)(4) and §13350(c)(5) there is no civil liability for the responsible party if the discharge is an intentional act of a third party, the effects of which could not have been prevented or avoided by the exercise of due care or foresight; or, any

other circumstance or event which causes the discharge despite the exercise of every reasonable precaution to prevent or mitigate the discharge.

SANITARY SEWER COLLECTION SYSTEM LEAKS:

Entities with jurisdiction over sewer collection systems can demonstrate compliance with these TMDL load allocations through waste discharge requirements and/or NPDES permits.

The City of Salinas, the Castroville Community Services District, and the California Utilities Service Wastewater Treatment Plant must continue to implement their Collection System Management Plans as required by waste discharge requirements.

In addition, the City of Salinas, the Castroville Community Services District, and the California Utilities Service Wastewater Treatment Plant (herein referred to as sanitary collection system jurisdictions) are required to improve maintenance of their sewage collection systems, including identification, correction, and prevention of sewage leaks in portions of the collection systems that run through, or adjacent to, impaired surface waters or their tributaries within the Lower Salinas River Watershed.

To this end, within six months following approval of these TMDLs by the Office of Administrative Law, the Executive Officer will issue letters to sanitary collection system jurisdictions pursuant to Section 13267 of the California Water Code requiring: 1) submittal within one year of approval of these TMDLs by the Office of Administrative Law a technical report that describes how and when the sanitary collection system jurisdictions will conduct improved collection system maintenance in portions of the collection system most likely to affect impaired surface water bodies, with the end result being compliance with its TMDL allocation, 2) stream monitoring for fecal coliform or another fecal indicator bacteria and reporting of these monitoring activities, and 3) annual reporting of self-assessment as to whether the sanitary collection system jurisdictions are in compliance with the TMDL allocation.

ILLEGAL DUMPING:

Owners of lands where illegal dumping occurs are ultimately responsible for achieving the allocation for pathogen loading resulting from illegal dumping. However, the County of Monterey and the City of Salinas currently have programs and ordinances to address illegal dumping, and have been proactive in their effort to control these discharges. Illegal dumping is a violation of California Law and Monterey County Code (California Penal Code 374.3(A) and Monterey County Code, Chapter 10.41.040(A), respectively). The County of Monterey Health Department responds to illegal dumping complaints, prepares reports of investigation for the District Attorney's Office, engages in public outreach and education, and participates in programs that focus on minimizing illegal dumping. The County of Monterey and the City of Salinas actively prosecute individuals who are caught illegally dumping. The City of Salinas has devoted resources to watershed cleanup efforts to remove litter from City creeks. Both the City and the County have reportedly established telephone hotlines for citizens to report illegal dumping and they provide financial rewards for reporting parties.

The Executive Officer anticipates that existing programs and ordinances will achieve the allocation; therefore, no new regulatory mechanisms are warranted. Compliance with the allocation may be demonstrated through effective and proactive implementation and enforcement of existing regulatory authorities. The Executive Officer will assess progress and make changes if necessary during TMDL implementation tracking to achieve allocations for pathogen loading from illegal dumping.

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring

requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural, or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal indicator bacteria.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving this TMDL numeric target is 13 years after the date of approval by the Office of Administrative Law.

IX.P. Total Maximum Daily Loads for Fecal Indicator Bacteria in Santa Maria River Watershed (Including Alamo Creek, Blosser Channel, Bradley Channel, Bradley Canyon Creek, Cuyama River, La Brea Creek, Little Oso Flaco Creek, Main Street Canal, Nipomo Creek, Orcutt Creek, Oso Flaco Creek, Oso Flaco Lake, Santa Maria River Estuary, and Santa Maria River)

The Regional Water Quality Control Board adopted these TMDLs on March 15, 2012.
These TMDLs were approved by:

The State Water Resources Control Board on October 16, 2012.
The California Office of Administrative Law on February 21, 2013.
The U.S. Environmental Protection Agency on April 24, 2013.

Problem Statement

The beneficial use of water contact recreation (REC-1) is not protected in the impaired reaches of the Santa Maria River Watershed, including Alamo Creek, Blosser Channel, Bradley Channel, Bradley Canyon Creek, Cuyama River (upstream of Twitchell reservoir to Highway 33), La Brea Creek, Little Oso Flaco Creek, Main Street Canal, Nipomo Creek, Orcutt Creek, Oso Flaco Creek, Oso Flaco Lake, Santa Maria River Estuary, and Santa Maria River because fecal coliform bacteria concentrations exceed existing Basin Plan numeric water quality objectives and in some instances also exceed USEPA criteria for *E. coli* protecting this beneficial use. All reaches in these waterbodies are impaired, with the exception of Cuyama River which is impaired from Twitchell Dam upstream to Highway 33.

The Ocean Plan and Basin Plan also contain Shellfish Harvesting (SHELL) water quality objectives. The beneficial use of shellfishing is not protected in the Santa Maria River Estuary because total coliform concentrations exceed existing Basin Plan and Ocean Plan numeric water quality objectives.

Numeric Target

The numeric targets used to develop the TMDLs and allocations for REC-1 are:

> Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL**.**
>
> Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of *E. coli* densities shall not exceed 126 per 100mL, and no sample shall exceed a one-sided confidence limit (C.L.) calculated using the following as guidance: lightly used for contact recreation (90% C.L.) = 409 per 100mL.

The numeric target used to develop the TMDLs and allocations for SHELL is:

> At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 mL, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100mL for a five-tube decimal dilution test or 330/100 mL when a three-tube decimal dilution test is used.

The numeric targets are equal to the water quality objective protecting the water contact recreation and the shellfishing beneficial use as described in Chapter 3 of this Basin Plan as well as USEPA recommended criteria. If these water quality objectives or criteria protecting water contact recreation and/or shellfishing are amended, the numeric targets for this TMDL will be equal to the amended water quality objectives and criteria.

Source Analysis

Natural uncontrollable sources of fecal coliform in the listed waterbodies are present and likely contributing to impairment at varying degrees by season and location.

Alamo Creek: 1) domestic animals/livestock discharges.

Blosser Channel: 1) discharges from Municipal Separate Storm Sewer Systems (MS4s), 2) sanitary sewer collection system leaks.

Bradley Channel: 1) discharges from MS4s, 2) sanitary sewer collection system leaks.

Bradley Canyon Creek: 1) domestic animals/livestock discharges.

Cuyama River (upstream of Twitchell reservoir to Highway 33): 1) domestic animals/livestock discharges.

La Brea Creek: 1) domestic animals/livestock discharges.

Little Oso Flaco Creek: 1) domestic animals/livestock discharges.

Main Street Canal: 1) discharges from MS4s, 2) sanitary sewer collection system leaks.

Nipomo Creek: 1) domestic animals/livestock discharges, 2) discharges from MS4s.

Orcutt Creek: 1) domestic animals/livestock discharges, 2) discharges from MS4s, 3) sanitary sewer collection system leaks.

Oso Flaco Creek: 1) domestic animals/livestock discharges.

Oso Flaco Lake: 1) domestic animals/livestock discharges.

Santa Maria River Estuary: 1) domestic animals/livestock discharges, 2) discharges from MS4s, 3) sanitary sewer collection system leaks.

Santa Maria River: 1) domestic animals/livestock discharges, 2) discharges from MS4s, 3) sanitary sewer collection system leaks.

TMDLs and Allocations

The TMDLs for all waters and reaches of the Santa Maria River Watershed, including Alamo Creek, Blosser Channel, Bradley Channel, Bradley Canyon Creek, Cuyama River, La Brea Creek, Little Oso Flaco Creek, Main Street Canal, Nipomo Creek, Orcutt Creek, Oso Flaco Creek, Oso Flaco Lake, Santa Maria River Estuary and Santa Maria River are concentration-based TMDLs applicable to each day of all seasons, are applicable to all reaches, and are set equal to the following:

Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN per 100 mL, nor shall more than 10 percent of samples collected during any 30-day period exceed 400 MPN per 100 mL.

Based on a statistically sufficient number of samples (generally not less than 5 samples equally spaced over a 30-day period), the geometric mean of *E. coli* densities shall not exceed 126 per 100mL, and no sample shall exceed a one-sided confidence limit (C.L.) calculated using the following as guidance: lightly used for contact recreation (90% C.L.) = 409 per 100mL.

And for the Santa Maria River Estuary only:

At all areas where shellfish may be harvested for human consumption, the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100mL, nor shall more than ten percent of

the samples collected during any 30-day period exceed 230/100mL for a five-tube decimal dilution test or 330/100 mL when a three-tube decimal dilution test is used.

The TMDLs are equal to the water quality objective or criteria protecting the water contact recreation beneficial use, as described in Chapter 3 of this Basin Plan as well as USEPA recommended criteria. If these water quality objectives or criteria protecting water contact recreation are amended, the TMDLs for the waterbodies subject to the TMDLs will be equal to the amended water quality objectives and criteria.

For the Santa Maria River Estuary only, the TMDLs are also equal to the water quality objective protecting the shellfishing beneficial use, as described in Chapter 3 of this Basin Plan. If this water quality objective protecting shellfishing is amended, the TMDLs for the waterbodies subject to the TMDLs will be equal to the amended water quality objective.

The allocations to responsible parties are shown in Table IX.P-1.

Table IX.P-1. Allocations and Responsible Parties

"Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled" (Water Quality Control Plan: Central Coast Region, page III-2). The allocations identified below are subject to these conditions.

WASTE LOAD ALLOCATIONS		
Waterbody the Responsible Party is Discharging to*	**Party Responsible for Allocation (Source)**	**Receiving Water Allocations***
Santa Maria River, Main Street Canal, Blosser Channel, Bradley Channel,	City of Santa Maria - NPDES No. CAS000004 (Urban Stormwater)	Allocation 1 & 3
Main Street Canal	Santa Maria Fairpark – NPDES No. Pending (Urban Stormwater)	Allocation 1 & 3
Nipomo Creek	County of San Luis Obispo - NPDES No. CAS000004 (Urban Stormwater)	Allocation 1 & 3
Orcutt Creek	County of Santa Barbara - NPDES No. CAS000004 (Urban Stormwater)	Allocation 1 & 3
Santa Maria River	City of Guadalupe – NPDES No. Pending (Urban Stormwater)	Allocation 1 & 3
Blosser Channel, Bradley Channel, Main Street and Santa Maria River	City of Santa Maria -Statewide General WDR for Sanitary Sewer Systems WQO No. 2006-0003 (Wastewater Collection System)	Allocation 2
Orcutt Creek	Laguna County Sanitation District - Statewide General WDR for Sanitary Sewer Systems WQO No. 2006-0003 (Wastewater Collection System)	Allocation 2
Santa Maria River	City of Guadalupe - Statewide General WDR for Sanitary Sewer Systems WQO No. 2006-0003 (Wastewater Collection System)	Allocation 2
LOAD ALLOCATIONS		
Waterbody the Responsible Party is Discharging to*	**Responsible Party and Source**	**Receiving Water Allocations***

Santa Maria River Estuary	Owners/Operators of land used for/containing domestic animals/livestock (Domestic animals)	Allocation 4
All impaired waterbodies	Owners/Operators of land used for/containing domestic animals/livestock (Domestic animals)	Allocation 1 & 3
All impaired waterbodies	No responsible party (Natural and Background Sources)	Allocation 1 & 3

Allocation-1 = Fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 MPN/100mL, nor shall more than ten percent of total samples during any 30-day period exceed 400MPN/100 mL.

Allocation-2 = Fecal coliform nor *E. coli* concentration shall not exceed zero; no fecal coliform nor *E. coli* bacteria load originating from human sources of fecal material is allowed.

Allocation-3 = Based on a statistically sufficient number of samples (generally not less than five samples equally spaced over a 30-day period), the geometric mean of *E. coli* densities shall not exceed: 126 per 100mL, and no sample shall exceed a one-sided confidence limit (C.L.) calculated using the following as guidance: lightly used for contact recreation (90% C.L.) = 409 per 100mL.

Allocation-4 = Total coliform concentration, the median throughout the water column for any 30-day period shall not exceed 70MPN/100 mL, nor shall more than ten percent of the samples collected during any 30-day period exceed 230MPN/100 mL for a five-tube decimal dilution test or 330MPN/100 mL when a three-tube decimal dilution test is used.

* Responsible parties shall meet allocations in all receiving surface waterbodies of the responsible parties' discharges.

The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

The TMDLs are considered achieved when water quality conditions meet all regulatory and policy requirements necessary for removing the impaired waters from Clean Water Act section 303(d) list of impaired waters.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative assumptions.

Implementation

STORM DRAIN DISCHARGES TO MS4s:

The Central Coast Water Board will require the MS4 entities to develop and submit for Executive Officer approval a Wasteload Allocation Attainment Program (WAAP). The WAAP shall be submitted within one year of approval of the TMDL by the Office of Administrative Law, or within one year of a stormwater permit renewal, whichever occurs first. The WAAP shall include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization;
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring and reporting program development and implementation. Monitoring program goals shall include: 1) assessment of stormwater discharge and receiving water discharge quality 2) assessment of best management effectiveness, and 3) demonstration and progress towards achieving interim targets and wasteload allocations.

Demonstration of achieving wasteload allocations, interim targets, and progress shall be accomplished quantitatively through a combination of the following:
   a. Assessing discharge water quality.
   b. Assessing receiving water quality.
   c. Assessing mass load reduction.
   d. Best management practices capable of achieving interim targets and wasteload allocations in combination with water quality monitoring for a balanced approach to determine effectiveness.
   e. Any other effluent limitations and conditions which are consistent with the assumptions and requirements of the wasteload allocations.
5. Coordination with stakeholders; and
6. Other pertinent factors.

Monitoring

The City of Santa Maria, City of Guadalupe, County of San Luis Obispo (Nipomo), County of Santa Barbara (Orcutt) and the Santa Maria Fairpark are required to develop and submit monitoring programs as part of their WAAP. The goals of the monitoring programs are described in the requirements of the WAAP.

Staff encourages the City of Santa Maria, City of Guadalupe, County of San Luis Obispo (Nipomo), County of Santa Barbara (Orcutt) and the Santa Maria Fairpark to develop and submit creative and meaningful monitoring programs. Monitoring strategies can use a phased approach, for example, whereby outfall or receiving water monitoring is phased in after best management practices have been implemented and assessed for effectiveness. Pilot projects where best management practices are implemented in well-defined areas covering a fraction of the MS4 that facilitates accurate assessment of how well the best management practices control pollution sources, is acceptable, with the intent of successful practices then being implemented in other or larger parts of the MS4.

Interim Targets

The target date to achieve the TMDLs is 15 years from the date of TMDL approval by the Office of Administrative Law. Implementing parties must demonstrate progress towards achieving their allocations. Interim targets are a tool to gauge progress during the 15-year implementation phase. Implementing parties may develop and propose interim targets as part of their WAAP as demonstration of progress. If implementing parties choose not to develop and propose interim targets, the following interim targets are expected as demonstration of progress towards achieving wasteload allocations:

- 20% progress towards achieving wasteload allocations at the end of the fifth year following TMDL approval by OAL.
- 50% progress towards achieving wasteload allocations at the end of the 10th year following TMDL approval by OAL.
- 100% progress towards achieving wasteload allocations at the end of the 15th year following TMDL approval by OAL.

Interim targets are goals and not wasteload allocations.

DOMESTIC ANIMAL/LIVESTOCK DISCHARGES:

After approval of these TMDLs by the Office of Administrative Law, the Executive Officer will notify livestock owners/operators who are not in compliance with the Domestic Animal Waste Discharge Prohibition of the requirement to comply with the Domestic Animal Waste Discharge Prohibition. Pursuant to California Water Code section 13261, 13267 or other applicable authority, the Executive Officer will require livestock owners/operators to submit for approval one the following to the Water Board:

1) Sufficient evidence to demonstrate that the livestock owner/operator is and will continue to be in compliance with the Domestic Animal Waste Discharge Prohibition. Such evidence could include documentation (e.g., photo documentation) submitted by the livestock owner/operator that the livestock owner/operator is not causing waste to be discharged to a water of the state resulting in violations of the Domestic Animal Waste Discharge Prohibition, or
2) A Nonpoint Source Pollution Control Implementation Program (Plan) for compliance with the Domestic Animal Waste Discharge Prohibition. Such a Plan must include a list of specific management practices that will be implemented to control discharges containing fecal material from domestic animals. The Plan

must also describe how implementing the identified management practices are likely to progressively achieve the load allocations, with the ultimate goal of achieving the load allocations during the implementation phase of the TMDL. The Plan must include monitoring and reporting to the Central Coast Water Board, demonstrating effectiveness of implemented best management practices and progress toward achieving load allocations, and a self-assessment of this progress. The Plan may be developed by an individual discharger or by a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of livestock owners/operators, or

3) A Report of Waste Discharge pursuant to California Water Code Section 13260 (as an application for waste discharge requirements).

Monitoring

Livestock owners/operators who are not in compliance may be required to implement and report water quality monitoring as part of their Plan for compliance with the Domestic Animal Waste Discharge Prohibition (as described above). Monitoring requirements can be developed individually, i.e., on an operation by operation basis, or by a coalition of dischargers in cooperation with a third-party representative, organization, or government agency acting as the agents of the livestock owners/operators.

Interim Targets

The target date to achieve the TMDLs is 15 years from the date of TMDL approval by the Office of Administrative Law. Livestock owners/operators not in compliance with the Domestic Animal Waste Discharge Prohibition must demonstrate progress towards compliance with the Domestic Animal Waste Discharge Prohibition, as described in their Plan. Interim targets are a tool to gauge progress during the implementation phase. Livestock owner/operators may develop and propose interim targets as part of their Plan as demonstration of progress. If livestock owners/operators choose not to develop and propose interim targets, the following interim targets are expected as demonstration of progress towards compliance with the Domestic Animal Waste Discharge Prohibition:

- 20% progress towards achieving load allocations at the end of the fifth year following TMDL approval by OAL.
- 50% progress towards achieving load allocations at the end of the 10th year following TMDL approval by OAL.
- 100% progress towards achieving load allocations at the end of the 15th year following TMDL approval by OAL.

Interim targets are goals and not wasteload allocations.

SANITARY SEWER COLLECTION SYSTEM LEAKS:

Entities with jurisdiction over sewer collection systems will demonstrate compliance with these TMDL load allocations through waste discharge requirements.

The City of Santa Maria, Laguna County Sanitation District, and the City of Guadalupe must implement their Collection System Management Plans as required by the Statewide General waste discharge requirements for collection agencies. Implementation of their waste discharge requirements ensures that a maintenance and management plan is in place and will reduce or eliminate the number and frequency of sanitary sewer overflows in the project area. Information regarding sanitary sewer overflows must be provided to the Central Coast Water Board. Wastewater collection agencies will show compliance with the TMDL through complying with the existing statewide general waste discharge requirements.

Implementing parties will monitor and report as required in their waste discharge requirements.

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations, dependent upon staff availability and priorities. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric target.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of pathogens are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural or background sources alone were the cause of exceedances of the Basin Plan water quality objective for fecal coliform or the USEPA recommended criteria for *E. coli*.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving this TMDL numeric target is 15 years after the date of approval by the Office of Administrative Law.

IX.Q. Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in the Lower Salinas River and Reclamation Canal Basin, and the Moro Cojo Slough Subwatershed (Including Alisal Creek, Alisal Slough, Blanco Drain, Chualar Creek, Esperanza Creek, Espinosa Slough, Gabilan Creek, Merrit Ditch, Moro Cojo Slough, Natividad Creek, the Old Salinas River, Quail Creek, the Reclamation Canal, the Lower Salinas River (Downstream Of Gonzalez), Salinas River Lagoon (North), Santa Rita Creek, and Tembladero Slough).

The Regional Water Quality Control Board adopted these TMDLs on March 14, 2013.
These TMDLs were approved by:

The State Water Resources Control Board on February 4, 2014.
The California Office of Administrative Law on May 7, 2014.
The U.S. Environmental Protection Agency on October 13, 2015.

Acronyms

BMP: best management practices
MS4: municipal separate storm sewer systems
OAL: Office of Administrative Law

Problem Statement

Discharges of nitrogen compounds and orthophosphate are occurring at levels in surface waters which are impairing a spectrum of beneficial uses and, therefore, constitute a serious water quality problem. The municipal and domestic drinking water supply (MUN, GWR) beneficial uses and the range of aquatic habitat beneficial uses are not protected. Additionally, locally some waterbodies do not meet non-regulatory recommended guidelines for nitrate in agricultural supply water for sensitive crops indicating that potential or future designated agricultural supply beneficial uses may be detrimentally impacted. Further, recreational beneficial use (REC-1) of the Old Salinas River is not being supported on the basis of excessive amounts of algal toxins (microcystins) in surface water. A total of 35 waterbody/pollutant combinations are impaired due to exceedances of water quality objectives. The pollutants addressed in these TMDLs are nitrate, unionized ammonia, and orthophosphate – orthophosphate is included as a pollutant contributing to biostimulatory impairments of surface waters. Reducing these pollutants will also address several Clean Water Act section 303(d)-listed dissolved oxygen and chlorophyll *a* impairments in the TMDL project area.

As a result of these conditions, water quality standards are not being attained. By developing TMDLs for the aforementioned pollutants, the water quality standards violations being addressed in these TMDLs include:

- Violations of drinking water standard for nitrate
- Violations of the Basin Plan general toxicity objective for inland surface waters and estuaries (violations of unionized ammonia objective)
- Violations of the Basin Plan narrative general objective for biostimulatory substances in inland surface waters and estuaries (as expressed by excessive nutrients, chlorophyll a, algal biomass, microcystins, and low dissolved oxygen)

The TMDLs protect and restore the municipal and domestic water supply beneficial use (MUN) and aquatic habitat beneficial uses currently being degraded by violations of the toxicity objective and the biostimulatory substances objective. The aquatic habitat beneficial uses currently being degraded include the following: wildlife

habitat (WILD), cold fresh water habitat (COLD), warm fresh water habitat (WARM), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), preservation of biological habitats of special significance (BIOL), and rare, threatened, or endangered species (RARE). In addition, current or potential future beneficial uses of the agricultural water supply beneficial use (AGR) are not being supported. Nitrate can create problems not only for water supplies and aquatic habitat, but also potentially for nitrogen sensitive crops (grapes, avocado, citrus) by detrimentally impacting crop yield or quality.

For waterbodies that are not expressing biostimulatory impairments, the most stringent relevant water quality objective for nitrate (and therefore the one that is protective of the full range of all nitrate-impaired designated beneficial uses) is the numeric Basin Plan objective for nitrate in municipal and domestic water supply. Reducing nitrate pollution and ultimately achieving the nitrate drinking water quality standard in these waterbodies will therefore restore and be protective of the full range of MUN, GWR, and/or AGR designated beneficial uses of the surface waters which are being currently impaired by excess nitrate.

All waterbodies are required to attain the Basin Plan general toxicity objective for unionized ammonia in inland surface waters and estuaries.

For waterbodies that are expressing biostimulatory impairments, the most stringent relevant water quality objective for nitrate-nutrients (and therefore the one that is protective of the full range of all nutrient-impaired designated beneficial uses) is the Basin Plan narrative general objective for biostimulatory substances in inland surface waters and estuaries. These waterbodies must achieve concentration-based TMDLs for nitrate and orthophosphate as identified herein. Reducing nutrient pollution and ultimately achieving the TMDLs for nutrients in these waterbodies will therefore restore and be protective of the full range of aquatic habitat, MUN, GWR, and/or AGR designated beneficial uses of the surface waters which are being currently impaired by excess nutrients.

The following impairments are addressed with these TMDLs:

- Alisal Creek: nitrate, unionized ammonia, chlorophyll a
- Alisal Slough: nitrate, unionized ammonia, low dissolved oxygen
- Blanco Drain: nitrate, low dissolved oxygen
- Chualar Creek: nitrate, unionized ammonia
- Esperanza Creek: nitrate
- Espinosa Slough: nitrate, unionized ammonia
- Gabilan Creek: nitrate, unionized ammonia
- Lower Salinas River: nitrate
- Merrit Ditch: nitrate, unionized ammonia, low dissolved oxygen
- Moro Cojo Slough: unionized ammonia, low dissolved oxygen
- Natividad Creek: nitrate, unionized ammonia, low dissolved oxygen
- Old Salinas River: nitrate, low dissolved oxygen, chlorophyll a, microcystin
- Quail Creek: nitrate, unionized ammonia, low dissolved oxygen
- Reclamation Canal: nitrate, unionized ammonia, low dissolved oxygen
- Salinas River Lagoon (north): nitrate
- Santa Rita Creek: nitrate, unionized ammonia, low dissolved oxygen
- Tembladero Slough: nitrate, nutrients, chlorophyll a

Numeric Targets

Numeric targets are water quality targets developed and used to ascertain when and where water quality objectives are achieved, and hence, when beneficial uses are protected.

- *Target for Nitrate (MUN-GWR standards)*

For impaired stream reaches that are required to support drinking water (MUN) and groundwater recharge (GWR) beneficial uses, the nitrate numeric target is 10 mg/L (nitrate as N) for these TMDLs, which therefore is equal to the Basin Plan's numeric nitrate water quality objective protective of drinking water beneficial uses and groundwater recharge beneficial uses.

- *Target for Unionized Ammonia (toxicity)*

For unionized ammonia (a nitrogen compound), the numeric target is 0.025 mg/L (as N) for these TMDLs, which therefore is equal to the Basin Plan's unionized ammonia numeric water quality objective protective against toxicity in surface waters.

- *Targets for Biostimulatory Substances (nitrate and orthophosphate)*

The Basin Plan contains the following narrative water quality objectives for biostimulatory substances:
"Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses."

To implement this narrative objective, staff developed scientifically peer reviewed numeric targets, based on established methodologies and approaches. The numeric targets for biostimulatory substances are presented in Table IX.Q-0.

Table IX.Q-0. Numeric targets for biostimulatory substances.

Stream Reaches	Nitrate-N (mg/L)	Orthophosphate-P (mg/L)
Lower Salinas River – downstream of Spreckels to and including Salinas River Lagoon (north)	1.4 Maximum Dry Season Samples (May 1-Oct 31) 8.0 Maximum Wet Season Samples (Nov 1-Apr 30)	0.07 Maximum Dry Season Samples (May 1-Oct 31) 0.3 Maximum Wet Season Samples (Nov 1-Apr 30)
Tembladero Slough all reaches Blanco Drain all reaches Merritt Ditch downstream of Merritt Lake Reclamation Canal downstream of Hartnell Rd. to confluence w/Tembladero Slough Alisal Slough all reaches Espinosa Slough from Espinosa lake to confluence with Reclamation Canal Santa Rita Creek all reaches	6.4 Maximum Dry Season Samples (May 1-Oct 31) 8.0 Maximum Wet Season Samples (Nov 1-Apr 30)	0.13 Maximum Dry Season Samples (May 1-Oct 31) 0.3 Maximum Wet Season Samples (Nov 1-Apr 30)
Gabilan Creek all reaches Natividad Creek all reaches Alisal Creek upstream of Hartnell Rd.	2.0 Maximum Dry Season Samples (May 1-Oct 31) 8.0 Maximum Wet Season Samples (Nov 1-Apr 30)	0.07 Maximum Dry Season Samples (May 1-Oct 31) 0.3 Maximum Wet Season Samples (Nov 1-Apr 30)

Stream Reaches	Nitrate-N (mg/L)	Orthophosphate-P (mg/L)
Old Salinas River from slide gate infow @ Salinas River Lagoon to Old Salinas River at Potrero Rd.	3.1 Maximum Dry Season Samples (May 1-Oct 31) 8.0 Maximum Wet Season Samples (Nov 1-Apr 30)	0.07 Maximum Dry Season Samples (May 1-Oct 31) 0.3 Maximum Wet Season Samples (Nov 1-Apr 30)
Stream Reaches	**Total Nitrogen (mg/L)**	**Orthophosphate-P (mg/L)**
Moro Cojo Slough, all reaches	1.7 Maximum (total nitrogen) Dry Season Samples (May 1-Oct 31) 8.0 Maximum (total nitrogen) Wet Season Samples (Nov 1-Apr 30)	0.13 Maximum Dry Season (May 1-Oct 31) 0.3 Maximum Wet Season Samples (Nov 1-Apr 30)

- *Targets for Nutrient-Response Indicators (dissolved oxygen and chlorophyll a and microcystins)*

Dissolved oxygen and chlorophyll *a* numeric targets are identified to ensure that streams do not show evidence of biostimulatory conditions and to provide primary indicator metrics to assess biological response to future nutrient water column concentration reductions.

For water bodies designated as cold fresh water habitat (COLD) and spawning (SPWN) beneficial uses the dissolved oxygen numeric targets is the same as Basin Plan numeric water quality objective which states that dissolved oxygen concentrations shall not be reduced below 7.0 mg/L at any time.

For water bodies designated as warm fresh water habitat (WARM) beneficial use the dissolved oxygen numeric targets is the same as Basin Plan numeric water quality objective which states that dissolved oxygen concentrations shall not be reduced below 5.0 mg/L at any time.

Additionally, for all inland surface waters, enclosed bays and estuaries, the dissolved oxygen numeric target is the same as Basin Plan numeric water quality objective which states that the median dissolved oxygen should not fall below 85% saturation as a result of controllable water quality conditions.

For water bodies designated as cold fresh water habitat (COLD) and spawning (SPWN) or warm fresh water habitat (WARM) beneficial uses the numeric water quality target indicative of excessive dissolved oxygen saturation conditions is 13 mg/L (i.e., water column dissolved oxygen concentrations not to exceed 13 mg/L).

The numeric water quality target for chlorophyll *a* is 15 micrograms per liter (µg/L) for all water bodies (i.e., water column chlorophyll *a* concentrations not to exceed 15 µg/L).

The numeric water quality target for microcystins is 0.8 micrograms per liter (µg/L) for all waterbodies (i.e., microcystins not to exceed 0.8 µg/L (includes microcystin congeners LA, LR, RR and YR)).

Source Analysis

Discharges of unionized ammonia, nitrate, and orthophosphate originating from irrigated agriculture, urban lands, grazing lands, and natural sources are contributing loads to receiving waters. Irrigated agriculture is the overwhelming majority of controllable water column loads in the TMDL project area and this source category is

not currently meeting its proposed load allocation. Urban storm water is a relatively minor source of nitrogen compounds and orthophosphate, but can be locally significant. Grazing lands are currently meeting proposed load allocations. The source analysis for this TMDL project is consistent with source analyses reported by other scientists in previous nutrient-water quality studies in the lower Salinas Valley, which provides for a qualitative weight-of-evidence approach.

TMDLs

The following TMDLs will result in attainment of water quality standards and will rectify impairments described in the Problem Statement.

The unionized ammonia TMDL for all waterbodies and reaches of the TMDL project area including Alisal Creek, Alisal Slough, Chualar Creek, Espinosa Slough, Merrit Ditch, Moro Cojo Slough, Natividad Creek, the Reclamation Canal, Quail Creek, Gabilan Creek and Santa Rita Creek is:

- Unionized ammonia concentration shall not exceed 0.025 mg/L-N in receiving waters.

The nitrate TMDL for all waters and reaches of the TMDL project area required to support MUN beneficial uses, including, Alisal Creek, Alisal Slough, Chualar Creek, Esperanza Creek, Gabilan Creek, Merrit Ditch, Natividad Creek, the Old Salinas River, Quail Creek, the Lower Salinas River (downstream of Gonzalez to Spreckels), Santa Rita Creek is:

- Nitrate concentration shall not exceed 10 mg/L-N in receiving waters.

The nitrate and orthophosphate TMDLs for the lower Salinas River (from downstream of Spreckels to the Salinas River Lagoon) and the Salinas River Lagoon (north) are:

- For dry season (May 1 to October 31): Nitrate-N concentration shall not exceed 1.4 mg/L in receiving waters; orthophosphate-P concentration shall not exceed 0.07 mg/L in receiving waters, and
- For wet season (November 1 to April 30): Nitrate-N concentration shall not exceed 8.0 mg/L in receiving water; orthophosphate-P concentration shall not exceed 0.3 mg/L in receiving water.

The nitrate and orthophosphate TMDLs for Espinosa Slough (all reaches from Espinosa Lake to confluence with Reclamation Canal), for the Reclamation Canal (all reaches downstream of Hartnell Rd to confluence with Tembladero Slough), for Merrit Ditch (all reaches downstream of Merrit Lake), and for all reaches of Alisal Slough, Santa Rita Creek, Blanco Drain and Tembladero Slough are:

- For dry season (May 1 to October 31): Nitrate-N concentration shall not exceed 6.4 mg/L in receiving waters; orthophosphate-P concentration shall not exceed 0.13 mg/L in receiving waters, and
- For wet season (November 1 to April 30): Nitrate-N concentration shall not exceed 8.0 mg/L in receiving water; orthophosphate-P concentration shall not exceed 0.3 mg/L in receiving water.

The nitrate and orthophosphate TMDLs for Gabilan Creek (all reaches downstream of Crazy Horse Road to confluence with Reclamation Canal), and for all reaches of Alisal Creek and Natividad Creek are:

- For dry season (May 1 to October 31): Nitrate-N concentration shall not exceed 2.0 mg/L in receiving waters; orthophosphate-P concentration shall not exceed 0.07 mg/L in receiving waters, and
- For wet season (November 1 to April 30): Nitrate-N concentration shall not exceed 8.0 mg/L in receiving water; orthophosphate-P concentration shall not exceed 0.3 mg/L in receiving water.

The nitrate and orthophosphate TMDLs for all reaches of the Old Salinas River are:

- For dry season (May 1 to October 31): Nitrate-N concentration shall not exceed 3.1 mg/L in receiving waters; orthophosphate-P concentration shall not exceed 0.07 mg/L in receiving waters, and
- For wet season (November 1 to April 30): Nitrate-N concentration shall not exceed 8.0 mg/L in receiving water; orthophosphate-P concentration shall not exceed 0.3 mg/L in receiving water.

The total nitrogen and orthophosphate TMDLs for all reaches of the Moro Cojo Slough are:

- For dry season (May 1 to October 31): total Nitrogen-N concentration shall not exceed 1.7 mg/L in receiving waters; orthophosphate-P concentration shall not exceed 0.13 mg/L in receiving waters, and
- For wet season (November 1 to April 30): total Nitrogen-N concentration shall not exceed 8.0 mg/L in receiving water; orthophosphate-P concentration shall not exceed 0.3 mg/L in receiving water.

The TMDLs are considered achieved when water quality conditions meet all regulatory and policy requirements necessary for removing the impaired waters from Clean Water Act section 303(d) list of impaired waters.

Final Allocations and Interim Allocations

Owners and operators of irrigated lands, municipal storm water entities, natural sources, and owners/operators of livestock and domestic animals are assigned unionized ammonia, nitrate, and orthophosphate allocations equal to the TMDL and numeric targets.

The final allocations to responsible parties are shown in Table IX.Q-1. The final allocations are equal to the TMDLs and should be achieved 30-years after the TMDL effective date. Unlike the load-based TMDL method, the concentration-based allocations do not add up to the TMDL because concentrations of individual pollution sources are not additive. Since the TMDLs are concentration-based, the allocations are not additive.

Recognizing that achievement of the more stringent final dry season biostimulatory allocations embedded in Table IX.Q-1 may require a significant amount to time to achieve, interim allocations are identified. Interim allocations will be used as benchmarks in assessing progress towards the final allocations. Interim allocations are shown in Table IX.Q-2.

Controllable Water Quality Conditions

In accordance with the Water Quality Control Plan for the Central Coast Basin (Basin Plan), controllable water quality shall be managed to conform or to achieve the water quality objectives and load allocations contained in these TMDLs. The Basin Plan defines controllable water quality conditions as follows: *"Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled."* - Water Quality Control Plan for the Central Coast Basin, Chapter 3, Water Quality Objectives, page III-2.

Compliance with Anti-degradation Requirements

State and federal anti-degradation policies require, in part, that where surface waters are of higher quality than necessary to protect beneficial uses, the high quality of those waters must be maintained unless otherwise provided by the policies. The federal anti-degradation policy, 40 C.F.R. 131.12(a), states in part, *"Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located…"*

Compliance with anti-degradation requirements may be determined on the basis of trends in declining water quality in applicable waterbodies, consistent with the methodologies and criteria provided in Section 3.10 of the California 303(d) Listing Policy (adopted, Sept. 20, 2004, SWRCB Resolution No. 2004-0063). Section 3.10 of the California 303(d) Listing Policy explicitly addresses the anti-degradation component of water quality standards as defined in 40 CFR 130.2(j), and provides for identifying trends of declining water quality as a metric for assessing compliance with anti-degradation requirements.

Section 3.10 of the California 303(d) Listing Policy states that pollutant-specific water quality objectives need not be exceeded to be considered non-compliant with anti-degradation requirements *"if the water segment exhibits concentrations of pollutants or water body conditions for any listing factor that shows a trend of declining water quality standards attainment".*

Practically speaking, this means that, for example, stream reaches or waterbodies that have a concentration-based TMDL allocation of 10 mg/L nitrate-N, and if current water quality or future water quality assessments in the stream reach indicate nitrate-N in fact well under 10 mg/L nitrate-N, the allocation does not give license for controllable nitrogen sources to degrade the water resource all the way up to the maximum allocation = 10 mg/L nitrate-N.

- ***Table IX.Q-1. Final Allocations and Responsible Parties***

FINAL WASTE LOAD ALLOCATIONS (WLAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation & NPDES/WDR number**	**Receiving Water Nitrate as N WLA (mg/L)**	**Receiving Water Orthophosphate as P WLA (mg/L)**	**Receiving Water Total Nitrogen as N WLA (mg/L)**	**Receiving Water Unionized Ammonia as N WLA (mg/L)**
Lower Salinas River downstream of Spreckels, CA[1]	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981 County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Allocation-1 *(see descriptions of allocations at bottom of this table)*	Allocation-2	Not Applicable	Allocation-5
Santa Rita Creek[2], Reclamation Canal[3]	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981 County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Allocation-3	Allocation-4	Not Applicable	Allocation-5
Gabilan Creek[4]	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981 County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Allocation-6	Allocation-2	Not Applicable	Allocation-5

FINAL WASTE LOAD ALLOCATIONS (WLAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation & NPDES/WDR number**	**Receiving Water Nitrate as N WLA (mg/L)**	**Receiving Water Orthophosphate as P WLA (mg/L)**	**Receiving Water Total Nitrogen as N WLA (mg/L)**	**Receiving Water Unionized Ammonia as N WLA (mg/L)**
Natividad Creek[5] Alisal Creek[6]	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981 County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Allocation-6	Allocation-2	Not Applicable	Allocation-5

FINAL LOAD ALLOCATIONS (LAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation (Source)**	**Receiving Water Nitrate as N LA (mg/L)**	**Receiving Water Orthophosphate as P LA (mg/L)**	**Receiving Water Total Nitrogen as N LA (mg/L)**	**Receiving Water Unionized Ammonia as N LA (mg/L)**
Lower Salinas River downstream of Spreckels, CA[1]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-1 *(see descriptions of allocations at bottom of this table)*	Allocation-2	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Lower Salinas River upstream of Spreckels, CA[17]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-9	Not Applicable	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				

FINAL LOAD ALLOCATIONS (LAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation (Source)**	**Receiving Water Nitrate as N LA (mg/L)**	**Receiving Water Orthophosphate as P LA (mg/L)**	**Receiving Water Total Nitrogen as N LA (mg/L)**	**Receiving Water Unionized Ammonia as N LA (mg/L)**
	No responsible party (Natural sources)				
Merrit Ditch[7], Reclamation Canal[3], Alisal Slough[8], Santa Rita Creek[2], Espinosa Slough[16]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-3	Allocation-4	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Tembladero Slough[9], Blanco Drain[10]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-3	Allocation-4	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Gabilan Creek[4]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-6	Allocation-2	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				

FINAL LOAD ALLOCATIONS (LAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation (Source)**	**Receiving Water Nitrate as N LA (mg/L)**	**Receiving Water Orthophosphate as P LA (mg/L)**	**Receiving Water Total Nitrogen as N LA (mg/L)**	**Receiving Water Unionized Ammonia as N LA (mg/L)**
Natividad Creek[5] Alisal Creek[6]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-6	Allocation-2	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Old Salinas River[11]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-7	Allocation-2	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Moro Cojo Slough[12]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Not applicable *(biostimulation will be assessed on the basis of total nitrogen)*	Allocation-4	Allocation-8	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Chualar Creek[13], Quail Creek[14]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-9	Not Applicable	Not Applicable	Allocation-5

FINAL LOAD ALLOCATIONS (LAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation (Source)**	**Receiving Water Nitrate as N LA (mg/L)**	**Receiving Water Orthophosphate as P LA (mg/L)**	**Receiving Water Total Nitrogen as N LA (mg/L)**	**Receiving Water Unionized Ammonia as N LA (mg/L)**
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				
Esperanza Creek[15]	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-9	Not Applicable	Not Applicable	Allocation-5
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)				
	No responsible party (Natural sources)				

FINAL LOAD ALLOCATIONS (LAs)					
Waterbody the responsible party is discharging to	**Party Responsible for Allocation (Source)**	**Receiving Water Nitrate as N LA (mg/L)**	**Receiving Water Orthophosphate as P LA (mg/L)**	**Receiving Water Total Nitrogen as N LA (mg/L)**	**Receiving Water Unionized Ammonia as N LA (mg/L)**

Description of allocations.

Allocation [A]	***Compound***	***Concentration (mg/L)*** [B]
Allocation 1	Nitrate as N	Dry Season (May 1-Oct. 31): **1.4** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 2	Orthophosphate as P	Dry Season (May 1-Oct. 31): **0.07** Wet Season (Nov. 1-Apr. 30): **0.3**
Allocation 3	Nitrate as N	Dry Season (May 1-Oct. 31): **6.4** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 4	Orthophosphate as P	Dry Season (May 1-Oct. 31): **0.13** Wet Season (Nov. 1-Apr. 30): **0.3**
Allocation 5	Unionized Ammonia as N	Year-round: **0.025**
Allocation 6	Nitrate as N	Dry Season (May 1-Oct. 31): **2.0** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 7	Nitrate as N	Dry Season (May 1-Oct. 31): **3.1** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 8	Total Nitrogen as N	Dry Season (May 1-Oct. 31): **1.7** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 9	Nitrate as N	Year-round: **10**

[A] Federal and state anti-degradation requirements apply to all waste load and load allocations.

[B] Achievement of final waste load and load allocations to be determined on the basis of the number of measured exceedances and/or other criteria set forth in Section 4 of the *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Listing Policy - State Water Resources Control Board, Resolution No. 2004-0063, adopted September 2004), or as consistent with any relevant revisions of the Listing Policy promulgated in the future pursuant to Government Code section 11353.

Responsible parties shall meet allocations in all receiving surface waterbodies receiving the responsible parties' discharges.

The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

[1] Lower Salinas River: all reaches from downstream of Spreckels (downstream of monitoring site 309SSP) to the confluence with the Pacific Ocean including Salinas River Lagoon (North)

[2] Santa Rita Creek: all reaches and tributaries, from the confluence with the Reclamation Canal to the uppermost reach of the waterbody.

[3] Reclmation Canal: all reaches and tributaries, which includes from confluence with Tembladero Slough, to upstream confluence with Alisal Creek.

[4] Gabilan Creek: all reaches and tributaries downstream of Crazy Horse Rd.

[5] Natividad Creek: all reaches and tributaries, from the confluence with Carr Lake to the uppermost reach of the waterbody.

[6] Alisal Creek: all reaches and tributaries from the confluence with the Reclamation Canal to the uppermost reach of the waterbody.

[7] Merrit Ditch: all reaches and tributaries from the confluence with the Reclamation Canal to the uppermost reach of the waterbody.

[8] Alisal Slough: all reaches and tributaries of the waterbody.

[9] Tembladero Slough: all reaches and tributaries from the confluence with the Salinas Reclamation Canal downstream to its confluence with the Old Salinas River.
[10] Blanco Drain: all reaches and tributaries of the waterbody.
[11] Old Salinas River: all reaches and tributaries from the slide gate at the head of the Old Salinas River adjacent to Mulligan Hill, downstream to Potrero Road.
[12] Moro Cojo Slough: all reaches and tributaries, from the confluence with Moss Landing Harbor to the uppermost reach of the waterbody.
[13] Chualar Creek: all reaches and tributaries, from the confluence with the Salinas River to the uppermost reach of the waterbody.
[14] Quail Creek: all reaches and tributaries, from the confluence with the Salinas River to the uppermost reach of the waterbody.
[15] Esperanza Creek: all reaches and tributaries, from the confluence with the Salinas River to the uppermost reach of the waterbody.
[16] Espinosa Slough all reaches and tributaries, from the confluence with the Reclamation Canal to the uppermost reach of the waterbody.
[17] Lower Salinas River: all reaches from upstream of Spreckels (upstream of monitoring site 309SSP) to Gonzalez, CA.

Table IX.Q-2. Interim Allocations

INTERIM WASTE LOAD ALLOCATIONS (WLAs)			
Waterbody	**Party Responsible for Allocation (Source)**	**First Interim WLA**	**Second Interim WLA**
All waterbodies given waste load allocations (WLAs) as identified in Final Waste Load Allocations Table	City of Salinas (Storm drain discharges to MS4s) Storm Water Permit NPDES No. CA00049981 County of Monterey (Storm drain discharges to MS4s) Storm Water General Permit NPDES No. CAS000004	Achieve **MUN standard-based** and **Unionized Ammonia objective-based** allocations: Allocation-5 Allocation-9 **12 years after effective date of the TMDLs**	Achieve **Wet Season** (Nov. 1 to Apr. 30) **Biostimulatory target-based** TMDL allocations: Wet Season Allocation/Waterbody combinations as identified in Final Waste Load Allocations Table **20 years after effective date of the TMDLs**
INTERIM LOAD ALLOCATIONS (LAs)			
Waterbody	**Party Responsible for Allocation (Source)**	**First Interim LA**	**Second Interim LA**
All waterbodies given load allocations (LAs) as identified in Final Load Allocations Table.	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Achieve **MUN standard-based** and **Unionized Ammonia objective-based** allocations: Allocation-5 Allocation-9 **12 years after effective date of the TMDLs**	Achieve **Wet Season** (Nov. 1 to Apr. 30) **Biostimulatory target-based** TMDL allocations: Wet Season Allocation/Waterbody combinations as identified in Final Load Allocations Table. **20 years after effective date of the TMDLs**

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative model assumptions and statistical analysis. In addition, an explicit margin of safety is incorporated by reserving 20% of the load, calculated on a concentration basis, from wet season allocations.

Implementation

DISCHARGES FROM IRRIGATED AGRICULTURAL LANDS:

Owners and operators of irrigated agricultural lands must comply with the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Order R3-2012-0011; the "Agricultural Order") and the Monitoring and Reporting Programs in accordance with Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03, or their renewals or replacements, to meet load allocations and achieve the TMDLs. The requirements in these orders, and their renewals or replacements in the future, will implement the TMDLs and rectify the impairments addressed in the TMDLs.

Current requirements in the Agricultural Order that will achieve the load allocations include:

A. Implement, and update as necessary, management practices to reduce nutrient loading.
B. Maintain existing, naturally occurring riparian vegetative cover in aquatic habitat areas.
C. Develop/update and implement Farm Plans.
D. Properly destroy abandoned groundwater wells.
E. Develop and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) or alternative certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional.

Monitoring

Owners and operators of irrigated agricultural lands must perform monitoring and reporting in accordance with Monitoring and Reporting Program Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03, as applicable to the operation.

Determination of Compliance with Load Allocations

Load allocations will be achieved through a combination of implementation of management practices and strategies to reduce nitrogen compound and orthophosphate loading, and water quality monitoring. Flexibility to allow owners/operators of irrigated lands to demonstrate compliance with load allocations is a consideration. Additionally, staff is aware that not all implementing parties are necessarily contributing to or causing a surface water impairment. However, it is important to recognize that impacting shallow groundwater with nutrient pollution may also impact surface water quality via baseflow loading contributions to the surface waterbodies.
To allow for flexibility, Water Board staff will assess compliance with load allocations using one or a combination of the following:

A. Attaining the load allocations in the receiving water;
B. Attaining receiving water TMDL numeric targets for nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll a targets and microcystin targets) and mitigation of downstream nutrient impacts to receiving waterbodies may constitute a demonstration of attainment of the nitrate, nitrogen and orthophosphate-based seasonal biostimulatory load allocations. Note that implementing parties are strongly encouraged to maximize overhead riparian canopy, where and if appropriate, using riparian vegetation, because doing so could result in achieving nutrient-response indicator targets before allocations are achieved (resulting in a less stringent allocation);
C. Demonstrating quantifiable receiving water mass load reductions;
D. Owners/operators of irrigated lands may be deemed in compliance with load allocations by implementing management practices that are capable of achieving interim and final load allocations identified in these TMDLs;
E. Owners/operators of irrigated lands may provide sufficient evidence to demonstrate that they are and will continue to be in compliance with the load allocations. Such evidence could include documentation submitted by the owner/operator to the Executive Officer that the owner/operator is not causing waste to be discharged to impaired waterbodies resulting or contributing to violations of the load allocations.

STORM DRAIN DISCHARGES TO MS4s:

The Central Coast Water Board will require MS4 entities to develop and submit for Executive Officer approval a Wasteload Allocation Attainment Program (WAAP). The WAAP shall be submitted within one year of approval of the TMDLs by OAL, or within one year of a stormwater permit renewal, whichever occurs first. The WAAP shall include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL waste load allocations, and shall specifically address:

A. Development of an implementation and assessment strategy;
B. Source identification and prioritization;
C. BMP identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
D. Monitoring and reporting program development and implementation. Monitoring program goals shall include: 1) assessment of stormwater discharge and receiving water discharge quality, 2) assessment of BMP effectiveness, and 3) demonstration and progress towards achieving interim goals and waste load allocations.
E. Coordination with stakeholders; and
F. Other pertinent factors.

Determination of Compliance with Waste Load Allocations

Waste load allocations will be achieved through a combination of implementation of management practices and strategies to reduce nitrogen compound and orthophosphate loading, and water quality monitoring.
To allow for flexibility, Water Board staff will assess compliance with waste load allocations using one or a combination of the following:

A. Attaining the waste load allocations in the receiving water;
B. Attaining receiving water TMDL numeric targets for nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll a targets, and microcystin targets) and mitigation of downstream nutrient impacts to receiving waterbodies may constitute a demonstration of the attainment of the nitrate, nitrogen and orthophosphate-based seasonal biostimulatory waste load allocations. Note that implementing parties are strongly encouraged to maximize overhead riparian canopy using riparian vegetation, as appropriate, because doing so could result in achieving nutrient-response indicator targets before allocations are achieved (resulting in a less stringent allocation);
C. Demonstrate compliance by measuring concentrations in stormwater outfalls;
D. Demonstrate compliance by demonstrating load reductions on mass basis at stormdrain outfalls;
E. MS4s may be deemed in compliance with waste load allocations through implementation and assessment of BMPs capable of achieving interim and final waste load allocations identified in this TMDL in combination with water quality monitoring for a balanced approach to determining program effectiveness;
F. Any other effluent limitations and conditions which are consistent with the assumptions and requirements of the waste load allocations.

Monitoring

MS4 entities with operations and storm water conveyance systems in the TMDL project areas - specifically the City of Salinas and County of Monterey - are required to develop and submit monitoring programs as part of their WAAP. The goals of the monitoring programs are described in the requirements of the WAAP.

Staff encourages the City of Salinas and County of Monterey to develop and submit creative and meaningful monitoring programs. Monitoring strategies can use a phased approach, for example, whereby outfall or receiving water monitoring is phased in after BMPs have been implemented and assessed for effectiveness. Pilot projects where BMPs are implemented in well-defined areas covering a fraction of the MS4 that facilitates accurate assessment of how well the BMPs control pollution sources, are acceptable, with the intent of successful practices then being implemented in other or larger parts of the MS4.

DOMESTIC ANIMAL/LIVESTOCK DISCHARGES:

The water quality data available from stream reaches that exclusively drain grazing lands, or lands where grazed animals and farm animals can be expected to occur, indicate the nitrogen compounds and orthophosphate proposed water quality targets, and thus load allocations, are being met in these reaches. Based on available

data, this source category is meeting their load allocation. As such, no new regulatory requirements are deemed necessary or are being proposed.

It is important to note that the TMDL project area is subject to the Domestic Animal Waste Discharge Prohibition and are subject to compliance with an approved indicator bacteria TMDL load allocation. Implementation efforts by responsible parties to comply with this prohibition and with indicator bacteria load allocations will, as a practical matter, also reduce the risk of nitrogen and phosphorus loading to surface waters from domestic animal waste. It should be noted that available information does not conclusively demonstrate that all domestic animal operations are currently meeting load allocations; there are potentially unpermitted confined animal facilities, equestrian facilities, or grazing animal operations that do not meet load allocations. More information will be obtained, if merited, during the implementation phase of the TMDLs to further assess the level of nutrient contribution from these source categories, and to identify any actions if necessary to reduce loading.

Tracking and Evaluation

Every three years, beginning three years after the TMDLs are approved by the OAL, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations, dependent upon staff availability and priorities. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric goal.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of nitrogen compounds and orthophosphate are not contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric goal and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural conditions or background sources alone were the cause of exceedances of the Basin Plan water quality objectives.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving these TMDLs is 30 years after the date of approval by the OAL.

Optional Special Studies and Reconsideration of the TMDLs

Additional monitoring and voluntary optional special studies would be useful to evaluate the uncertainties and assumptions made in the development of these TMDLs. The results of special studies may be used to reevaluate waste load allocations and load allocations in these TMDLs. Implementing parties may submit work plans for optional special studies (if implementing parties choose to conduct special studies) for approval by the Executive Officer. Special studies completed and final reports shall be submitted for Executive Officer approval. Additionally, eutrophication is an active area of research. Consequently, ongoing scientific research on eutrophication and biostimulation may further inform the Water Board regarding waste load or load allocations that are protective against biostimulatory impairments, implementation timelines, and/or downstream impacts. At this time, staff maintains there is sufficient information to begin to implement these TMDLs and make progress towards attainment of water quality standards and the proposed allocations. However, in recognition of the uncertainties regarding nutrient pollution and biostimulatory impairments, staff proposes that the Water Board reconsider the waste load and load allocations, if merited by optional special studies and new research, ten years after the effective date of the TMDLs, which is upon approval by the OAL. A time schedule for optional studies and Central Coast Water Board reconsideration of the TMDL is presented in Table IX.Q-3.

Further, the Central Coast Water Board may also reconsider these TMDLs, the nutrient water quality criteria, or other TMDL elements on the basis of potential future promulgation of a statewide nutrient policy for inland surface waters in the State of California.

Table IX.Q-3. Time schedule for optional studies and Water Board reconsideration of waste load allocations and load allocations.

Proposed Actions	Description	Time Schedule-Milestones
Optional studies work plans	Implementing parties shall submit work plans for optional special studies (if implementing parties choose to conduct special studies) for approval by Executive Officer	By five years after the effective date of the TMDLs
Final optional studies	Optional studies completed and final report submitted for Executive Officer approval.	By eight years after the effective date of the TMDLs
Reconsideration of the TMDLs	If merited by optional special studies or information from ongoing research into eutrophication issues, the Water Board will reconsider the Wasteload and Load allocations and/or implementation timelines adopted pursuant to these TMDLs.	By ten years after the effective date of the TMDLs

IX.R. Total Maximum Daily Loads for Toxicity and Pesticides in the Santa Maria Watershed (Including Blosser Channel, Bradley Canyon Creek, Bradley Channel, Greene Valley Creek, Little Oso Flaco Creek, Main Street Canal, Orcutt Creek, Oso Flaco Creek, Oso Flaco Lake, and Santa Maria River).

The Regional Water Quality Control Board adopted these TMDLs on January 30, 2014.
These TMDLs were approved by:
The State Water Resources Control Board on July 2, 2014.
The California Office of Administrative Law on October 29, 2014.
The U.S. Environmental Protection Agency on August 31, 2015.

Problem Statement

Surface waters in the Santa Maria River watershed are polluted with pesticides that are toxic to aquatic life. This is in violation of the Basin Plan general narrative objectives for toxicity and pesticides. Aquatic life-related beneficial uses are not being protected, including but not limited to the following: cold fresh water habitat, warm fresh water habitat, estuarine habitat, wildlife habitat, rare threatened or endangered species-migration, spawning, reproduction and/or early development, commercial and sport fishing, and shellfish harvesting.

There are three classes of pesticides and several pesticide active ingredients causing impairment in Santa Maria River watershed, including organophophate (chlorpyrifos, diazinon, and malathion), synthetic pyrethroids (bifenthrin, cyfluthrin, cypermethrin, esfenvalerate, lambda-cyhalothrin, and permethrin), and organochlorine (DDTs, dieldrin, and toxaphene).Additionally, surface waters in the project area are on the Clean Water Act section 303(d) list as impaired for unknown water column toxicity and sediment toxicity to invertebrate test organisms. Organophosphate and pyrethroids concentrations in the surface waters and sediments are at levels associated with toxicity. Surface waters are impaired for organochlorine pesticides due to the levels in fish tissue that exceeded fish consumption criteria.

The following impairments are addressed with these TMDLs:

Blosser Channel: unknown toxicity, chlorpyrifos, diazinon
Bradley Canyon Creek: unknown toxicity
Bradley Channel: chlorpyrifos, sediment toxicity, unknown toxicity, diazinon, pyrethroids, DDT
Greene Valley Creek: chlorpyrifos, unknown toxicity
Little Oso Flaco Creek: sediment toxicity, unknown toxicity
Main Street Canal: chlorpyrifos, diazinon, unknown toxicity, pyrethroids, DDT
Orcutt Creek: chlorpyrifos, DDT, diazinon, dieldrin, sediment toxicity, unknown toxicity, pyrethroids
Oso Flaco Creek: sediment toxicity, unknown toxicity, malathion, DDT
Oso Flaco Lake: dieldrin, chlordane, DDT
Santa Maria River: chlorpyrifos, DDT, dieldrin, endrin, sediment toxicity, toxaphene, unknown toxicity, diazinon, pyrethroids

Numeric Targets

The following numeric targets are used to ascertain if water quality objectives are achieved and if beneficial uses are protected.

Water Column Numeric Targets

Table IX.R-1. Water Column Numeric Targets

Chemical	Concentration µg/L (ppb)	Target Type
Chlorpyrifos	0.025	CMC[1]
Chlorpyrifos	0.015	CCC[2]
Diazinon	0.16	CMC
Diazinon	0.10	CCC
Malathion	0.17	CMC
Malathion	0.028	CCC
Bifenthrin	0.004	CMC
Bifenthrin	0.0006	CCC
Cyfluthrin	0.0003	CMC
Cyfluthrin	0.00005	CCC
Lambda-Cyhalothrin	0.001	CMC
Lambda-Cyhalothrin	0.0005	CCC
Chlordane	0.00057	Human Health Consumption
DDD, 4,4- (p,p-DDD)	0.00083	Human Health Consumption
DDE, 4,4- (p,p-DDE)	0.00059	Human Health Consumption
DDT, 4,4-(p,p-DDT)	0.00059	Human Health Consumption
Dieldrin	0.00014	Human Health Consumption
Toxaphene	0.00073	Human Health Consumption

[1] CMC – Criterion Maximum Concentration (Acute: 1- hour average). Not to be exceeded more than once in a three-year period

[2]. CCC - Criterion Continuous Concentration (Chronic: 4-day (96-hour) average). Not to be exceeded more than once in a three-year period.

Additive Toxicity Numeric Target for Organophosphate Pesticides

The organophosphate pesticides chlorpyrifos and diazinon have additive toxicity in the water column. Since the TMDL is linked to toxicity and concentrations, additive toxicity must be considered in the TMDL as a numeric target.

The numeric target for additive toxicity for organophosphate pesticides is:

$$\frac{C\ (diazinon)}{NT(diazinon)} + \frac{C\ (chlopyrifos)}{NT\ (chlorpyrifos)} = S;\ where\ S\ \leq 1$$

Where:

C = the concentration of a pesticide measured in the receiving water.

NT = the numeric target for each pesticide present.

S = the sum; a sum exceeding one (1.0) indicates that beneficial uses may be adversely affected.

The additive toxicity numeric target formula shall be applied when both diazinon and chlorpyrifos are present in the water column.

Sediment Numeric Targets

Table IX.R-2. Sediment Numeric Targets

Chemical Group	Chemical	Concentration µg/kg o.c. (ppb)	Target Type
Organochlorine	Chlordane	1.7	Human Health-Based
Organochlorine	DDD, 4,4- (p,p-DDD)	9.1	Human Health-Based
Organochlorine	DDE, 4,4- (p,p-DDE)	5.5	Human Health-Based
Organochlorine	DDT, 4,4-(p,p-DDT)	6.5	Human Health-Based
Organochlorine	Total DDT	10	Human Health-Based
Organochlorine	Dieldrin	0.14	Human Health-Based
Organochlorine	Endrin	550	Human Health-Based
Organochlorine	Toxaphene	20	Human Health-Based

Additive Toxicity Numeric Target for Pyrethroid Pesticides

The pyrethroid pesticides have additive toxicity in aquatic sediments. Since the TMDL is linked to toxicity and concentrations, additive toxicity must be considered in the TMDL as a numeric target.

The numeric target for additive toxicity for pyrethroid pesticides is:

$$\frac{C\ (Pyrethroid\ 1)}{NLC(Pyrethroid\ 1)} + \frac{C\ (Pyrethroid\ 2)}{NLC\ (Pyrethoird\ 2)} = S;\ where\ S\ \leq 1$$

Where:

C = the concentration of a pesticide measured in sediment.

NLC = the numeric LC50 for each pesticide present (Table 3).

S = the sum; a sum exceeding one (1.0) indicates that beneficial uses may be adversely affected.

The additive toxicity numeric target formula shall be applied when pyrethroid pesticides are present in the sediment.

Table IX.R-3. Pyrethroid Sediment LC50s

Chemical	LC50 ng/g ppb)	LC50 µg/g OC*(ppm)
Bifenthrin	12.9	0.52
Cyfluthrin	13.7	1.08
Cypermethrin	14.87	0.38
Esfenvalerate	41.8	1.54
Lambda-Cyhalothrin	5.6	0.45
Permethrin	200.7	10.83

*Median lethal concentration (LC50) for amphipods (Hyalella azteca) organic carbon normalized concentrations (ug/g OC)

Fish Tissue Numeric Targets

Table IX.R-4. Fish Tissue Numeric Targets

Chemical Group	Chemical	Concentration ng/g (ppb)	Target Type
Organochlorine	Chlordanes	5.6	Fish Contaminant Goal
Organochlorine	DDTs	21	Fish Contaminant Goal
Organochlorine	Dieldrin	0.46	Fish Contaminant Goal
Organochlorine	Toxaphene	6.1	Fish Contaminant Goal

Aquatic Toxicity Numeric Target:

The aquatic toxicity numeric target is the evaluation of the Basin Plan general objective for toxicity using standard aquatic toxicity tests to determine toxicity in the water column and sediment. The toxic determination is based on a comparison of the test organism's response to the sample and a control. The general objective for toxicity is:

All waters shall be maintained free of toxic substances in concentrations which are toxic to, or which produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with the objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, toxicity bioassays of appropriate duration, or other appropriate methods.

The following standard aquatic toxicity tests will be used to determine compliance with the aquatic toxicity numeric target:

Table IX.R-5. Standard Aquatic Toxicity Tests

Parameter	Test	Biological Endpoint Assessed
Water Column Toxicity	Water Flea – *Ceriodaphnia (6-8 day chronic)*	Survival and reproduction
Sediment Toxicity	Hyalella azteca (10-day chronic)	Survival

Source Analysis

Toxicity in the water column and the sediment toxicity are associated with currently applied organophosphate and pyrethroid pesticides. Organophosphate, pyrethroid, and organochlorine pesticides are all man-made pesticides with human activities as sources of pollution. Therefore, there are no natural sources of these pesticides.

Organophosphate pesticides

Impairments from organophosphate pesticides are the result of applications of these pesticides to agricultural crops. For chlorpyrifos, the specific use causing impairments is pre-plant granular applications to cole crops (broccoli, cauliflower, cabbage). Diazinon is primarily applied on lettuce and cole crops, and malathion is applied on a wide range of crops, including broccoli, celery, lettuce and strawberries.

Synthetic Pyrethroid Pesticides

Impairments from pyrethroid pesticides are resulting from agricultural and urban pesticide applications. Pyrethroids are commonly applied urban pesticides and the highest levels of pollution are in drainages with urban stormwater runoff. Pyrethroids are used by both residential consumers and by professional commercial and residential pest control applicators.

Table IX.R-6. Source of Pyrethroid Pesticide Pollution

Chemical	Sources
Bifenthrin	Urban structural and consumer home applications and agricultural applications to strawberries
Cypermethrin	Urban structural and consumer home applications and agricultural applications to cole crops and lettuce.
Cyfluthrin	Urban structural and consumer home applications
Esfenvalerate	Irrigated agricultural applications to broccoli and cauliflower
Lambda-Cyhalothrin	Urban structural and consumer home applications and agricultural applications to lettuce and broccoli
Permethrin	Urban structural and consumer home applications along with irrigated agricultural applications to lettuce and celery

Organochlorine Pesticides

The organochlorine pesticides included in the TMDL are no longer applied in the watershed but are persistent in the environment. Historic use was widespread in the Santa Maria River watershed and included urban, agricultural, and vector mosquito control uses.

The breakdown products of DDT (DDD, DDE) are broadly present in the Santa Maria River watershed surface waters. Sediments from urban lands and irrigated agricultural lands are sources of DDTs to surface waters. Additionally, contaminated stream and channel sediments are stores of DDT and are sources of DDT to downstream fisheries, such as Oso Flaco Lake, the Santa Maria Estuary, and the coastal confluences. Data from 2008-2009 suggest sediment discharged to Oso Flaco Lake contains DDT in excess of numeric targets.

In addition to DDTs, there are organochlorine pesticide impairments in the watershed for chlordane, dieldrin, endrin and toxaphene. These chemicals were historically broadly used in the watershed and continue to persist in sediment delivered to surface waters throughout the watershed. More recent data showed fewer laboratory detections of dieldrin and toxaphene relative to vintage data prompting Clean Water Act section 303(d) listings. More data will be obtained during the TMDL implementation phase to better understand remaining impairments and source areas. Data from 2007 suggest sediment discharged to Oso Flaco Lake contains chlordane in excess of numeric targets. Additional monitoring of organochlorine pesticides in and to Oso Flaco Lake will be obtained during the TMDL implementation phase.

TMDLs

Organophosphate pesticide TMDLS

TMDLs for chlorpyrifos, diazinon, and malathion are water column concentrations as shown in Table 7.

Table IX.R-7. Organophosphate Pesticide Water Column TMDLs

Waterbodies assigned TMDLs[1]	TMDL					
	Chlorpyrifos		Diazinon		Malathion	
	CMC[3] µg/L (ppb)	CCC[4] µg/L (ppb)	CMC µg/L (ppb)	CCC µg/L (ppb)	CMC µg/L (ppb)	CCC µg/L (ppb)
Blosser Channel	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Bradley Canyon Creek	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Bradley Channel	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Greene Valley Creek	0.025	0.015	0.16[2]	0.10[2]	0.17[2]	0.028[2]
Main Street Canal	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Orcutt Creek	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Oso Flaco Creek	0.025[2]	0.015[2]	0.16[2]	0.10[2]	0.17	0.028
Santa Maria River	0.025	0.015	0.16	0.10	0.17[2]	0.028[2]
Little Oso Flaco Creek	0.025	0.015	0.16	0.10	0.17	0.028

[1] All reaches of all surface waters in the Santa Maria River watershed, including those listed.

[2] Waterbody is currently achieving the TMDL

[3] CMC – Criterion Maximum Concentration (Acute: 1- hour average). Not to be exceeded more than once in a three-year period.

[4] CCC – Criterion Continuous Concentration (Chronic: 4-day (96-hour) average). Not to be exceeded more than once in a three-year period.

Additive Toxicity TMDL for Organophosphate Pesticides

The additive toxicity TMDL for organophosphate pesticides is based on the additive toxicity targets for organophophate pesticides.

$$\frac{C\ (diazinon)}{NT(diazinon)} + \frac{C\ (chlopyrifos)}{NT\ (chlorpyrifos)} = S;\ where\ S \leq 1$$

Where:

C = the concentration of a pesticide measured in the receiving water.

NT = the numeric target for each pesticide present.

S = the sum; a sum exceeding one (1.0) indicates that beneficial uses may be adversely affected.

The additive toxicity numeric target formula shall be applied when both diazinon and chlorpyrifos are present in the water column and it applies to all surface waters in the Santa Maria River watershed.

Additive Toxicity TMDL for Pyrethroid Pesticide

The additive toxicity TMDL for pyrethroids pesticides is based on the additive toxicity numeric targets for pyrethroid pesticides.

$$\frac{C\ (Pyrethroid\ 1)}{NLC(Pyrethroid\ 1)} + \frac{C\ (Pyrethroid\ 2)}{NLC\ (Pyrethoird\ 2)} = S;\ where\ S \leq 1$$

Where:

C = the concentration of a pesticide measured in sediment.

NLC = the numeric LC50 for each pesticide present (Table 3).

S = the sum; a sum exceeding one (1.0) indicates that beneficial uses may be adversely affected.

The additive toxicity numeric shall be applied to all surface waters in the Santa Maria River watershed.

Aquatic Toxicity TMDLs

The TMDLs for water column and sediment toxicity is the aquatic toxicity numeric target as found in Table 5.

Organochlorine pesticide TMDLs

The TMDLs for organochlorine pesticides are sediment and fish tissue concentrations outlined in the following tables. To account for short-term variations, concentrations should be averaged over a three year period.

Table IX.R-8. DDT Sediment Chemistry TMDLs

Waterbodies Assigned TMDLs[1]	TMDL			
	DDD, 4,4-(p,p-DDD) o.c.[2]	DDE, 4,4-(p,p-DDE) o.c.[2]	DDT, 4,4-(p,p-DDT) o.c.[2]	Total DDT o.c.[2]
	µg/kg	µg/kg	µg/kg	µg/kg
Blosser Channel	9.1	5.5	6.5	10
Bradley Channel	9.1	5.5	6.5	10
Greene Valley Creek	9.1	5.5	6.5	10
Little Oso Flaco Creek	9.1	5.5	6.5	10
Main Street Canal	9.1	5.5	6.5	10
Orcutt Creek	9.1	5.5	6.5	10
Oso Flaco Creek	9.1	5.5	6.5	10
Oso Flaco Lake	9.1	5.5	6.5	10
Santa Maria River	9.1	5.5	6.5	10

[1] All reaches of all surface waters in the Santa Maria River watershed, including those listed.

[2] o.c.: organic carbon normalized concentrations.

Table IX.R-9. Additional Organochlorine Pesticide Sediment Chemistry TMDLs

Waterbodies Assigned TMDLs[1]	TMDL			
	Chlordane o.c.[2]	Dieldrin o.c.[2]	Endrin o.c.[2]	Toxaphene o.c.[2]
	µg/kg	µg/kg	µg/kg	µg/kg
Oso Flaco Lake	1.7	0.14	5503	203
Santa Maria River	1.7	0.14	550	20
Orcutt Creek	1.73	0.14	5503	203

[1] All reaches of all surface waters in the Santa Maria River watershed, including those listed.

[2] o.c.: organic carbon normalized concentrations.

[3] Waterbody is currently achieving the TMDL.

Table IX.R-10. Fish Tissue TMDLs for Organochlorine Pesticides

Waterbodiess Assigned TMDLs	Fish Tissue TMDL			
	Chlordane	DDTs	Dieldrin	Toxaphene
	ng/g* (ppb)	ng/g* (ppb)	ng/g* (ppb)	ng/g* (ppb)
Oso Flaco Lake	5.6	21	--	--
Oso Flaco Creek	5.6	21		
Santa Maria River	5.6	21	**0.46**	**6.1**
Orcutt Creek	5.6	21	**0.46**	**6.1**

*ng/g: i.e. nanograms of pollutant per grams of fish tissue (e.g. a fillet)

Allocations and Responsible Parties

The allocations and parties responsible for the allocations are listed in the following table.

Table IX.R-11. Load Allocations

Waste Load Allocations		
Responsible Party	**Source**	**Allocation**
City of Santa Maria – NPDES No. CAS000004	Urban Stormwater	3, 4 & 5
County of Santa Barbara – NPDES No. CAS000004	Urban Stormwater	3, 4 & 5
City of Guadalupe	Urban Stormwater	3, 4 & 5
Load Allocations		
Responsible Party	**Source**	**Allocation**
Owners/operators of irrigated agricultural lands in the Santa Maria Watershed	Discharges from irrigated lands	1, 2, 3, 4 & 5
San Luis Obispo County Public Works	Roadside drainages	5
Santa Barbara County Public Works	Roadside drainage	5
Santa Barbara County Flood Control District	Flood Control Channels and drainages	5
Allocation-1: Organophosphate Pesticide TMDLs (refer to Table 7) Allocation-2: Additive Toxicity TMDL for Organophosphate Pesticides Allocation-3: Additive Toxicity TMDL for Pyrethroid Pesticides Allocation-4: Aquatic Toxicity TMDLs (refer to Table 5) Allocation-5: Organochlorine Pesticide TMDLs (refer to Tables 8, 9, and 10)		

Controllable Water Quality Conditions

In accordance with the *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan), controllable water quality shall be managed to conform or to achieve the water quality objectives and load allocations contained in this TMDL. The Basin Plan defines controllable water quality conditions as follows: *"Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled."* - Chapter 3. Water Quality Objectives, page III-2.

Antidegradation Requirements

State and federal antidegradation policies require, in part, that where surface waters are of higher quality than necessary to protect beneficial uses, the high quality of those waters must be maintained unless otherwise provided by the policies. The federal antidegradation policy, 40 C.F.R. 131.12(a) states, in part. *"Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located…"* Practically speaking, this means that, for example, for stream reaches or waterbodies that have an concentration-based TMDL of 0.025 µg/L chlorpyrifos and where current or future water quality in the stream reach is in fact well under TMDL of 0.025 µg/L chlorpyrifos, the TMDL does not give license for controllable chlorpyrifos sources to degrade water quality all the way up to the maximum TMDL, i.e., 0.025 µg/L chlorpyrifos.

Margin of Safety

A margin of safety is incorporated in these TMDLs implicitly though conservative assumptions. The desired water quality is achieved through allocations and targets equal to desired water quality; hence an implicit conservative approach. If, during the TMDL implementation phase, staff develops numeric targets and TMDLs that better reflect the desired water quality, the allocations will be set equal to these modified targets and TMDLs.

Implementation

DISCHARGES FROM IRRIGATED AGRICULTURAL LANDS:

Implementing parties will comply with the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Order R3-2012-0011) and the Monitoring and Reporting Programs in accordance with Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03 to meet load allocations and achieve the TMDL.

Current requirements in the Agricultural Order that will achieve the load allocations include:

1. Implement, and update as necessary, management practices to reduce pesticide loading.
2. Develop and update and implement Farm Plans. The Farm Plans need to incorporate measures designed to achieve load allocations assigned in this TMDL.
3. Implement monitoring and reporting requirements described in the Agricultural Order.

The TMDL implementation plan also utilizes an interagency approach among the California Department of Pesticide Regulation (DPR), the State Water Resources Control Board, and the Central Coast Water Board to address impairments. The approach is described in the California Pesticide Management Plan for Water Quality (California Pesticide Plan), which is an implementation plan of the Management Agency Agreement (MAA) between DPR and the Water Boards. The agricultural commissioners of Santa Barbara and San Luis Obispo counties are also responsible for implementing the California Pesticide Plan.

The Department of Pesticide Regulation, the county agricultural commissioners, and USEPA are taking regulatory steps to address pesticide impairments. In accordance with the MAA, DPR has approved urban pesticide regulations to address pyrethroid pesticide water quality pollution. Also as part of the MAA, the Central Coast Water Board, DPR, and the commissioners are coordinating on county chlorpyrifos use permits. USEPA has recently implemented label restrictions and requirements on agricultural uses of diazinon and pyrethroids to address water quality problems.

The current regulatory programs in the watershed do not specifically address water quality impairments from organochlorine pesticides and the TMDL recommends that stakeholders develop a community-based watershed organochlorine pesticide implementation plan to meet TMDL goals.

Monitoring

Owners and operators of irrigated agricultural lands will perform monitoring and reporting in accordance with Monitoring and Reporting Program Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03, as applicable to the operation.

Determination of Compliance with Load Allocations

Demonstration of compliance with the load allocations is consistent with compliance with the Agricultural Order. Load allocations will be achieved through a combination of implementation of management practices and strategies to reduce pesticide loading, and water quality monitoring. Flexibility to allow owners and operators from irrigated lands to demonstrate compliance with load allocations is a consideration; additionally, staff is aware that not all implementing parties are necessarily contributing to or causing surface water impairments.

To allow for flexibility, Central Coast Water Board staff will assess compliance with load allocations using one or a combination of the following:

A. Attaining the load allocations in receiving waters.
B. Implementing management practices that are capable of achieving load allocations identified in this TMDL.
C. Providing sufficient evidence to demonstrate that they are and will continue to be in compliance with the load allocations; such evidence could include documentation submitted by the owner or operator to the Executive Officer that the owner or operator is not causing waste to be discharged to impaired waterbodies resulting or contributing to violations of the load allocations.

STORM DRAIN DISCHARGES FROM MS4s:

The Central Coast Water Board will require municipal separate storm sewer systems (MS4) entities to develop, submit, and implement a Wasteload Allocation Attainment Program (WAAP). WAAP development, submittal and implementation will be required in the Phase II municipal stormwater permit. The WAAP will be required to include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL waste load allocations, and specifically address:

1. Development of an implementation and assessment strategy.
2. Source identification and prioritization.
3. Best management practice identification, prioritization, implementation scheduling, analysis, and effectiveness assessment.
4. Monitoring and reporting. Monitoring program goals will be required to include:
    a. assessment of stormwater discharge and/or receiving water quality,
    b. assessment of best management practice effectiveness, and
    c. demonstration of progress towards achieving interim goals and waste load allocations.
5. Coordination with stakeholders.
6. Other pertinent factors.

The WAAP will be allowed to include participation in statewide efforts, by organizations such as California Stormwater Quality Association (CASQA), that coordinate with DPR and other organizations taking actions to protect water quality from the use of pesticides in the urban environment, though sole reliance on such statewide efforts may not be adequate.

Monitoring

MS4 entities with operations and storm water conveyance systems in the TMDL project areas will be required to develop and submit monitoring programs as part of their WAAP. The goals of the monitoring programs are described in the requirements of the WAAP.

The MS4s should develop and submit creative and meaningful monitoring programs. Monitoring strategies may be able to use a phased approach, for example, whereby outfall or receiving water monitoring is phased-in after best management practices have been implemented and assessed for effectiveness. Pilot projects where best

management practices are implemented in well-defined areas covering a fraction of the MS4 that facilitate accurate assessment of how well the best management practices control pollution sources may be acceptable, with the intent of successful practices then being implemented in other or larger parts of the MS4 jurisdiction.

Determination of Compliance with Waste Load Allocations

Waste load allocations will be achieved through implementation of management practices and strategies to reduce pesticide loading, and wasteload allocation attainment will be demonstrated through water quality monitoring. Implementation can be conducted by MS4s specifically and/or through statewide programs addressing urban pesticide water pollution.

To allow for flexibility, Water Board staff will assess compliance with waste load allocations using one or a combination of the following:

A. Attaining the waste load allocations in the receiving water.

B. Demonstrating compliance by measuring pesticide concentrations and toxicity in stormwater outfalls.

C. Implementation and assessment of pollutant loading reduction projects (BMPs) capable of achieving interim and final waste load allocations identified in this TMDL in combination with water quality monitoring for a balanced approach to determining program effectiveness.

D. Any other effluent limitations and conditions that are consistent with the assumptions and requirements of the waste load allocations.

Timelines

The target date to achieve the pesticide TMDLs for the organophosphates (chlorpyrifos, diazinon) is October 2016. This estimate is based on apparent decreased use, current implementation of management practices to mitigate loadings, and existing regulatory efforts to reduce loading.

The target date to achieve the TMDL for malathion is ten years after approval of the TMDL by the Office of Administrative Law. This estimate is based on the increase in current usage and current limited regulatory oversight.

The target date to achieve the TMDLs for pyrethroids is 15 years after approval of the TMDL by the Office of Administrative Law. This estimate is based on the widespread availability of pyrethroids, including consumer usage, and current limited regulatory oversight.

The target date to achieve the TMDLs for organochlorine pesticides (DDT, DDD, DDE, chlordane, eldrin, toxaphene, dieldrin) is 30 years after approval of the TMDL by the Office of Administrative Law. This estimate is based on their persistence in the environment, widespread legacy usage and bioaccumulation in the food web

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations, dependent upon staff availability and priorities. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric targets.

IX.R. Total Maximum Daily Loads for Nitrogen Compounds and Orthophosphate in Lower Santa Maria River Watershed and Tributaries to Oso Flaco Lake (Including Blosser Channel, Bradley Channel, Bradley Canyon Creek, Greene Valley Creek, Main Street Canal, North Main Street Channel, Orcutt Creek, Oso Flaco Creek, Little Oso Flaco Creek, and Santa Maria River)

The Regional Water Quality Control Board adopted these TMDLs on May 30, 2013.
These TMDLs were approved by:
The State Water Resources Control Board on February 4, 2014.
The California Office of Administrative Law on May 17, 2014
The U.S. Environmental Protection Agency on March 8, 2016.

Problem Statement

Discharges of nitrogen compounds and orthophosphate are occurring at levels in surface waters which are impairing a spectrum of beneficial uses and, therefore, constitute a serious water quality problem. The municipal and domestic drinking water supply (MUN, GWR) beneficial uses and aquatic habitat beneficial uses are currently not protected. Additionally, some waterbodies do not meet non-regulatory recommended guidelines for nitrate in agricultural supply water for sensitive crops indicating that potential or future designated agricultural supply beneficial uses may be detrimentally impacted. A total of 36 waterbody/pollutant combinations are addressed in this TMDL. The pollutants addressed in this TMDL are nitrate, un-ionized ammonia, and orthophosphate—orthophosphate is included as a pollutant contributing to biostimulatory impairments of surface waters. Reducing these pollutants will also address Clean Water Act section 303(d)-listed dissolved oxygen impairments in the TMDL project area.

As a result of these conditions, water quality standards are not being attained. By developing TMDLs for the aforementioned pollutants, the water quality standards violations being addressed in this TMDL include:

- Violations of drinking water standard for nitrate
- Violations of the Basin Plan general toxicity objective for inland surface waters and estuaries (violations of un-ionized ammonia objective)
- Violations of the Basin Plan narrative general objective for biostimulatory substances in inland surface waters and estuaries (as expressed by excessive nutrients, chlorophyll a, algal biomass, and low dissolved oxygen)

The TMDLs protect and restore the municipal and domestic water supply beneficial use (MUN) and aquatic habitat beneficial uses currently being degraded by violations of the toxicity objective and the biostimulatory substances objective, including the following beneficial uses: wildlife habitat (WILD), cold fresh water habitat (COLD), warm fresh water habitat (WARM), migration of aquatic organisms (MIGR), spawning, reproduction, and/or early development (SPWN), preservation of biological habitats of special significance (BIOL), and rare, threatened, or endangered species (RARE). In addition, current or potential future beneficial uses of the agricultural water supply beneficial use (AGR) are not being supported. Nitrate can create problems not only for water supplies and aquatic habitat, but also potentially for nitrogen sensitive crops (grapes, avocado, citrus) by detrimentally impacting crop yield or quality.

For waterbodies that are not expressing biostimulatory impairments, the most stringent relevant water quality objective for nitrate (and therefore the one that is protective of the full range of all nitrate-impaired designated beneficial uses) is the numeric Basin Plan objective for nitrate in municipal and domestic water supply. Reducing nitrate pollution and ultimately achieving the nitrate drinking water quality standard in these waterbodies will therefore restore and be protective of the full range of MUN, GWR and/or AGR designated beneficial uses of the surface waters which are being currently impaired by excess nitrate.

All waterbodies are required to attain the Basin Plan general toxicity objective for unionized ammonia in inland surface waters and estuaries.

For waterbodies that are expressing biostimulatory impairments, the most stringent relevant water quality objective for nitrate-nutrients (and therefore the one that is protective of the full range of all nutrient-impaired designated beneficial uses) is the Basin Plan narrative general objective for biostimulatory substances in inland surface waters and estuaries. These waterbodies must achieve concentration-based TMDLs for nitrate and orthophosphate as identified herein. Reducing nutrient pollution and ultimately achieving the TMDLs for nutrients in these waterbodies will therefore restore and be protective of the full range of Aquatic Habitat, MUN, GWR, and/or AGR designated beneficial uses of the surface waters which are being currently impaired by excess nutrients.

The following impairments are addressed with this TMDL project:

- Blosser Channel: unionized ammonia, nitrate.
- Bradley Canyon Creek: unionized ammonia, nitrate, low dissolved oxygen, biostimulatory substances.
- Bradley Channel: unionized ammonia, nitrate.
- Greene Valley Creek: unionized ammonia, nitrate, low dissolved oxygen, biostimulatory substances.
- Little Oso Flaco Creek: nitrate, biostimulatory substances.
- Main Street Canal: unionized ammonia, nitrate.
- Nipomo Creek: nitrate (Clean Water Act section 303(d) listed but not impaired).
- North Main Street Channel: nitrate.
- Orcutt Creek: unionized ammonia, nitrate, low dissolved oxygen, biostimulatory substances.
- Oso Flaco Creek: unionized ammonia, nitrate, biostimulatory substances.
- Santa Maria River: nitrate (all reaches), biostimulatory substances (downstream of Hwy 1).
- Santa Maria River Estuary: low dissolved oxygen, biostimulatory substances.

Numeric Targets

Numeric targets are water quality targets developed and used to ascertain when and where water quality objectives are achieved, and hence, when beneficial uses are protected.

- *Target for Nitrate (MUN-GWR standards)*

For impaired stream reaches that are required to support drinking water (MUN) and groundwater recharge (GWR) beneficial uses, the nitrate numeric target is 10 mg/L (nitrate as N) for this TMDL, which therefore is equal to the Basin Plan's numeric nitrate water quality objective protective of drinking water beneficial uses.

- *Target for Unionized Ammonia (toxicity)*

For unionized ammonia (a nitrogen compound), the numeric target is 0.025 mg/L (as N) for this TMDL, which therefore is equal to the Basin Plan's unionized ammonia numeric water quality objective protective against toxicity in surface waters.

- *Targets for Biostimulatory Substances (nitrate and orthophosphate)*

The Basin Plan contains the following narrative water quality objectives for biostimulatory substances:

> *"Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses."*

To implement this narrative objective, staff developed scientifically peer-reviewed numeric targets, based on established methodologies and approaches. The numeric targets for biostimulatory substances are presented in Table IX.R-0.

Table IX.R-0. Numeric targets for biostimulatory substances.

Stream Reaches	Nitrate (mg/L-N)	Orthophosphate (mg/L-P)
Lower Santa Maria River from Highway 1 to Santa Maria River Estuary, Santa Maria River Estuary, Orcutt Creek, Greene Valley Creek, Bradley Canyon Creek	4.3 Dry Season Samples (May 1-Oct 31) 8.0 Wet Season Samples (Nov 1-Apr 30)	0.19 Dry Season Samples (May 1-Oct 31) 0.3 Wet Season Samples (Nov 1-Apr 30)
Oso Flaco Creek, Little Oso Flaco Creek	5.7 Year Round Samples	0.08 Year Round Samples

- *Targets for Nutrient-Response Indicators (dissolved oxygen, chlorophyll a, and microcystins)*

Dissolved oxygen, chlorophyll *a, and microcystin* numeric targets are identified to ensure that streams do not show evidence of biostimulatory conditions, and to provide primary indicator metrics to assess biological response to future nutrient water column concentration reductions.

For water bodies designated as cold fresh water habitat (COLD) and spawning (SPWN) beneficial uses the dissolved oxygen numeric targets is the same as Basin Plan numeric water quality objective which states that dissolved oxygen concentrations shall not be reduced below 7.0 mg/L at any time.

For water bodies designated as warm fresh water habitat (WARM) beneficial use and for waters not mentioned by a specific beneficial use the dissolved oxygen numeric targets is the same as Basin Plan numeric water quality objective which states that dissolved oxygen concentrations shall not be reduced below 5.0 mg/L at any time.

Additionally, for all inland surface waters, enclosed bays and estuaries, the dissolved oxygen numeric target is the same as the Basin Plan numeric water quality objective which states that median dissolved oxygen should not fall below 85% saturation as a result of controllable water quality conditions.

For water bodies designated as cold fresh water habitat (COLD) and spawning (SPWN) or warm fresh water habitat (WARM) beneficial uses the numeric water quality target indicative of excessive dissolved oxygen saturation conditions dissolved oxygen is 13 mg/L (i.e., water column dissolved oxygen concentrations not to exceed 13 mg/L.)

The numeric water quality target for chlorophyll *a* is 15 micrograms per liter (μg/L) for all water bodies (i.e., water column chlorophyll *a* concentrations not to exceed 15 μg/L).

The numeric water quality target for microcystin is 0.8 μg/L for all waterbodies (i.e., water column microcystin concentrations not to exceed 0.8 μg/L includes LA, LR, RR, and YR).

Source Analysis

Discharges of unionized ammonia, nitrate, and orthophosphate originating from irrigated agriculture, urban lands, grazing lands, and natural sources are contributing loads to receiving waters. Irrigated agriculture is the overwhelming majority of controllable water column loads in the TMDL project area and this source category is not currently meeting its proposed load allocation. Urban storm water is a relatively minor source of nitrogen compounds and orthophosphate. Grazing lands are currently meeting proposed load allocations. This source analysis is consistent with source analyses reported by other scientists in previous nutrient-water quality studies in the lower Santa Maria and Oso Flaco Lake watersheds, which provides for a qualitative weight-of-evidence approach.

TMDLs

The following TMDLs will result in resolving impairments described in the Problem Statement.

The unionized ammonia TMDLs for all waters and reaches of the Santa Maria River and Oso Flaco Lake Watersheds, including Blosser Channel, Bradley Channel, Bradley Canyon Creek, Greene Valley Creek, Main Street Canal, North Main Street Channel, Nipomo Creek, Orcutt Creek, Oso Flaco Creek, Little Oso Flaco Creek, Santa Maria River, and the Santa Maria River Estuary is:

- Unionized ammonia concentration shall not exceed 0.025 mg/L-N in receiving waters.

The nitrate TMDL for all waters and reaches of the Santa Maria River and Oso Flaco Lake Watersheds required to support the MUN beneficial use, including, Blosser Channel, Bradley Channel, Nipomo Creek, Main Street Canal, North Main Street Channel, and Santa Maria River (upstream of Highway 1) is:

- Nitrate concentration shall not exceed 10 mg/L-N in receiving waters.

The nitrate and orthophosphate TMDLs for lower Santa Maria River (from Highway 1 to Pacific Ocean), the Santa Maria River Estuary, and all reaches and tributaries of Orcutt Creek, Greene Valley Creek, and Bradley Canyon Creek are:

- For dry season (May 1 to October 31): Nitrate concentration shall not exceed 4.3 mg/L-N in receiving waters; orthophosphate concentration shall not exceed 0.19 mg/L-P in receiving waters, and
- For wet season (November 1 to April 30): Nitrate concentration shall not exceed 8.0 mg/L-N in receiving water; orthophosphate concentration shall not exceed 0.3 mg/L-P in receiving water.

The nitrate and orthophosphate TMDLs for all reaches and tributaries of Oso Flaco Creek and Little Oso Flaco Creek are:

- For all seasons: Nitrate shall not exceed 5.7 mg/L-N in receiving waters; orthophosphate shall not exceed 0.08 mg/L-P in receiving waters.

The TMDLs are considered achieved when water quality conditions meet all regulatory and policy requirements necessary for removing the impaired waters from Clean Water Act section 303(d) list of impaired waters.

Final Allocations and Interim Allocations

Owners and operators of irrigated lands, municipal storm water entities, natural sources, and owners/operators of livestock and domestic animals are assigned unionized ammonia, nitrate, and orthophosphate allocations equal to the TMDL and numeric targets.

The final allocations to responsible parties are shown in Table IX.R-1. The final allocations are equal to the TMDLs and should be achieved 30 years after the TMDL effective date. Unlike the load-based TMDL method, the concentration-based allocations do not add up to the TMDL because concentrations of individual pollution sources are not additive.

Recognizing that achievement of the more stringent final dry-season biostimulatory allocations embedded in Table IX.R-1 may require a significant amount to time to achieve, interim allocations are identified. Interim allocations will be used as benchmarks in assessing progress towards the final allocations. Interim allocations are shown in Table IX.R-2.

Controllable Water Quality Conditions

In accordance with the Water Quality Control Plan for the Central Coastal Basin (Basin Plan), controllable water quality shall be managed to conform or to achieve the water quality objectives and load allocations contained in this TMDL. The Basin Plan defines controllable water quality conditions as follows: *"Controllable water quality conditions are those actions or circumstances resulting from man's activities that may influence the quality of the waters of the State and that may be reasonably controlled."* - Chapter 3, Water Quality Objectives, page III-2.

Compliance with Antidegradation Requirements

State and federal antidegradation policies require, in part, that where surface waters are of higher quality than necessary to protect beneficial uses, the high quality of those waters must be maintained unless otherwise provided by the policies. The federal antidegradation policy, 40 C.F.R. 131.12(a) states, in part. *"Where the quality of waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located…"*

Compliance with anti-degradation requirements may be determined on the basis of trends in declining water quality in applicable waterbodies, consistent with the methodologies and criteria provided in Section 3.10 of the California 303(d) Listing Policy (adopted, Sept. 20, 2004, SWRCB Resolution No. 2004-0063). Section 3.10 of the California 303(d) Listing Policy explicitly addresses the anti-degradation component of water quality standards as defined in 40 CFR 130.2(j), and provides for identifying trends of declining water quality as a metric for assessing compliance with anti-degradation requirements.

Section 3.10 of the California 303(d) Listing Policy states that pollutant-specific water quality objectives need not be exceeded to be considered non-compliance with anti-degradation requirements *"if the water segment exhibits concentrations of pollutants or water body conditions for any listing factor that shows a trend of declining water quality standards attainment"*.

Practically speaking, this means that, for example, stream reaches or waterbodies that have a concentration-based TMDL allocation of 10 mg/L nitrate as N, and if current water quality or future water quality assessments in the stream reach indicate nitrate in fact well under 10 mg/L nitrate as N, the allocation does not give license for controllable nitrogen sources to degrade the water resource all the way up to the maximum allocation = 10 mg/L nitrate as N.

Table IX.R-1. Final Allocations and Responsible Parties

FINAL WASTE LOAD ALLOCATIONS (WLAs)				
Waterbody the Responsible Party is Discharging to [1, 2]	**Party Responsible for Allocation & NPDES/WDR number**	**Receiving Water Nitrate as N WLA (mg/L)**	**Receiving Water Orthophosphate as P WLA (mg/L)**	**Receiving Water Unionized Ammonia as N WLA (mg/L)**
Santa Maria River (upstream from Highway 1), Blosser Channel, Bradley Channel, Main Street Canal, North Main Street Channel	City of Santa Maria (Storm drain discharges to MS4s) NPDES No. CAS000004 City of Guadalupe (Storm drain discharges to MS4s) (NPDES Permit Pending)	Allocation-4 *(see descriptions of allocations at bottom of this table)*	Not Applicable	Allocation-3
Santa Maria River (downstream from Highway 1)	City of Guadalupe (Storm drain discharges to MS4s) (NPDES Permit Pending)	Allocation-1	Allocation-2	Allocation-3
Nipomo Creek	County of San Luis Obispo (Storm drain discharges to MS4s) (NPDES No. CAS000004)	Allocation-4	Not Applicable	Allocation-3
Orcutt Creek	County of Santa Barbara (Storm drain discharges to MS4s) (NPDES No. CAS000004)	Allocation-1	Allocation-2	Allocation-3

FINAL LOAD ALLOCATIONS (LAs)				
Waterbody the Responsible Party is Discharging to [1, 2]	**Party Responsible for Allocation**	**Receiving Water Nitrate as N WLA (mg/L)**	**Receiving Water Orthophosphate as P WLA (mg/L)**	**Receiving Water Unionized Ammonia as N WLA (mg/L)**
Santa Maria River (Upstream from Highway 1), Blosser Channel, Bradley Channel, Main Street Canal, North Main Street Channel, Nipomo Creek	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-4	Not Applicable	Allocation-3
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)			
	No responsible party (Natural sources)			
Santa Maria River (downstream from Highway 1), Santa Maria River Estuary, Bradley Canyon Creek, Orcutt Creek, Greene Valley Creek	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands	Allocation-1	Allocation-2	Allocation-3
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)			
	No responsible party (Natural sources)			
Oso Flaco Creek Little Oso Flaco Creek	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Allocation-5	Allocation-6	Allocation-3
	Owners/operators of land used for/containing domestic animals/livestock (Domestic animals/livestock waste not draining to MS4s)			
	No responsible party (Natural sources)			

Description of allocations:

Allocation [A]	Compound	Concentration (mg/L) [B]
Allocation 1	Nitrate as N	Dry Season (May 1-Oct. 31): **4.3** Wet Season (Nov. 1-Apr. 30): **8.0**
Allocation 2	Orthophosphate as P	Dry Season (May 1-Oct. 31): **0.19** Wet Season (Nov. 1-Apr. 30): **0.3**
Allocation 3	Unionized Ammonia as N	Year-round: **0.025**
Allocation 4	Nitrate as N	Year-round: **10**
Allocation 5	Nitrate as N	Year-round: **5.7**
Allocation 6	Orthophosphate as P	Year-round: **0.08**

[A] Federal and State anti-degradation requirements apply to all waste load and load allocations.

[B] Achievement of final waste load and load allocations to be determined on the basis of the number of measured exceedances and/or other criteria set forth in Section 4 of the *Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (Listing Policy - State Water Resources Control Board, Resolution No. 2004-0063, adopted September 2004). or as consistent with any relevant revisions of the Listing Policy promulgated in the future.

[1] Responsible parties shall meet allocations in all receiving surface waterbodies of the responsible parties' discharges.

[2] All reaches and tributaries unless otherwise noted.

Table IX.R-2. Interim Allocations

INTERIM WASTE LOAD ALLOCATIONS (WLAs)			
Waterbody the Responsible Party is Discharging to	**Party Responsible for Allocation (Source)**	**First Interim WLA**	**Second Interim WLA**
All waterbodies the responsible party is assigned wasteload allocations (WLAs) in Table IX.R-1	City of Santa Maria (Storm drain discharges to MS4s) NPDES No. CAS000004 City of Guadalupe (Storm drain discharges to MS4s) (NPDES Permit Pending) County of San Luis Obispo (Storm drain discharges to MS4s) (NPDES No. CAS000004) County of Santa Barbara (Storm drain discharges to MS4s) (NPDES No. CAS000004)	Achieve MUN standard-based and Unionized Ammonia objective-based allocations: Allocation-3 Allocation-4 12 years after effective date of TMDL	Achieve Wet Season (Nov. 1 to Apr. 30) Biostimulatory target-based TMDL allocations: Allocation-1 Allocation-2 20 years after effective date of TMDL
INTERIM LOAD ALLOCATIONS (LAs)			

Waterbody	Party Responsible for Allocation (Source)	First Interim LA	Second Interim LA
All waterbodies the responsible party is assigned load allocations (LAs) in Table IX.R-1	Owners/operators of irrigated agricultural lands (Discharges from irrigated lands)	Achieve MUN standard-based and Unionized Ammonia objective-based allocations: Allocation-3 Allocation-4 12 years after effective date of TMDL	Achieve Wet Season (Nov. 1 to Apr. 30) or Year-round Biostimulatory target-based TMDL allocations: Allocation-1 Allocation-2 Allocation-5 Allocation-6 20 years after effective date of TMDL

* Responsible parties shall meet allocations in all receiving surface waterbodies of the responsible parties' discharges.

The parties responsible for the allocation to controllable sources are not responsible for the allocation to natural sources.

Margin of Safety

A margin of safety is incorporated implicitly in the TMDLs through conservative model assumptions and statistical analysis. In addition, an explicit margin of safety is incorporated by reserving 20% of the load, calculated on a concentration basis, from wet season allocations.

Implementation

DISCHARGES FROM IRRIGATED AGRICULTURAL LANDS:

Implementing parties will comply with the Conditional Waiver of Waste Discharge Requirements for Irrigated Lands (Order R3-2012-0011) and the Monitoring and Reporting Programs in accordance with Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03 to meet load allocations and achieve the TMDL.

Current requirements in the Agricultural Order that will achieve the load allocations include:

A. Implement, and update as necessary, management practices to reduce nutrient loading.
B. Maintain existing, naturally occurring, riparian vegetative cover in aquatic habitat areas.
C. Develop/update and implement Farm Plans.
D. Properly destroy abandoned groundwater wells.
E. Develop, and initiate implementation of an Irrigation and Nutrient Management Plan (INMP) or alternative certified by a Professional Soil Scientist, Professional Agronomist, or Crop Advisor certified by the American Society of Agronomy, or similarly qualified professional.

Monitoring

Owners and operators of irrigated agricultural lands will perform monitoring and reporting in accordance with Monitoring and Reporting Program Orders R3-2012-0011-01, R3-2012-0011-02, and R3-2012-0011-03, as applicable to the operation.

Determination of Compliance with Load Allocations

Load allocations will be achieved through a combination of implementation of management practices and strategies to reduce nitrogen compound and orthophosphate loading, and water quality monitoring. Flexibility to allow owners/operators of irrigated lands to demonstrate compliance with load allocations is a consideration; additionally, staff is aware that not all implementing parties are necessarily contributing to or causing a surface

water impairment. However, it is important to recognize that degrading shallow groundwater with nutrients may also degrade surface water quality via baseflow loading contributions to the creek.

To allow for flexibility, Water Board staff will assess compliance with load allocations using one or a combination of the following:

A. attaining the load allocations in the receiving water;
B. attaining receiving water TMDL numeric targets for nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll *a* targets and microcystin targets) may constitute a demonstration of attainment of the nitrate, nitrogen and orthophosphate-based seasonal biostimulatory load allocations. Note that implementing parties are strongly encouraged to maximize overhead riparian canopy, where and if appropriate, using riparian vegetation, because doing so could result in achieving nutrient-response indicator targets before allocations are achieved (resulting in a less stringent allocation);
C. demonstrating quantifiable receiving water mass load reductions.
D. owners/operators of irrigated lands may be deemed in compliance with load allocations by implementing management practices that are capable of achieving interim and final load allocations identified in the TMDL;
E. owners/operators of irrigated lands may provide sufficient evidence to demonstrate that they are and will continue to be in compliance with the load allocations; such evidence could include documentation submitted by the owner/operator to the Executive Officer that the owner/operator is not causing waste to be discharged to impaired waterbodies resulting or contributing to violations of the load allocations.

STORM DRAIN DISCHARGES TO MS4s:

The Central Coast Water Board will require the MS4 entities to develop and submit for Executive Officer approval a Wasteload Allocation Attainment Program (WAAP). The WAAP shall be submitted within one year of approval of the TMDL by the Office of Administrative Law, or within one year of a storm water permit renewal, whichever occurs first. The WAAP shall include descriptions of the actions that will be taken by the MS4 entity to attain the TMDL wasteload allocations, and specifically address:

1. Development of an implementation and assessment strategy;
2. Source identification and prioritization;
3. Best management practice identification, prioritization, implementation schedule, analysis, and effectiveness assessment;
4. Monitoring and reporting program development and implementation. Monitoring program goals shall include: 1) assessment of storm water discharge and receiving water discharge quality 2) assessment of best management effectiveness, and 3) demonstration of progress towards achieving interim targets and wasteload allocations;
5. Coordination with stakeholders; and
6. Other pertinent factors.

Determination of Compliance with Waste Load Allocations

Waste load allocations will be achieved through a combination of implementation of management practices and strategies to reduce nitrogen compound and orthophosphate loading. Water quality monitoring will be included as well.

To be consistent with waste load allocations, Water Board staff will evaluate compliance with waste load allocations using one or a combination of the following:

A. attaining the waste load allocations in the receiving water;
B. attaining receiving water TMDL numeric targets for nutrient-response indicators (i.e., dissolved oxygen water quality objectives, chlorophyll a targets and microcystin targets) may constitute a demonstration of the attainment of the nitrate, nitrogen and orthophosphate-based seasonal biostimulatory waste load allocations. Note that implementing parties are strongly encouraged to maximize overhead riparian canopy using riparian vegetation, as appropriate, because doing so could result in achieving nutrient-response indicator targets before allocations are achieved (resulting in a less stringent allocation);

C. demonstrating reduction of nutrient concentrations in storm water outfalls. Optionally, where storm water is conveyed through managed flood protection facilities that also serve to treat and improve water quality (e.g., treatment wetlands, bioreactors, etc.), compliance may be demonstrated by measuring storm water quality before entering the receiving water body.

In order to achieve attainment of waste load allocations, Water Board staff may additionally consider:

D. load reductions demonstrations on mass basis at storm drain outfalls and/or downstream of treatment systems;

E. implementation and assessment of pollutant loading reduction projects (BMPs), capable of achieving interim and final waste load allocations identified in this TMDL in combination with water quality monitoring for a balanced approach to determining program effectiveness;

F. any other effluent limitations and conditions which are consistent with the assumptions and requirements of the waste load allocations.

Monitoring

The City of Santa Maria, City of Guadalupe, County of San Luis Obispo (Nipomo), and County of Santa Barbara (Orcutt) are required to develop and submit monitoring programs as part of their WAAP. The goals of the monitoring programs are described in the requirements of the WAAP.

Staff encourages the City of Santa Maria, City of Guadalupe, County of San Luis Obispo (Nipomo), County of Santa Barbara (Orcutt) to develop and submit creative and meaningful monitoring programs. Monitoring strategies can use a phased approach, for example, whereby outfall or receiving water monitoring is phased in after best management practices have been implemented and assessed for effectiveness. Pilot projects where best management practices are implemented in well-defined areas covering a fraction of the MS4 that facilitates accurate assessment of how well the best management practices control pollution sources, is acceptable, with the intent of successful practices then being implemented in other or larger parts of the MS4.

DOMESTIC ANIMAL/LIVESTOCK DISCHARGES:

The water quality data available for stream reaches that exclusively drain grazing lands, or lands where grazed animals and farm animals can be expected to occur, indicate the nitrogen compounds and orthophosphate proposed water quality targets, and thus load allocations, are being met in these reaches. Based on available data, this source category is meeting their load allocation. As such, no new regulatory requirements are deemed necessary or are being proposed.

It is important to note that the TMDL project area is subject to the Domestic Animal Waste Discharge Prohibition and are subject to compliance with an approved indicator bacteria TMDL load allocation. Implementation efforts by responsible parties to comply with this prohibition and with indicator bacteria load allocations will, as a practical matter, also reduce the risk of nitrogen and phosphorus loading to surface waters from domestic animal waste. It should be noted that available information does not conclusively demonstrate that all domestic animal operations are currently meeting load allocations; there are potentially unpermitted confined animal facilities, equestrian facilities, or grazing animal operations that do not meet load allocations. More information will be obtained, if merited, during the implementation phase of the TMDL to further assess the level of nutrient contribution from these source categories, and to identify any actions if necessary to reduce loading.

Tracking and Evaluation

Every three years, beginning three years after TMDLs are approved by the Office of Administrative Law, the Central Coast Water Board will perform a review of implementation actions, monitoring results, and evaluations submitted by responsible parties of their progress toward achieving their allocations, dependent upon staff availability and priorities. The Central Coast Water Board will use annual reports, nonpoint source pollution control implementation programs, evaluations submitted by responsible parties, and other available information to determine progress toward implementing required actions and achieving the allocations and the numeric targets.

Responsible parties will continue monitoring and reporting according to this plan for at least three years, at which time the Central Coast Water Board will determine the need for continuing or otherwise modifying the monitoring requirements. Responsible parties may also demonstrate that although water quality objectives are not being achieved in receiving waters, controllable sources of nitrogen compounds and orthophosphate are not

contributing to the exceedance. If this is the case, the Central Coast Water Board may re-evaluate the numeric target and allocations. For example, the Central Coast Water Board may pursue and approve a site-specific objective. The site-specific objective would be based on evidence that natural conditions or background sources alone were the cause of exceedances of the Basin Plan water quality objectives.

Three-year reviews will continue until the water quality objectives are achieved. The compliance schedule for achieving this TMDL is 30 years after the date of approval by the Office of Administrative Law.

Optional Special Studies and Reconsideration of the TMDL

Additional monitoring and voluntary optional special studies would be useful to evaluate the uncertainties and assumptions made in the development of this TMDL. The results of special studies may be used to reevaluate waste load allocations and load allocations in this TMDL. Implementing parties may submit work plans for optional special studies (if implementing parties choose to conduct special studies) for approval by the Executive Officer. Special studies completed and final reports shall be submitted for Executive Officer approval. Additionally, eutrophication is an active area of research; consequently ongoing eutrophication and biostimulation scientific research may further inform the Water Board regarding waste load or load allocations that are protective against biostimulatory impairments, implementation timelines, and/or downstream impacts. At this time, staff maintains there is sufficient information to begin to implement the TMDL and make progress towards attainment of water quality standards and the proposed allocations. However, in recognition of the uncertainties regarding nutrient pollution and biostimulatory impairments, staff proposes that the Water Board reconsider the waste load and load allocations, if merited by optional special studies and new research, ten years after the effective date of the TMDL, which is upon approval by the Office of Administrative Law (OAL). A time schedule for optional studies and Central Coast Water Board reconsideration of the TMDL is presented in Table IX.R-3.

Further, the Central Coast Water Board may also reconsider these TMDLs, the nutrient water quality criteria, or other TMDL elements on the basis of potential future promulgation of a statewide nutrient policy for inland surface waters in the State of California.

Table IX.R-3. Time schedule for optional studies and Water Board reconsideration of waste load allocations and load allocations

Proposed Actions	Description	Time Schedule-Milestones
Optional studies work plans	Implementing parties shall submit work plans for optional special studies (if implementing parties choose to conduct special studies) for approval by Executive Officer	By five years after the effective date of the TMDL
Final optional studies	Optional studies completed and final report submitted for Executive Officer approval.	By eight years after the effective date of the TMDL
Reconsideration of TMDL	If merited by optional special studies or information from ongoing research into eutrophication issues, the Water Board will reconsider the Wasteload and Load allocations and/or implementation timelines adopted pursuant to this TMDL.	By ten years after the effective date of the TMDL

Chapter 5. Plans and Policies

In addition to the Implementation Plan, many other plans and policies direct State and Regional Board actions or clarify the Regional Board's intent. The following pages contain brief descriptions of State Board plans and policies and numerous Regional Board plans and policies. Copies of the State and Regional Board policies are contained in the Appendix.

I. State Water Resources Control Board Plans and Policies

The State Water Resources Control Board (State Board) has adopted a number of plans and policies for Statewide water quality management including:

State Policy for Water Quality Control (1972)

Anti-degradation Policy

Thermal Plan

Bays and Estuaries Policy

Power Plant Cooling Policy

Reclamation Policy

Shredder Waste Disposal Policy

Underground Storage Tank Pilot Program

Sources of Drinking Water Policy

Nonpoint Source Management Plan

Ocean Plan

Discharges of Municipal Solid Waste Policy

Should any of these policies be amended by the State Board, the Regional Board will implement the amended version.

The following sections summarize the adopted policy. The complete policy is available in the "Attachments" section of this document.

I.A. State Policy for Water Quality Control

The State Board has developed a set of twelve general principles to implement the provisions and intent of the Porter-Cologne Act. These principles, listed below, are contained in a document called the State Policy for Water Quality Control, adopted on July 6, 1972.

1. Water rights and quality control decisions must assure protection of fresh and marine waters for maximum beneficial use.

2. Wastewaters must be considered a part of the total available fresh water resource.

3. Management of supplies and wastewaters shall be on a regional basis for efficient utilization of the resource.

4. Efficient wastewater management requires a balanced program of source control of hazardous substances, treatment, reuse and proper disposal of effluents and residuals.

5. Substances not amenable to removal in treatment plants must be prevented from entering the system.

6. Treatment systems must provide sufficient removals to protect beneficial uses and aquatic communities.

7. Institutional and financial programs of consolidated systems must serve each area equitably.

8. Sewerage facilities must be consolidated for long-range economic and water quality benefits.

9. Reclamation and reuse for maximum benefit shall be encouraged.

10. Systems must be designed and operated for maximum benefit from expended funds.

11. Control methods must be based on the latest information.

12. Monitoring programs must be provided.

I.B. Anti-Degradation Policy

On October 28, 1968, the State Water Resources Control Board adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California." While requiring continued maintenance of existing high quality waters, the policy provides conditions under which a change in water quality is allowable. A change must:

1. be consistent with maximum benefit to the people of the State;

2. not unreasonably affect present and anticipated beneficial uses of water; and

3. not result in water quality less than that prescribed in water quality control plans or policies.

I.C. Thermal Plan

The "Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California," adopted by the State Water Resources Control Board on May 18, 1972, and amended September 18, 1975, specifies water quality objectives, effluent quality limits, and discharge prohibitions related to thermal characteristics of enclosed bay and estuary waters and waste discharges.

I.D. Bays and Estuaries Policy

The "Water Quality Control Policy for the Enclosed Bays and Estuaries of California," Resolution No. 74-43, was adopted by the State Water Resources Control Board on May 16, 1974. Commonly referred to as the "Bays and Estuaries Policy," it was adopted specifically to provide water quality principles and guidelines for the affected waters.

Decisions by the Regional Boards are required to be consistent with the provisions designed to prevent water quality degradation and to protect beneficial uses. The policy lists principles of management that include a statement of the desirability of phasing out all discharges (exclusive of cooling waters) as soon as practicable. Quality requirements state conformability with other plans and policies. Discharge prohibitions are placed on:

1. new dischargers (other than those that would enhance the receiving waters);

2. untreated waste and waste products;

3. refuse;

4. consequential effects of mining, construction, agriculture, and timber harvesting;

5. materials of petroleum origin;

6. radiological, chemical, or high-level radioactive waste; or

7. discharge or by-pass of untreated waste.

I.E. Power Plant Cooling Policy

The "Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Power Plant Cooling" indicates the State Board's position on power plant cooling, specifying that fresh inland waters should be used for cooling only when other alternatives are environmentally undesirable or economically unsound.

I.F. Reclamation Policy

The "Policy with Respect to Water Reclamation in California" requires the Regional Boards to conduct reclamation surveys and specifies reclamation actions to be implemented by the State and Regional Boards as well as other agencies.

I.G. Shredder Waste Disposal Policy

The "Policy on the Disposal of Shredder Waste" designates specific conditions to be enforced by the Regional Board by which mechanically destructed car bodies, old appliances, or other similar castoffs can be disposed at certain landfills.

I.H. Underground Storage Tank Pilot Policy

The "Policy Regarding the Underground Storage Tank Pilot Program" implements a pilot program to

fund oversight of remedial action at leaking underground storage tank sites, in cooperation with the California Department of Health Services. Oversight may be deferred to the Regional Boards.

I.I. Sources of Drinking Water Policy

The "Sources of Drinking Water" policy specifies which ground and surface waters are considered to be suitable or potentially suitable for the beneficial use of water supply (MUN). It allows the Regional Board some discretion in making MUN determinations.

I.J. Nonpoint Source Management Plan

The "Nonpoint Source Management Plan", Resolution 88-123, was adopted by the State Water Resources Control Board on November 15, 1988 pursuant to Section 319 of the Clean Water Act. The Plan identifies nonpoint source control programs and milestones for their accomplishment. It emphasizes cooperation with local governments and other agencies to promote the implementation of Best Management Practices and remedial projects.

I.K. Ocean Plan

The "Water Quality Control Plan for Ocean Waters of California," Resolution No. 90-27 was adopted by the State Water Resources Control Board on March 22, 1990. This plan establishes beneficial uses and water quality objectives for waters of the Pacific Ocean adjacent to the California Coast outside of enclosed bays, estuaries, and coastal lagoons. Also, the Ocean Plan prescribes effluent quality requirements and management principles for waste discharges and specifies certain waste discharge prohibitions.

The Ocean Plan also provides that the State Water Resources Control Board shall designate Areas of Special Biological Significance (ASBS) and requires wastes to be discharged a sufficient distance from these areas to assure maintenance of natural water quality conditions.

The State Water Resources Control Board declared its intent to periodically revise the Plan to reflect water quality objectives that are necessary to protect beneficial uses of ocean waters and to be consistent with current technology.

I.L. Discharges of Municipal Solid Waste Policy

The "Policy for Regulation of Discharges of Municipal Solid Waste", Resolution No. 93-62, was adopted by the State Water Resources Control Board on June 17, 1993. This policy implements State regulations of waste discharge to land (California Code of Regulations, Title 23, Chapter 15) and Federal Regulations related to municipal solid waste disposal (40 Code of Federal Regulations Sections 257 and 258). The policy directs Regional Water Quality Control Boards to revise or adopt, prior to the Federal deadline (currently October 9, 1993), Waste Discharge Requirements for all municipal solid waste landfills subject to State and federal regulations. A detailed description of this policy is provided in Chapter Four under the Resources Conservation and Recovery Act section.

I.M. Onsite Wastewater Policy

The *Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems* (OWTS Policy), Resolution No. 2012-0032, was adopted by the State Water Resources Control Board on June 19, 2012. This Policy implements California Water Code, Chapter 4.5, Division 7, §13290-13291.7 by establishing statewide regulations and standards for permitting onsite wastewater systems. The OWTS Policy specifies criteria for existing and new onsite systems and establishes a conditional waiver of waste discharge requirements for onsite systems that comply with the policy.

II. Recommended State Water Resources Control Board Control Actions

1. State policies for surface waters and for bays and estuaries should be further considered in light of the revised Ocean Plan of 1988.

2. State policies for water quality control should place increasing emphasis on water quality

monitoring to determine compliance with water quality objectives in order to provide a firm basis for classification of receiving waters relative to Section 303(e) of Public Law 92-500.

3. Erosion and sedimentation control policies should be established based on (a) pilot studies conducted by the U. S. Soil Conservation Service which recommended best management practices for erosion problems, (b) a statewide study by the California Association of Resource Conservation Districts on institutional solutions to sedimentation problems, and (c) findings of erosion studies conducted in the Central Coast Region as part of nondesignated area 208 planning.

4. Land use planning relative to nonpoint pollution sources should be considered as a future activity, possibly as a multiagency effort; initial control efforts and means for effective control should be from local agencies.

5. Water quality control programs should continue to include emphasis on total water management in order to permit enhancement of naturally degraded surface and ground waters.

6. The State Water Resources Control Board should consider water quality effects when reviewing water rights permits.

7. Policies affecting water rights should reinforce water quality goals particularly as related to long-term ground water salinity changes. Adjudication of degraded ground water basins should be considered as a tool for implementation of water quality goals to be utilized only if other measures fail.

8. Water supply improvements to reduce influent wastewater salinity made in the interest of total water quality management should be considered for partial eligibility for Clean Water Grants. Increased costs for grant eligibility could be in lieu of costs for wastewater effluent demineralization where such measures are required.

9. Water reclamation and reuse programs for supplementing agricultural irrigation supplies should be given increased emphasis. Grant support should be available for water short areas where such water demand can be demonstrated.

III. Regional Water Quality Control Board Management Principles

III.A. General

1. Land use practices should assure protection of beneficial water uses and aquatic environmental values.

2. There shall be no waste discharged into areas which possess unique or uncommon cultural, scenic, aesthetic, historical or scientific values. Such areas will be defined by the Regional Board.

3. Property owners are considered ultimately responsible for all activities and practices that could result in adverse affects on water quality from waste discharges and surface runoff.

III.B. Wastewater Reclamation

1. Water quality management systems throughout the basin shall provide for eventual wastewater reclamation, but may discharge wastes to the aquatic environment (with appropriate discharge requirements) when wastewater reclamation is precluded by processing costs or lack of demand for reusable water.

2. The number of waste sources and independent treatment facilities shall be minimized and the consolidated systems shall maximize their capacities for wastewater reclamation, assure efficient management of, and meet potential demand for reclaimed water.

   Further wastewater reclamation guidance is available in the Implementation Plan, Chapter Four.

III.C. Discharge to Surface Waters

1. All discharges to the aquatic environment shall be considered temporary unless it is demonstrated that no undesirable change will occur in the natural receiving water quality.

2. The quality of all surface waters of the basin shall be such as to permit unrestricted recreational use.

3. The discharge of pollutants into surface fresh waters shall be discontinued.

III.D. Municipal and Industrial Sewering Entities

1. Municipal and industrial sewering entities should implement comprehensive regulations to prohibit the discharge to the sewer system of substances listed below which may be controlled at their source:

   Chlorinated hydrocarbons;

   Toxic substances;

   Harmful substances that may concentrate in food webs;

   Excessive heat;

   Radioactive substances;

   Grease, oil, and phenolic compounds;

   Mercury or mercury compounds;

   Excessively acidic and basic substances:

   Heavy metals such as lead, copper, zinc, etc.; and

   Other known deleterious substances.

2. Sewering entities should implement comprehensive industrial waste ordinances to control the quantity and quality of organic compounds, suspended and settleable substances, dissolved solids, and all other materials which may cause overloading of the municipal waste treatment facility.

III.E. Ground Water

1. Ground water recharge with high quality water shall be encouraged.

2. In all ground water basins known to have an adverse salt balance, total salt content of the discharge shall not exceed that which normally results from domestic use, and control of salinity shall be required by local ordinances which effectively limit municipal and industrial contributions to the sewerage system.

3. Wastewaters percolated into the ground waters shall be of such quality at the point where they enter the ground so as to assure the continued usability of all ground waters of the basin.

III.F. Individual, Alternative, and Community Systems

The Regional Board intends to discourage high density development on septic tank disposal systems and generally will require increased size of parcels with increasing slopes and slower percolation rates. Consideration of development will be based upon the percolation rates and engineering reports supplied. In any questionable situation, engineer-designed systems will be required.

Further information concerning on-site systems can be found in Chapter Four.

III.G. Erosion and Sedimentation Control

1. General recommendations for erosion control, numbered one through six under "Land Disturbance Activities" in the Implementation Plan, Chapter Four, are considered by the Regional Board to be Best Management Practices (BMP's), as are those BMP's identified in approved areawide Water Quality Management Plans.

2. Local units of government should have the lead role in controlling land use activities that cause erosion and may, as necessary, impose further conditions, restrictions, or limitations on waste disposal and other activities that might degrade the quality of waters of the State.

3. In implementing BMP's through local units of government, or through State and federal agencies for lands under their control, working relationships, priorities, and time schedules will be defined in management agency agreements between the areawide waste treatment planning agency and the local management agency. Agreements will be reviewed and updated annually to reflect recent achievements, new information and new concerns.

4. Regional Board participation in sediment control programs shall include assistance in the establishment of local control programs, participation in the determination of water quality problems, and a cooperative program evaluation with local units of government. Regional Board enforcement authority will be exercised where local volunteer programs fail to correct sediment problems within a reasonable period.

5. Emergency projects undertaken or approved by a public agency and necessary to prevent or mitigate loss of, or damage to, life, health, property, or essential public services from an unexpected occurrence involving a clear and imminent danger are exempt from this chapter providing such exemption is in the public interest.

6. Regulation of sediment discharges from routine annual agricultural operations, such as tilling, grazing, and land grading and from construction of agricultural buildings is waived except where such activity is causing severe erosion and causing, or threatening to cause, a pollution or nuisance.

7. Regulation of discharges from State and federal lands managed by agencies operating in accordance with approved management agency agreements is waived except where such activity is causing, or threatening to cause, a pollution or nuisance.

"Control Actions" and "Actions by Other Authorities" in this chapter and the Implementation Plan, Chapter Four, contain further information regarding erosion and sedimentation control.

IV. Discharge Prohibitions

Due to unique cultural, scenic, aesthetic, historical, scientific, and ecological values of the Central Coastal Basin, and the necessity to protect the public health and the desire to achieve water quality objectives, the Regional Water Quality Control Board has established certain discharge prohibitions.

IV.A. All Waters

Waste discharges shall not contain materials in concentrations which are hazardous to human, plant, animal, or aquatic life.

The discharge of oil or any residual products of petroleum to the waters of the State, except in accordance with waste discharge requirements or other provisions of Division 7 of the California Water Code, is prohibited.

Discharge of elevated temperature wastes into COLD intrastate waters is prohibited where it may cause the natural temperature of the receiving water to exceed limits specified in Chapter Three, Water Quality Objectives.

IV.A.1. Toxic or Hazardous Pollutants

Discharge of toxic or hazardous material that violates: 1) the toxicity objective for all waters as designated in the Ocean Plan [See Appendix A-5] and Objectives for All Inland Surface Waters, Enclosed Bays, and Estuaries [See Chapter Three], or 2) Proposition 65 limitations for municipal/domestic water supply waters is prohibited.

Discharge to publicly owned treatment works is prohibited in concentrations that:

1. Exceeds applicable federal pretreatment standards;

2. Endangers safe and continuous operation of wastewater treatment facilities;

3. Endangers public health and safety; and

4. Causes violation of applicable water quality objectives.

IV.B. Inland Waters

Wastes discharged to surface waters shall be essentially free of toxic substances, grease, oil, and phenolic compounds.

Waste discharges to the following inland waters are prohibited:

1. All surface freshwater impoundments and their immediate tributaries.

2. All surface waters within the San Lorenzo River, Aptos-Soquel, and San Antonio Creek Subbasins and all water contact recreation areas except where benefits can be realized from direct discharge of reclaimed water.

3. All deadend sloughs receiving little flushing action from land drainage or natural runoff.

4. All coastal surface streams and natural drainageways that flow directly to the ocean within the Santa Cruz Coastal, Monterey Coastal, San Luis Obispo Coastal from the Monterey County line to the northern boundary of San Luis Obispo Creek drainage, and the Santa Barbara Coastal Subbasins except where discharge is associated with an approved wastewater reclamation program.

5. The Santa Maria River downstream from the Highway One bridge.

6. The Santa Ynez River downstream from the salt water barrier.

IV.B.1. Domestic Animal Waste Discharge Prohibition

Discharges containing fecal material from domestic animals to the waters of the State that cause or contribute to exceedance of water quality objectives in the areas listed below are prohibited. Examples of domestic animals include, but are not limited to, horses, cattle, goats, sheep, dogs, cats or any other animal(s) in the care of any person(s).

1. Pajaro River Watershed.

2. Soquel Lagoon Watershed.

3. Aptos Creek Watershed.

4. San Lorenzo River Watershed.

5. Corralitos/Salsipuedes Creek Watershed.

6. Lower Salinas River Watershed (the watershed area of the Salinas River from Gonzales Road downstream to its confluence with Moss Landing Harbor).

7. Santa Maria River Watershed (including Oso Flaco Creek subwatershed).

IV.B.2. Human Fecal Material Discharge Prohibition

Discharges containing fecal material from humans to the waters of the State in the areas listed below are prohibited. Exceptions to this prohibition include discharges in accordance with Waste Discharge Requirements or other provisions of the California Water Code, Division 7, as amended:

1. Pajaro River Watershed.

2. Soquel Lagoon Watershed.

3. Aptos Creek Watershed.

4. San Lorenzo River Watershed.

5. Corralitos/Salsipuedes Creek Watershed.

6. Lower Salinas River Watershed (the watershed area of the Salinas River from Gonzales Road downstream to its confluence with Moss Landing Harbor).

IV.C. Waters Subject to Tidal Action

The discharge of any radiological, chemical, or biological warfare agent or high level radioactive waste into the ocean is prohibited.

Waste discharges to the following areas are prohibited.

1. In the northern extreme of Monterey Bay, inshore from an imaginary line extending from Santa Cruz Point (36°-57.0'N, 122°-01.5'W) to the mouth of the Pajaro River (36°-51.0'N, 121°-48.6'W) and in ocean waters within a three (3) mile radius of Point Pinos (36°-38.3'N, 121°-56.0'W), excepting the area described in No. 2 below.

2. In the southern extreme of Monterey Bay, inshore from an imaginary line extending from Point Pinos (36°-38.3'N, 121°-56.0'W) to the mouth of the Salinas River (36°-44.9'N, 121°-48.3'W).

Discharges to the Monterey Bay Prohibition Zone from desalinization units and circulating seawater system discharges may be permitted after each proposal satisfies California Environmental Quality Act requirements and completes the National Pollutant Discharge Elimination System process.

IV.C.1. Areas of Special Biological Significance

Discharge of waste is prohibited where it will alter natural water quality conditions in Areas of Special Biological Significance. Areas of Special Biological Significance are:

1. Año Nuevo Point and Island, San Mateo County, including ocean waters within three (3) nautical miles offshore and defined by extensions of Cascade Creek on the north and the Santa Cruz-San Mateo County line on the south.

2. Pacific Grove Marine Gardens Fish Refuge and Hopkins Marine Life Refuge, Monterey County, including Monterey Bay waters bounded by Point Alones on the east, by Point Pinos on the west, and extending offshore to the 60-foot depth contour (about 0.7 miles).

3. Carmel Bay, Monterey County, including all bay waters enclosed by an imaginary line extending between Pescadero Point and Granite Point.

4. Point Lobos Ecological Reserve, Monterey County, including ocean waters within one-quarter (0.25) mile offshore from Granite Point southerly to the southernmost boundary of Point Lobos Reserve State Park.

5. Julia Pfeiffer Burns Underwater Park, Monterey County, including ocean waters within an area extending about one (1.0) mile offshore and about two and one-half (2.5) miles south of Partington Point.

6. Salmon Creek, Monterey County, including ocean waters within one-thousand (1000) feet or more offshore, bounded on the south by an extension of the Monterey-San Luis Obispo County line, and extending northward about three (3) miles.

7. San Miguel, Santa Rosa, and Santa Cruz Islands, Santa Barbara County, including ocean waters within about one (1) nautical mile offshore.

The discharge of municipal and industrial waste sludge and sludge digester supernatant directly to the ocean, or into a waste stream that discharges to the ocean without further treatment, is prohibited.

The bypassing of untreated waste to the ocean is prohibited.

Excepting vessel washdown waters, disposal of waste matter or untreated waste from vessel to tidal water is prohibited.

The discharge of oil or grease, from other than natural sources, which produces a visible or measurable effect to tidal waters of the basin is prohibited.

New thermal waste discharges to coastal waters, enclosed bays and estuaries having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

IV.D. Ground Waters

Wastes discharged to ground waters shall be free of toxic substances in excess of accepted drinking water standards; taste, odor, or color producing substances; and nitrogenous compounds in quantities which could result in a ground water nitrate concentration above 45 mg/l.

IV.E. Other Specific Prohibition Subjects

Other prohibitions exist which pertain to the following topics. These prohibitions can be found under the respective heading in the Implementation Plan.

Mushroom Farms Operation Prohibitions

Individual, Alternative, and Community Sewage Disposal Systems Prohibitions

Land Disturbance Prohibitions

Solid Waste Discharge Prohibitions

Watsonville Slough Watershed Livestock Waste Discharge Prohibition

IV.F. Exceptions to Basin Plan Requirements

The Regional Board may, subsequent to a public hearing, grant exceptions to any provision of this Plan where the Regional Board determines:

1. The exception will not compromise protection of waters for beneficial uses; and

2. The public interest will be served.

Regional Board exceptions will be effective upon State Board approval, unless exceptions involve

surface water beneficial use designations or surface water quality objectives (i.e., federally accepted water quality standards). Such water quality standard related exceptions will also require Environmental Protection Agency approval to become effective.

V. Control Actions

Specific actions can be taken to control water quality. These are specified below.

V.A. Waste Discharge Requirements

1. The Regional Water Quality Control Board will implement water quality control plan provisions through establishment or requirements and timetables for compliance with plan actions.

2. Waste discharge requirements will be established for all (operating) solid waste sites and where inactivated sites may contribute to water quality impairment.

3. Waste discharge requirements will be established for all existing oil well fields, mines, or other well fields which threaten water quality.

4. Waste discharge requirements will be established for all irrigation, feedlot, dairy, and poultry operations which are so located as to pose a clear and direct threat to water quality; such operations need not be so large as to require a permit under NPDES.

V.B. State Clean Water Grants or Loans

1. Priorities for State Clean Water Grants or Loans will be ordered by the Regional Water Quality Control Board and provide ever increasing emphasis toward correction of basin water quality problems.

2. Water supply improvements (which encourage cost-effective water quality management) beyond normal source control measures (i.e., water supply quality enhancement by treatment or other means in lieu of effluent demineralization) will be recommended for funding.

V.C. Salt Discharge

1. Emphasize control of brine disposal into public sewer systems by requiring affected dischargers to comply with normal salt increments, to adopt salt source control ordinances, and to conduct wastewater monitoring programs.

2. Minimize degradation of water during transport from points of use; minimize leakage of poor quality water during transport from salt affected areas through salt free lands to salt sinks for disposal.

3. Regulate importation of water into any basin or subbasin and regulate the reuse of waters in upstream portions of subbasins which is of poorer quality than existing or imported supplies. If such import or transport to up-slope areas for reuse is allowed, take suitable steps to mitigate short and long term adverse effects of increased salt load resulting from this recycling.

4. Increase recharge of underground water storage basins (where recharge is possible) using surplus winter or spring runoff waters.

5. Actively support measures designed to protect and to improve quality of waters imported into areas with unfavorable or poor salt balance.

6. Regulate reclamation of new lands which would contribute large quantities of salts or pollutants to water supplies.

7. Where water supplies are limited, restrict use of reclaimed waters to existing irrigated acreage rather than develop new irrigated acreage to utilize the reclaimed water.

V.D. Individual, Alternative, and Community Sewage Disposal Systems

Unsewered areas having high density (one acre lots or smaller) should be organized into septic tank management districts and sewerage feasibility studies should be encouraged in potential problem areas. Local implementation should be encouraged by Regional Board action.

V.E. Agency Coordination

The Regional Water Quality Control Board will initiate coordination with the appropriate Coastal Commission, as well as other State, federal, and local agencies which possess related or overlapping planning responsibilities.

V.F. Animal Confinement Operations

The California Code of Regulations, Title 23, Chapter 15, Section 2601 defines a confined animal facility as "any place where cattle, calves, sheep, swine, horses, mules, goats, fowl, or other domestic animals are corralled, penned, tethered, or otherwise enclosed or held and where feeding is by means other than grazing."

1. Animal confinement facilities plus adjacent crop land under the control of the operator shall have the capacity to retain surface drainage from manure storage areas plus any washwater during a 25-year 24-hour storm.

2. Surface drainage, including water from roofed areas, shall be prevented from running through manure storage areas.

3. Animal confinement facilities, including retention ponds shall be protected from overflow to stream channels during 20-year peak stream flows for existing facilities and 100-year peak stream flows for new facilities.

4. Retention ponds shall be lined with or underlain by soils containing at least ten percent clay and not more than ten percent gravel or artificial material of equivalent impermeability.

5. Washwater and surface drainage from manure storage areas shall be contained, applied to crop lands, or discharged to treatment systems subject to approval by the Regional Water Quality Control Board.

6. Animals in confinement shall be prevented from entering any surface waters within the confined area.

7. Lands that have received animal wastes shall be managed to minimize erosion and runoff. Dry manures applied to cultivated crop lands should be incorporated into the soil soon after application.

8. Animal wastes shall be managed to prevent nuisances in manure storage areas.

9. Manure storage areas shall be managed to minimize percolation of water into underlying soils; this may be accomplished by routing drainage to impervious storage areas, land applications, relocation of existing lots and, in the case of new locations, by selecting more impervious soils for manure storage areas.

10. Animal confinement facilities shall have adequate surface drainage to prevent continuous accumulation of surface waters in corrals and feed yards; drainage should be routed to impervious storage areas or applied to land.

11. Application of manures and washwaters to crop lands shall be at rates which are reasonable for crop, soil, climate, special local situations, management system and type of manure.

12. A monitoring program may be required by the Regional Water Quality Control Board as a condition to issuance or waiver of waste discharge requirements.

Further animal confinement information can be found in Chapter Four in the Nonpoint Source Measures section under Agricultural Water and Wastewater Management.

V.G. Erosion and Sedimentation

1. Erosion from nonpoint pollution sources shall be minimized through implementation of BMP's (identified under "Management Principles" and described under "Land Disturbance Activities" in Chapter Four's "Nonpoint Source Measures" section.

2. All necessary control measures for minimizing erosion and sedimentation, whether structural or vegetal, shall be properly established prior to November 15 each year.

3. All structural and vegetal measures taken to control erosion and sedimentation shall be properly maintained.

4. A filter strip of appropriate width, and consisting of undisturbed soil and riparian vegetation or its equivalent, shall be maintained, wherever

possible, between significant land disturbance activities and watercourses, lakes, bays, estuaries, marshes, and other water bodies. For construction activities, minimum width of the filter strip shall be thirty feet, wherever possible as measured along the ground surface to the highest anticipated water line.

5. Design and maintenance of erosion and sediment control structures, (e.g., debris and settling basins, drainage ditches, culverts, etc.) shall comply with accepted engineering practices.

6. Cover crops shall be established by seeding and/or mulching, or other equally effective measures, for all disturbed areas not otherwise protected from excessive erosion.

7. Land shall be developed in increments of workable size that can be completed during a single construction season. Graded slope length shall not be excessive and erosion and sediment control measures shall be coordinated with the sequence of grading, development, and construction operations.

8. Use of soil sterilants is discouraged and should be minimized.

Further erosion and sedimentation information can be found in other areas of this chapter as well as the Implementation Plan, Chapter Four, under "Land Disturbance Activities."

V.H. Actions by Other Authorities

V.H.1. Federal Agencies

1. Federal agencies directly affected by the facility plans involving consolidation with other communities should comply with applicable provisions of the Basin Plan (e.g., Fort Ord on the Monterey Peninsula is shown as part of municipal wastewater sewerage consolidation); agency policies favoring plan recommendations are encouraged.

2. Federal agencies otherwise affected by plan provisions should signify their compliance or concern with plan recommendations; time at public hearings will be provided for this purpose.

V.H.2. Association of Monterey Bay Area Governments

The Association of Monterey Bay Area Governments (AMBAG) should coordinate with local agencies and the Regional Board relative to implementation of water quality control plans in that area.

V.H.3. Septic Tank Management Agencies

1. County governments should revise septic tank ordinances to conform with basin plan recommendations and State Board guidelines.

2. Formation of septic tank management districts within existing local agencies should be accomplished in areas where directed by Regional Board action.

V.H.4. Water Management Agencies

Conjunctive ground water-surface water management should continue to be encouraged by water management agencies, both in terms of storage and recharge operations and containment and routing of highly mineralized surface waters to prevent recharge. Examples in the Salinas Subbasin include storage of wet weather flows and recharge from a reservoir on Arroyo Seco and containment to prevent recharge of highly mineralized surface waters in streams such as Pancho Rico Creek.

V.H.5. Solid Waste Management

Preparation of solid waste management plans by all counties in the basin should be accomplished as required by the Nejedly-Z'berg-Dills Solid Waste Management and Resource Recovery Act of 1972.

V.H.6. Agricultural Management

Local agricultural representatives and the University of California extension service should maintain liaison with the Regional Water Quality Control Board and the State Board relative to agricultural wastewater management.

V.H.7. Offshore Oil

Water quality in offshore oil lease areas should be monitored by State and federal agencies preferably by arrangements with independent oceanographic institutions.

V.H.8. Salinity Management

Salt source control measures should be implemented by municipalities having excessive mineral quality in wastewaters discharged to land or inland waters; control of salinity through water supply improvements is recommended.

V.H.9. Seawater Intrusion

Water Management Plans should be prepared and adopted by Monterey County for the Salinas ground water basin and the Pajaro Valley Water Management Agency for the Pajaro ground water basin. These management plans should include immediate actions these agencies can take to help alleviate seawater intrusion as well as measures to stop seawater intrusion from advancing. These agencies should remediate seawater intrusion as a long-term goal.

Local and State agencies having jurisdiction to help control seawater intrusion should assist in implementing seawater intrusion remedies.

V.H.10. Erosion and Sedimentation Control

1. The federal government should increase its support of erosion and sediment control programs by increasing its technical staffs, increasing cost-share funds, increasing the availability of low-interest loans, and changing its income tax laws to encourage the use of Best Management Practices for erosion and sediment control.

2. The State of California should establish an erosion and sediment control program that includes incentives for the individual - such as cost-sharing, changes in State law that would reduce property taxes for enduring erosion and sediment control practices, and incentives through state income taxes.

3. Resource Conservation Districts within the Central Coast Region should develop management agency agreements with the Regional Board agreeing to work jointly with the Regional Board to integrate soil and water resource programs in the application of Best Management Practices to correct existing erosion and sediment problems and to prevent new problems from occurring.

4. Local units of government should improve land use plans to establish a clear policy, and shall adopt or improve ordinances to include definitive performance standards, for the control of erosion and sedimentation, including consistency with this Basin Plan and Best Management Practices identified under Regional Board "Management Principles."

5. Local units of government developing Local Coastal Programs shall establish a clear policy on erosion and sedimentation and adopt an ordinance consistent with Best Management Practices for their land areas within the Coastal Zone.

6. Resource Conservation Districts, the U.S.D.A. Soil Conservation Service, the California Department of Transportation, and the Extension Service, in conjunction with the cities and counties, should develop and carry out an erosion and sediment control training program for employees who check erosion and sediment control plans and who enforce local ordinances and regulations relating to erosion and sediment control practices.

7. Counties and cities should work with the Regional Board to identify priorities, time schedules, and limitations and to negotiate management agency agreements concerning implementation of Best Management Practices for control of erosion and sedimentation.

8. Review and assessment of erosion and sediment control plans for new land developments in those counties and cities that have signed management agency agreements with the Board will be processed entirely by that county or city.

VI. Regional Board Policies

Formal specific policies adopted by the Regional Board are presented below according to various categories.

VI.A. Sewerage Facilities and Septic Tanks in Urbanizing Areas in the Central Coast Region

Resolution 69-01: Adopting Policy Statement Regarding Sewerage Facilities and Septic Tanks in Urbanizing Areas in the Central Coast Region.

This policy prohibits septic tank or community systems unless particular criteria are satisfied.

VI.B. Septic Tanks

1. Resolution 86-02: Acceptance of Monterey County Board of Supervisor's Ordinance Applying Development Restrictions to the Bay Hills (Bay Farms/Hillcrest) Area.

   This policy accepts Monterey County's moratorium in lieu of a Regional Board prohibition. Further, the policy requested a compliance schedule to eliminate discharge from individual sewage disposal systems and the State Water Resources Control Board is requested to rank this project Class "A" on the Clean Water Grant project priority list.

2. Resolution 87-05: Acceptance of Monterey County Board of Supervisor's Ordinance Applying Development Restrictions to the area within the San Lucas County Water District.

   This policy accepts Monterey County's moratorium in lieu of a Regional Board prohibition. Further, the policy requested a compliance schedule to eliminate discharge from individual sewage disposal systems and the State Water Resources Control Board is requested to rank this project Class "A" on the Clean Water Grant project priority list.

Further information concerning on-site system development restrictions can be found in Chapter Four.

VI.D. Area of Special Biological Significance (ASBS)

Resolution 76-10: Recommendation to the State Water Resources Control Board Concerning the Designation of Terrace Point in Santa Cruz County as an Area of Special Biological Significance.

This policy recommended the State Water Resources Control Board to not designate Terrace Point as an Area of Special Biological Significance. The State Board concurred with the Regional Board in Resolution 77-21.

Further information concerning ASBS areas can be found in Chapter Two.

VI.E. Legislative Matters

Resolution 78-04: Supporting Approval of the Clean Water and Water Conservation Bond Law of 1978.

This policy expressed support for Proposition Two and urged California voters to support the proposition.

VI.F. Prohibition Zones

Resolution 79-06: Resolution Regarding Marina County Water District's Petition to Delete the Southern Monterey Bay Discharge Prohibition Zone from the Basin Plan.

This policy considers Marina County Water District challenge to the Southern Monterey Bay prohibition zone. This policy resolves the Southern Monterey Bay prohibition zone is appropriate.

Regional Board adopted prohibition zones for tidal waters can be found under "Waters Subject to Tidal Action" under "Discharge Prohibitions" in this chapter.

VI.G. San Lorenzo Valley

Resolution 87-04: Certification of Santa Cruz County's Wastewater Management Program for the San Lorenzo River Watershed.

This policy certifies Santa Cruz County's Wastewater Management Program for the San Lorenzo Valley is adequate to satisfy the loan condition authorized by Chapter 962 of the 1986 State Statues.

VI.H. Highway Grooving Residues

Resolution 89-04: Adopting Policy Regarding Disposal of Highway Grooving Residues.

This policy specifies conditions for highway grooving residue disposal.

VI.I. Waiver of Waste Discharge Requirements

Resolution 89-04: Waiver of Regulation of Specific Types of Waste Dischargers.

State law allows Regional Boards to waive waste discharge requirements (WDRs) for a specific discharge or types of discharges where it is not against the public interest (California Water Code Section 13269). These waivers are conditional and may be terminated at any time.

On April 15, 1983, the Regional Board held a public hearing regarding the types and nature of waste discharges considered for waiver. Following this hearing, the Regional Board established certain discharges which waived WDRs. The types of dischargers which may be waived are shown in the appendix.

VI.J. Interpretation of Minimum Parcel Size Requirements for On-Site Sewage Systems

This policy clarifies Regional Board minimum parcel size requirements for on-site systems contained in Chapter Four of this document.

A copy of this policy is shown in the appendix.

VI.K. Appreciation for Discharger Compliance

Resolution 93-04: Appreciation for Discharger Compliance.

This policy addresses the manner in which the Regional Board will protect water quality protection and improvement at the most cost effective manner to society. A copy of the policy is shown in the appendix.

Chapter 6. Monitoring and Assessment

Table of Contents

I. Introduction

The effectiveness of a water quality control program cannot be judged without the information supplied by a comprehensive and systematic monitoring and assessment program. This chapter describes statewide and regional monitoring and assessment programs designed to provide scientific information on water quality in the Central Coast Region. The Regional Board uses information produced by these programs to satisfy requirements of both the federal Clean Water Act (http://www.swrcb.ca.gov/rwqcb3/) and applicable portions of the state's Porter-Cologne Water Quality Control Act.

Monitoring information is presented for both regulatory and ambient monitoring programs at the State and Regional level. Regulatory monitoring programs address compliance issues related to discharges to waters of the State. Ambient monitoring programs address overall quality of waters of the State, generally without regard to specific dischargers.

II. Objectives

General objectives of statewide and regional monitoring and assessment programs are:

1. To measure the achievement of water quality goals and objectives specified in this plan.

2. To measure specific effects of water quality changes on established beneficial uses.

3. To measure background conditions of water quality and long-term trends in water quality.

4. To locate and identify sources of water pollution that pose an acute, cumulative, and/or chronic threat to the environment.

5. To provide information needed to correlate receiving water quality to mass emissions of pollutants by waste dischargers.

6. To provide data for determining waste discharger compliance with permit conditions.

7. To measure waste loads discharged to receiving waters and to identify the limits of their effect, and in water quality limited segments to prepare waste load allocations necessary to achieve water quality control.

8. To provide documentation necessary to support enforcement of permit conditions and waste discharge requirements.

9. To provide data needed to carry on the continuing planning process.

10. To measure the effects of water rights decisions on water quality and to guide the State Board in its responsibility to regulate unappropriated water for the control of quality.

11. To provide a clearinghouse for the collection and dissemination of water quality data gathered by other agencies and private parties cooperating in the program.

12. To prepare reports on water quality conditions as required by federal and State regulations and other users requesting water quality data.

III. Quality Control

Federal regulations and State policy require the preparation and implementation of Quality Assurance/Quality Control Plans for most monitoring carried out by the Regional Board's staff or its contractors. Regional Board monitoring activities are usually conducted under the Quality Assurance Program Plan developed for the Surface Water Ambient Monitoring Program (SWAMP).

Sample analysis generally must be conducted by a State-certified laboratory; the laboratory must have an approved Quality Assurance/Quality Control program and must be certified under the California Department of Health Services (DHS) Accreditation Program. In some instances, DHS certification may not be required, provided the laboratory has appropriate performance based standards.

IV. Regulatory Monitoring and Assessment

IV.A. Compliance Monitoring

A significant component of the State's regulatory monitoring relates specifically to discharges of pollutants from known sources. All entities holding Regional Board Discharge Orders must conduct regular sampling and analysis of waste released to surface and ground waters. Entities granted a discharge waiver may also be subject to monitoring requirements as a condition of the waiver.

The specific chemical and physical parameters to monitor, types of sampling and analyses (e.g., waste stream sampling, toxicity tests, etc.), frequency, and other specific requirements are determined on a case-by-case basis according to the nature of the discharge and potential environmental effects. Each Order or waiver issued by the Regional Board describes the specific compliance monitoring requirements for that Order or waiver holder.

Monitoring data collected by point source dischargers and nonpoint pollution control programs are used to:

- Determine compliance with and provide documentation to support enforcement of Order or waiver conditions;
- Provide information needed to relate receiving water quality to mass emission of pollutants by dischargers.

Discharger self-monitoring reports, generated as a result of an Order, are collected and reviewed by Regional Board staff for compliance. Any necessary enforcement actions are the responsibility of, and are carried out by, the Regional Board. Self-monitoring reports are normally submitted by the discharger on a regular basis (monthly, quarterly, or semi-annually) as specified by the Order conditions.

Compliance monitoring includes a control procedure whereby Regional Board personnel periodically visit each discharger on both an announced and unannounced "Facility Inspection" basis. The intent of announced visits is to work with the discharger to review his procedures in order to assure quality control. The intent of the unannounced inspections is to survey the operation, inspect the discharge area, and collect, check, or reference samples. Data from self-monitoring may also be supplemented with information obtained by Regional Board staff through

special studies, such as those characterizing the variability of the discharge, pollutant levels in nearby receiving water and biota, and characterization of pollutant loads attributable to urban runoff.

IV.B. Complaint Investigation

Complaint Monitoring involves investigation of complaints of citizens and public or governmental agencies on the discharge of pollutants or creation of nuisance conditions. It is the responsibility of the Regional Board to address the complaint, including preparation of reports, letters, or other follow-up actions, to document the observed conditions, and to inform the State Board, complainant, and discharger of the observed conditions.

IV.C. Aerial Surveillance

Aerial surveillance is used primarily to gather photographic records of discharges, water quality conditions, and conditions at solid waste disposal sites in the Region. Aerial surveillance is particularly effective because of the overall view of a facility that is obtained and because many facilities can be observed in a short period of time.

V. Ambient Monitoring and Assessment

V.A. State Monitoring Programs

Section 13160 of the Porter-Cologne Water Quality Control Act delegates primary responsibility for coordination and control of water quality in California to the State Board. Section 13163 of the Act states that in conducting this mission, the State Board is to coordinate water quality investigations, recognizing that other State agencies may have primary statutory responsibility for such investigations. Pursuant to these mandates, the State Board has established multiple water quality monitoring programs for California. Other agencies that conduct water-quality monitoring include the California Department of Health Services (DHS), California Department of Water Resources (DWR), California Department of Fish and Game (DFG), California Department of Pesticide Regulation (DPR), California Department of Toxic Substances Control (DTSC), Federal Bureau of Reclamation, the United States Geological Survey (USGS), and the United States Environmental Protection Agency (USEPA).

V.A.1. Surface Water Ambient Monitoring Program

The Porter-Cologne Water Quality Control Act and the federal Clean Water Act (CWA) direct water quality programs to implement efforts intended to protect and restore the integrity of waters of the State. Ambient monitoring is independent of regulatory water quality programs and serves as a measure of the overall quality of water resources and the overall effectiveness of the Regional Board's prevention, regulatory, and remedial actions.

The Surface Water Ambient Monitoring Program (SWAMP) is designed as an ongoing program to assess the effectiveness of State and Regional Board regulatory water quality programs, to develop a statewide picture of the status and trends in surface water quality, and to develop site-specific information in areas that are known or suspected to have water quality problems. In particular, SWAMP is intended to meet four goals:

1. Identify specific problems preventing the State Board, the Regional Board, and the public from realizing beneficial uses in targeted watersheds.

2. Create an ambient monitoring program that addresses all hydrologic units of the state using consistent and objective monitoring, sampling and analysis methods; consistent data quality and assurance protocols; and centralized data management.

3. Document ambient water quality conditions in potentially clean and polluted areas.

4. Provide data to evaluate the effectiveness of water quality regulatory programs in protecting beneficial uses of waters of the State.

In achieving these goals, each of the State and Regional Board monitoring programs (e.g., State Mussel Watch, Toxic Substances Monitoring) are incorporated into SWAMP to ensure a coordinated approach without duplication. Fiscal Year (FY) 00-01 marked the first year of implementation of the SWAMP Program. The Central Coast Ambient Monitoring Program (CCAMP), which has been underway since 1997, represents the Central Coast Region's participation in the statewide SWAMP Program. More detailed information on the SWAMP program can be found at the State Board website

(http://www.swrcb.ca.gov). A summary of the CCAMP program is contained in this chapter.

V.A.2. Toxic Substance Monitoring Program

The Toxic Substance Monitoring (TSM) Program was initiated in 1976 by the State Board to provide a uniform statewide approach to the detection and evaluation of toxic substances in organisms found in fresh, estuarine, and marine waters of the State. The TSM program uses resident fish and other aquatic organisms (primarily crayfish) to monitor pollutant levels through tissue analysis. Results of tissue analyses reflect exposure to contaminants over extended periods of time and therefore provide a field-based estimate for long-term exposure of people, fish, and other wildlife to pollutants in the food chain. This approach also allows for capture of potentially toxic discharges that occur on an intermittent basis that might otherwise be missed with "grab" sampling of water.

The primary objectives of the TSM program are:

1. To develop statewide baseline data and to demonstrate trends in the occurrence of toxic elements and organic substances in aquatic biota.

2. To assess impacts of accumulated toxicants upon the usability of State waters by man.

3. To assess impacts of accumulated toxicants upon aquatic biota.

4. Where problem concentrations of toxicants are detected, to attempt to identify sources of toxicants and to relate concentrations found in the biota to concentrations found in the water.

TSM reports have been published periodically since 1977. Tissue samples are analyzed for metals, including arsenic, cadmium, chromium, copper, lead, nickel, silver, zinc and mercury. In addition, both invertebrate and fish tissue samples are analyzed for synthetic organic compounds, most of which are pesticides (Table 6-1). Both TSM and State Mussel Watch (SMW) Program publications and data can be found at the State Board website (http://www.swrcb.ca.gov).

V.A.3. State Mussel Watch Program

The State Mussel Watch (SMW) program is a long-term marine water-quality monitoring program initiated in 1977. The SMW program uses resident and transplanted bivalves (e.g., mussels and clams) to monitor pollutant levels at coastal reference stations and selected sites in bays and estuaries to identify or confirm potential toxic substance pollution.

Mussels are used as sentinel organisms for trace metals and synthetic organic compounds in coastal and estuarine waters. Although the mussel populations of bays and estuaries are of a different species than those found in the open coast, their suitability as sentinels for monitoring the presence of toxic pollutants stems from several factors including: (1) their ubiquity along the California coast; (2) their ability to concentrate pollutants above ambient sea water levels and to provide a time-averaged sample; and (3) their non-motile nature which permits a localized measurement of water quality.

The primary goals of the SMW program are as follows:

1. To provide long-term monitoring of selected toxic substances in coastal waters;

2. To provide an important element in a comprehensive water quality monitoring strategy;

3. To identify on a year-to-year basis specific areas where concentrations of toxic materials are higher than naturally occurring background levels.

Tissue samples are analyzed for trace metals including aluminum, cadmium, chromium, copper, lead, manganese, mercury, nickel, silver and zinc and for synthetic organic compounds listed in Table 6-1. During the 1977 and 1978 sampling periods, the focus of the SMW program was, for the most part, on open coast monitoring of sites outside the vicinity of known pollutant point sources. Monitoring water quality in the State Board's designated Water Quality Protection Areas (formerly known as Areas of Special Biological Significance, to establish baseline conditions relating to the range of typical conditions in water, sediment and biota, was given

Table 6-1. Synthetic Organic Compounds Analyzed in the Toxic Substances Monitoring and State Mussel Watch Programs

COMPOUND	COMPOUND	COMPOUND
Aldrin	DDMU pp	Nitrofen (TOK)
Benefin	DDT pp	Oxychlordance
BHCα	Dialifor	Parathion, ethyl
BHCβ	Diazinon	Parathion, methyl
BHCγ (lindane)	Dichlofenthion	PCB 1248
BHCδ	Dicofol (Kelthane)	PCB 1254
Carbophenothion	Dieldrin	PCB 1260
CDEC (Vegedex)	Endosulfan I (Thiodan I)	PCNB (Quintozene)
Chlorbenside	Endrin	Perthane
cis-Chlordane	EPN	Phenkapton
trans-Chlordane	Ehtion	Phorate (Thimet)
Chloroneb	Fenitrothion	Ronnel
Chlorpyrifos (Dursban)	Fonofos (Dyfonate)	Strobane
Dacthal	Heptachlor	Tetradifon (Tedion)
DDE op	Heptachlor epoxide	Toxaphene
DDE pp	Hexachlorobenzene (HCB)	2,4-D isopropyl ester
DDD op	Methoxychlor pp '	2,4-D isobutyl ester
DDMS pp	Mirex	2,4-D n-butyl ester

prime importance in the early years of the program.

Based on identification of "hot spot" areas during 1977 and 1978, intensive sampling of these areas was implemented in 1979. Such a sampling strategy was intended to confirm previous findings, establish the magnitude of the potential problem and identify pollutant sources. The program has since evolved to include transplanting mussels into selected California bays and estuaries at specific sites to confirm potential toxic substance pollution, e.g., in the vicinity of discharges. In some cases the SMW program deploys freshwater clams or other organisms into fresh water streams and rivers to provide information about toxic substance pollution in watershed systems.

As with the TSM, statewide SMW reports are published periodically, available at the State Board website (http://www.swrcb.ca.gov).

V.A.4. Groundwater Ambient Monitoring and Assessment

The State Board, pursuant to provisions of the 1999 Budget Act, has developed a statewide Groundwater Ambient Monitoring and Assessment (GAMA) Program, which includes the collaborative efforts of other state and federal agencies also charged with groundwater monitoring responsibilities. The goal of GAMA is to provide information on the quality of California's groundwater and assess relative susceptibility of groundwater resources in California, especially those used as a drinking water supply. The GAMA program has two primary components: the California Aquifer Susceptibility (CAS) Assessment, which addresses public drinking water wells, and the Voluntary Domestic Well Assessment Project which addresses private domestic drinking water wells.

V.A.4.a. California Aquifer Susceptibility Assessment

The State Board, in coordination with the DHS, DWR, and local water districts and purveyors, is implementing the California Aquifer Susceptibility (CAS) Assessment to determine water quality and relative susceptibility of groundwater that serves as a source for public water supplies to possible contaminants. CAS employs a groundwater age dating technique (tritium-helium analysis) and low-level detection (microgram/liter range) of volatile organic compounds (VOCs) to assess aquifer susceptibility. A fundamental premise of the CAS assessment is that groundwater age can be used as a guide for assessing aquifer susceptibility, i.e., young groundwater age implies relatively rapid recharge of surface water to the aquifer, and therefore potentially rapid migration of surface contaminants to the aquifer. Low-level VOC detection is used to corroborate age-dating data and to also identify public supply wells that are already impacted by contaminants, but are still below action levels. This provides an "early warning system" for potentially significant VOC contamination.

In coordination with the USGS and Lawrence Livermore National Laboratory (LLNL), the CAS assessment is designed to sample the approximately 16,000 public supply wells statewide, beginning with more urbanized areas. Sampling began in September 2000 and will continue for the next several years over the entire state, depending on the availability of funding. General constituents sampled by the USGS and LLNL for low-level VOC analysis are available at the State Board website (http://www.swrcb.ca.gov). Additional constituents may be chosen based upon specific site or land-use conditions.

Groundwater quality, age-dating, and hydrogeologic data collected as part of the CAS assessment are managed utilizing the Geographical and Environmental Information Management System (GEIMS)/GeoTracker system, an internet-accessible geographic information system (GIS) that provides access to water quality data. GeoTracker can be found at http://geotracker.swrcb.ca.gov/.

V.A.4.b. Voluntary Domestic Well Assessment

The Voluntary Domestic Well Assessment Program consists of sampling domestic wells for various constituents that may be found in domestic well water, including nitrates, total and fecal coliform bacteria, Methyl tert-Butyl Ether (MTBE), and various minerals. This information is provided to domestic well owners and groundwater agencies. The Voluntary Domestic Well Assessment Program focuses on specific areas, as resources permit and are chosen based upon existing knowledge of water quality and land use, in coordination with local environmental agencies. The State Board incurs the costs of sampling and analysis.

V.A.5. Groundwater Quality Monitoring Act of 2001

Assembly Bill 599 (AB 599), effective January 1, 2002, established the Groundwater Quality Monitoring Act of 2001 (sections 10780-10782.3 of

the California Water Code). The Act requires the State Board to integrate existing monitoring programs with new program elements, as necessary, for the purpose of establishing a comprehensive groundwater monitoring program capable of assessing each groundwater basin in the state, either through direct or other statistically reliable sampling approaches. A second fundamental component of this Act is to increase the availability of water quality data and information to the public.

AB 599 requires the State Board to create an Interagency Task Force (ITF) to identify actions necessary to establish a groundwater-quality monitoring program, and to identify measures that would increase coordination among agencies that collect groundwater quality information. In addition, the State Board is also to convene a Public Advisory Committee (PAC) to the ITF. The AB 599 PAC is to consist of representatives from federal agencies, public water systems, environmental organizations, local water agencies, agriculture, groundwater management entities, and the business community. In coordination with the ITF and the PAC, the State Board must submit to the Governor and the Legislature, on or before March 1, 2003, a report that includes a description of a comprehensive groundwater-quality monitoring program for the State.

V.B. Regional Monitoring Programs

V.B.1 Central Coast Ambient Monitoring Program

In 1998, the Central Coast Ambient Monitoring Program (CCAMP) was formally established by the Regional Board to provide integrated and systematic information on surface water quality in the Region, in order to evaluate the effectiveness of Regional Board efforts to meet Basin Plan water quality objectives and protect beneficial uses. CCAMP's general program objectives are to:

1) Acquire and evaluate existing monitoring data and other information, from agencies, volunteer programs, and other sources.
2) Collect ambient monitoring data for the Region's watersheds, coastal confluences, and nearshore areas.
3) Conduct periodic detailed assessments of the Region's watersheds, groundwater basins, coastal confluences, and nearshore areas.
4) Utilize monitoring data and other information to maintain and update the Region's Water Quality Assessments and list of impaired waterbodies and beneficial uses.
5) Provide information presentations through the use of geographic information systems technology and other forms of graphic visualization.
6) Provide data and information dissemination services through the Internet.
7) Conduct periodic assessments of other programs' activities to eliminate gaps, overlaps, and duplications of effort, and utilize external information whenever possible as a component of the Ambient Monitoring Program.
8) Work with other monitoring programs, including volunteer programs, to develop consistent monitoring protocols and methods, quality control standards, data management procedures, and to encourage efforts consistent with regionwide monitoring goals.
9) Coordinate data management activities with other programs to maximize accessibility and usability of data.

The CCAMP monitoring strategy calls for dividing the Region into five watershed rotation areas and conducting synoptic, tributary-based sampling each year in one of the areas. Over a five-year period, each of the major Hydrologic Units in the Region are monitored and evaluated. In addition to the tributary-based site selection approach, additional monitoring sites are established in each rotation area to provide focused attention on watersheds and waterbodies known to have water quality impairments or other issues of interest.

The CCAMP strategy for establishing and maintaining permanent long-term monitoring sites provides a framework for trend analysis and detection of emergent water quality problems. CCAMP uses a variety of monitoring approaches to characterize water quality conditions and trends in coastal watersheds, including:

- Rapid bioassessment using benthic invertebrates
- Conventional water quality analysis
- Analysis of tissue, water, and sediment for organic chemicals and metals
- Toxicity evaluations
- Habitat assessments

To develop a broad picture of the overall health of waters in the Region, a similar baseline monitoring study design is applied in each rotation area. This provides for compatibility across the Region and allows for prioritization of problems across a relatively large spatial scale. The CCAMP strategy also allows for incorporation of watershed-specific knowledge so

that questions which are narrower in focus can be addressed. For example, in watersheds where TMDL assessments are being conducted, additional information is collected as necessary to support development of the analysis. Special studies are undertaken as funding and staffing permits to further focus monitoring on questions of interest specific to individual watersheds.

Coastal Confluences monitoring is another CCAMP program component that focuses on monitoring "integrator sites" at the lower ends of rivers and creeks at their outflow to the ocean. Sampling at these sites is conducted continuously, rather than in a five-year rotation. These sites aid in long-term trend detection, regional priority setting, and understanding inputs to the nearshore environment.

CCAMP nearshore monitoring activities are varied. In the Monterey Bay area, CCAMP has worked with ocean dischargers to redesign and combine receiving water monitoring programs to form the Central Coast Long-term Environmental Assessment Network (CCLEAN). This program characterizes loading of organic pollutants, nutrients and pathogen indicators from discharges and river mouths to the ocean. It also documents associated nearshore conditions, including chemical concentrations in mussel tissue, and nearshore nutrient and toxic phytoplankton concentrations. The CCAMP program directs funding and other support to other marine monitoring activities, including sand crab, mussel, and sea otter tissue analysis for organic chemicals, polynuclear aromatic hydrocarbons, metals, toxic phytoplankton and specific pathogens. CCAMP staff are also working with the local research community to expand the network of instrumented moorings in nearshore areas, with particular focus on nitrate, chlorophyll, and toxic phytoplankton.

More information on the CCAMP program can be found at http://www.swrcb.ca.gov/rwqcb3/. The CCAMP program is conducted in coordination with the TSM and SMW monitoring programs, and satisfies Regional Board requirements for participation in the statewide SWAMP program.

V.C. Assessments

V.C.1. State Water Quality Inventory (305(b)) Report

Pursuant to Section 305(b) of the Federal Clean Water Act (PL 92-500), the State Board is required to submit a report on the status of the State's water quality to the USEPA at least every two years. The CWA establishes a process for States to use to develop information on the quality of their water resources (see USEPA 305(b) reporting guidelines). Specific requirements for this process are also found in Sections 106(e), 204(a), 303(d), and 314(a) of the CWA. Section 305(b) of the CWA specifies that each state must develop a program to monitor the quality of its surface waters and prepare a report describing the status of its water quality; Section 106(e) requests, but does not require, that each state also include the status of ground waters of the state in the report.

The 305(b) process is the principal means by which the USEPA, Congress, and the public evaluate: 1) whether U.S. waters meet water quality standards; 2) progress made in maintaining and restoring water quality; and 3) the extent of remaining problems. Water quality assessment information from California's nine Regional Boards is compiled and presented in conformance with USEPAs 305(b) reporting guidelines through tabulation of the general water quality of waters of the State during the preceding years, including a summary of current designated use support, individual beneficial use support, major causes and sources impacting designated beneficial uses, and associated public health concerns. The Report also contains a brief description of water pollution control policies and programs designed to manage water quality.

Assessment information used for compiling and reporting the 305(b) report is contained in the State's Geospatial Waterbody System (GeoWBS) database, structured for the purpose of producing the 305(b) Report.

V.C.2. State Water Quality Assessment Report

The Water Quality Assessment (WQA) report is a biennial compilation of water quality information similar to the biennial Water Quality Inventory (305(b)) report; however, the WQA report contains specific information for individual water bodies of the region rather than generalized summaries for water-body types of the region. Specifically, the WQA categorizes the water quality of each water body by reporting the degree to which beneficial uses are supported (see Basin Plan Chapter 2 for beneficial uses). The levels of beneficial use support are described as: fully supporting, fully supporting but threatened, partially supporting, not supporting, and not assessed. In addition to a description of the level of beneficial use support for each water body, the WQA contains narrative assessment (comments) for selected water bodies of the Region and identifies

water bodies included on the Federal 303(d) "list" (numbers refer to sections of the Clean Water Act). The 303(d) list is a list of impaired waters where objectives or goals of the Clean Water Act are not attainable through standard regulatory controls. States are required to prioritize these water bodies for Total Maximum Daily Load (TMDL) development.

As with the 305(b) report, the information used by Regional Board staff in compiling and revising the WQA includes the type of monitoring data discussed in this chapter, records of past Regional Board enforcement actions, professional judgment of Regional Board scientists and engineers, and public comment. WQA information is stored in the GeoWBS database system,

V.C.3. Clean Water Act Section 303(d) List of Impaired Waters

Section 303(d) of the Federal Clean Water Act requires states to identify waterbodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the USEPA every two years. In addition to identifying the waterbodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment, and establishes a schedule for developing a control plan to address the impairment.

To develop the list of impaired waters, Regional Board staff relies on data and information collected in the Central Coast Ambient Monitoring Program and other State monitoring programs, along with data and information available from local government or citizen organizations. Staff consider the quality, quantity, timing, and location of data and information for each specified waterbody and the pollutant or stressor potentially causing impairment in that waterbody. Typically, staff compares the levels of the pollutant or stressor to established legal water quality limits (e.g., water quality objectives or other criteria indicating acceptable water quality conditions).

If a waterbody is found to be impaired for a particular pollutant or stressor, it is placed on the list. Once a waterbody and associated stressor pollutant are placed on the list, specific and focused monitoring and assessment efforts are conducted to more fully characterize the nature of the impairment, including identification of the pollutant source(s), and to develop solutions to address the impairment.

V.C.4. Central Coast Ambient Monitoring Program Assessments

Water quality data collected in the CCAMP program is compiled and analyzed to produce watershed assessment reports for the Region. Reports are generated for both surface waters and groundwaters in each watershed, following the CCAMP 5-year rotation monitoring schedule discussed above.

V.C.4.a. Surface water assessments

Surface water assessments are developed using data collected through the CCAMP program and other available information sources, including water quality data from the California Department of Health Services (DHS), United States Geological Survey (USGS), Department of Fish and Game (DFG), Department of Pesticide Regulation (DPR), Toxic Substance Monitoring (TSM) program, National Pollutant Discharge Elimination System (NPDES) discharge data, county data, city data, relevant water quality reports, and any other available literature. Water quality data is also combined with hydrogeomorphic data, land use data, etc., to develop watershed scale assessments, which are, in turn, used to update the 305(b) report and support TMDL development.

V.C.4.b. Groundwater assessments

CCAMP does not actively collect groundwater data, but uses existing sources of data and other available water quality information to develop assessments of groundwater conditions. Data and other information are compiled from the DHS, USGS, California Department of Water Resources (DWR), DPR, and city or county information sources.

Data for both surface and groundwater assessments are evaluated for pollutants of concern, water quality standards exceedances, pollutant levels that warrant attention, beneficial use impairment, spatial and temporal trends, data gaps, and other pertinent information. General evaluations of relationships between surface water and groundwater pollutants are also included in the assessments. Assessment information is then used to develop recommendations for action, to assess future research and monitoring needs, to update the 305(b) report and support TMDL development, and to support permit review activities.

Watershed assessment reports and associated water quality data are available at the CCAMP website (see http://www.swrcb.ca.gov/rwqcb3/ and click on CCAMP).

V.D. Other Monitoring and Assessment Activities

Nonpoint source investigations are conducted to (a) identify the location and nature of sources of nonpoint pollutants; (b) develop information on the quantity, strength, character, and variability of nonpoint source pollutants; (c) evaluate impacts on receiving water quality and biota; (d) provide information useful in management of nonpoint source pollution; and (e) monitor results of any control plan. Investigations are typically undertaken through local agency and watershed group efforts, funded by Federal Clean Water Act grants and other sources.

Special studies and intensive monitoring surveys are conducted to obtain detailed information about a specific water quality problem which, in turn, can be used to evaluate violations of receiving water standards. These studies usually involve localized, intermittent sampling at a higher than normal frequency. These surveys are specially designed to evaluate problems in impaired waterbodies, Water Quality Protection Areas (formerly known as Areas of Special Biological Significance) or hydrologic units requiring sampling in addition to routine monitoring programs. Results from these special studies may be used for addressing impairments identified on the 303(d) List, including Total Maximum Daily Load development, Water Quality Assessment and 305(b) Report updates, and other waterbody assessment activities.

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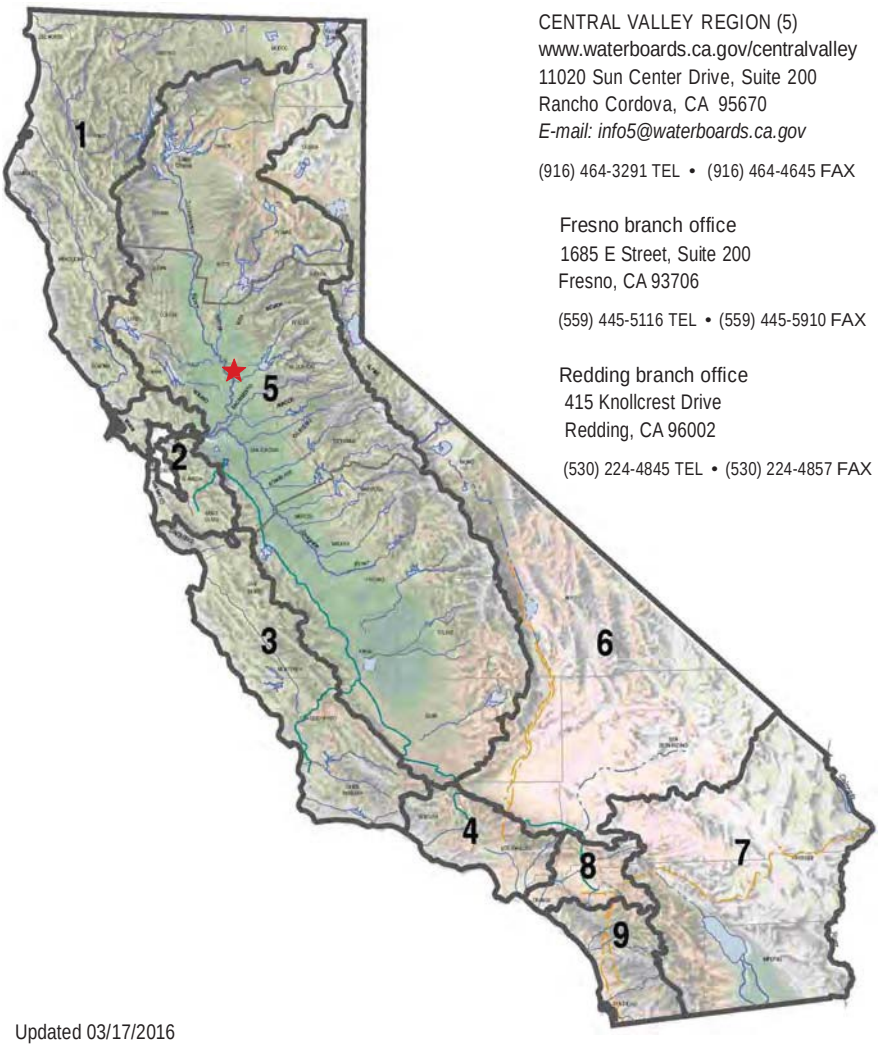

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