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CHAPTER 4: IMPLEMENTATION PLANS (*continued*)

4.14 URBAN RUNOFF MANAGEMENT

During periods of rain, water flushes sediment and pollutants from urbanized parts of the Estuary ([Figure 4-3](#)) into storm drain systems. These drains discharge directly to surface waters within the region, except in San Francisco where stormwater is mixed with sewage and directed to the treatment plant.

Urban runoff contributes significant quantities of total suspended solids, heavy metals, petroleum hydrocarbons, and other pollutants to the waters of the region. The impacts of pollutants in urban runoff on aquatic systems are many and varied. For example, small soil particles washed into streams can smother spawning grounds and marsh habitat. Lead and petroleum hydrocarbons washed off from roadways and parking lots may cause toxic responses in aquatic life and exemplify another kind of threat. The US EPA found levels of cadmium, copper, lead, and zinc in urban runoff exceeded freshwater acute aquatic life criteria in 9 to 50 percent of samples taken across the country. The chronic criteria for these metals, beryllium, cyanide, mercury, and silver were exceeded in at least 10 percent of the samples. In the San Francisco Bay Region, the Association of Bay Area Governments (ABAG) has found consistently high levels of hydrocarbons in urban runoff.

The Water Board's urban runoff management program focuses on reducing pollutant transport through stormwater drain systems into surface waters. In general, measures that will effectively limit storm drain pollutant discharge will also limit direct runoff of pollutants into creeks, streams, and lakes.

The program is structured around the municipalities and local agencies responsible for maintaining storm drain systems, and three classes of activities that are responsible for significant amounts of pollutant influx to those public storm drain systems: highways under the jurisdiction of the California Department of Transportation (Caltrans), industrial activities, and construction on areas larger than 5 acres.

Within each of these program areas, the Water Board's urban runoff management approach emphasizes general, long-term planning to avoid any increases in pollutant loading, and more structured, intensive approaches when existing water quality

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problems require immediate action.

A large part of the Water Board's work in managing urban runoff involves supporting local planning and investigation. The program includes:

- Organizing local ad hoc task forces within each hydrologic sub-region (see [maps in Chapter 2](#)) to facilitate investigations and design of appropriate control strategies. These task forces include representatives from local government, point source dischargers, local industries, the Water Board, and U.S. EPA.
- Developing cooperative investigation and control strategies utilizing the expertise and resources of point source dischargers in each of the receiving water segments.
- Supporting research by the San Francisco Estuary Institute, ABAG, U.S. EPA, and others entities to better define the impacts of urban runoff discharges.
- Participating on the State Water Board Stormwater Quality Task Force and the development and implementation of a statewide urban stormwater best management practices manual.
- Working with other agencies such as the Bay Area Air Quality Management District and the Metropolitan Transportation Commission to ensure that transportation related strategies and plans will reduce the impact on receiving waters from transportation system runoff discharges.

4.14.1 MANAGEMENT OF POLLUTANT DISCHARGE FROM STORM DRAINS

The Water Board's strategy for managing pollutants and sediment in urban runoff entering and being discharged public storm drain systems is two-tiered. All cities and counties are encouraged to develop and implement voluntary programs aimed at pollution prevention throughout the region (Baseline Control Program). Selected cities and counties, by virtue of the amount of pollutants being discharged from their storm drain system, impact of those discharges on receiving waters, or population, are required to develop pollution prevention programs and take steps to reduce runoff into drain systems (Comprehensive Control Program).

The first major step in addressing pollutant loading to public storm drains was to compile basic information on existing systems. A Board survey of local agencies owning or responsible for storm drain systems and flood control agencies had limited and often dated information on the storm drain systems that they own or manage. In addition, flow and water quality data for storm drain system discharge were virtually nonexistent. The survey also found that current management of storm drain systems is primarily focused on flood control, with storm drainage inlets, lines, and catch basins scheduled for cleaning annually or on an as-needed basis for flood prevention purposes.

4.14.1.1 BASELINE CONTROL PROGRAM

All local agencies, including special districts, in the cities and

counties in the region (see [Table 4-10](#)) that own or have maintenance responsibility for storm drain systems should develop and implement a baseline control program.

The goal of the baseline control programs is to prevent any increase in pollutants entering these systems. To a large extent, this goal can be achieved by including consideration of pollutant runoff into storm drain systems in the course of local planning efforts and encouraging "good practice" techniques.

Components of baseline control programs should include: review and update of operation and maintenance programs for storm drain systems; development and adoption of ordinances or other planning procedures (such as CEQA review) to avoid and control pollutant and sediment loading to runoff as part of the normal design and construction of new and significant redevelopment (both during construction and after construction is completed); and education measures to inform the public, commercial entities, and industries on the proper use and disposal of materials and waste and correct practices of urban runoff control. Baseline control programs should also include surveillance, monitoring, and enforcement activities to ensure and document implementation.

Similarly, flood control agencies should consider the impact of their projects on receiving waters. Flood management projects, facilities, or operations should be designed, operated, and maintained to reduce the amount of pollutants in stormwater discharges as well as achieving flood control objectives.

The Water Board will support and encourage the development and implementation of baseline control programs in cooperation with cities and counties. Board staff may provide technical guidance and support, facilitate ad-hoc working groups including people with expertise and experience in POTW pollution prevention programs and local hazardous waste management, and participate in development of model ordinances.

The programs should be coordinated with POTW and industrial pollution prevention programs and local hazardous materials management programs.

In addition, the Water Board will focus its surveillance, monitoring, and enforcement activities on and review Environmental Impact Reports on new development and significant redevelopment and focus its surveillance, monitoring, and enforcement activities to support implementation of effective baseline control programs. The effectiveness of a municipality's baseline control program will also be considered when issuing NPDES permits for construction activities pursuant to the Water Board's [Construction Activity Control Program](#).

The Water Board requires the local agencies, special districts, and municipalities listed in [Table 4-10](#) to submit annual reports (pursuant to [Section 13225\(c\) of the California Water Code](#)) describing their baseline control programs. These reports are due on September 1 of each year and should describe:

- Operation and maintenance activities associated with the storm drain system;
- Master planning procedures and documentation of activities associated with control;

- A list of all new development and significant redevelopment projects with documentation that urban runoff control measures have been required and are being implemented;
- Documentation of educational measures;
- Documentation of surveillance, monitoring, and enforcement activities; and
- A qualitative evaluation of program effectiveness, including, but not limited to, program accomplishments, funds expended, staff hours utilized, an overall evaluation, and plans for the upcoming year.

To the extent that voluntary implementation of baseline control programs is not realized, the Water Board will act, where necessary, to require individual local agencies to investigate specific runoff discharges, quantify pollutant loads, and identify and implement control strategies for pollutant runoff into storm drains. Where necessary, require individual local agencies to file a Report of Waste Discharge or NPDES permit application for the implementation of baseline control programs.

Cities and counties should review and revise their planning procedures and develop or revise comprehensive master plans to assure that increases in pollutant loading associated with newly developed and significantly redeveloped areas are, to the maximum extent practicable, limited. Areas that are in the process of development, or redevelopment offer the greatest potential for utilizing the full range of structural and non-structural control measures to limit increases in pollutant loads. Comprehensive planning must be used to incorporate these measures in the process of developing. Cities and counties should fully utilize their authority under CEQA to assure implementation of control measures at all proposed development and significant redevelopment projects.

4.14.1.2 COMPREHENSIVE CONTROL PROGRAM

The goal of the Water Board's comprehensive control program is to remediate existing water quality problems and prevent new problems associated with urban runoff. To achieve this, the program focuses on reducing current levels of pollutant loading to storm drains to the maximum extent practicable. The Water Board's comprehensive program is designed to be consistent with federal regulations ([40 CFR 122-124](#)) and is implemented by issuing NPDES permits to owners and operators of large storm drain systems and systems discharging significant amounts of pollutants. The conditions of each NPDES stormwater permit require that entities responsible for the systems develop and implement comprehensive control programs.

The regulations authorize the issuance of system-wide or jurisdiction-wide permits and they effectively prohibit non-stormwater discharges to storm drains. They also require listed municipalities to implement control measures to reduce pollutants in urban stormwater runoff discharges to the maximum extent practicable. The Water Board will, where necessary, require stormwater discharge permits for discharges not cited in the regulations which are a significant contributor of pollutants to waters of the region.

The comprehensive urban runoff control program includes all

elements of the baseline control program designed to prevent increases in pollutant loading. To reduce current pollutant loading to the maximum extent practicable, the program also includes:

- Characterization of urban runoff discharges to the extent necessary to support program development;
- Elimination of illicit connections and illegal dumping into storm drains;
- Development and implementation of measures to reduce pollutant runoff associated with the application of pesticides, herbicides, and fertilizer;
- Development and implementation of measures to operate and maintain public highways in a manner that reduces pollutants in runoff; and
- Effective pollution reduction measures may include educational activities such as painting signs on storm drain inlets and regulation of activities such as application of pesticides in public right-of-ways.

Each NPDES stormwater permit issued by the Water Board will require an annual report evaluating the effectiveness of its comprehensive urban runoff control program. At a minimum, quantitative monitoring, a detailed accounting of program accomplishments (including funds expended and staff hours utilized), an overall evaluation of the program, and plans and schedules for the upcoming year shall be used to assess effectiveness.

The Water Board's urban runoff control program is still relatively new. [Table 4-10](#) lists the entities in each area that have implemented comprehensive control programs. In addition, there is a need to develop and implement similar programs in the urban and rapidly developing areas of Solano County and the cities of San Rafael, Novato, Petaluma, Napa, and Benicia, and the Ports of Oakland, Richmond, and San Francisco. Urban runoff discharges from these areas are considered significant sources of pollutants to waters of the region and may be causing or threatening to cause violation of water quality objectives. The Water Board intends to consider similar action for these at a later time. The City and County of San Francisco is not permitted under the storm water program because it has a combined (sanitary and storm) sewer system operating in accordance with existing NPDES permits.

The Water Board will conduct surveillance activities and provide overall direction to verify and oversee implementation of urban runoff control programs. Technical guidance for prevention activities, the identification, assignment, and implementation of control measures, and monitoring will be developed.

4.14.2 HIGHWAY RUNOFF CONTROL PROGRAM

An essential component of reducing pollutant loading to storm drain systems involves managing runoff from public roads. While many roads fall under the jurisdiction of entities responsible for storm drain systems, public highways are controlled by the California Department of Transportation (Caltrans). In order to ensure that all public highways are maintained to reduce pollutant runoff, the Water Board issued a stormwater NPDES permit to Caltrans in August, 1994. The permit requires implementation of

a highway Stormwater Management Plan which addresses the design, construction, and maintenance of highway facilities relative to reducing pollutant runoff discharges to the maximum extent practicable.

The highway runoff management plan shall include litter control, management of pesticide/herbicide use, reducing direct discharges, reducing runoff velocity, grassed channels, curb elimination, catch basin maintenance, appropriate street cleaning, establishing and maintaining vegetation, infiltration practices, and detention/retention practices. In addition, the plan must include monitoring the effectiveness of control measures, runoff water quality, and pollutant loads. When possible, Caltrans is expected to coordinate with existing agencies and programs related to the reduction of pollutants in highway runoff.

4.14.3 INDUSTRIAL ACTIVITY CONTROL PROGRAM

Industrial stormwater sources are subject to best available technology (BAT) economically-based standards. Federal regulations require stormwater permits for any site where industrial activity takes place (or has in the past), and materials are exposed to stormwater. The definitions of industrial activities subject to these permits (provisions of [Title 40 Code of Federal Regulation, Part 122.26](#), revised December 18, 1992) are incorporated by reference into this plan. This incorporation by reference is prospective including future changes as they take effect. The Water Board will require an NPDES permit for the discharge of stormwater from all industrial facilities where such activities occur. These permits apply to the discharge from any system used to collect and convey stormwater at industrial sites. These sites include, but are not limited to, industrial plant yards, access roads and rail lines, material and refuse handling areas, storage areas (including tank farms) and areas where significant amounts of materials remain from past activity. Permits are issued both to privately and publicly (federal, state, and municipal) owned facilities.

The Water Board's permitting strategy for industrial facilities is based on a four-tier set of priorities for issuing permits. At a minimum, all permits will require compliance with all local agency requirements. General permits for industrial facilities will not be less stringent than individual permits.

4.14.3.1 TIER I: GENERAL PERMITTING

The majority of stormwater discharges associated with industrial activity in the region will be covered under a general permit issued by the State Water Board in November, 1991.

4.14.3.2 TIER II: SPECIFIC WATERSHED PERMITTING

In some watersheds, water quality has been impacted by stormwater discharges from facilities associated with industrial activity. Facilities within these watersheds will be targeted for individual stormwater permits or regulation under watershed-specific general permits. The Water Board issued a general permit for industrial activity in the portion of Santa Clara County that drains to South San Francisco Bay to support the county's comprehensive control program and will consider a similar general permit for Alameda County at a later time.

4.14.3.3 TIER III: INDUSTRY-SPECIFIC PERMITTING

Specific industrial categories will be targeted for individual or industry-specific general permits. For example, the Water Board issued a general permit for storm water discharges from boatyards in August 1992. The use of general permits is intended to alleviate the administrative burden of issuing storm water permit for individual industrial facilities. In some cases, such as large U.S. Department of Defense facilities, individual sites or classes of sites may be significant sources of pollutants, and individual permit(s) specific to these classes of sites are warranted.

The Water Board considers stormwater discharges from automotive operations, including gas stations, auto repair shops, auto body shops, dealerships, and mobile fleet-washing businesses to be significant sources of pollutants to waters in the region. Local agencies implementing comprehensive control programs are addressing these discharges through ordinances as part of their comprehensive control programs. The effectiveness of local measures will be assessed before the Water Board considers permitting these under a separate industrial permit.

4.14.3.4 TIER IV: FACILITY-SPECIFIC PERMITTING

A variety of factors will be used to target specific facilities for individual permits, such as amount and characteristics of runoff, size of facility, and contribution to existing water quality problems. Permitted individual facilities will be required to identify "hot areas" where runoff may contact pollutants; activities that may release pollutants to runoff; segregate stormwater discharges from the "hot areas;" and identify and implement control measures for "hot areas." In addition, permittees will be required to eliminate all non-stormwater discharges to storm drain systems unless authorized by an NPDES permit or determined not to be a source of pollutants requiring an NPDES permit.

4.14.4 CONSTRUCTION ACTIVITY CONTROL PROGRAM

The Water Board will require an NPDES permit for the discharge of stormwater from construction activities involving disturbance of five acres or greater total land area or are part of a larger common plan of development that disturbs greater than five acres of total land area. The majority of construction activity discharges in the region will be permitted under a general permit issued by the State Water Board in 1992. Permit conditions address pollutant and waste discharges occurring during construction activities and the discharge of pollutants in runoff after construction is completed. Permit conditions are consistent with the Water Board's [erosion and sediment control policy \(Resolution No. 80-5\)](#) and consistent with local agency ordinance and regulatory programs. The intent of the permit is not to supersede local programs, but rather to complement local requirements. This will require local agencies to effectively address construction activities through their early planning, CEQA processes, and implementation of development control measures as part of their baseline or comprehensive control programs.

4.15 AGRICULTURAL WASTEWATER MANAGEMENT

Agricultural wastewaters and the effect of agricultural operations must be considered in terms of land use practices and controls developed in the agricultural element of land use plans. The activities of primary importance to water quality in this basin are animal confinement and irrigation practices. Agricultural pesticide use and limits on fertilizer application are not specifically considered because of the limited applicability in this region.

4.15.1 ANIMAL CONFINEMENT OPERATIONS

Animal confinement operations such as kennels, horse stables, poultry ranches, and dairies, raise or shelter animals in high densities. Wastes from such facilities can contain significant amounts of pathogens, oxygen-depleting organic matter, nitrogen compounds, and other suspended and dissolved solids. In addition, erosion is also a common problem associated with these facilities. Runoff of storm or wash water can carry waste and sediment and degrade receiving surface waters. Groundwaters can also be degraded when water containing these wastes percolates into aquifers. The risk of water quality degradation increases during the rainy season when animal waste containment and treatment ponds are often overloaded.

Minimum design and management standards for the protection of water quality from confined animal operations are promulgated in [Title 23, California Code of Regulations, Chapter 15, Article 6](#). These regulations prohibit the discharge of facility wash water, animal wastes, and stormwater runoff from animal confinement areas into waters of the state. They also specify minimum design and waste management standards including:

- >> Collection of all wastewaters;
- >> Retention of water within manured areas during a 25-year, 24 hour storm;
- >> Use of paving or impermeable soils in manure storage areas; and
- >> Application of manures and wastewaters on land at reasonable rates.

The Water Board has the authority to enforce these regulations through Waste Discharge Requirements.

Facilities such as the dairies located in Marin and Sonoma counties and horse boarding stables are typical of animal confinement operations within the region.

4.15.1.1 DAIRY WASTE MANAGEMENT

Much of the land within the Tomales Bay, Petaluma River, Napa, and Sonoma Valley watersheds is used for agricultural purposes. Within these watersheds, a significant number of livestock are housed and grazed.

Animal waste can cause water quality problems through runoff into surface and groundwaters of the state. Stockpiled manure, washwater, and stormwater runoff from corrals, pens, and other animal confinement areas are potential sources of water pollution due to their high bacteria levels (the coliform group used as

indicators), ammonia, nitrate and suspended solids. Detergents, disinfectants, and other biocides commonly used may also contribute to the toxicity of animal wastes. These constituents can be extremely deleterious to fish and other forms of aquatic life. High bacterial levels have had an adverse impact on shellfish resources in the region (i.e., commercial shellfish harvesting in Tomales Bay).

Problems facing the dairy industry include manure containment during the rainy season, appropriate manure dispersal on pasture land, and implementation of range management practices aimed at water quality protection. The availability of ample farm and pastureland is therefore extremely important in managing animal waste.

Since the 1970s, the cooperative relationship between the Water Board and the dairy industry has been an important aspect of dairy waste control. That relationship has been instrumental in the construction of dairy waste handling, treatment, and disposal facilities in the late 1970s. However, proper waste control management is just as important as the physical facility. Management techniques include routing wash water and drainage to impervious holding and storage areas, constructing manure storage areas controlling both subsurface infiltration and runoff, stormwater overflow protection for retention basins, and applying manures and wastewater on land at reasonable rates for maximum plant uptake of nitrogen.

Poor practices that have led to water quality problems in the past include: inadequate maintenance and operation of facilities; overloading treatment and storage facilities; increase of herd size without commensurate additions to waste handling facilities; poor range management practices; and simple neglect of seasonal waste management responsibilities.

4.15.1.2 DAIRY WASTE REGULATION

Both the regulation and the support services for the dairy industry involve several federal, state, and local agencies. Each has its particular role and mission, but all share the goal of protecting the beneficial uses of state waters while assisting dairies in complying with regulations while conducting their day-to-day business. The following agencies play a direct role in dairy waste management and regulation:

REGULATORY

- >> California Regional Water Quality Control Board
- >> California Department of Fish and Game

SUPPORT SERVICES

- >> Agricultural Stabilization and Conservation Services
- >> U.S. Department of Agriculture — Soil Conservation Service
- >> University of California Cooperative Extension Farm Advisor
- >> County Farm Bureaus
- >> Resource Conservation Districts

To address dairy waste management concerns, dairy operators in Marin and Sonoma Counties have formed a Dairy Waste Committee. The Dairy Waste Committee supports dairy operators in their efforts to solve waste control problems and locate technical and financial assistance. The Committee serves as a vehicle through which the Water Boards and California Department of Fish and Game can disseminate information on water quality regulations and requirements. This committee does and will continue to play an important role in any successful waste control program.

Additionally, the Southern Sonoma and Marin County Resource Conservation Districts (RCDs) have a cooperative, voluntary program in which a farmer agrees to use the land within its capabilities, develop a conservation plan, and apply conservation practices to meet objectives and technical standards of the RCDs. In turn, the RCD agrees to furnish the farmer with information and technical assistance in order to carry out the conservation plan.

WATER BOARD PROGRAM

PERMITTING/WAIVER OF PERMITS

Generally, discharges are subject to Waste Discharge Requirements (WDRs) issued by the Water Board. However, the Water Board may waive WDRs where such a waiver is not against the public interest and still assures the protection of beneficial uses of state waters. For the present, the Water Board has been waiving WDRs for dairies where proper waste control facilities are in place and management practices are in conformance with the [California Code of Regulations - Title 23, Article 3, Chapter 15 \(Discharge of Waste to Land\)](#).

CONTINUING WASTE CONTROL PLANNING

In 1990, the State Water Board established a Dairy Waste Task Force to look at the dairy industry statewide and develop standards for dairy regulation. The main emphasis has been on developing better communication and guidance materials for the industry; developing a dairy survey form to help the Water Boards determine if a dairy qualifies for a waiver from WDRs; determining the number and location of dairies; develop more uniform WDRs; and preparing an outreach program aimed at the dairy industry, local government, and the public.

The Water Board directs the Executive Officer to continue the following staff activities:

- Work with the dairy industry through the local dairy waste committees, County Farm Bureaus, RCDs, and other local/state agencies in obtaining cooperative correction of dairy waste problems.
- Recommend adoption of WDRs in those cases where water quality objectives for waters within an agricultural watershed are consistently exceeded, or where corrective action is unsuccessful in eliminating either the short- or long-term water quality problems or threats. The Water Board may choose to take enforcement action through the issuance of a Clean-up and Abatement Order or assess monetary penalties in those cases where dairy practices

have resulted in or threaten to cause a condition of pollution or nuisance in surface waters through the issuance of Administrative Civil Liability or referral to the California Attorney General's Office.

- Monitor the compliance of dairy waste management programs with regional goals and implement the recommendations of the State Dairy Waste Task Force.

4.15.2 IRRIGATION OPERATIONS

An increase in the concentration of soluble salts contained in percolating irrigation water is an unavoidable result of consumptive use of water. Salt management within soils and groundwater is considered separate from water management, but is closely related to drainage control and wastewater operations. For irrigated agriculture to continue in the future, acceptable levels of salts in soils and groundwaters must be controlled.

Maintenance of a favorable salt balance, that being a reasonable balance between the import and export of salts from individual basins, must be considered to control increases in mineral content. This is especially applicable for the Livermore and Santa Clara Valley groundwater basins.

The ultimate consequences of regulatory action for irrigation operations must be carefully assessed. The "no-degradation" concept in connection with salt levels is not appropriate in all circumstances.

A concept of minimal degradation might be considered in some areas. It would need to be coupled with management of the surface and underground water supplies in order to assure acceptable degradation effects. If minimal degradation is considered, it can be offset by either recharge and replenishment of groundwater basins with higher quality water that will furnish dilution to the added salts, or by drainage of degraded waters at a sufficient rate to maintain low salts and salts leaving the basin. To aid recharge and dilution operations, additional winter runoff can be stored in surface reservoirs for subsequent use with either surface stream or groundwater basin quantity/quality management.

4.16 WATER RECYCLING

Per [Water Code Section 13050](#), recycled water means water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource. To date in this Region, disposal of most municipal and industrial wastewater has primarily involved discharges into the Region's watersheds and the Estuary. With growing awareness of the impacts of toxic discharges, drought, future urbanization, and growth on the local aquatic habitat, there is an increasing need to look for other sources of water. Increasingly, conservation and water recycling (formerly referred to as reclamation) will be needed to deal with these long-term water issues. The Water Board recognizes that people of the Region are interested in developing the capacity to conserve and recycle water to supplement existing water supplies, meet future water requirements, and restore the Region's watersheds and Estuary. Disposal of wastewater to inland, estuarine or coastal waters is not considered a

permanent solution where the potential exists for conservation, water recycling, and reuse.

The [Constitution of California, Article X](#), declares that, "...because of the conditions prevailing in the state, the general welfare requires that the water resources of the state be put to beneficial use to the fullest extent to which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare." In other words, when suitable recycled water is available, it should be used to supplement existing water supplies used for agricultural, industrial, municipal, and environmental purposes.

The Water Board also recognizes and supports the concept that water reuse is an essential component for planning future water supply, especially in areas dependent on imported water. This includes projects that use recycled water to increase the local water supply, to improve the salt balance in the groundwater basin, or to reduce the need for wastewater export through recycled water irrigation and groundwater recharge with imported water or with high-quality recycled water. The year-round, dependable recycled water resource may also be appropriate for stream flow augmentation to enhance beneficial uses of streams.

[State Water Board Resolution 77-1](#), adopted in 1977, requires the State and Regional Water Boards to encourage water recycling projects for beneficial use using wastewaters that would otherwise be discharged to marine or brackish receiving waters or evaporation ponds. The resolution also specifies using recycled water to replace or supplement the use of fresh water or better quality water, and to preserve, restore, or enhance in-stream beneficial uses, including fish, wildlife, recreation and aesthetics associated with any surface water or wetlands.

4.16.1 WATER RECYCLING AND REUSE PROGRAM

Before a wastewater producer can obtain an increase in connections and discharge flows under the Water Board's NPDES program, it must demonstrate that a maximum effort has been made to develop and implement a credible and effective water recycling program. This program must be integrated with a source control program (Pretreatment and Pollution Prevention Program ([Section 4.13 Pretreatment and Pollution Prevention](#))) and a water conservation program.

All water recycling projects involve three components: 1) treatment of wastewater to produce water of quality suitable for the intended reuse; 2) distribution, which may also include storage, to convey the treated water to the place(s) of use; and 3) the end use, reuse. The most common types of reuse involve discharges to land for irrigation of landscape plants or crops, but reuse may also include non-discharge uses such as for cooling water or toilet flushing. Each of these components is subject to various design and operational requirements specified in the Water Recycling Criteria (WRC) codified at [Title 22, CCR, Division 4, Chapter 3](#), which were extensively revised and updated by Department of Health Services (DHS) from 1993 to 2001.

The Water Board in conjunction with DHS implements the WRC.

DHS and the State Water Board have entered into a Memorandum of Agreement (MOA) on Use of Reclaimed Water. The intent of the MOA is to insure that there is coordination among DHS, the State Water Board and the Regional Water Boards to implement the recycled water program.

The Water Board is the permitting agency for water recycling projects through issuance of water recycling requirements, also called Water Reuse Requirements (WRRs). The WRRs require a discharger proposing a new water-recycling project to prepare an engineering report describing the project, for review and approval by DHS. The Water Board may then prescribe WRRs for the project based on recommendations from DHS. WRRs include relevant specifications from the WRC and other applicable requirements based on Water Board plans and policies, such as effluent limits and operation, and monitoring and reporting requirements. WRRs may be issued for discrete single-facility reuse projects or for large-scale projects such as municipality-based reuse programs involving multiple types and places of reuse.

In 1996, in order to facilitate water recycling and reuse in the Region, the Water Board adopted the [General Water Reuse Requirements for Municipal Wastewater and Water Agencies, Water Board Order No. 96-011](#) (General Water Reuse Permit). This permit is applicable to producers, distributors, and users of non-potable recycled municipal wastewater throughout the Region. The intent of the General Water Reuse Permit is to streamline the permitting process and delegate, to the fullest extent possible, the responsibility of administering water reuse programs to local agencies. Regulation under the General Water Reuse Permit requires submittal of a Notice of Intent (NOI) to the Water Board and written authorization from the Water Board's Executive Officer.

Under the General Water Reuse Permit, water recycling and reuse have expanded rapidly throughout the Region. It is estimated that twenty wastewater or water distribution agencies in the Region will be operating under the General Water Reuse Permit by 2007.

In 2001, the State Legislature established the California Recycled Water Task Force (Task Force). The mission of the Task Force was to evaluate the current framework of state and local rules, regulations, ordinances, and permits to identify opportunities for and obstacles to the safe use of recycled water in California. The Task Force consisted of representatives from federal, state, and local agencies, private entities, environmental organizations, universities, and public-interest groups. The Task Force identified and adopted recommendations to address obstacles, impediments, and opportunities for California to increase its recycled water usage as described in the report "Water Recycling 2030, Recommendations of California's Recycled Water Task Force."

4.16.2 INTERAGENCY WATER RECYCLING PROGRAM AND COORDINATION

Implementation of water recycling projects requires the involvement, approval, and support of a number of agencies, including state and local health departments, the Water Board, local POTWs and water districts, and land use planning agencies.

Interagency coordination must be a priority of all parties involved in water recycling. Failure to coordinate activities can result in the inability to carry out water recycling projects in a timely, consistent, and cost-effective manner. The Water Board seeks cooperation and participation of professionals from the water recycling industry and the water, health, and regulatory agencies to assure the development of criteria that are both attainable and appropriate. To facilitate inter-/intra-regional recycling projects, interagency coordination is necessary when the wastewater agency produces recycled water outside of an interested water purveyor's service area. Effective communication and cooperation between agencies regarding distribution and service is vital and should begin early in the planning process. This will assure the water purveyor that there will be no duplication of service, enable interagency agreement on project development and implementation, and help avoid any unnecessary delays that could jeopardize a project.

Several regional water-recycling programs have been initiated in the Region to facilitate water reuse in contiguous areas. This has heralded a new way to implement water-recycling projects by focusing agencies toward regional collaboration, irrespective of jurisdictional boundaries. This has the effect of integrating water and wastewater planning to concurrently solve water supply and wastewater discharge problems, and will lead to more efficient water recycling projects by taking advantage of economics of scale. One such program is the South Bay Recycling Program in Santa Clara County. In addition, the North Bay Watershed Association was created, "to help regulated local and regional public agencies work cooperatively on water resource issues that impact areas beyond traditional boundaries in order to promote stewardship of the North Bay Watershed (Marin, Sonoma and Napa Counties)." The coordination and integration of water reuse activities in the North Bay is an important component of the Association's functions.

4.17 MUNICIPAL WASTEWATER SLUDGE MANAGEMENT

One particular type of solid waste is wastewater sludge, a by-product of wastewater treatment. Raw sludge usually contains 93 to 99.5 percent water, with the balance being solids that were present in the wastewater and that were added to or cultured by wastewater treatment processes. Most POTWs treat the sludge prior to ultimate use or disposal. Normally this treatment consists of dewatering and/or digestion. In some cases, such as at the Palo Alto treatment plant, the sludge is incinerated.

Treated and untreated sludges often contain high concentrations of toxic metals and often contain significant amounts of toxic organic pollutants and pathogens. The storage and disposal of municipal sludges on land can result in degradation of ground and surface water if not properly performed. Therefore, sludge handling and disposal must be regulated.

On February 19, 1993, the U.S. EPA promulgated national standards regulating the use or disposal of non-hazardous sewage sludge (40 CFR Part 503, et.seq.). Part 503 regulations primarily affect sewage sludge (also known as "biosolids") use and disposal by incineration, surface disposal, and land application (including distribution and marketing). Part 503 regulations also establish pollutant limits, operational and

maintenance practices, monitoring frequency, recordkeeping, and reporting requirements. The federal definition of sewage sludge includes domestic septage (from septic tanks, cesspool, portable toilet, etc.). Disposal in a municipal solid waste landfill (MSWLF) is not considered surface disposal. Thus, the MSWLF is not regulated by the national sewage sludge program.

The State of California has neither requested nor been granted the delegation of the federal sewage sludge management program at this time. Therefore, U.S. EPA will be responsible for implementation and enforcement of the national rule. Under the rule, facilities that must apply for a permit include the generators, treaters and disposers of sewage sludge. Nevertheless, 40 CFR Part 503 has, for the most part, been written to be self-implementing. This means that anyone who uses or disposes of sewage sludge regulated by 40 CFR Part 503 must comply with all the provisions of the rule, whether or not a permit has been issued.

State regulations of the handling and disposal of sludge are contained in Chapter 15 and DTSC standards for hazardous waste management. Prior to promulgation of the national rule, sewage sludge facilities were regulated by the Water Board through the issuance of site-specific waste discharge requirements. The Water Board may continue to regulate certain sewage sludge facilities when believed to be necessary for the protection of water quality.

4.18 ON-SITE WASTEWATER TREATMENT AND DISPERSAL SYSTEMS

As the population of the Region increases, demand for new development increases. In many cases, new development is within areas served by municipal sewer systems. However development is also occurring in outlying areas not served by existing sewerage agencies. In those instances, new discrete sewerage systems are being proposed. These are primarily onsite wastewater treatment and dispersal systems (onsite systems or septic systems) serving individual homes, but include community systems serving multiple residences. Today there are more than 110,000 onsite systems throughout the Region, and approximately 1,000 new systems are approved each year.

In response to these development pressures, the Water Board adopted a [Policy on Discrete Sewerage Facilities](#) in 1978. The policy set forth the actions the Water Board will take with respect to proposals for individual or community sewerage systems serving new development. An important provision of the policy required the development of guidelines for acceptable onsite system practices. The Water Board's policy and guidelines are presented below.

4.18.1 POLICY ON DISCRETE SEWERAGE FACILITIES

This policy enumerates the following principles, which apply to all wastewater discharges:

- The system must be designed and constructed so as to be capable of preventing pollution or contamination of the waters of the state or creating nuisance for the life of the development;
-

The system must be operated, maintained, and monitored so as to continually prevent pollution or contamination of the waters of the state and the creation of a nuisance;

- The responsibility for both of the above must be clearly and legally assumed by a public entity with the financial and legal capability to assure that the system provides protection to the quality of the waters of the state for the life of the development.

The policy also makes the following requests of city and county governments:

- That the use of new discrete sewerage systems be prohibited where existing community sewerage systems are reasonably available;
- That the use of individual onsite systems for any subdivision of land be prohibited unless the governing body having jurisdiction determines that the use of the systems is in the best public interest and that the existing quality of the waters of the state is maintained consistent with the State Water Board's [Resolution 68-16](#); and
- That the cumulative impacts of individual system discharges be considered as part of the approval process for development.

Finally, the policy also requires that a public entity assume legal authority and responsibility for new community wastewater treatment and dispersal systems. Community systems are defined as collection sewers plus treatment facilities serving multiple discharges under separate ownership. The policy requires local governments, during the development approval process, to consider either the formation of a new government entity or an existing public entity to assume this responsibility.

4.18.2 ONSITE SYSTEM GUIDELINES

Since the early 1960s, the Water Board, pursuant to Section 13296 of the Water Code, adopted waivers for reporting certain septic system discharges in all the Region's counties except San Francisco. In its policy, the Water Board required the development of individual system guidelines concentrating mainly on septic systems. These guidelines provided information on system design and construction, operation and maintenance, and the conduct of cumulative impact studies.

In 1979, the Water Board adopted [Resolution No. 79-5: Minimum Guidelines for the Control of Individual Wastewater Treatment and Disposal Systems \(Minimum Guidelines\)](#). These guidelines include recommended practices for onsite system design, construction, operation and maintenance, and cumulative impact assessments, along with supporting rationale. The guidelines focus on the most common and conventional type of onsite systems, a septic tank followed by gravity-flow discharges into a subsurface soil absorption system, but underlying principles remain applicable to all types of onsite systems.

4.18.3 ALTERNATIVE ON-SITE SYSTEMS

The conventional onsite system, when properly constructed and

operated, has long been a reliable and acceptable method of providing onsite sewage management. However, there are widespread conditions throughout the Region that preclude the use of conventional systems, including high groundwater, shallow or poor quality soil, or steep slopes. In recent years, there has been active interest and research in the development of alternative methods of onsite wastewater management to accommodate these limiting conditions. Alternative methods currently in use include additional treatment prior to soil discharge such as by a sand filter, or improved methods of dispersal into native soil such as by pressurized distribution throughout the soil absorption system, or via an engineered above-grade mound unit.

While alternative methods can afford improved practices, the use of alternative systems is not without limitations. The site and soil conditions that preclude conventional practices remain and must be appropriately addressed, since all onsite systems ultimately rely on soil absorption of all or most of the wastewater generated. Most alternative systems require a high degree of design expertise, which increases the danger of faulty design or installation and complicates the review of various proposals. Furthermore, given that alternative systems are primarily used in areas of existing site or soil limitations, in the event of failure, options for replacement will be few, and corrections difficult to achieve. Finally, most alternative systems require a far more intensive and sophisticated level of management than conventional systems, including inspection, monitoring and maintenance by qualified service providers, and increased regulatory oversight, as well as careful use and operation by the homeowner.

Recognizing the need for a position on alternative systems, the Water Board adopted the following statement in the 1979 Minimum Guidelines:

"The Water Board Executive Officer may authorize the Health Officer to approve alternative systems when all of the following conditions are met:

- a. Where the Health Officer has approved the system pursuant to criteria approved by the Water Board Executive Officer;
- b. Where the Health Officer has informed the Water Board Executive Officer of the proposal to use the alternative system and the finding made in (a) above; and
- c. Where a public entity assumes responsibility of the inspection, monitoring and enforcing the maintenance of the system through:
 - (i) Provision of the commitment and the necessary legal powers to inspect, monitor, and when necessary to abate/repair the system;

and

(ii) Provision of a program for funding to accomplish (i) above."

The fundamental point is that the Water Board will allow the use of alternative systems only if adequate design review, system management, and means for failure correction are assured, and a county or some other public agency assumes ultimate responsibility for these actions.

The Water Board may authorize local agencies to approve and permit alternative on-site systems, provided the local regulatory program is found to be acceptable and in accordance with the Water Board's position on alternative systems discussed above. An acceptable program should include a) siting and design criteria for the types of alternative systems being approved, b) procedures for on-going inspection, monitoring, and evaluation of these systems, and c) appropriate local regulations for implementation and enforcement of the program. Authorization may be granted through a conditional waiver adopted by the Water Board and will typically include a Memorandum of Understanding (MOU) between the Water Board and the local agency. Typically, that agency will be the county environmental health department. The MOU provides a means for identifying the responsibilities of both the Water Board and the local agency, applicable criteria for siting, design, construction, operation, maintenance and monitoring, and procedures for implementing the program.

Alternative onsite system designs proposed for approval in a local agency program should be substantiated by suitable reference materials demonstrating successful performance under site and soil conditions similar to the local conditions, including previous field or research facility testing and documentation of applicable design, installation and use criteria. System designs that have not been fully proven under proposed conditions will be considered experimental and treated with caution. In general, experimental systems will require more careful siting and design review and, if approved, intensive monitoring and inspection to ensure adequate system operation and performance. Experimental systems are generally approved only for limited use, until successful performance has been demonstrated and documented, and acceptable design, installation and use criteria determined.

4.18.4 GRAYWATER SYSTEMS

Graywater systems are a special group of onsite systems that are used to manage only isolated domestic wastewaters that have not come in contact with toilet wastes. In 1997, the California Building Standards Commission approved revised California Graywater Standards. These standards were developed by the California Department of Water Resources (DWR), are codified at [Title 24, CCR, Part 5, Appendix G](#), and apply to all graywater systems statewide.

The standards specify the means by which certain non-toilet wastewaters may be collected, filtered, and discharged into onsite subsurface irrigation systems. Allowable sources of graywater include showers, tubs, bathroom sinks and laundry water.

Discharged graywater may only be used for subsurface landscape irrigation. The standards apply to both residential and commercial buildings.

Cities and counties have authority to develop policies and procedures for the implementation of graywater programs. In developing these, consultation with the Water Board and local water districts can ensure that potential impacts on local water quality are taken into consideration.

4.19 EROSION AND SEDIMENT CONTROL

Current estimates of annual sediment inflow to San Francisco Bay are 5.9 million cubic yards with 3.9 million cubic yards contributed through the Delta and 2.0 million cubic yards from Bay Area tributary streams. By the year 2000, ABAG has estimated that approximately 322,500 acres of land area will be converted to urban use. This is a 73 percent increase above the 1975 urbanized land area. This increase in urbanized land use can be expected to be the future source of much of the sediment that will reach the rivers, streams and channels and ultimately the Bay system each year.

Soil erosion and related water quality impacts may result from a wide variety of causes including construction, hillside cultivation, non-maintained roads, timber harvesting, improper hiking/ biking trail use, and off-road vehicles.

Natural erosion processes are accelerated when existing protective cover is removed before, during, and following construction and agricultural activities. Studies relate that erosion on land where construction activities are taking place is about 10 times greater than on land in cultivated row crops, 200 times greater than on pasture land, and 2,000 times greater than on timber land that has not been logged.

The exposure of the soil mantle to falling rain, overland and channelized flow, and the impact of equipment moving over the site results in the increased movement and loss of soil.

Damage from erosion and sedimentation can be categorized in the following ways:

- >> Damage to construction sites;
- >> Damage to stream channels;
- >> Damage to water quality/beneficial uses;
- >> Damage to public and private property; and
- >> Damage to agricultural lands.

In most cases, the adverse results of human activities can be reduced and in some instances eliminated through the use of both structural and non-structural measures of various types that are properly employed at the appropriate time. The high cost of lost resources, resource replenishment and after-the-fact repair and maintenance make both pre-project erosion control planning and preventive maintenance necessary. The goals of and the program for erosion and sediment control are summarized below.

GOAL

The goal of the Water Board's Erosion and Sediment Control

Program is to reduce and prevent accelerated (human-caused) erosion to the level necessary to restore and protect beneficial uses of receiving waters now significantly impaired, or threatened with impairment, by sediment.

This goal is to be attained through implementation of proper soil management practices. Voluntary implementation is encouraged, but enforcement authority will be exercised where beneficial uses of water are clearly threatened by poor soil management practices.

PROGRAM

In May of 1980, the Water Board adopted two separate items to alert local governments to the Water Board's concern on erosion control problems related to construction activities. The first item was a statement of intent ([Resolution No. 80-5](#)) regarding erosion control which stated that the Water Board:

- Recognizes that water quality problems are associated with construction related activities;
- Recognizes ABAG's progress in developing erosion and sediment control regulatory programs and assistance to local governments to implement these programs;
- Recognizes local governments power to adopt and implement these programs;
- Intends to strengthen its position with regard to regulation of sediment and erosion control problems especially with regard to construction activities; and
- Intends to take appropriate enforcement action pursuant to the California Water Code in cases where land development or other construction activity causes or threatens to cause adverse water quality impacts associated with erosion problems and intends to consider, during enforcement actions, whether local government negligently contributed to the problem due to failure to adopt and/or effectively enforce erosion control programs.

The second item was a memorandum of understanding negotiated with the Council of Bay Area Resource Conservation Districts that is intended to provide the following:

- Assessment, control and monitoring of potential and existing soil erosion related water quality problems;
- Improvement of coordination between the Resource Conservation Districts and the Water Board; and
- Monitoring of local government progress on the adoption and implementation of erosion and sediment control ordinances.

The Water Board has recognized and encouraged the efforts that ABAG has made since mid-1980 in working with local Bay Area governments to improve their ordinance and regulatory programs on erosion and sediment control. ABAG's 1995 [Manual of Standards for Erosion and Sediment Control Measures](#), which provides specific guidance to local governments, is an important tool for improving erosion and sediment control.

The Water Board intends to follow the guidelines listed below in

regulating erosion and sedimentation for the protection of beneficial uses of water.

1. Local units of government with land use planning authority 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 or other activities that might degrade the quality of waters of the state.

2. Best Management Practices (BMPs) should be implemented to reduce erosion and sedimentation and minimize adverse effects on water quality. A BMP is a practice or combination of practices determined to be the most effective and practicable means to prevent or reduce erosion and sediment related water quality degradation. Examples of control measures are contained in the [Manual of Standards for Erosion and Sediment Control Measures](#). Further technical guidance can be obtained from the Resource Conservation Districts.

3. Local governments should develop an effective erosion and sediment control ordinance and regulatory program. An effective ordinance and regulatory program must:

- Be at least comparable to the model ordinances in ABAG's [Manual of Standards for Erosion and Sediment Control Measures](#);
- State that water quality protection is an explicit goal of the ordinance;
- Require preparation of erosion and sediment control plans consistent with the Manual of Standards with specific attention to both off-site and on-site impacts;
- Provide for installation of approved control measures no later than October 15 of each year; and
- Have provisions for site inspections with follow up at appropriate times, posting of financial assurances for implementation of control measures, and an enforcement program to assure compliance with the ordinance.

4. All persons proposing alterations to land (over five acres) are required to file a Report of Waste Discharge and/or and Erosion Control Plan with the Water Board. A statewide general NPDES permit aimed at minimizing erosion from the proposed activities has been issued.

In addition, the Water Board may find that any water quality problems caused by erosion and sedimentation for such a project were due to the negligent lack of an adequate erosion control ordinance and enforcement program by the local permitting agency. Such a finding of negligence could subject a permitting agency to liability for

indemnification to a developer if civil monetary remedies are recovered by the state.

5. The Water Board may take enforcement action pursuant to the California Water Code to require the responsible persons (including local permitting agencies) to clean up and abate water quality problems caused by erosion and sedimentation in the event that the local permitting agency fails to take the necessary corrective action.

4.20 DREDGING AND DISPOSAL OF DREDGED SEDIMENT

4.20.1 BACKGROUND

Dredging and dredged sediment disposal in the San Francisco Bay Area is an ongoing activity because of continual shoaling which impedes navigation and other water dependent activities. Large volumes of sediment are transported in the waters of the Sacramento and San Joaquin Rivers which drain the Central Valley. The average annual sediment load to the San Francisco Bay system from these two rivers is estimated to be eight million cubic yards. Of this amount, some four million cubic yards is transported out of the Bay through the Golden Gate. The remaining four million cubic yards is circulated and/or deposited in the Bay. In addition, some two and one-half million cubic yards are deposited into the Bay from local watersheds. The largest volume of sediment that affects the Bay is the approximately 100 million cubic yards that are re-suspended in the water column by the actions of tide, wind and currents.

Dredging is generally necessary to maintain the beneficial use of navigation. The trend towards increasingly larger vessels also necessitates increased channel depths in the shipping channels.

Disposal of the majority of dredged material from San Francisco Bay has historically been at designated disposal sites in San Francisco Bay. This practice dates back to at least the beginning of the 20th century. Currently there are three such multi-user disposal sites designated by the U.S. Army Corps of Engineers (USACE, or Corps): the Alcatraz (SF-11), San Pablo Bay (SF-10), and Carquinez (SF-9) Disposal Sites. A fourth site (Suisun Bay, SF-16) is maintained for Corps use exclusively for material from dredging of the Suisun Bay and New York Slough federal channels.

Annual maintenance dredging of shipping channels, harbors, and marinas in the San Francisco Bay results in disposal of between two and eight million cubic yards of dredged material at in-bay disposal sites. All designated aquatic dredged material disposal sites are operated as "dispersive" sites, that is, material disposed at the sites is intended to disperse and be carried by currents out to sea. Additionally, one of the management practices is to only allow material to be disposed of at disposal sites downstream of the dredging sites, with the objective of moving sediments away from dredging sites and out of the Bay. While the overall hydrodynamics of the Bay are not completely understood it is clear that the fate of material placed at in-bay disposal sites is dependent upon material type, disposal volume, and disposal frequency.

Since 1994, when the U.S. EPA designated the Deep Ocean Disposal Site approximately 50 miles offshore of San Francisco, approximately 6 million cubic yards of dredged material have been disposed of there.

Dredged material has also been used as fill for wetland restoration projects, for levee maintenance, and as daily cover for landfills. Volumes for these, and other beneficial reuse projects, have totaled approximately 2 million cubic yards over the past 9 years.

4.20.2 REGULATORY FRAMEWORK

The Corps of Engineers issues federal permits for dredging projects pursuant to Section 404 of the [Clean Water Act](#). The U. S. EPA provides oversight of the Corps' regulatory program.

As a part of the Section 404 permitting process, the dredging permit applicant must seek water quality certification from the State of California, in accordance with Section 401 of the Clean Water Act. The Water Board reviews the proposed project, then may grant or deny certification. Additionally, the Water Board may choose to act under the authority of the state [Porter Cologne Water Quality Control Act](#), by issuing waste discharge requirements for the project in conjunction with the water quality certification.

Water quality certifications and waste discharge requirements often contain conditions to protect water resources that the permittee must meet during the term of the permit.

[The San Francisco Bay Conservation and Development Commission \(BCDC\)](#) also regulates dredging and disposal under the provisions of the [McAteer-Petris Act](#).

Projects involving the use of sovereign lands of the state may be subject to the lease or permitting requirements of the State Lands Commission.

4.20.3 LONG-TERM MANAGEMENT STRATEGY

In the early 1980s, the problems associated with heavy reliance on in-Bay disposal sites became apparent, including navigational problems associated with the "mound" of dredged material at the Alcatraz disposal site, as well as potential environmental problems associated with disposal and dredging activities in general. These conditions led to the creation of the Long Term management Strategy for the Placement of Dredged Material in the San Francisco Bay Region (LTMS).

The LTMS program began in 1990, when the Water Board joined with USACE, U. S. EPA, BCDC, the State Board, and representatives from the dredging and environmental communities to ensure adequate dredged material disposal and reuse capacity and protection of aquatic resources over a 50-year planning period. The adopted goals for the program ([Table 4-11](#)) reflect this purpose. The primary focus of the LTMS is on the various dredged material disposal options and their related impacts. The LTMS was also initiated to maximize beneficial reuse of dredged material, improve coordination of the agencies governing these activities, and ensure a more predictable regulatory framework.

The LTMS examined several possible long-term dredged material management strategies. The LTMS Policy Environmental Impact Statement/Programmatic Environmental Impact Report (LTMS EIS/EIR, [Volume I](#), [Volume II-Appendices](#), [Volume III Comments and Responses](#)) selected as the preferred alternative a reduction in the reliance on in-Bay disposal. The ultimate goal of this alternative is a "low" volume of disposal at in-Bay sites (20% of historical average dredging volumes), and an increased reliance on ocean disposal and beneficial reuse of dredged material (with the remaining material split evenly between these two options). The LTMS EIS/EIR was certified by the USACE and U.S. EPA in July 1999 and by the State Board in November 1999, thus beginning the implementation of the preferred alternative.

During the preparation of the LTMS EIS/EIR, the LTMS agencies consulted with the United States Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), and the California Department of Fish and Game (CDFG) regarding potential impacts of dredging and dredged material disposal to sensitive biological resources. These resource agencies, in conjunction with the LTMS agencies, developed a list of restrictions for such projects to protect critical habitat for special status and important commercial and recreational species.

The LTMS EIS/EIR identified the overall future disposal management strategy (i.e. reduced in-Bay disposal volumes at the designated dispersive sites). The LTMS Management Plan contains specific guidance that will be used to implement the preferred alternative by each of the LTMS agencies. The Management Plan will be reviewed and updated every three years to reflect changing statutory, regulatory, technical, or environmental conditions. The Basin Plan dredging policies will be updated, as necessary, in conjunction with Management Plan updates.

4.20.4 ENVIRONMENTAL IMPACTS OF DREDGING AND DISPOSAL IN THE AQUATIC ENVIRONMENT

Most dredging and dredge material disposal operations cause localized and ephemeral impacts with related biological consequences ([Table 4-12](#)). In the 1980s it was determined that the Alcatraz disposal site was accumulating significant amounts of material, with the depth of the site going from the original 110 feet to 30 feet. The mounding at the disposal site ultimately became a threat to navigation. The Corps eventually dredged the Alcatraz site to increase the depth, redistributing the material within the disposal area several times between 1984 and 1986.

In September of 1988, Water Board staff circulated and presented an issue paper entitled "A Review of Issues and Policies Related to Dredge Spoil Disposal in San Francisco Bay." The issue paper discussed the major environmental concerns posed by dredged sediment disposal in San Francisco Bay, namely: (1) mounding at the Alcatraz disposal site which posed a navigational hazard and has the potential to alter circulation patterns in the Bay; (2) the disposal of increasingly large amounts of material has the potential to alter benthic and shoreline habitats and to increase water column turbidity; and (3) the resuspension of dredged sediments may increase contaminant bioavailability. The issue paper presented a range of alternative strategies for the Water Board to consider. Public and

agency testimony was received by the Water Board during hearings on September 15, 1988 and October 19, 1988. Agencies testifying included the Corps, U.S. Environmental Protection Agency (USEPA), and California Department of Fish and Game (CDFG). In the issue paper, Water Board staff recommended that the Water Board consider adopting quantity and quality limits for the disposal of dredged sediment at unconfined aquatic disposal sites within San Francisco Bay.

Additionally, the Water Board and the Corps took steps to prevent further "mounding" at the region's single largest disposal site, the Alcatraz site. In 1989, the Water Board adopted volume targets which served to prevent over-filling of the region's three aquatic disposal sites. BCDC also revised its policies to restrict in-bay disposal. These volumes were reduced further for the Alcatraz disposal site (SF-11) in 1993 when the USACE issued [Public Notice 93-3](#).

4.20.5 WETLAND RESTORATION USING DREDGED MATERIAL

While the Water Board remains concerned about the impacts of both polluted and clean sediments on the San Francisco Estuary, much of the sediment disposed of in the Region is not polluted and could be used in beneficial ways (termed "reuse"). One of these uses involves the restoration of tidal marshes in areas which were once part of the Bay. These areas, known as diked historic baylands, were once open to the tides and were thriving salt marsh and mudflat ecosystems (further discussion under "[Wetlands Protection and Management](#)" section). Decades of land "reclamation," first initiated in the 1800s resulted in diked agricultural lands, the land surface of which has subsided for a variety of reasons.

In order to foster growth of marsh vegetation, and proper slough channel formation, the new marsh must be built near mean high tide. In many cases it will be beneficial to place a layer of sediment across the site so as to raise the elevation of the land surface to a point near the mean tide line. LTMS studies have examined the environmental, engineering and economic considerations that are involved in restoring certain sites. The studies commissioned by LTMS have shown that, given current laws and policies, placement of dredged sediment at wetland restoration projects may cost more than traditional in-Bay disposal, but less than ocean disposal.

4.20.6 DELTA ISLAND LEVEE REPAIR AND MAINTENANCE

Winter Island, located in the western Delta, near Pittsburg, is operated as a duck club by the local Reclamation District. In 1998, the Reclamation District, in need of material to repair levees, partnered with the Corps of Engineers, and accepted over 200,000 cubic yards of sandy dredged material from the Corps' dredging of the federal Suisun Bay Channel. In 1999, an additional 225,000 cubic yards from the Suisun Bay Channel project was placed on the site, along with approximately 30,000 cubic yards of finer-grained material from the Port of San Francisco. The Reclamation District estimates that they will have a long-term need for fine-grained dredged material, of about 100,000 cubic yards per year.

Other Delta islands are also in need of material for levee repair. For example, the Corps is currently exploring the possibility of taking material from the Suisun Bay Channel to Sherman Island. Cooperation with the Department of Water Resources, the Central Valley Regional Water Quality Control Board, and the CalFed program may provide additional opportunities for reuse of dredge material in the future.

4.20.7 WATER BOARD POLICIES ON DREDGING AND DREDGE SEDIMENT DISPOSAL

The overall policy for dredging and disposal of dredged sediment includes a reduction of in-bay disposal volumes and an increased emphasis on beneficial reuse of dredged material. The most likely beneficial reuse of dredged material is wetland restoration projects or for levee maintenance and repair. Additional capacity for dredged material is available at the deep ocean disposal site designated by U.S. EPA in 1994. The goal of the policies below is to reduce in-bay disposal volumes to approximately 20% of recent historical dredging volumes, to about 1 million cubic yards per year.

Dredging and dredged material disposal should be conducted in an environmentally and economically sound manner. Dredgers should reduce disposal in the Bay over time to achieve the LTMS goal of one million cubic yards, or less, per year. The LTMS agencies will implement a system of disposal allocations for the designated disposal sites to individual dredgers to achieve the LTMS goal only if voluntary efforts are not effective in reaching this goal.

4.20.7.1 NEED FOR REGIONAL AND LOCAL MONITORING

The Regional Monitoring Program (RMP) provides information on the regional-scale effects of contaminants in the Bay. The Water Board is evaluating whether additional, more localized monitoring to isolate the effects of the disposal of dredged material in the Bay is needed. In the interim, existing sediment evaluation procedures (See Policy 4.20.7.5, below) and monitoring and management efforts at the in-Bay disposal sites are protective of the beneficial uses of the Bay.

4.20.7.2 MATERIAL DISPOSAL RESTRICTION

Materials disposed of at approved aquatic dredged material disposal sites shall be restricted to dredged sediment. Disposal of rock, timber, general refuse and other materials shall be prohibited. Additional specific requirements regarding material type and dredging and disposal mechanisms may be implemented as required, based on ongoing site monitoring and adaptive management.

4.20.7.3 VOLUME TARGETS

4.20.7.3.1 INDIVIDUAL DISPOSAL SITES

Volume targets for each disposal site were developed based on understandings of sediment dynamics and historical information regarding disposal volumes ([Table 4-14](#)).

In addition, the Water Board establishes a volume target of 0.2 million cubic yards per year for the Suisun Bay Channel disposal site and restricts its use to Corps maintenance dredging. The San Francisco Bar site is used for disposal of material from the bar channel. The use of the San Francisco Bar disposal site is regulated under the [Marine Protection, Research, and Sanctuaries Act \(MPRSA\)](#).

4.20.7.3.2 OVERALL IN-BAY DISPOSAL

Although the overall in-Bay disposal goal is one million cubic yards per year, the LTMS recognized that the inherent variability in dredging operations and needs and other factors may impact dredgers' ability to achieve this goal. The LTMS therefore established a slightly higher long-term in-Bay disposal volume target of 1.25 million cubic yards per year. Total in-Bay disposal volumes should decrease according to the schedule identified in [Table 4-15](#), until the long-term LTMS target of 1.25 million cubic yards per year is attained.

In addition to the total volume specified in Table 4-15:

- a. Material from small dredging projects (see below) will, in general, be exempt from restrictions on in-Bay disposal if it is demonstrated through an alternatives analysis that there are no practical alternatives to in-Bay disposal, and
- b. A contingency volume of 250,000 cubic yards per year will be established for "emergencies" or for years when sedimentation or other factors result in unanticipated material volumes. A dredging emergency is a situation that poses an immediate danger to life, health, property, or essential public service and that demands action by the Board more quickly than the Board's normal permit procedures would allow.

4.20.7.4 VOLUME TARGET IMPLEMENTATION

4.20.7.4.1 INDIVIDUAL DISPOSAL SITES

The Water Board will consider denial of water quality certification for:

- a. Any project proposing to place material at a disposal site for which the annual or monthly volume target, as defined in [Table 4-14](#), has been exceeded; and
- b. Any project that does not provide an adequate alternatives analysis showing that there are no practicable alternatives to in-Bay disposal.

Small project proponents may apply for an exemption to monthly or annual volume targets. A small project is defined as a facility or project whose design depth does not exceed 12 feet Mean Lower Low Water (MLLW) with an annual average disposal volume of less than 50,000 cubic yards. The project proponent must demonstrate that:

- a. The additional burden of using an alternative to

in-Bay disposal placed upon the applicant would be inordinate relative to the beneficial uses protected; and

b. The alternatives analysis indicates that there are no practical alternatives to in-Bay disposal.

4.20.7.4.2 OVERALL IN-BAY DISPOSAL

A voluntary program will be instituted to attain the overall in-Bay disposal targets adopted by the LTMS EIS/EIR with the majority of maintenance material from Corps of Engineers projects being used in wetland restoration projects or taken to the ocean disposal site. As part of the voluntary program, other dredgers will make efforts to use alternatives to in-Bay disposal.

Progress towards the goal will be evaluated both on an annual basis and every three years, based on the three-year average volume of in-Bay disposal. Should this voluntary program fail to provide progress toward the goal in the reviews outlined above, a mandatory allocation program will be considered. The institution of the mandatory allocation process will occur as outlined below and the determination to rescind mandatory allocation, if imposed, will be a symmetric process.

The Water Board will consider the imposition of mandatory allocation in a Water Board hearing. In making its decision regarding disposal allocations, the Water Board will confer with the LTMS agencies and consider the factors affecting the need for allocations in light of progress towards the long-term goal adopted by the LTMS EIS/EIR, including (1) the status of alternatives to in-Bay disposal and cooperative efforts to implement them, (2) exigencies that hamper the use of alternative sites, and (3) other relevant factors. If the Water Board votes to impose mandatory allocations, the mandatory allocation program will be regulated through the issuance of general Waste Discharge Requirements for small- and medium-category dredging projects and through separate Waste Discharge Requirements for all USACE dredging projects. If in place, rescission of the mandatory allocation program would be considered if the three-year average disposal volume was lower than the target volumes as identified in [Table 4-15](#), unless, after review by the Water Board in a public hearing, the Water Board votes to not rescind mandatory allocations. Both the institution and rescission of the mandatory allocation program would be discretionary actions of the Water Board, and thus subject to review pursuant to CEQA under the Water Board's functionally-equivalent process.

4.20.7.5 USE OF TESTING GUIDELINES

In February of 1998, the Corps and U.S. EPA published [Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual, Inland Testing Manual \(ITM\)](#). The ITM has been adopted by the LTMS agencies as the framework for the evaluation of the suitability of dredged material for in-Bay disposal. It provides comprehensive guidance to dredging permit applicants on sampling and testing of sediment proposed for disposal in waters of the United States, pursuant to Section 404 of the Clean Water Act. Disposal at the in-Bay disposal sites is subject to this guidance. The ITM outlines a tiered approach to

sediment testing, similar to the existing [Ocean Disposal Testing Manual, or "Green Book,"](#) the federal guidance document for testing for ocean disposal (pursuant to MPRSA). The Water Board's Executive Officer will require evaluation of sediments proposed for in-Bay disposal according to the ITM, before issuing authorizations for such disposal.

The ITM was intended to only address testing of material for aquatic disposal and does not provide a protocol for upland disposal. Water Board staff have developed a document, "[Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines,](#)" to assist project planners with developing testing procedures for beneficial reuse projects, including wetland restoration, levee maintenance, and construction fill. The document also provides general sediment screening guidelines for these uses. However, disposal of dredged material for beneficial reuse will be subject to site-specific testing requirements and material suitability criteria that will be defined in Water Board Orders.

The Water Board is working in cooperation with other LTMS agencies to develop a regional implementation manual which will detail testing requirements for all three disposal environments.

The Executive Officer, following consultation with other agencies, will periodically review and update all testing procedures. The Executive Officer may require additional data collection beyond the tiered-testing procedures on a case-by-case basis.

4.20.7.6 ENVIRONMENTAL WINDOWS

The Water Board will restrict dredging or dredge disposal activities during certain periods ("windows") in order to protect the beneficial uses of San Francisco Bay. These beneficial uses include water contact recreation; ocean, commercial, and sport fishing; marine habitat; fish migration; fish spawning; shellfish harvesting; and estuarine habitat.

These restrictions may include, but are not limited to those specified by USFWS and NMFS in their review of the LTMS programmatic EIS/EIR pursuant to Section 7 of the Endangered Species Act, and will incorporate any requirements from project specific consultations.

4.20.7.7 IMPACTS AT DREDGE SITE

The Water Board may require additional documentation and inspections during dredging activities in order to ensure that dredgers minimize impacts at the dredging location. Water Quality Certifications or waste discharge requirements may contain additional conditions to address barge overflow and other impacts at the dredging site. Permit conditions may include:

- a. Special reporting procedures for the hydraulic pumping of dredged material into transport scows prior to disposal (marina slip applications);
- b. Evidence of compliance with the conditions described in 4.20.7.6, above;
- c. Time limit on the overflow from hopper-type hydraulic dredges in order to obtain an economical load; or
- d. Precautions to minimize overflow and spillage from the

dredging vessel when in-route to the authorized disposal site. (Appreciable loss during transit shall be considered unauthorized disposal, or "short dumping" and such occurrences are subject to enforcement by the Water Board or other applicable state or federal agencies.)

4.20.7.8 POLICY ON LAND AND OCEAN DISPOSAL

The Water Board shall continue to encourage land and ocean disposal alternatives whenever practical. Water Board staff have determined that there should be a high priority placed on disposing of dredged sandy material upland. At a minimum, incentives should be developed to limit disposal of any such material with a market value to upland uses. Staff may condition certifications so as to encourage upland reuse of high value sediments. Staff will also continue to work with staff from the Central Valley Regional Water Quality Control Board to provide appropriate options for material use in levee maintenance in the delta or for use on delta islands, as appropriate.

4.20.7.9 POLICY ON DREDGED MATERIAL DISPOSAL PERMIT COORDINATION

The Water Board will implement these measures through its issuance of Waste Discharge Requirements, Water Quality Certification under Section 401 of the Clean Water Act or other orders. In addition, the Water Board may require pre- and post-dredge surveys to determine disposal volumes and compliance with permit conditions. In order to better manage data and reduce paper files, Water Board staff may request, but not require, that applicants submit testing and other project data in a specific electronic format.

Water Board staff have been participating in a coordinated permitting process, the Dredged Material Management Office (DMMO), since 1995. The DMMO consists of staff representatives of the Water Board, BCDC, U. S. EPA, USACE, and the California State Lands Commission, with active participation by the California Department of Fish and Game and the National Marine Fisheries Service as commenting resource agencies. The DMMO meets regularly to review permit applications and sediment testing plans and results and to make recommendations on proposed dredging projects. While each agency retains its separate authority the agency representatives strive to provide clear and coordinated guidance to applicants and to reach consensus-based recommendations.

4.21 MINES AND MINERAL PRODUCERS

The Water Board oversees water quality problems associated with over 150 inactive and active mining and mineral producers in the Region, as described below.

4.21.1 INACTIVE SITES

Over 50 abandoned or inactive mines have been identified within the Region ([Table 4-16](#) and [Figure 4-5](#)). The mineral resources extracted include mercury, magnesite, magnesium salts, manganese, pyrite, coal, copper, silver, and gold. A large percentage of the mining activities took place from 1890-1930, although some areas were mined as recently as 1971. The size

of these mines varies from relatively small surface mines of less than half an acre to the world's second largest mercury mine, the New Almaden District, located in Santa Clara County.

Water quality problems associated with mining activities can be divided into three categories:

- >> Erosion and sediment discharges from surface mines and ore tailings piles;
- >> Acid or otherwise toxic aqueous discharge from underground mines, ore tailings, slag, or other mining processes; and
- >> Atmospheric deposition, such as releases from stacks carried downwind from mine sites.

Problems of erosion and sediment discharged from mined areas may be intensified due to the fact that sediment from ore-rich areas typically contain high concentrations of metals. Biological processes which take place in lake and stream bottom sediments may allow for these pollutants to be released in a form that more readily bioaccumulates in the food chain.

Water quality and aquatic toxicity monitoring data suggests that the beneficial uses of a number of water supply reservoirs, creeks, and streams in the Region have been impacted as a result of past mining activities. Threatened beneficial uses of lakes, streams, bays and marshes due to mining activities so far identified in the Region include: fish migration, fish spawning, shellfish harvesting, wildlife habitat, preservation of rare and endangered species, cold and warm freshwater habitat, and water contact recreation. In response to these findings, the Water Board conducted surveys to locate abandoned and operating mines in the Region. The results of the surveys are compiled in the 1998 report titled, "San Francisco Bay Regional Water Quality Control Board Mines Report."

In many cases, the adverse results of previous surface mining activities can be reduced, and in some cases eliminated, through appropriate erosion and sediment control practices. The [U.S. Natural Resource Conservation Service](#) (NRCS, formerly Soil Conservation Service) has developed a Resource Management System for Surface Mined Areas. This management system references practices and treatment alternatives needed to address the following:

- >> Erosion control practices that route surface water run-off at non-erosive velocities and reduce soil movement by wind or water to within acceptable limits;
- >> Maintenance of adequate water quality and quantity for planned uses and to meet federal, state, and local requirements;
- >> Pollution control to meet federal, state, and local regulations; and
- >> A system of planned access and/or conveyance that is within local regulations and meets the needs for the intended use.

In 1980, a memorandum of understanding (MOU) was negotiated with the Council of Bay Area Resource Conservation Districts in order to provide for assessment and monitoring of potential and

existing soil erosion-related water quality problems, and identification of control measures. It was agreed that local units of government should have the lead role in controlling land use activities that cause erosion. Controls measures include the implementation of BMPs. The Resource Management System for Surface Mined Areas developed by NRCS specifically references BMPs determined to be the most effective and practicable means of preventing or reducing erosion and sediment-related water quality degradation resulting from surface mining activities.

4.21.2 ACTIVE SITES

There are approximately 100 active quarries and mineral producers within the Region. The primary commodities produced include clay, salt, sand and gravel, shale, and crushed stone. Water quality problems associated with active mineral production generally consist of erosion and sediment discharge into nearby surface water bodies and wildlife habitat destruction.

Mining activities are in part regulated under the [Surface Mining and Reclamation Act of 1975](#). This Act requires all mine operators to submit a reclamation plan to the [California Geological Survey](#) (formerly California Department of Conservation, Division of Mines and Geology) and the recognized lead local agency for the area in which the mining is taking place. Recognized lead local agencies for the Region include county planning and public works departments. Additionally, some local planning departments regulate mining activities through the issuance of conditional land use permits. The goal of each reclamation plan is to assure that mined lands are reclaimed to a usable condition that is readily adaptable for alternate land uses and creates no danger to public health and safety. The current permitting process places very little emphasis on the need to protect beneficial uses of surface and groundwater.

Under [Title 23, CCR, Chapter 15, Article 7](#), the Water Board has the authority to regulate mining activities that result in a waste discharge to land through the use of WDRs. Additionally, the federal NPDES stormwater regulations ([40 CFR Parts 122, 123, and 124](#)) require active and inactive mining operations to obtain NPDES permit coverage for the discharge of stormwater polluted by contact with any overburden, raw material, intermediate products, finished products, byproducts, or waste products.

4.21.3 MINING PROGRAM GOAL

The Water Board's goal for its mining program is to restore and protect beneficial uses of receiving waters now impaired, or threatened with impairment, resulting from past or present mining activities. This goal will be attained by the coordinated effort of the Water Board, NRCS, the Council of Bay Area Resource Conservation Districts, the California Geological Survey, and lead local government agencies through the implementation of a mineral production and mining management program.

4.21.4 MINING PROGRAM DESCRIPTION

1. The Water Board intends to continue to work closely with Resource Conservation Districts and NRCS to identify all existing and abandoned mines and mineral production sites in the

Region. Responsible parties will be identified. If needed, potential funding alternatives for cleanup activities will also be identified. Sites will be prioritized based on existing and potential impacts to water quality and size.

2. The Water Board will require an NPDES permit for the discharge of polluted stormwater from active and inactive mining operations, as defined in NPDES stormwater regulations. The Water Board will consider issuing individual permits or a general permit for such discharges, or will otherwise allow coverage under the State Water Board general permit for stormwater discharges associated with industrial activity as described in [Section 4.14 Urban Runoff Management, Industrial Activity Control Program](#). Requirements of the notice of intent to be covered under the general permit(s) and the schedule for submittal will be established in the permit(s).

3. The responsible party or operator of each site discharging, or potentially discharging waste to land shall be required to submit a Report of Waste Discharge to the Water Board. Submittal of a Report of Discharge will be requested by the Water Board pursuant to the [Water Code Section 13267](#). Requests will be made on a site-by-site basis and based on priority. A Report of Waste Discharge shall consist of a "Site Closure Plan" and an "Operation and Management Plan" for active sites, as described below:

- Each plan shall be designed to ensure short- and long-term protection of beneficial uses of receiving waters.
- The "Closure Plan" shall address site restoration and long-term maintenance and monitoring, which may include a financial guarantee to ensure that adequate funds are available for proper site closure.
- The "Operation and Management Plan" shall address stormwater runoff and erosion control measures and practices.
- Each plan will be evaluated in regard to potential impacts to beneficial uses of receiving waters. WDRs will be issued or conditionally waived at the discretion of the Water Board based on the threat to water quality and the effectiveness of identified and implemented control measures and the effectiveness of local agency oversight.

4.22 VESSEL WASTES

The discharge of wastes from pleasure, commercial, and military vessels has been a water quality concern of the Water Board since 1968 when [Resolution No. 665](#) was adopted, which suggested that the federal government regulate waste discharges from vessels. In 1970 the Water Board adopted [Resolutions 70-1](#) and [70-65](#) on vessel wastes. The first urged BCDC to condition marina permits for new or expanded marinas to include pumpout facilities, dockside sewers, and restroom facilities. [Resolution 70-65](#) recommended that vessel wastes be controlled in such a manner through legislative action.

In 1982, the Water Board conducted a study that found high levels of coliform in the vicinity of several marinas in Marin County's Richardson Bay. Subsequently, the Water Board adopted a prohibition against discharge of any kind into

Richardson Bay. A regional agency was formed to implement and enforce this prohibition.

There is an ongoing effort to construct, renovate, and improve pumpout facilities at marinas and ports around the region. The goal of these efforts is to increase the accessibility of these facilities to boaters and reduce pollution from vessel wastes.

4.23 WETLAND PROTECTION AND MANAGEMENT

Wetlands and related habitats comprise some of the Region's most valuable natural resources. Wetlands provide critical habitats for hundreds of species of fish, birds, and other wildlife; offer open space; and provide many recreational opportunities. Wetlands also serve to enhance water quality, through such natural functions as flood control and erosion control, stream bank stabilization, and filtration and purification of surface water.

The Water Board will refer to the following for guidance when permitting or otherwise acting on wetland issues:

- [Governor's Executive Order W-59-93](#) (signed August 23, 1993; also known as the California Wetlands Conservation Policy, or the "No Net Loss" policy);
- Senate Concurrent Resolution No. 28; and
- [Water Code Section 13142.5](#) (applies to coastal marine wetlands).

The goals of the [California Wetlands Conservation Policy](#) include ensuring "no overall net loss," achieve a "long-term net gain in the quantity, quality, and permanence of wetlands acreage and values ...", and reducing "procedural complexity in the administration of state and federal wetlands conservation programs."

Senate Concurrent Resolution No. 28 states, "It is the intent of the legislature to preserve, protect, restore, and enhance California's wetlands and the multiple resources which depend on them for the benefit of the people of the state."

Water Code Section 13142.5 states, "Highest priority shall be given to improving or eliminating discharges that adversely affect ... wetlands, estuaries, and other biologically sensitive sites."

The Water Board may also refer to the Estuary Project's [Comprehensive Conservation and Management Plan](#) (June, 1994) for recommendations on how to effectively participate in a Region-wide, multiple-agency wetlands management program.

4.23.1 BAYLANDS ECOSYSTEM HABITAT GOALS

Consistent with the [California Wetlands Conservation Policy](#), the Water Board participated in the preparation of two planning documents for wetland restoration around the Estuary: [Baylands Ecosystem Habitat Goals \(1999\)](#) and [Baylands Ecosystem Species and Community Profiles \(2000\)](#), together known as the Habitat Goals reports. The Habitat Goals reports provide a starting point for coordinating and integrating wetland planning and regulatory activities around the Estuary. The Habitat Goals reports identify and specify the beneficial uses and/or functions of existing wetlands and suggest wetland habitat goals for the

baylands, defined in the Habitat Goals reports as shallow water habitats around the San Francisco Bay between maximum and minimum elevations of the tides. The baylands ecosystem includes the baylands, adjacent habitats, and their associated plants and animals. The boundaries of the ecosystem vary with the bayward and landward movements of fish and wildlife that depend upon the baylands for survival. The Habitat Goals reports were the non-regulatory component of a conceptual regional wetlands management plan from the mid-1990's.

4.23.2 DETERMINATION OF APPLICABLE BENEFICIAL USES FOR WETLANDS

Beneficial uses of water are defined in [Chapter 2 Beneficial Uses](#) and are applicable throughout the Region. [Chapter 2](#) also identifies and specifies the beneficial uses of 34 significant marshes within the Region ([Table 2-3](#)). [Chapter 2](#) indicates that the listing is not comprehensive and that beneficial uses may be determined site-specifically. In making those site-specific determinations, the Water Board will consider the Habitat Goals reports, which provide a technical assessment of wetlands in the Region and their existing and potential beneficial uses. In addition to the wetland areas identified in Chapter 2, the Habitat Goals reports identified additional wetlands in the Region as having important habitat functions. Because of the large number of small and non-contiguous wetlands within the Region, it is not practical to specify beneficial uses for every wetland area. Therefore, beneficial uses will frequently be specified as needed for a particular site. This section provides guidance on how beneficial uses will be determined for wetlands within the Region.

Information contained in the Habitat Goals reports, the [National Wetlands Inventory \(NWI\)](#) prepared by the U.S. Fish and Wildlife Service (USFWS), and in the scientific literature regarding the location and areal extent of different wetland types will be used as initial references for any necessary beneficial use designation. The NWI is the updated version of the USFWS's [Classification of Wetlands and Deepwater Habitats of the United States](#) ([Cowardin, et al. 1979](#)), which is incorporated by reference into this plan, and was previously used by the Water Board to identify specific wetland systems and their locations. The updated NWI or other appropriate methods will continue to be used to locate and identify wetlands in the Region. A matrix of the potential beneficial uses that may be supported by each USFWS wetland system type is presented in [Table 2-4](#).

It should be noted that, while the Habitat Goals reports and USFWS's NWI wetlands classification system are useful tools for helping to establish beneficial uses for a wetland site, it is not suggested that these tools be used to formally delineate wetlands.

4.23.3 HYDROLOGY

Hydrology is a major factor affecting the beneficial uses of wetlands. To protect the beneficial uses and water quality of wetlands from impacts due to hydrologic modifications, the Water Board will carefully review proposed water diversions and transfers (including groundwater pumping proposals) and require or recommend control measures and/or mitigation as necessary and applicable.

4.23.4 WETLAND FILL

The beneficial uses of wetlands are frequently affected by diking and filling. Pursuant to [Section 404 of the Clean Water Act](#), discharge of fill material to waters of the United States must be performed in conformance with a permit obtained from the U.S. Army Corps of Engineers (Corps) prior to commencement of the fill activity. Under Section 401 of the Clean Water Act, the state must certify that any permit issued by the Corps pursuant to Section 404 will comply with water quality standards established by the state (e.g., Basin Plans or statewide plans), or can deny such certification, with or without prejudice. In California, the State and Regional Water Boards are charged with implementing Section 401. California's Section 401 regulations are at [Title 23, CCR, Division 3, Chap 28, Sections 3830-3869](#). Pursuant to these regulations, the Water Board and/or the Water Board's Executive Officer have the authority to issue or deny Section 401 water quality certification. The certification may be issued with or without conditions to protect water quality.

The Water Board has independent authority under the Water Code to regulate discharges of waste to wetlands (waters of the state) that would adversely affect the beneficial uses of those wetlands through waste discharge requirements or other orders. The Water Board may choose to exercise its independent authority under the Water Code in situations where there is a conflict between the state and the Corps, such as over a jurisdictional determination or in instances where the Corps may not have jurisdiction. In situations where there is a conflict between the state and the Corps, such as over a jurisdictional determination or in instances where the Corps may not have jurisdiction, the Water Board may choose to exercise its independent authority under the Water Code.

The regulation of "isolated" waters determined not to be waters of the U.S. is one such instance where the Corps does not have jurisdiction. The U. S. Supreme Court, in its 2001 decision in [Solid Waste Agency of Northern Cook County v. U. S. Army Corps of Engineers](#) (the "SWANCC decision") determined that certain isolated, non-navigable waters are not waters of the U.S., but are the province of the states to regulate. The Water Code provides the State and Regional Water Boards clear authority to regulate such isolated, non-navigable waters of the state, including wetlands. To address the impacts of the SWANCC decision on the waters of the state, the State Water Board issued [Order No. 2004-0004-DWQ](#) in 2004, General WDRs for dredged or fill discharges to waters deemed by the Corps to be outside of federal jurisdiction. It is the intent of these General WDRs to regulate a subset of the discharges that have been determined not to fall within federal jurisdiction, particularly those projects involving impacts to small acreage or linear feet and those involving a small volume of dredged material.

Order No. 2004-004-DWQ does not address all instances where the Water Board may need to exercise its independent authority under the Water Code. In such instances, dischargers and/or affected parties will be notified with 60 days of the Water Board's determination and be required to file a report of waste discharge.

For proposed fill activities deemed to require mitigation, the Water Board will require the applicant to locate the mitigation

project within the same section of the Region, wherever feasible. The Water Board will evaluate both the project and the proposed mitigation together to ensure that there will be no net loss of wetland acreage and no net loss of wetland functions. The Water Board may consider such sources as the Habitat Goals reports, the Estuary Project's [Comprehensive Conservation and Management Plan](#), or other approved watershed management plans when determining appropriate "out-of-kind" mitigation.

The Water Board uses the U.S. EPA's [Section 404\(b\)\(1\). "Guidelines for Specification of Disposal Sites for Dredge or Fill Material."](#) dated December 24, 1980, which is incorporated by reference into this plan, in determining the circumstances under which wetlands filling may be permitted.

In general, it is preferable to avoid wetland disturbance. When this is not possible, disturbance should be minimized. Mitigation for lost wetland acreage and functions through restoration or creation should only be considered after disturbance has been minimized.

Complete mitigation projects should be assessed using established wetland compliance and ecological assessment methods, such as the [Wetland Ecological Assessment \(WEA\)](#) and the [California Rapid Assessment Method \(CRAM\)](#).

4.24 OIL SPILLS

Oil spills can cause severe and extensive damage to the environment. Fortunately, the petroleum industry has been improving its safety record in oil transfer operations - the step in petroleum handling where spills are most likely to occur. The volume of oil spilled during transfer operations has decreased since 1975.

This improvement is due to:

- U.S. Coast Guard regulations for oil transfer operations;
- State Lands Commission guidelines for petroleum facility operations manuals;
- High clean-up costs and public concern associated with oil spills; and
- Water Board, California Department of Fish and Game, and U.S. Coast Guard enforcement actions against parties responsible for spills.

The Water Board considered adopting a policy requiring specific improvements in oil transfer operations, but due to the industry's improved performance, the Water Board is holding the adoption of such a policy in abeyance while continuing to monitor the industry's performance. The Water Board recognizes that additional regulation is unnecessary if the petroleum industry maintains its improved record.

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