

MISSION AND STRATEGIC GOALS

The 1997 Strategic Plan of the State Water Resources Control Board (SWRCB) and the nine California regional water quality control boards (RWQCBs) sets forth the common mission of these boards. That mission, as stated in the Strategic Plan, is as follows:

“Our mission is to preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations.”

Accomplishing this mission is a long-standing commitment of the San Diego Regional Water Quality Control Board (SDRWQCB). The SDRWQCB's strategic direction must now respond to a growing need for a comprehensive approach to water resource protection. In order to meet this challenge, the SDRWQCB has established and continues to refine a watershed management approach for the San Diego region.

The SDRWQCB's direction with respect to watershed management is designed to achieve the following two strategic goals, which are also set forth in the 1997 Strategic Plan:

“Our goal is to preserve, enhance, and restore water resources while balancing economic and environmental impacts.”

“Our goal is to promote cooperative relationships and to improve support for the regulated community and the public.”

INTRODUCTION

Until the early 1980s, the SDRWQCB's efforts to protect water quality and beneficial uses were directed primarily towards controlling point source discharges of waste from sewage treatment plants and industrial facilities. Pollution from such point source discharges has largely been controlled through stringent pollution control laws and the efforts of the SDRWQCB and other agencies. Ground water contamination, nonpoint sources of pollution (such as urban and agricultural runoff), and physical modifications to water bodies are now considered the greatest remaining threats to water quality and beneficial uses and will increasingly be the focus of the SDRWQCB's efforts in the coming years. Cumulative effects from all sources must now be considered in order for the SWRCB and RWQCBs to be truly effective in protecting water quality and beneficial uses.

The purpose of this document is to describe how the SDRWQCB will implement watershed management in the San Diego region, i.e. the SDRWQCB watershed management approach.

Watershed Management Initiative

In 1993 the SWRCB commenced an external review of the mandates and programs of the SWRCB and RWQCBs. The purpose of the review was to identify how best, in an era of shifting priorities and shrinking budgets, the SWRCB and RWQCBs could better meet their mandates to protect California's water resources. Based on this review, the 1995 Strategic Plan of the SWRCB and RWQCBs was developed. The Strategic Plan, which was updated in 1997, provides strategic direction to guide decision making over the next five to seven years. One of the strongest messages received from the strategic planning process was that the actions and decisions of the SWRCB and RWQCBs should be guided by a perspective that considers water quality related impacts within the context of entire watersheds. In response to this concern, the 1995 Strategic Plan included a special initiative called the "Watershed Management Initiative." The Watershed Management Initiative addresses issues related to watershed management, describes current regional efforts, and establishes an action plan to implement watershed management plans statewide.

SDRWQCB Perspective

The SDRWQCB is fully committed to implementing the Strategic Plan's statewide Watershed Management Initiative in the San Diego region. Watershed management represents a departure from the SDRWQCB's traditional approach to protecting the quality and beneficial uses of ground and surface waters. The SDRWQCB's traditional approach has been organized around separate state and federal programs, each of which was developed to address different types of pollutant sources and/or different types of receiving waters. Funding has been and continues to be allocated to the RWQCBs by program and/or activity. However, the goals and responsibilities of various programs may be different, may overlap, and/or may leave gaps. Furthermore, funding allocated to various programs has not and does not necessarily correspond to actual water quality or beneficial use problems or threats or to the level of effort necessary to address those problems and threats. RWQCBs have little flexibility to direct funding to activities and locations where it will be most effective in addressing water quality and beneficial use problems and threats. Finally, accomplishments of the RWQCBs traditionally have been (and continue to be) measured in terms of program activities (or "bean counts"), such as numbers of permits issued, enforcement orders issued, compliance inspections conducted, and monitoring reports reviewed. While these activities are important tools for the RWQCBs, such "bean counts" seldom provide a meaningful or useful indication or measure of whether water quality standards have been achieved, whether water quality has improved, or whether beneficial uses have been maintained or restored.

Dealing with today's complex and intertwined water quality and beneficial use issues, which involve both point and nonpoint sources, requires a comprehensive, coordinated approach on the part of the SDRWQCB. The SDRWQCB must better integrate its programs and functions to more effectively bring different fields of expertise to bear and to promote a "teamwork" approach to solving water quality and beneficial use problems. The watershed management approach does not represent a new regulatory program, competing with or replacing existing SDRWQCB programs. Rather, the watershed management approach provides a framework to begin integrating existing SDRWQCB programs and activities and allocating resources so as to more effectively and efficiently address water quality and beneficial use issues.

The watershed management approach is based on the premise that many water quality and beneficial use problems are best solved by considering entire watersheds, or portions thereof, rather than considering only individual waters, discharges, discharge types, or political jurisdictions. This approach recognizes that water quality and beneficial uses may be affected by many different activities. These activities may occur throughout or only in certain parts of watersheds. These activities may occur near to or far from locations of known water quality or beneficial use problems. Watershed management addresses all of the water quality and beneficial use problems within and from a drainage area and all of the causes and sources of the problems. For this reason, watersheds can be thought of as "problemsheds," the areas in which water quality and beneficial use problems exist or originate.

The SDRWQCB recognizes that it cannot solve today's water quality and beneficial use problems alone. The involvement of all stakeholders, governmental and non-governmental, must be actively sought to identify the highest priority issues and to achieve mutually beneficial solutions. Better use of the expertise, authority, and staff resources of other federal, state and local agencies is also essential. Resources of agencies across all levels of government need to be coordinated and integrated to optimize use of staff resources and public dollars. For example, polluted runoff is intimately tied to land use. Since the SDRWQCB lacks direct land use control authority, it must increasingly look to agencies with land use control authority to coordinate land based strategies for the control of polluted runoff.

USEPA Integrated Federal Grants Process

In addition to the State's Watershed Management Initiative, the US Environmental Protection Agency (USEPA) has initiated a program called the Integrated Federal Grants Process for federal funding available under Clean Water Act Sections 104(b)(3), 106, 205(j) and 319. The goal of this effort is to direct federal and state funds towards priority water quality problems. This process involves developing a planning methodology for identification of the highest priority program needs, water quality problem areas, and watershed projects. USEPA will work with the SWRCB and RWQCBs to pool available federal and state grant funds and match the grant funds to

the identified priorities. Implementation of the watershed management approach will provide a framework for the SDRWQCB to identify high priority water quality issues for integration into the USEPA and SWRCB integrated funding process.

GUIDING PRINCIPLES

The SDRWQCB watershed management approach is guided by the following seven guiding principles.

Geographic Focus

Activities should be directed within specific geographical areas, typically the areas that drain into a surface water body, or that recharge or overlie a ground water basin, or a combination of both.

Comprehensive Perspective

Watershed management should provide a comprehensive perspective that considers all water resource problems and the sources and factors causing and contributing to those problems throughout a watershed. Ground and surface water, point and nonpoint source pollution, and economic as well as environmental impacts in any given geographic area should be brought into the SDRWQCB decision making process.

Partnerships with Stakeholders

The parties most affected by water resource decisions should be involved throughout and shape key actions. Concerned citizens, private landowners, and representatives of local, state, and federal agencies, and appropriate public interest groups, industries and academic institutions should be included in watershed management teams. This involvement is intended to ensure that people who depend upon, have an interest in, and are knowledgeable about water resources are kept well informed and participate in the development of mutually beneficial solutions. The collaboration between agencies at all levels of government and with the public is intended to lead to coordination on watershed management efforts so that available funds and staff resources are put to maximum benefit.

Coordinated Priority Setting

The highest priority water quality and beneficial use problems and issues should be addressed. The SDRWQCB should focus resources on priority water quality issues. Through coordinated efforts with other stakeholders, priorities should be established and integrated actions should be taken based on consideration of all environmental and social issues.

Best Use of Resources

Those water quality and beneficial use protection actions that demonstrate the greatest benefits in the form of measured improvements in the quality and beneficial uses of water within the watershed for costs incurred should be pursued. The SDRWQCB's ability to quantitatively demonstrate economic and environmental benefits should be improved.

Improved Decision Making

The scientific basis for water quality management decisions should be improved. The SDRWQCB, in conjunction with stakeholders, should employ sound scientific data, tools, and techniques in an iterative process that includes monitoring, assessment, identification of water quality goals, characterization of priority problems and solutions, development and implementation of action plans, and evaluation of effectiveness.

Improved Efficiency

The efficiency of SDRWQCB programs should be enhanced. Activities such as water quality assessment, monitoring, and permitting should be integrated and focused on a limited number of point source and nonpoint source pollution issues at a time. SDRWQCB staff working in different programs and units should work in a consistent and coordinated manner to achieve defined watershed goals.

GEOGRAPHIC SETTING***Misconceptions***

Outside of the San Diego region and coastal southern California, there appear to be a number of misconceptions about the natural and anthropogenic characteristics of the San Diego region and coastal southern California as a whole. Unfortunately, these misconceptions seem to hinder efforts to obtain staff, grants, and other resources to address water quality and beneficial use problems and threats in the San Diego region and coastal southern California. SDRWQCB staff intends to work to dispel such misconceptions about the San Diego region, including but not limited to the following.

- Misconception 1: Virtually all of the San Diego region is urbanized and hardscaped.
- Misconception 2: There is no significant agriculture in the San Diego region.
- Misconception 4: There is very little water in the San Diego region.
- Misconception 3: There is virtually no significant natural habitat, habitat value, or native wildlife in the San Diego region.

Overview

The San Diego region, shown in **Figure 1**, occupies an area of approximately 3,900 square miles in the southwestern corner of California. The region encompasses most of San Diego County and parts of southwestern Riverside County and southern Orange County. The southern boundary of the region is the United States - Mexico international border. The eastern boundary of the region extends from a point on the international border approximately 50 miles from the coastline northerly along the hydrologic divide formed by the Laguna Mountains and other mountains located in the Cleveland National Forest. The northern boundary of the region is the hydrologic divide extending from the eastern boundary westerly along the ridge of the Elsinore Mountains through El Toro to the coast north of Laguna Beach and extending three miles offshore. The western boundary of the region parallels the coastline three miles offshore and extends from the northern boundary southerly approximately 85 miles to the international border, the southern boundary of the region.

The natural water resources in the San Diego region can be classified as inland surface waters, ground waters, and coastal waters. The SDRWQCB *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) identifies the beneficial uses of and water quality objectives for these waters in the region.

The San Diego region has thirteen principal stream systems that originate in the highlands and flow to the coast. From north to south these stream systems are:

- (1) Aliso Creek;
- (2) San Juan Creek;
- (3) San Mateo Creek;
- (4) San Onofre Creek;
- (5) Santa Margarita River;
- (6) San Luis Rey River
- (7) San Marcos Creek
- (8) Escondido Creek;
- (9) San Dieguito River;
- (10) San Diego River;
- (11) Sweetwater River;
- (12) Otay River; and
- (13) Tijuana River.

Most of the streams of the San Diego region are interrupted in character, with both perennial and ephemeral components due to precipitation patterns and the construction of surface water impoundments (reservoirs). Surface water impoundments capture flow from many of the region's major surface water streams. Although some of the fresh water supplied for domestic and municipal uses in the region is obtained from local surface and ground water, most is imported from northern California and the Colorado River. Many of the major surface water impoundments contain a blend of natural runoff

and imported water. Natural fresh water supplies in the region are also supplemented by reclaimed (aka “recycled”) water.

All major watersheds in the San Diego region contain ground water basins. Nearly all of the local ground waters of the region have been intensively developed for municipal and agricultural supply purposes. The basins are relatively small in area and generally shallow. Although these ground water basins are limited in size, their ground water yield has been historically important to economic activity in the region and continues to be an important local water supply source, particularly where imported water is not available. A number of the larger ground water basins in the region could be of future significance for storage of both imported waters and reclaimed water. Because of the movement of ground water to the surface and the movement of surface water into the ground, pollutants present in ground water may be transported into surface waters and vice versa.

Coastal waters in the region include the Pacific Ocean and various bays, harbors, coastal lagoons, estuaries, and river mouths. Important coastal lagoons, estuaries, and river mouths include Aliso Creek mouth, San Juan Creek mouth, San Mateo Creek mouth, San Onofre Creek mouth, Las Flores Lagoon, Santa Margarita Lagoon, San Luis Rey River mouth, Loma Alta Slough, Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, Famosa Slough, San Diego River mouth, and Tijuana River Estuary. San Diego Bay (which includes the mouth of the Otay River and Sweetwater Marsh at the mouth of Sweetwater River) is a natural bay, parts of which have been dredged to accommodate deep draft vessels and small craft, and parts of which have been filled for various purposes. Dana Point Harbor, Del Mar Boat Basin, Oceanside Harbor, and Mission Bay (which includes the Kendall-Frost Marsh Preserve) are shallower bays and harbors, all of which have been modified or constructed to accommodate small craft.

Six of the hydrologic units in the region extend from the coast all the way to the eastern boundary of the region, about 50 miles inland. The other five hydrologic units extend some 10 to 25 miles inland from the coast. Land uses in the lower portions of watersheds sometimes differ significantly from those in the upper portions. The differences in land uses can translate to differences in water quality and beneficial use problems, the solutions to such problems, and the composition of the stakeholder groups. However, activities in one part of a watershed can affect other areas in the watershed that are miles away, as runoff, solids, and pollutants flow through the watershed toward its outlet. With the one exception mentioned below, all watersheds in the San Diego region are contained entirely within the boundaries of the San Diego region. This means that activities that could adversely affect the quality and beneficial uses of the waters of the region generally occur within the SDRWQCB's jurisdiction and are potentially subject to the SDRWQCB's authority and policies.

The Tijuana River watershed is partly, but not entirely, within the jurisdiction of the SDRWQCB. The Tijuana River watershed covers a total of 1720 square miles in California and Mexico. Approximately 467 square miles, or 27 percent, of this watershed lies in California, within the jurisdiction of the SDRWQCB; the remainder lies in Mexico. Water flows across the international border both from the United States to Mexico and from Mexico to the United States. Raw sewage discharges into the Tijuana River from Mexico have adversely affected water quality and posed a public health threat to residents on both sides of the international border. The resolution of water quality problems in the Tijuana River watershed poses unique challenges for the SDRWQCB to work in a cooperative, coordinated manner with governmental agencies at the federal, state, and local level in both Mexico and the United States. The new SDRWQCB international border coordinator staff position will help the SDRWQCB deal with the many trans-border issues the region faces.

Watershed Management Areas

As set forth in the Basin Plan, the San Diego region consists of 11 hydrologic units (HU), 54 hydrologic areas (HA), and 147 hydrologic subareas (HSA). The names and geographic boundaries of these hydrologic divisions are listed in **Table 1** and shown in **Figure 1** respectively. A hydrologic unit is defined as the entire watershed of one or more major streams. Hydrologic areas consist of watersheds of major tributaries and/or major ground water basins within a hydrologic unit. Hydrologic subareas are major subdivisions of hydrologic areas including both water-bearing and nonwater-bearing formations. The term “watershed” can be used interchangeably with any of the terms “hydrologic unit,” “hydrologic area,” and “hydrologic subarea,” all of which are used in the Basin Plan. Watersheds may consist of several smaller tributary watersheds. For example, the Stonewall Creek watershed is one of several watersheds that are part of the Garnet Hydrologic Subarea (909.35), which is one of several watersheds that are part of the Upper Sweetwater Hydrologic Area (909.3), which is one of several watersheds that are part of Sweetwater Hydrologic Unit (909), which is one of several watersheds that are part of the San Diego Bay watershed.

For purposes of this document, the San Diego region has been divided into nine watershed management areas. These watershed management areas are briefly described in **Appendix A**. Features of these watershed management areas are summarized in **Table 2**. With one exception, these watershed management areas consist of the entirety of a single individual hydrologic unit and the adjoining coastal waters. The exception is the San Diego Bay Watershed Management Area, which consists of San Diego Bay and all three hydrologic units (908, 909, and 910) which, in whole or in part, drain to San Diego Bay. As noted above, the Tijuana River watershed lies partly in Mexico and partly in the United States. The Tijuana Hydrologic Unit (911) consists of the portions of the Tijuana River watershed located in the United States. The Tijuana River Watershed Management Area consists of the Tijuana Hydrologic Unit

(911) and the adjoining coastal waters north of the United States - Mexico international border.

The California Unified Watershed Assessment (UWA) associated with the federal Clean Water Action Plan (and referred to in requests for proposals for various grant programs) defines five different watersheds in the San Diego region. The relationships between the hydrologic units, watershed management areas, and UWA watersheds in the San Diego region are shown in **Table 2A**. All of the San Diego region UWA watersheds are Category I priority watersheds.

WATERSHED MANAGEMENT SCALE

The watershed management scale selected for a particular watershed management effort is an important consideration that should be tailored to the water quality issues to be addressed. If watershed planning is conducted on too large a scale, the effort could be dispersed and rendered ineffective due to large numbers of smaller watersheds, multiple political jurisdictions, water quality monitoring costs, and differences in stream quality and land development patterns. Watershed management at a smaller watershed scale can serve to encourage local efforts at developing solutions to water quality problems. However, small scale watershed efforts may lack the scope necessary to address water resource issues (such as fish passage, nutrients, heavy metals, water supply, flood protection, and waste discharge effluent limitations) in downstream watershed areas. Issues such as these may transcend a small watershed and would be best addressed at a larger watershed scale. "Nesting" smaller watershed areas (such as source water protection areas or special management areas designated for wetlands protection) into larger watershed areas allow those involved at every level to scale their efforts up or down to address specific concerns and still maintain consistency with related efforts.

For purposes of this document, there are four levels of watershed management scale. Level 1 involves dealing with matters on a regionwide scale. Level 2 involves dealing with matters on the scale of an entire hydrologic unit or watershed management area. Level 3 involves dealing with matters on the scale of an entire hydrologic area. Level 4 involves dealing with matters on the scale of an entire hydrologic subarea or portion thereof (including individual water bodies and portions thereof).

In general, watershed management activities will be implemented at Level 2. However, watershed management activities can and will be conducted at whatever watershed management scale is appropriate. Some water quality programs, problems or issues will continue to be implemented or addressed on a regionwide basis (Level 1). Smaller watershed scales will be favored for addressing water quality problems that are not regionwide in scope. Occasionally the SDRWQCB may implement watershed

management activities at Levels 3 or 4, particularly where local citizens and agencies are active and motivated to voluntarily develop a watershed management program.

It is important to recognize that substantial portions of the funding for various regulatory programs will need to be devoted to conducting required program activities, without regard to the extent to which such activities are likely to be effective in addressing water quality and beneficial use problems and threats. As noted previously, RWQCBs have little flexibility to direct funding to activities and locations where it will be most effective in addressing water quality and beneficial use problems and threats. For example, staff will have to continue to process applications for new permits and permit renewals, respond to spills and citizen complaints, work on producing the outputs (or "beans") required by various programs, and respond to requests from SWRCB staff, the SWRCB and the SDRWQCB. **Appendix B** contains schedules for completing specific SDRWQCB program activities that are mandated by the California Water Code, the Clean Water Act, or related programs.

STAKEHOLDER INVOLVEMENT

Since people tend to be motivated to protect the resources they value, use, know best, and depend upon, the most effective solutions, in many cases, are created by those who have a direct stake in the outcome. In many cases the solutions to water quality and beneficial use problems depend on voluntary actions of people who live, work, play, or do business in the watershed. Accordingly, the watershed management approach is not simply another program to be "centralized" at the SDRWQCB. Instead, it is intended to be an "inclusive" approach where diverse interests (i.e., stakeholders) such as individuals, landowners, farmers, municipalities, local government, water districts, sewage collection and treatment agencies, and regulatory agencies work together to achieve water quality goals. In all watershed management areas, the SDRWQCB will attempt to identify an existing stakeholder group or establish a new stakeholder group to reach agreement on goals and approaches for addressing watershed problems, the specific actions to be taken, and how they will be coordinated and evaluated.

The degree of stakeholder involvement in watershed management activities will vary between watersheds. In some watersheds where local efforts are occurring, stakeholders may want to be involved in all aspects of watershed management. In other watersheds, stakeholders may only want to be involved at certain key decision points such as the adoption of the watershed management plan. The SDRWQCB will be guided by a three tiered approach in determining the degree of SDRWQCB involvement in the watershed and in preparing the watershed management plan. The three tiers are presented below in order of increasing regulatory control over watershed management activities. The first tier is based on collaborative, stakeholder-directed efforts to manage water resources in the watershed. The second tier is based on

regulatory agency encouragement and oversight of watershed management activities. The third tier is based on SDRWQCB "command and control" regulatory actions through NPDES permits, waste discharge requirements, and enforcement orders.

Tier 1 -- Community Based, Stakeholder-directed Watershed Management

Tier 1 is the preferred approach and relies on community stakeholder initiative to assume a leadership role in coordinating and developing a watershed management plan. Locally based approaches may address water quality goals as well as economic and other interests of the community. Voluntary collaboration of all interested parties is likely to provide the most durable solutions. Locally based watershed management efforts will encourage community stakeholders to be part of the solution and will facilitate understanding and consensus on water quality protection goals and priorities. Under the Tier 1 approach, the SDRWQCB would be a participatory stakeholder by communicating its interests in protection of beneficial uses of water, achievement of Basin Plan water quality objectives, and other requirements of state and federal law. Within the constraints of available resources, the SDRWQCB would also support local watershed efforts with technical and educational assistance, such as conducting water quality assessments, preparing state of the watershed reports, identifying water quality goals and targets, coordinating permit issuance, and monitoring programs.

Tier 2 - Regulatory Agency Encouraged Watershed Management

The Tier 2 approach relies on the SDRWQCB or another state or federal agency to take the lead in coordinating and developing a watershed management plan. The SDRWQCB or other agency may select this approach for high priority watersheds where there are Clean Water Act Section 303(d) impaired waters or other substantially threatened watersheds. Tier 2 efforts would be initiated after it has been determined that a successful, viable local community based effort is not developing. The SDRWQCB or other lead agency would notify the public of its intent to develop a state of the watershed report and, ultimately, a watershed management plan. Stakeholders would be invited to participate in the process and provide comments on the plans. In general, the SDRWQCB would adopt all Tier 2 watershed management plans.

Tier 3 - Regulatory Watershed Management

The Tier 3 approach relies exclusively on the SDRWQCB to take the lead in coordinating and developing a watershed management plan. The SDRWQCB may select this approach for high priority watersheds where there are Clean Water Act Section 303(d) impaired waters or other substantially threatened watersheds. Tier 3 efforts would be initiated after it has been determined that a local community based effort either is not developing or timely accomplishments are not occurring. The SDRWQCB will prepare a watershed management plan that emphasizes use of regulatory measures. Examples of regulatory measures include permitting and formal enforcement actions.

Regardless of the tier implemented in a watershed management area, the SDRWQCB is required to uphold the law. For example the SDRWQCB will continue to use NPDES permits and waste discharge requirements to regulate waste discharges as required under the federal Clean Water Act and the California Water Code. The SDRWQCB will continue to initiate enforcement actions where the need arises.

PRIORITY WATERSHED MANAGEMENT AREAS

In many cases, water quality and beneficial use problems in a watershed must be addressed and solved incrementally. Complex water quality and beneficial use issues in a single watershed may require repeated and ongoing efforts to achieve satisfactory results. Furthermore, the SDRWQCB cannot devote all of its resources to one watershed or a few watersheds to the exclusion of all others. For these reasons, the watershed management approach is an iterative process that builds on past efforts to achieve measurable improvements in water quality and beneficial uses within individual watersheds.

Until recently, SDRWQCB staff envisioned a planned rotational implementation of the watershed management approach in different watershed management areas. This was intended to ensure that the watershed management approach was implemented in all nine watershed management areas over a period of years. In the annual updates of this document for the past several years, the three or four highest priority watershed management areas for the year were specified.

This planned rotation has not proven successful, largely because so much of the watershed management approach depends on the initiative of and funding available to stakeholders in each watershed. Consequently, SDRWQCB staff now intends to be more opportunistic in how the watershed management approach is implemented, i.e., SDRWQCB staff intends to give priority to watersheds where stakeholders appear to be most ready to move forward. At the same time, SDRWQCB staff intends to work with stakeholders in other watersheds to develop interest and initiative.

PRELIMINARY WATER QUALITY / BENEFICIAL USE GOALS

The preliminary water quality / beneficial use goals listed below are generally applicable throughout the San Diego region. Some of these goals may be more pertinent to certain watershed management areas and/or to certain waters than others. Over time, these goals may be refined (e.g. as a result of public participation activities) and additional goals may be added. More specific or detailed goals and/or strategies and tasks intended to achieve the goals may be developed for specific watershed management areas, specific types of sources or causes of water quality / beneficial use

problems and threats, and/or specific waters or types of waters. (Additional goals are set forth in the subsequent sections entitled “Long-term Nonpoint Source Management Goals” and “Long-term Wetlands Goals.” **Table NPS-2** also links the long-term nonpoint source management goals with short term objectives.)

Goal 1 Protect public health by preventing or minimizing health risks to users of local waters.

- a. Protect the public from health risks associated with drinking water from local ground and surface water sources and impoundments.
- b. Protect the public from health risks associated with consuming locally caught fish, shellfish, and other edible aquatic organisms (by ensuring that such organisms are safe to eat).
- c. Protect the public from health risks associated with water contact recreation.

Goal 2 Preserve, protect, and restore natural resources, including viable populations of native plant and animal species.

- a. Preserve, protect, and restore the viability of endangered, threatened, rare, and sensitive species.
- b. Preserve, protect, and restore the viability of native fish, wildlife, and other biota.
- c. Preserve, protect, and restore natural habitats of native fish, wildlife, and other biota, particularly those essential to endangered, threatened, rare, and sensitive species.
- d. Maintain water and sediment quality at levels that allow healthy and stable populations of native fish, wildlife, and other biota to be sustained.
- e. Maintain the natural diversity of natural habitats.
- f. Prevent overall net loss of, and achieve a long-term net gain in, the quantity, quality, and permanence of wetlands acreage and values.
- g. Prevent the introduction of non-native invasive species. Eradicate such species that are already established, where possible. Where eradication is not possible, remove, control, prevent the spread of, and reduce impact of and area occupied by such species.

Goal 3 Protect, restore, and enhance beneficial uses while balancing economic and environmental impacts.

- a. Control point and nonpoint sources of pollution to achieve water quality objectives and protect designated beneficial uses of water.
- b. Ensure that planning and land use decisions are consistent with protection of water quality and beneficial uses and with achievement of water quality standards and goals.
- c. Recognize that water-dependent and water-related activities and businesses are major factors in the economy.
- d. Ensure that commercial, industrial, agricultural, military, transportation, and residential activities are conducted in a manner that protects water quality and

- beneficial uses.
- e. Recognize the importance of dredging to navigation and the economic viability of harbor-related businesses. Recognize the potential for dredging and related activities to adversely affect water quality and beneficial uses. Ensure that dredging and related activities are conducted in a manner that protects water quality and beneficial uses.
 - f. Implement water conservation measures and increase use of local and/or reclaimed water for municipal and domestic, agricultural, and industrial supply in order to reduce demand for and use of imported water. Ensure that reclaimed water is used (1) where imported water would otherwise be needed and (2) in a manner that protects water quality and beneficial uses.

Goal 4 Increase the public's knowledge, understanding, and appreciation of local watersheds and waters. Develop and maintain a sense of individual and organizational responsibility for protecting local watersheds and the quality and beneficial uses of local waters.

- a. Encourage development of a detailed and comprehensive knowledge of:
 - (1) Local watersheds and waters;
 - (2) The quality and beneficial uses of local waters;
 - (3) Local water quality and beneficial use problems and threats; and
 - (4) The sources and causes of those problems and threats.
- b. Provide public access to local waters and other natural resources in a manner that protects and increases knowledge, understanding, and appreciation of those waters and natural resources.
- c. Cultivate and nurture a sense of environmental stewardship. Encourage individual and collective behaviors that will ensure protection of water quality and beneficial uses over the long term.
- d. Encourage full participation in all local and regional planning, environmental review, and decision making processes.

INTEGRATION AND COORDINATION OF PROGRAMS AND ACTIVITIES

The SDRWQCB implements a number of programs and conducts a number of activities for the purpose of protecting the quality and beneficial uses of the waters of the state.

Table 3 summarizes these programs and activities. The watershed management approach is intended to integrate and coordinate these programs and activities so that water resource issues and problems are addressed effectively and efficiently.

The shift from the existing program oriented management approach to a watershed oriented management approach will necessarily involve all surface water and, eventually, all ground water protection programs and activities of the SDRWQCB. At

this time, the emphasis for integration and coordination of programs and activities is in the following areas:

- Basin Planning Program
- Monitoring and Assessment Program
- Total Maximum Daily Load (TMDL) Program
- Nonpoint Source (NPS) Program
- Water Quality Certification (aka Wetlands) Program
- NPDES Program (storm water and waste water)
- Chapter 15 Program
- Non Chapter 15 Program

Table 4 outlines several initial steps taken, planned, or under consideration to improve integration and coordination of SDRWQCB programs and activities.

The following sections highlight issues and considerations related to several programs and activities that are of particular interest and importance from a watershed management perspective. **Appendix B** contains a schedule for completing specific mandated activities in the Basin Planning, NPDES, Chapter 15, and Non Chapter 15 programs. **Appendix C** contains schedules for completing activities in the TMDL program.

BASIN PLANNING PROGRAM

In the last several years, for all practical purposes, the Basin Planning Program has ceased to exist as attention has been given to the new TMDL Program. Virtually every Basin Planning activity not closely related to TMDLs has been put on hold (i.e., such activities are not even scheduled, as shown **Appendix B, Section 10**) and virtually all Basin Planning funds have been redirected to the TMDL Program. This is an unsatisfactory result of efforts to provide adequate funding for the TMDL program, in response to lawsuits and threats of lawsuits for alleged failure to develop TMDLs in a timely manner. Although TMDLs need to be developed in a timely manner, Basin Planning activities other than those closely related to TMDLs also need to be continued. As **Appendix B, Section 10** suggests, a considerable backlog of Basin Planning projects not closely related to TMDLs has accumulated. SDRWQCB staff intends to pursue funding to resume an active Basin Planning program, particularly for high priority projects.

WATER QUALITY ASSESSMENT PROGRAM

Monitoring and assessment of water quality and beneficial uses is essential in order to measure the success of the SWRCB and the RWQCBs in achieving their mission. Ultimately, the only meaningful measure of the success of the SWRCB and the RWQCBs is the condition of water quality and beneficial uses. This can be determined only by monitoring and assessment - not by the long-standing practice of counting program activities, i.e., "beans."

More importantly, monitoring and assessment is essential in order for the RWQCBs and the SWRCB to be successful in achieving their mission. Monitoring and assessment of ambient water quality and beneficial uses is necessary in order to:

- (a) Identify and characterize water quality and beneficial use problems and threats;
- (b) Identify trends in water quality and beneficial uses;
- (c) Determine whether water quality standards are met;
- (d) Evaluate the uniqueness or pervasiveness of problems;
- (e) Evaluate the relative severity of problems;
- (f) Make decisions about which problems and which locations should be prioritized for action; and
- (g) Make decisions about what actions should be taken.

It is important to recognize that the absence of information is not the same as the absence of a problem. Likewise, the availability of more information about a problem in a particular location does not necessarily mean that particular problem is more severe than a problem at another location about which less information is available.

In accordance with Clean Water Act section 305(b), the SWRCB and RWQCBs periodically compile an inventory of the state's major waters and the water quality condition of those waters, using monitoring data and other pertinent information. This inventory is known as the Water Quality Assessment. Waters are categorized as good, intermediate, impaired, or of unknown quality. Impaired waters are categorized in accordance with requirements of various Clean Water Act sections [e.g. 131.11, 303(d), 304(m), 304(s), 304(l), 314, and 319].

The Water Quality Assessment is the foundation upon which the TMDL Program is built. Although considerable funding has been devoted to the TMDL program recently, the Water Quality Assessment Program has long been and continues to be inadequately funded. Clearly, this makes no sense. It is impossible to make sound decisions about whether and where TMDLs are needed, about which TMDLs should be done, and about when various TMDLs should be done, without adequate monitoring and assessment.

There is a great need for more extensive and more thorough monitoring and assessment of the region's waters. Monitoring and assessment, for both status and trends, needs to be planned, ongoing, and continuous. Despite its importance, the Water Quality

Assessment Program does not receive the attention it should and tends to fall through the cracks. This must change. Obtaining adequate funding to conduct a robust Water Quality Assessment Program is now one of the top priorities of the SDRWQCB. In the past year the SWRCB and RWQCBs have received resources to initiate the Surface Water Ambient Monitoring Program (SWAMP). Although SWAMP resources (particularly for staff) are not nearly adequate to do what needs to be done, the funding that has been provided is a significant step in the right direction. SDRWQCB staff intends to use SWAMP resources so as to ensure that monitoring and assessment is conducted in each watershed management area once in every five-year period. Although each watershed management area will be monitored, current funding will enable only cursory monitoring and assessment to be done. Particularly since funding is so limited, selecting locations to be monitored and deciding what to monitor for will be an important task for staff. Initially, staff intends to prioritize monitoring that is indicative of effects (e.g., toxicity testing, bioassessment, and benthic community analyses) rather than monitoring that simply indicates the presence and amount of a particular pollutant or class of pollutants.

Although each watershed presents some unique monitoring and assessment needs and opportunities, some general monitoring and assessment concepts are being pursued regionwide. These concepts recognize the uniqueness of the region's water resources and how some of the region's water resources can be expected to change through time with increasing urbanization and the extensive use of imported water. (The following sections are not watershed specific. Over time, SDRWQCB staff plans to prepare a summary of past, ongoing, and needed monitoring in each watershed management area.)

Monitoring Coordination and Information Management

Monitoring and assessment is not and does not need to be conducted only by SDRWQCB staff. Academic and other research groups, dischargers, and other stakeholders all have a role in monitoring and assessment. Although there is certainly a need for more extensive and more thorough monitoring of the region's waters, better coordination of monitoring efforts and better management of information is also needed in order to increase the value, usefulness, accessibility, and use of information obtained from past, ongoing, and future monitoring efforts.

Coordination of monitoring efforts is needed to ensure that appropriate and useful information is acquired, to enable sharing of such information, and to avoid both information gaps and duplicative monitoring. Since monitoring is conducted by various agencies and as part of various programs, communication and cooperation between agencies and programs is necessary in order to coordinate monitoring efforts.

The more accessible information is, the more useful it is, and the more likely it is to be used. Since monitoring information (and much other information pertinent to water quality

and beneficial uses) is location specific, a geographic information system (GIS) would be an extremely useful tool for managing and retrieving monitoring information and other information pertinent to water quality and beneficial uses. SDRWQCB staff intends to pursue development and implementation of a statewide GIS for managing and retrieving such information.

Monitoring Parameters

Monitoring activities should accurately characterize the many natural surface and ground water resources in the San Diego region and assist the SDRWQCB in their protection. Wherever possible, surface water monitoring should emphasize the direct assessment of impacts on beneficial uses, including toxicity testing, bioaccumulation, and aquatic community biodiversity and structure. The SDRWQCB intends to increase its use of benthic invertebrate community sampling in the inland streams of the region in order to better assess the overall condition of inland aquatic habitat beneficial uses. Under its ambient bioassessment contract with the SDRWQCB, the Department of Fish and Game has initiated such monitoring. The SDRWQCB plans to continue to use animal tissue analyses through both the statewide Toxic Substances Monitoring Program (for estuaries, inland streams, and reservoirs) and the statewide State Mussel Watch Program (for coastal embayments and ocean waters) to assess the presence and threat of those toxic constituents which bioaccumulate or which are harmful at concentrations which are well below the limit of detection in a water sample.

The SDRWQCB will begin to conduct hydrogeomorphic functional assessments at some of the Region's inland trend monitoring stations using the techniques contained in the *"Draft Guidebook to Hydrogeomorphic Functional Assessment of Riverine Waters/Wetlands in the Santa Margarita Watershed, 1997."* The SDRWQCB will also promote an expansion of the coliform bacteria sampling along the coast, to include all areas near storm drains where there is a significant potential for contamination. Some ongoing storm drain sampling is now being conducted by the municipal storm water co-permittees. Municipal storm water co-permittees may be required to conduct additional monitoring in the future.

Coastal Ocean Waters

The majority of the population in southern California, including the San Diego region, lives near the coastline and in watersheds that drain to the ocean. The activities associated with this population can directly influence the water quality and beneficial uses of coastal ocean waters. Although monitoring has been conducted in some areas of the region's ocean waters for several decades, nearly all of that monitoring has been conducted in close proximity to ocean outfalls from municipal wastewater treatment plants and power plants. There has been little or no coordination in the monitoring programs between different dischargers or between different RWQCBs, and, hence, little information has been obtained on the overall health of the region's coastal ocean waters. In 1994 and 1998, the Southern California Coastal Water Research Project (SCCWRP) coordinated

monitoring efforts for the southern California bight as a whole. These efforts were the first in a planned ongoing series of such efforts which can be expected to significantly improve understanding of the overall health of the coastal ocean waters of the San Diego region and southern California as a whole. These bight-wide monitoring efforts are intended to determine the status of and detect trends in southern California ocean water quality, to compare conditions at different locations, and to distinguish between anthropogenic and natural influences. The SDRWQCB is partially funding efforts of SCCWRP to develop model monitoring programs for ocean discharges and plans to make use of the results of these efforts to establish ocean discharge monitoring programs which are better coordinated, more consistent, more efficient, and more useful. Ocean monitoring and the costs thereof are appropriately the responsibility of all the entities responsible for all types of ocean discharges (e.g. municipal wastewater treatment plants, power plants, dredge spoil disposal, and urban runoff / storm water). Changes in monitoring requirements for some discharge types or individual dischargers may be necessary to achieve a more equitable distribution of monitoring costs.

Additional monitoring of San Diego region ocean waters is conducted as part of the State Mussel Watch Program.

Coastal Estuaries, Lagoons, and Bays

Many of the region's larger watersheds drain to coastal estuaries, lagoons, or bays that are contiguous with (and, at least at times, open to) coastal ocean waters. Many of these coastal estuaries, lagoons, and bays were severely degraded by the discharge of inadequately treated municipal and industrial wastewater in the 1950s and 1960s. Construction of ocean outfalls and improved wastewater treatment resulted in significant improvements in estuary, lagoon, and bay water quality in the late 1960s and 1970s.

Although many coastal estuaries and lagoons have been dredged and/or filled to a greater or lesser extent, they continue to provide extremely important fish and wildlife habitats and are important stopovers for migratory birds along the Pacific Flyway. Most of the lagoons have been severely fragmented by a railroad and two coastal highways that were constructed across and through the lagoons. These transportation corridors restrict tidal exchange and internal circulation patterns and, along with unnaturally high sedimentation rates, contribute to the marginal or poor water quality (e.g., eutrophication) and infilling currently found within many of the region's lagoons.

The natural bays of the region, San Diego Bay and Mission Bay, have both been extensively dredged and filled to create harbors. These bays and the region's other harbors (Dana Point Harbor, Del Mar Boat Basin, and Oceanside Harbor) are important for navigation, industrial water supply, fish and wildlife, and recreational uses.

Regular monitoring of coastal estuaries, lagoons, and bays is needed in order to assess trends in their conditions, as well as to assist resource agencies and lagoon foundations in actively managing these waters to improve water quality and habitat conditions.

The State Mussel Watch Program includes stations in San Diego Bay. The State Toxic Substances Monitoring Program has included sampling in San Diego region estuarine waters.

Sampling at a number of stations in San Diego Bay was part of, and is expected to continue to be part of, the ongoing bight-wide ocean monitoring effort mentioned in the previous section.

Inland Streams and Water Supply Reservoirs

While urban development poses severe environmental threats to many of the region's waters, such development can have mixed effects on the region's inland surface waters.

Imported water currently comprises over 75 percent of the region's potable water supply and is a significant contributor to the changing characteristics of the region's streams. As urban development continues to spread throughout the region, dry-weather runoff is expected to increase and contribute to an increase in the number and length of perennial stream courses in the region. Although storm water from urban areas can be expected to be of lower quality than that from undisturbed natural lands, the increased volume of dry-weather runoff produced by such development can greatly expand the aquatic habitats of nearby stream channels. In recognition of the dramatic effect that urbanization can have on changing the hydrology of the region's inland streams, regional monitoring activities need to monitor changes in the quantity, as well as the quality, of inland stream flows.

Extensive urban development in the region presents a unique threat to the region's water supply reservoirs. While the watersheds of the reservoirs were once comprised of only undeveloped rural land, large residential and commercial developments have recently been and continue to be constructed within many of these watersheds. These new urban developments can contribute a wide array of contaminants to the reservoirs. Extensive, coordinated monitoring is needed to ensure protection of these water supply reservoirs.

Work under the previously mentioned contract for the ambient bioassessment will be directed entirely towards inland surface waters.

The Toxic Substances Monitoring Program has included sampling in San Diego region inland streams and water supply reservoirs.

Reclaimed Water Discharges

The SDRWQCB has long recognized the stream enhancement potential which is associated with reclaimed water discharges and, in 1988, released the staff report "*Stream Enhancement and Reclamation Potential - 1988 through 2015*," to further expand these enhancement possibilities. Specifically, the report encourages the coordination of water reclamation projects with efforts to enhance the inland riparian and aquatic habitats of the region. The report includes a description of the SDRWQCB's requirement that all reclamation project proponents intending to utilize a natural watercourse for the transport or disposal of reclaimed wastewater must implement a comprehensive watercourse management program. The watercourse management program must include monitoring, interpretation, and analysis of stream response. The watercourse management program is designed to ensure protection and enhancement of the receiving water beneficial uses while facilitating greater reuse of water.

Prior to its promotion of the stream enhancement concept, the SDRWQCB conducted an initial monitoring survey, designed to identify the existing levels of nutrients and algae present within the region's major coastal lagoons and inland waters. Excessive biostimulation was a major problem within most of the region's coastal lagoons and streams when they received municipal wastewater discharges in the 1950s and 1960s. The SDRWQCB intends to ensure that any future reclamation discharges do not create similar problems. Ongoing monitoring data will aid the SDRWQCB in establishing appropriate nutrient limits and stream management measures.

Ground Water

The region's ground water basins supply a significant portion of the municipal and domestic and agricultural supply water used in the rural inland areas of the region. However, the available data on these inland ground water basins is frequently sparse and insufficient to document either current water quality conditions or trends in such conditions. Because economic activities in these inland areas rely so heavily upon the readily available ground water supply, ongoing monitoring and assessment efforts are needed to guide the protection of such ground waters.

TOTAL MAXIMUM DAILY LOAD (TMDL) PROGRAM

Clean Water Act section 303(d) requires that the SDRWQCB develop a list of waters that do not or are not expected to meet water quality standards after implementation of technology based controls [e.g., best practicable technology (BPT) and best available technology (BAT)] required under Clean Water Act Sections 301(b) and 306. This so-called "303(d) list" is compiled as part of the Water Quality Assessment Program. Waters on the 303(d) list are classified as "water quality limited." The SDRWQCB is required to establish "Total Maximum Daily Loads" (TMDLs) for "water quality limited" waters. TMDLs establish pollutant load allocations for each source of pollutants as

necessary so water quality standards can eventually be attained. The following information is included on the 303(d) list:

- Water body name;
- Total size of water body, in acres or miles;
- Size of water body “not supporting” beneficial uses, in acres or miles;
- Impairment;
- Beneficial uses affected;
- Total Maximum Daily Load (TMDL) development priority;
- Level (1, 2, or 3) which indicates the timing for initiating TMDL development; and
- Anticipated start and completion dates for TMDL development.

Level 1 waters are targeted for TMDL development over the next two years, even if the TMDL is not scheduled for completion until after the next two years. Level 2 waters are targeted for TMDL activities to be initiated over the next five years. The SDRWQCB will actively seek funding for these TMDLs, and/or funding is reasonably likely to become available through other state, federal, or third party (e.g., discharger) sources. Level 3 waters are targeted for TMDL activities to be initiated over a period not to exceed thirteen years. These schedules are based on TMDL activities for which the SDRWQCB is planning to seek funding support. These schedules are provisional and dependent on resource availability and further evaluation of TMDL applicability and feasibility.

In response to lawsuits and threats of lawsuits for alleged failure to develop TMDLs in a timely manner, the TMDL Program has recently been given high priority. As part of an effort to provide adequate funding for the TMDL program, virtually all funding for the Basin Planning Program has been redirected to the TMDL program. As discussed previously in the section on the Basin Planning Program, this is an unsatisfactory arrangement. Adequate resources must be provided to the TMDL program without sacrificing other programs.

Appendix C Section 1 summarizes the current schedule for TMDL development. **Appendix C Section 2** is a detailed schedule of TMDL activities that are planned over the next five years. **Appendix C Section 3** provides additional information about TMDL activities in the next several fiscal years.

NONPOINT SOURCE PROGRAM

As previously noted, the SDRWQCB has initiated a variety of activities to reduce nonpoint source pollution. The SDRWQCB’s nonpoint source goals and activities are

described in greater detail within this section. An overview of both the SDRWQCB's current activities and planned future activities is provided.

Nonpoint source (NPS) pollution, which includes but is not limited to polluted runoff, is the leading cause of water quality impairment to surface and ground waters in the San Diego Region, as well as statewide and nationwide. Unlike pollution from distinct, identifiable point sources (e.g., a municipal wastewater treatment plant), NPS pollution comes from many diffuse sources. However, the distinction between point source and nonpoint sources is not always clear. This is particularly true regarding urban runoff, which is clearly diffuse and nonpoint in origin, but is typically channelized and discharged through discrete pipes into receiving waters. Because it is typically channelized, often through a vast network of underground pipes, urban runoff is legally considered a point source discharge and is increasingly addressed through regulations in municipal storm water permits. The complex relationship between the nonpoint source origin of urban runoff, and its point source discharge from discrete storm drainpipes, presents the SDRWQCB with both significant challenges and opportunities. The fact that the San Diego Region is one of the fastest growing urban settings in the country serves to further magnify the challenges. Because NPS pollution is primarily the cumulative result of all our business, home, and recreational activities, the ultimate challenge is to all of us, as the residents and/or visitors to the area. It is a challenge that ultimately will rely on everyone taking individual responsibility for preventing and controlling NPS pollution.

The SDRWQCB Basin Plan includes a discussion of control of NPS pollution (chapter 4, pp. 66-85). A number of SDRWQB resolutions related to NPS pollution have been incorporated into the Basin Plan (chapter 5, pp. 10 – 12). Topics addressed in these resolutions include erosion and sediment control, onsite disposal systems, waivers of waste discharge requirements, and dairy wastes.

SDRWQCB Funding

In contrast to NPS programs of most other RWQCBs, the NPS program of the SDRWQCB is still in its infancy, as a result of years of minimal funding. It is important that any evaluation of the SDRWQCB NPS program recognize the low level of NPS funding allocated to the SDRWQCB over the years. Most RWQCBs have had considerably higher levels of NPS funding for many years and, consequently, their NPS programs are further along than the SDRWQCB NPS program.

Over the last several years, the various annual updates of the SDRWQCB watershed management chapter have noted the need for additional NPS program funding. The FY 2000/01 allocation for the SDRWQCB NPS program for FY is 1.7 PY. That allocation is the highest that the SDRWQCB has ever received. Considerably more funding is needed for the SDRWQCB to do the variety of important NPS activities that

are identified within the NPS section of the WMI Chapter, and shown in the proposed FY 2001/02 workplan (**Table NPS-7**).

Nonpoint Source Problems

Although laws, programs, and funding to protect water quality and beneficial uses have historically tended to focus on point source discharges of wastes and pollutants, many of the more vexing current water quality and beneficial use problems in the San Diego Region are attributable to nonpoint sources. Nonpoint sources are the major contributors of pollution to the streams, lakes, lagoons, harbors, bays, and coastal marine waters in the San Diego Region. Nearly all water quality impairments that have been identified in the San Diego Region are caused, in whole or in part, by NPS pollution.

The most significant known and suspected NPS pollution problems in the San Diego Region include bacteriological contamination of inshore coastal marine waters; heavy metal and pesticide contamination of inland streams, coastal lagoons, harbors and bays; nutrient loading and resulting eutrophication of streams, lakes, and coastal lagoons; and sedimentation impacts to streams and coastal lagoons. Many of the problems, threats, causes, sources and pathways relating to NPS pollution are identified in **Tables 8, 9, 10, and 11**. **Table NPS-1** contains a list of the specific water bodies and the problems / threats arranged by NPS management measure category. The state's NPS management measures are described in *California's Nonpoint Source Pollution Control Program (1999)*. In the San Diego Region, the greatest NPS-caused water quality and beneficial use impairments are from activities associated with urbanization, agriculture, hydromodification, marinas and recreational boating. The SDRWQCB has identified the following high priority management measures for implementation in the San Diego Region:

- a) Management Measures for Urban Areas (3.1, 3.2, 3.3, and 3.6)
- b) Management Measures for Agriculture (1.0)
- c) Management Measures for Hydromodification (5.1, 5.3, and 5.4)
- d) Management Measures for Marinas and Recreational Boating (4.0)

Two major land use changes are occurring in the San Diego region: the conversion of undeveloped land to agricultural uses and the conversion of undeveloped and agricultural lands to urban uses. These land use changes have the potential to increase nonpoint source pollution loads into already impaired water bodies and to cause impairments where they do not exist. The NPS impacts of these land use changes are often magnified by the changes in hydrology that are often associated with the use changes, e.g., increase runoff volumes and higher peak flowrates, as a result of increased percentage of impervious surface in watersheds (i.e., hardscaping). In addition to land-based sources of NPS pollutants, which contribute to polluted runoff, many coastal cities have extensive marinas and significant recreational boating, which

contribute NPS pollution to many of the region's coastal embayments directly (i.e., even without runoff).

Table 10 contains a listing of the common impacts from different land uses and activities. The most significant effects of the four high-priority categories of land use activities that the SDRWQCB will address in its NPS program are also described in greater detail below:

Urban Development Impacts

The most significant NPS effects on many of the region's waters are from existing urban development and from the ongoing conversion of other land uses to urban uses. Impacts associated with urbanization include:

- Elimination of natural channels, including the loss of wetlands, wildlife, fisheries and riparian habitat;
- Increased sedimentation due to construction activities;
- Unmitigated changes in hydrology that upset the geomorphic equilibrium of streams, causing destabilization and erosion of channels and more frequent flooding;
- Introduction and perpetuation of non-native invasive species of plants and animals (from landscaping, aquaria, etc.); and
- Increased pollutant loads associated with urban human activity (nutrients, pathogens, pesticides, PCBs, PAHs, petroleum, salts, nitrates, metals, trash, sediment, etc.).

Table 9 contains a comprehensive listing of pollutants that typically enter waters of the region via urban runoff, among other pathways. Although the NPS impacts associated with urbanization can be quite severe to a variety of surface water types, some of the areas most sensitive to NPS impacts in the San Diego Region are the coastal beaches and the water supply reservoirs.

As noted previously, imported water comprises the majority of the water supply for the San Diego Region. Although most of the storage reservoirs for the imported water were intentionally constructed in rural, undeveloped areas of the region, urban development is now expanding into the watersheds of many of these reservoirs. New upstream urban development can pose a serious threat to the region's water supply.

A high incidence of beach closures continues to plague several coastal areas in the San Diego Region. Beach closures are attributable to both point source discharges from sewer overflows, and nonpoint, diffuse sources of polluted urban runoff.

Agricultural Development Impacts

In many ways, the adverse impacts to water quality and beneficial uses associated with agricultural land uses are similar to those of urban land uses. The adverse impacts from agricultural development in the San Diego Region include:

- Disturbance to the bed of natural channels, causing a loss of acreage and quality of wetlands, wildlife, fisheries and riparian habitat;
- Irrigation-related impairment of fish habitat, including reduced stream flows where surface water diversion and/or ground water pumping significantly reduce surface flow and quality;
- Increased sedimentation due to hillside clearing and road construction activities;
- Increased nutrient loads from animal rearing facilities, plant nurseries, and fertilizer runoff;
- Increased herbicide and pesticide loads from associated agricultural activity; and
- Introduction and perpetuation of non-native invasive species of plants and animals.

Hydromodification Impacts

Most new urban and agricultural development projects in the region involve some level of hydromodification. Hydromodification impacts are also caused by the construction of major highways and railways, utility projects, marinas, and flood protection projects for existing urban development. The adverse impacts to water quality and beneficial uses associated with hydromodification projects in the San Diego Region include:

- Elimination of natural channels and associated habitat complexity, including loss of wetlands, wildlife, fisheries and riparian habitat;
- Increased sedimentation due to construction activities;
- Changes in hydrology that upset the geomorphic equilibrium of streams causing destabilization and erosion of channels;
- Increased water temperatures;
- Introduction and perpetuation of non-native invasive species of plants and animals; and
- Decreased natural water quality purification functions that could otherwise intercept and assimilate or detoxify pollutants.

The impact of decreasing or eliminating the water quality purification functions of the region's streams is most pronounced in urban and agricultural settings, where such functions are most needed. The adverse downstream impacts of urbanization can therefore be magnified by the extent of hardscaping that is utilized within the drainage systems of the developments. The extensive use of imported water in the region has led to significant increases in the dry-season flow of many of the region's inland streams, and these flows can contain associated urban and agricultural pollutants.

Marinas and Recreational Boating Impacts

Recreational boating opportunities exist along most of the region's 85 miles of coastline, as well as within several of the region's largest coastal embayments. Marinas and recreational boating activities contribute, or threaten to contribute, significant NPS pollution to San Diego Bay, Mission Bay, and several other smaller embayments. Due to the topography and semi-arid climate, there are few natural lakes in the San Diego region. Inland boating activities are primarily limited to the region's water supply reservoirs, where water purveyors impose strict controls over any boating that might be allowed. In contrast, typical impacts on lagoons, estuaries, or bays from marinas and/or recreational boats include:

- Elimination or reduction of natural lagoon, estuary, or bay habitat as a consequence of marina construction;
- Changes in hydrology caused by a marina that upset the stability of adjacent wetland areas;
- Reduced water circulation within marina areas, leading to increased incidents of stagnation and nuisance algal growth;
- Petroleum discharges from marina fueling stations and from vessels.
- Illicit sewage discharges from vessels and from faulty pumpout facilities;
- Release of biocides from boat hull paint through passive leaching and in-water hull cleaning activities;
- Release of pollutants during topside cleaning, maintenance, and repair activities;
- Discharges of fish wastes, spent zinc anodes, trash, and other vessel and marina material; and
- Introduction and perpetuation of non-native marine species from ballast water discharges.

Because of their on-water location, marinas and recreational boating present an ongoing and direct threat to surface water quality. Whereas NPS pollution from inland urban and agricultural sources may undergo natural purification processes prior to passing into nearby surface waters, no such treatment occurs with NPS pollution from vessels or marinas. There is no alternative better than an emphasis on pollution prevention. Boating and marina NPS control measures require a combination of good siting and design, diligent operation and maintenance, and active and ongoing public education.

In a 1996 report to the San Diego Bay Interagency Water Quality Control Panel (SDBIWQCP), PRC Environmental Management, Inc. (PRC) estimates the total annual mass loading of copper to San Diego Bay, from both external and in-bay sources, to be 37,589 kg per year (82,818 pounds per year). The relative contributions to this loading are: 43% from passive leaching of antifouling hull paints, 34% from in-water hull cleaning, 6% from sediment to water transfer, 6% from ship and boat yards, and 11%

from wet and dry weather runoff. To be effective, any effort to significantly reduce copper loading to San Diego Bay must place a high priority on reducing the 77% that is directly attributable to in-bay vessels.

Nonpoint Source Strategy

California's Nonpoint Source (NPS) Pollution Control Program (Program) has been in effect since 1988. A key element of the Program is the "Three-Tiered Approach," through which self-determined implementation is favored, but more stringent regulatory authorities are utilized when necessary to achieve implementation. The NPS program is being upgraded to enhance efforts to protect water quality, and to conform with Section 319 of the Clean Water Act (CWA) and Section 6217 of the Coastal Zone Act Reauthorization (CZARA). The lead State agencies for the NPS Program are the SWRCB, the nine RWQCBs and the California Coastal Commission. The long-term goal of the NPS Program is to "improve water quality by implementing the management measures identified in the California Management Measures for Polluted Runoff Report (CAMMPR) by 2013."

Long-term Nonpoint Source Management Goals

The SDRWQCB has four broad goals for nonpoint source management in the San Diego Region.

1. Monitor and assess ambient water quality and beneficial uses to determine the need for and performance of nonpoint source management measures throughout the region.
2. Ensure effective implementation of land-use specific nonpoint source pollution management measures throughout the region.
3. Facilitate implementation of watershed management plans for prevention and control of nonpoint source pollution throughout the region.
4. Provide technical assistance and education to the public, public agencies, and private landowners and other interested parties about prevention and correction of nonpoint source pollution problems.

Table NPS-2 links the four long-term goals of the SDRWQCB with the short-term objectives and the corresponding management measures that will be pursued by the SDRWQCB during the next five years. The ability of the SDRWQCB to accomplish all the proposed activities is directly dependent on the amount of funding that is available.

Nonpoint Source Program Implementation

As stated within California's Nonpoint Source Pollution Control Program, the SDRWQCB's NPS program is being implemented through a three-tiered approach. The tiers are:

- Tier One: Self-Determined Management Practices;
- Tier Two: Regulatory-Based Encouragement; and
- Tier Three: Effluent Limitations.

Through a progression, as needed, through the three tier activities, each of the NPS goals will be achieved. The three-tier approach being utilized in the NPS program is nearly identical to the three tiers that have been established for the development of watershed management plans, described earlier in the section entitled "stakeholder involvement." The SDRWQCB's emphasis on a watershed management approach emphasizes active stakeholder involvement and facilitates self-determined management practices (tier one).

The SDRWQCB's incorporation of NPS-related activities into two new subregional, watershed-based units is expected to facilitate the three-tier approach and the expeditious implementation of necessary best management practices. After making the adjustments and going through the learning curves associated with reorganization, the increased internal coordination and integration of the SDRWQCB's NPS activities with those of related SDRWQCB programs is expected to facilitate each portion of the three-tier approach.

To be effective at addressing the multitude of known nonpoint sources of pollution, increased coordination will be needed among the numerous SDRWQCB programs and activities. Greater emphasis will need to be placed on outreach and education, with the traditional regulatory approach of the SDRWQCB being reserved for those situations where such regulatory-based encouragement is needed. The SDRWQCB must expand participation with local municipal governments on the review of new urban development projects. From the early planning and environmental review process, to the post construction management of development projects, the SDRWQCB should provide technical guidance to help ensure that new developments are designed and managed to reduce their potential for the short and long-term generation of nonpoint source pollution.

Tier One NPS Activities

The SDRWQCB will continue and (where possible within available funding) expand activities to encourage self-determined NPS management practices. As noted, to enhance the effectiveness of the SDRWQCB in addressing the often diffuse, complex, and interrelated issues of nonpoint source pollution control, the SDRWQCB staff has recently undergone a significant organizational restructuring. The SDRWQCB reorganization includes two separate, watershed-based sections that will address all nonpoint pollution control and related activities on a watershed basis. Staff within each

of these two subregional sections will be responsible for a variety of interrelated activities, including: environmental document review, water quality certification, NPDES municipal and construction storm water permit oversight, watershed management activities, public education and outreach, volunteer monitoring coordination, grant management, and a number of other nonpoint source related activities.

Tier one encouragement includes public education and outreach. SDRWQCB staff will continue to actively participate with local resource conservation districts, educational organizations, lagoon foundations, and others in providing information to the public on NPS pollution, the NPS program, appropriate management measures, and best management practices.

Meetings

There are a large number of NPS-related meetings in which SDRWQCB staff should actively participate. These meetings may be categorized as follows:

1. Meetings related to 319(h) project contract management
(**Table 6** lists San Diego region 319(h) projects);
2. Meetings related to San Diego region 205(j) projects
(**Table 5** lists San Diego region 205(j) projects);
3. Routine meetings of various NPS-related groups and projects
(**Table NPS-8** lists many (but probably not all) such meetings, as well as meetings related to 319(h) contract management and San Diego region 205(j) projects); and
4. Non-routine meetings with various groups, organizations, and agencies with interests, responsibilities, resources, programs, and/or projects that are NPS-related
(**Table NPS-9** lists many (but probably not all) such groups, organizations, and agencies);
5. Meetings related to San Diego region Proposition 13 grant contract management;
6. Meetings related to soliciting proposals for and developing and refining project concepts and proposals for 319(h), 205(j), Proposition 13, and other grants.

It is important for SDRWQCB staff to participate in such meetings (including public workshops, etc.) because working with other entities is pivotal to the NPS program. To some degree, this is true because the state's NPS strategy emphasizes a non-regulatory approach. More fundamentally, however, this is true because some NPS pollution simply is not amenable to a traditional regulatory approach. The nature of NPS pollution is such that the San Diego Regional Water Quality Control Board will probably never have as much control over NPS pollution as it does over some other forms of pollution. In order to make progress on preventing and reducing NPS pollution, SDRWQCB staff needs to work with others who can control or influence the entities and activities that cause NPS pollution. Since the SDRWQCB NPS program is

in its infancy, many meetings (particularly those in category 4 above) are needed simply to initiate and establish working relationships with the many groups and organizations with a role in NPS pollution prevention / control and to enable SDRWQCB staff to determine where additional contacts and more formal arrangements (e.g. MOUs) are most likely to be productive. Significant results from SDRWQCB staff participation in meetings is likely to occur only to the extent that such participation is frequent and consistent over the long term.

For a number of years, SDRWQCB staff has participated as the lead on the Agua Hedionda Lagoon Technical Advisory Committee in implementing best management practices to reduce the existing bacteriological contamination in lagoon waters near the shellfish growing grounds. Birds roosting on the facilities of the aquaculture business appear to be the primary source of the bacterial contamination. Given the limited NPS resources available to SDRWQCB staff and other higher priority issues, SDRWQCB staff plans to phase out its participation on this committee.

The SDRWQCB will also continue to support Tier One activities through active participation in the development, review, selection, and management of grants.

Grants

Federal grants are available for water quality planning and assessments under the authority of Clean Water Act section 205(j), and for nonpoint source implementation programs under the authority of Clean Water Act section 319(h). Proposition 13 Grants are available for similar activities. As previously noted, accurate monitoring and assessment of ambient water quality and beneficial uses is critical to identifying not only the presence and magnitude of existing problems, but also the effectiveness of all management efforts to correct those problems.

Only certain types of governmental and non-governmental entities are eligible to receive 205(j), 319(h), and Proposition 13 grant funds. Proposals must also meet certain criteria in order to be eligible for funding. Although these grants are discussed here, work funded by 205(j), 319(h), and Proposition 13 grants may also be applicable to the TMDL Program and/or the Wetlands Program, described separately within those respective sections.

Each year, staffs of the SWRCB and the RWQCBs develop requests for proposals (RFPs) for 205(j), 319(h), and Proposition 13 grant projects. The RFPs are then made available to interested parties by the SWRCB. The RFPs list projects for which proposals are specifically requested, but proposals for other projects may also be submitted. Staff of the SWRCB, and the RWQCBs (and USEPA, for 205(j) and 319(h) grants) evaluate the submitted proposals to determine eligibility, prioritize eligible proposals for funding, and determine which projects to fund. The SWRCB makes the

final decision about which projects will be funded (subject to USEPA approval for 205(j) and 319(h) grants.

205(j) and some Proposition 13 grants are intended for water quality planning and assessment activities, such as determining the source(s) or cause(s) of water quality / beneficial use problems, development of watershed management plans, and other planning functions directed towards resolution of water quality problems or threats. Although 205(j) grants are often awarded for work applicable to a particular geographic area, staff of the SWRCB (not the local RWQCB) oversee all 205(j) grants. **Table 5** provides an overview of completed, ongoing, and pending 205(j) projects in the San Diego region. RWQCB staff will oversee Proposition 13 grants awarded for work in their respective regions

319(h) and some Proposition 13 grants are intended for implementation of measures to reduce or prevent water quality and beneficial use impairments resulting from nonpoint source discharges of pollutants or to restore lost or degraded watershed resources. RWQCB staff oversee the 319(h) grants awarded for work in their respective regions. **Table 6** provides an overview of completed, ongoing, and pending 319(h) projects in the San Diego region. RWQCB staff will oversee Proposition 13 grants awarded for work in their respective regions

The next RFPs for 205(j), 319(h), and Proposition 13 grant projects are scheduled to be made public in or about March of 2001. SDRWQCB staff is in the process of compiling a list of projects to be included in the RFP. **Table 7** is a preliminary list of such projects. (Also see subsequent section on Priorities and Allocation of Resources.)

Grant Management

Currently, the SDRWQCB staff oversees five 319(h) NPS grants. It is anticipated that five additional grants will be approved for implementation beginning in FY 01-02. Since two existing grants will end in FY 00-01, the total number of 319(h) NPS grants managed by SDRWQCB staff during FY 01-02 is expected to be eight. The status (completed, ongoing, or pending) of 319(h) projects in the San Diego region is identified in **Table 6**.

Since the submittal deadline for the first round of Proposition 13 proposals is after the date of preparation of this document, it is not known how many Proposition 13 grants SDRWQCB staff will manage.

Grant Development Review

SDRWQCB staff will assist in the development of the next RFPs, solicit and encourage project proposals for those RFPs, and review, evaluate, and rank those proposals which are submitted for funding. Staff will assist NPS grant applicants in developing

project proposals that will effectively implement NPS control measures. Staff will encourage projects that will implement appropriate CZARA management measures.

SDRWQCB will continue to assist project proponents in receiving grant funding for the implementation of self-determined management practices. Although the SDRWQCB intends to utilize the Tier One, non-regulatory approach as much as possible, the SDRWQCB will shift emphasis to Tier Two and Tier Three regulatory approaches, if and when it appears that inadequate progress is being made toward eliminating NPS problems and threats.

Tier Two NPS Activities

The SDRWQCB will continue (and, where possible) expand, those activities that use regulatory-based encouragement to promote the implementation of appropriate NPS management practices. The threat of a stringent regulatory approach, and the potential for future enforcement actions by the SDRWQCB, can provide an additional incentive to commit to increased NPS pollution prevention and control. Through expanding the ongoing review of applications for Clean Water Act section 401 water quality certification, the SDRWQCB can require adequate structural and non-structural management practices be incorporated into all new urban development projects to reduce the future generation and impact of urban runoff. The waivers of waste discharge requirements, (which may be utilized in lieu of water quality certification), can be conditioned on the incorporation of adequate NPS control and treatment measures.

Even before implementation of the staff reorganization, the SDRWQCB began expanding its internal coordination of nonpoint source prevention and control activities with those of water quality certification and the NPDES municipal and construction storm water permits. Of most immediate and direct impact are the structural NPS measures that are being implemented to meet water quality certification requirements.

Caulerpa taxifolia Infestation Detection, Eradication, and Prevention

In June, 2000, an infestation of the invasive non-native marine alga *Caulerpa taxifolia* was found in Agua Hedionda Lagoon on the coast of the San Diego region. This was the first known infestation of *Caulerpa* on the west coast of North America. The *Caulerpa* infestation of the Mediterranean Sea has caused widespread destruction of marine ecosystems and is now considered to be out of control. In order to prevent such destruction in California waters, SDRWQCB staff, in partnership with several other organizations, including Santa Ana RWQCB staff, has directed substantial resources (including most of the SDRWQCB NPS Program resources) to the efforts to detect, eradicate, and prevent *Caulerpa taxifolia* infestations. SDRWQCB staff intends to continue to do so, at least until such time as other agencies (e.g., Department of Fish and Game) are adequately funded and staffed for such efforts.

The SDRWQCB currently is the lead agency for *Caulerpa* response. SDRWQCB staff chair the Southern California *Caulerpa* Action Team (SCCAT), a group of representatives of various agencies involved in the *Caulerpa* response effort. *Caulerpa* poses an enormous threat to the beneficial uses associated with the native marine life of California waters. For this reason alone, involvement of the SDRWQCB and other RWQCBs is appropriate. However, RWQCBs have a particularly important role to play since *Caulerpa* infestations are believed to be attributable to discharges from saltwater aquaria and since eradication of *Caulerpa* requires chemical (e.g., chlorine) treatment of infested areas. As with many other NPS efforts, outreach and education is a key component of the *Caulerpa* response effort. SDRWQCB staff has played and continue to play an important role in the outreach and education component of the *Caulerpa* response effort. SDRWQCB staff has formed a *Caulerpa* Action Team (CAT, not to be confused with SCCAT), consisting of three senior level and three junior level staff, to focus on outreach and education. The CAT has hired a student to assist in these efforts.

Dealing with *Caulerpa* is now the highest priority for SDRWQCB NPS resources. The SDRWQCB *Caulerpa* response effort alone requires considerably more resources than the entire allocation available to the SDRWQCB for the NPS Program. SDRWQCB staff intends to pursue additional resources for *Caulerpa* response.

Water Quality Certification

By Federal law (Clean Water Act Section 401) every applicant for a Federal permit or license for an activity which may result in a discharge of fill into waters of the United States (including wetlands), must also request and receive State certification that the proposed activity will not violate water quality standards. Since nearly all of the large new residential, commercial, and industrial developments that are being proposed in the San Diego Region are required to have a Federal CWA Section 404 permit (individual or nationwide) from the U. S. Army Corps of Engineers, these same projects also need water quality certification from the State. Because water quality certification should be based on a finding that water quality standards will not be violated by either the short-term or long-term effects of a project, adequate NPS pollution prevention and control measures should be incorporated into the design of each project before the SDRWQCB can support such a finding. Without water quality certification, or a waiver thereof, the Federal license or permit can not be issued and the development project can not go forward. This need to provide, deny, or waive water quality certification imparts extensive responsibility, as well as extensive authority, to the SDRWQCB. Close coordination of the SDRWQCB's water quality certification and NPS programs is essential to assure the long-term protection of water quality and beneficial uses.

SDRWQCB water quality certification activities are also described in a later section of this chapter, *Water Quality Certification (Wetlands) Program*.

Planning and Environmental Review Participation

Within severe funding constraints, the SDRWQCB has participated in the environmental review (e.g., CEQA) process for major urban development projects, to encourage and facilitate projects which incorporate measures to minimize the generation of the NPS pollutants and their effects. The SDRWQCB realizes that through good project design, many subsequent NPS problems can be avoided, thereby reducing the potential for future degradation of water quality and loss of beneficial uses. Although it currently receives no funding specifically for environmental document review, the SDRWQCB attempts to participate on the most significant projects. If funding becomes available for greater participation, the SDRWQCB intends to utilize the environmental review process as a major avenue to encourage and facilitate NPS management measures.

Under an expanded environmental review program, the SDRWQCB will be able to provide a more integrated and effective approach to NPS pollution prevention and control. It is anticipated that earlier participation in the environmental review process will reduce the number of development projects that must undergo later redesign in order to receive water quality certification, thus eliminating the time and costs that such changes would require. An effective, integrated program is also needed for urban development projects because of significant potential impacts resulting from both hydromodifications and generation of typical urban pollutants.

SDRWQCB water quality certification activities are also described in a later section of this chapter, *Water Quality Certification (Wetlands) Program*.

A similar Tier Two approach is planned by the SDRWQCB to reduce NPS pollutants and impacts from several other activities, including: horse manure management, non-native red fire ant suppression, nursery waste management, non-native invasive plant and animal introduction and perpetuation, agricultural erosion control, and golf course management. During the upcoming year the SDRWQCB intends to shift emphasis on marine invasive exotics from management practice development and implementation to monitoring and assessment. A recent statewide requirement that vessel ballast water be flushed prior to entering or returning to California waters may significantly lessen the threat of introduction of invasive marine species to the San Diego Region's coastal embayments. However, monitoring and assessment of the effectiveness of the flushing requirement is still needed.

Within funding limits, the SDRWQCB intends to initiate or expand Tier Two activities as described below:

Horse Manure Management

New and additional efforts are needed to reduce the amount of pollution that is being contributed by horse manure in the San Juan Watershed Management Area. This

effort will implement a management measure similar to NPS/CZARA Management Measure 1B, but some modifications may need to be developed.

Horse manure has been found to be a problem for water quality in several areas of the San Diego region. It is believed that improper management of horse manure at stables and in numerous private residential horse corrals throughout the San Juan Watershed Management Area is directly contributing to the elevated fecal coliform levels of San Juan Creek. Discharges of horse manure wastes and wastewater is also contributing to elevated levels of nutrients and biochemical oxygen demand in the creek. The increased levels of nutrients and organics are also expected to contribute to the extensive growth of filamentous algae throughout lower San Juan Creek. Improved manure management practices need to be implemented in order to reduce water quality impairment in both the creek and in the ocean waters near the mouth of the creek. Information and experience gained from this effort in the San Juan Watershed Management Area would be transferred for use in other watershed management areas with similar horse manure and elevated coliform problems throughout the San Diego region and the state.

Non-native Red Fire Ant Suppression Pollutant Control

New efforts are needed to minimize the water quality impacts associated with the state's new and rapidly expanding efforts to control the introduction and spread of the non-native red fire ant. This effort will implement NPS/CZARA Management Measure 1D.

The recent introduction of the non-native red fire ant to the San Diego region has triggered concerns regarding the possible adverse effects of the resulting pest control measures on water quality and beneficial uses in the San Diego region. Non-native red fire ants have been found in the large ornamental nurseries of the southern Orange County portion of the San Diego region. Since runoff from these nurseries has already contributed to water quality reductions in the receiving water streams, increased pest management efforts to control non-native red fire ants could exacerbate the existing problems. SDRWQCB plans to focus initial efforts on the San Juan Watershed Management Area. The SDRWQCB plans to actively participate with other environmental and regulatory agencies to ensure that control of the red fire ants can be attained with minimal impact on the water quality of the surface and ground waters of the San Juan Watershed Management Area. Information and experience gained from this effort in the San Juan Watershed Management Area would be transferred for use in other affected watershed management areas throughout the San Diego region and the state.

Nursery Runoff Pollutant Control

New and additional efforts are needed to reduce the discharge of pollutants from ornamental nurseries to the streams in the San Juan Watershed Management Area. These efforts would implement NPS/CZARA Management Measure 1D.

Runoff from the large ornamental nurseries of the southern Orange County portion of the San Diego region, particularly in the San Juan Watershed Management Area, has contributed to water quality degradation in several nearby streams. Nutrients have been found in elevated concentrations and excessive growth of filamentous algae is a problem in these streams. The pre-emergent herbicide oxadiazon has also been found in elevated concentrations near nurseries in both fish tissues and stream sediments. More effective control measures are needed at the nurseries in order to reduce the discharge and impact of nursery pollutants. San Juan Watershed Management Area is a UWA Category I priority watershed. Information and experience gained from this effort in the San Juan Watershed Management Area would be transferred for use in other affected watershed management areas throughout the San Diego region and the state.

Non-native Invasive Riparian and Fresh Water Species Control

New and additional efforts are needed to stop the introduction and spread of and to remove non-native invasive plants and animals throughout the riverine areas of the San Diego region. There are no existing NPS/CZARA management measures for the control of non-native invasive species of riparian and wetland vegetation or aquatic animals.

Non-native invasive species of vegetation have seriously degraded the beneficial uses of many streams and rivers of the San Diego region. The most significant impacts are being caused by giant reed (*Arundo donax*) and salt cedar (*Tamarix sp.*). Both of these species are rapidly displacing native streamside vegetation. Their significant adverse environmental effects have included: (a) dramatic reductions in wildlife habitat values and functions; (b) increases in flooding due to increased flow obstruction; (c) reductions in dry-season base flows within streams due to extensive increases in evapotranspiration water losses; (d) reductions in recreational uses due to physical restrictions to passage, reduced recreational and habitat values, and reduced areas of open water. With giant reed another insidious effect has been the conversion of the infected river's hydrologic regime from one that is flood dominated, to one that is fire dominated. Rivers that have become dominated by giant reed have more easily caught fire, and burned with an intensity that far exceeds that which would ever occur with native vegetation. Salt cedar has the additional impact of creating saline soils. The salt exuded from salt cedar leaves during the course of transpiration creates soil salinities that inhibit the germination of native plants. Since land disturbances have been found to encourage the establishment of non-native vegetation, management measures must be developed and implemented which will ensure that land disturbances do not continue to exacerbate the problem throughout the San Diego region. Information and

experience gained from this effort in various San Diego region watershed management areas would be transferred for use in other affected watershed management areas in the state.

Agricultural Erosion Control

New and additional efforts are needed to reduce the amount of soil eroded from agricultural land and discharged into streams within the Santa Margarita River Watershed Management Area. This effort will implement NPS/CZARA Management Measure 1A.

Erosion from agricultural soil disturbances has caused elevated sedimentation in numerous streams within the Santa Margarita River Watershed Management Area. The soil disturbance is associated primarily with citrus and avocado groves, and, to a lesser extent, with row crops. Information and experience gained from this effort in the Santa Margarita River Watershed Management Area would be transferred for use in other watershed management areas with similar erosion control problems throughout the San Diego region and the state. The SDRWQCB has a Memorandum of Understanding (MOU) (SDRWQCB Resolution No. 92-21) with the Resource Conservation Districts (RCDs) of San Diego County and the Elsinore-Murietta-Anza RCD (SDRWQCB Resolution No. 79-25) to coordinate agency responses to increased erosion, or threats of increased erosion, from agricultural activities. Per the MOUs, the RCDs will typically be the first responders to complaints of agricultural erosion, and the RCDs will provide technical assistance to the landowners to correct the erosive conditions. In those cases where the RCDs are unable to get cooperation from the landowner in implementing necessary corrective actions, the cases are referred to the SDRWQCB for consideration of formal enforcement action. It is through this regulatory-based (Tier Two) encouragement that agricultural erosion control may best be achieved. The SDRWQCB will continue to work with the RCD's to reduce erosion on agricultural lands utilizing Tier One and Two approaches, and when necessary, Tier Three enforcement actions to correct chronic problems.

Golf Course Management

New and additional efforts are needed to reduce the amount of pollutants, including nutrients, pesticides, herbicides, and organic materials, discharged from golf courses. Pollutant releases from golf courses are a contributor to reduced water quality in several areas of the San Diego region. Such impacts are most pronounced in those golf courses that were constructed decades ago when vegetative buffers were not a requirement for receiving water quality certification from the state. In such older courses, turf grass is commonly manicured and maintained down to the edge of the creeks or rivers which traverse them. This direct connection between the streams and the manicured turf grass facilitates the transport of fertilizers, pesticides, and grass clippings into the streams. Such inputs can impact both surface and ground waters. The SDRWQCB will initiate focused activities on golf courses on the lower Sweetwater

River, in the San Diego Bay Watershed Management Area. This effort will implement measures similar to NPS/CZARA Management Measures 1C and 1D for agriculture.

Pollutants from these golf courses contribute directly to impacts on the lower Sweetwater River and San Diego Bay near the river mouth. A major desalination plant is being constructed near the river mouth, and any increased nutrients discharged from the golf courses can be expected to exacerbate any impacts from the desalination plant discharge. The Sweetwater River is tributary to San Diego Bay, which is a UWA Category I priority. Information and experience gained from this effort in the San Diego Bay Watershed Management Area will be transferred and utilized by the SDRWQCB in other watershed management areas with similar golf courses.

Tier Three NPS Activities

Although the SDRWQCB actively encourages self-determined implementation of NPS control measures and practices, the SDRWQCB has utilized waste discharge requirements and enforcement actions, where appropriate efforts were not forthcoming.

Enforcement actions have been taken for several kinds of activities, including: agricultural land clearing where the erosion control recommendations of the local RCD were being ignored, new urban construction projects where there were inadequate erosion control measures, green waste storage sites, horse corrals with inadequate runoff protection, and commercial nurseries where there were inadequate measures to prevent the discharge of contaminated irrigation runoff. To provide greatest regulatory control over nonpoint source pollution from dairies, the SDRWQCB continues to regulate all dairy facilities with waste discharge requirements. The waste discharge requirements address not only dairy barn wastes and wastewater, but also dairy corral runoff.

Statewide Activities

The SDRWQCB participates in several statewide activities as part of the Nonpoint Source Program. This participation includes NPS program roundtables, CWA section 401 water quality certification coordinating committee meetings, Urban Runoff Task Force meetings, and assistance in the annual preparation of the NPS and planning grant Request for Proposals.

WATER QUALITY CERTIFICATION (WETLANDS) PROGRAM

Wetlands Inventory

Wetlands are important water resources that are sensitive to a number of the stressors and subject to a number of the water quality problems and threats listed in **Tables 8 through 11**. Wetlands provide habitat for many species of biota and serve water quality protection functions for downstream waters. A large percentage of wetland

acreage has been lost or degraded as a result of dredging, filling, and other physical modifications.

The SDRWQCB participates in the Southern California Wetlands Recovery Project (formerly the Southern California Wetlands Clearinghouse) as part of an effort to preserve and protect remaining wetlands. Major coastal wetland resources in the San Diego region (and other parts of southern California) are identified in the "*Southern California Coastal Wetlands Inventory*" (SCCWI), prepared by the wetlands recovery project. The SCCWI briefly describes the major coastal wetlands, land ownership, land use, hydrology, water quality, soil, habitat types, wildlife resources, enhancement status, watershed management issues, and major pressures and/or threats facing the coastal wetlands. The SCCWI is not all-inclusive. Very small coastal wetlands and the inland wetlands of the region have not yet been added to the SCCWI, although SDRWQCB staff is participating in efforts to do so. The SCCWI includes profiles for the following San Diego region coastal wetlands.

Orange County

San Juan Creek Mouth

San Diego County

San Mateo Lagoon

Las Flores Lagoon

Santa Margarita Lagoon

San Luis Rey River Estuary

Buena Vista Lagoon

Agua Hedionda Lagoon

Batiquitos Lagoon

San Elijo Lagoon

San Dieguito Lagoon

Los Penasquitos Lagoon

Mission Bay

Famosa Slough

San Diego Bay

Tijuana Estuary

Wetlands Grants

SDRWQCB staff intends to increase efforts to obtain wetlands protection grants for wetlands in the San Diego region. These grants, which are offered pursuant to Clean Water Act section 104(b)(3), are available to state, tribal and local (regional, county, and municipal) governments. SDRWQCB staff intends to work with other agencies to develop project ideas and grant proposals. The SDRWQCB recently received a 104(b)(3) wetlands grant to do hydrogeomorphic functional assessments. Whether the

SDRWQCB or another entity is the grantee, such grants could make an important contribution to protecting and restoring wetlands of the region.

Long-term Wetlands Goals

The following provisions of the *California Wetlands Conservation Policy* (established August 23, 1993 through Executive Order W-59-93) are long term goals for wetlands in the San Diego region:

"Ensure no over all net loss and achieve a long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in California in a manner that fosters creativity, stewardship and respect for private property."

"Reduce procedural complexity in the administration of State and Federal wetlands conservation programs."

"Encourage partnerships to make landowner incentive programs and cooperative planning efforts the primary focus of wetland conservation and restoration."

The SDRWQCB will utilize the following guiding principles and strategies to ensure that these long term goals for wetlands in the Region are achieved:

- Protect and preserve existing wetlands.
- Restore historical salt and brackish marsh habitats wherever possible.
- Protect existing salt and brackish marsh habitats from conversion to freshwater marsh habitats.
- Restore and enhance freshwater wetland habitats, except in areas where such habitats would encroach into salt or brackish water marsh habitats.
- Protect vernal pool complexes as unique wetland habitats which are extremely difficult to recreate.
- Preserve high quality ephemeral stream habitats in those areas (such as on military bases and in large rural parks) which can be protected from the hydrological changes which accompany urban development. (The concept of such "stream reserves" was discussed in the 1988 SDRWQCB staff report on "*Stream Enhancement and Reclamation Potential - 1988 through 2015.*")
- Preserve wildlife corridor and connectivity functions along riverine systems.

- Protect wetlands from the invasion of non-native species.
- Provide sufficient vegetated buffer around wetlands to protect wetland habitat functions.
- Promote public awareness of the important habitat and water quality protection functions of wetlands.
- Expand the acreage of wetlands in developing areas to treat urban runoff, recognizing that wetlands provide water quality protection functions.
- Encourage the use of constructed wetlands to improve water quality and enhance beneficial uses throughout the region.
- Encourage the use of “live stream” discharges, where appropriate and beneficial to both stream habitat beneficial uses and increased use of reclaimed water.
- Promote management measures that preserve the natural hydrology of the floodway and do not require clearing or other maintenance of native riparian and wetland vegetation in order to maintain flow capacities needed to reduce damage from flooding along riverine systems.

Water Quality Certification (CWA Section 401)

Section 401 of the Clean Water Act requires each person applying for a federal permit or license for an activity that may result in a discharge of pollutants into waters of the United States to obtain certification from the state that the activity meets all applicable state water quality standards, limitations, and restrictions. The SDRWQCB’s water quality certification activities have focused on projects requiring federal Section 404 permits for the discharge of dredged or fill material to surface waters. The SDRWQCB evaluates applications and assists the applicants for each proposed project requiring water quality certification to ensure that water quality standards (both beneficial uses and water quality objectives) will be met. Where standards will be met, the SDRWQCB may waive water quality certification (through a waiver of waste discharge requirements) pursuant to California Code of Regulations, Title 23, Article 4 or recommend certification or conditional certification to the SWRCB. A recommendation to the SWRCB for denial of certification is made only if the proposed project cannot be modified to meet water quality standards. Careful consideration is given to addressing the potential impact of each proposed project on wetland habitats, using the aforementioned principles and strategies.

NPDES PROGRAM

The NPDES program deals with the discharges of pollutants from point sources to surface waters. Certain discharges to surface waters that are not subject to NPDES requirements can be regulated by waste discharge requirements issued under the Non Chapter 15 Program. (See subsequent section on Non Chapter 15 Program.)

The NPDES Program consists of two somewhat distinct parts - the so-called "waste water" part and the so-called "storm water" part. The waste water portion of the NPDES program is well established, having been in place since the 1970s. It is also well funded, compared to some other programs and compared to the storm water portion of the NPDES program. The waste water portion of the NPDES program deals with pollutants in "waste water" effluents discharged to surface waters from publicly owned treatment works, industrial facilities, and other facilities. In contrast to the waste water portion of the NPDES program, the storm water portion of the NPDES program was not initiated until about 1990. The storm water portion of the NPDES program deals with discharges of pollutants in runoff from municipalities and industrial sites, including construction sites. The storm water portion of the NPDES program has long been inadequately funded. Although storm water funding has recently increased, funding still falls short of what is needed. Although additional funding is needed for both portions of the NPDES program, the need is greater for the storm water portion, since the waste water portion of the program is better funded than the storm water portion; the storm water portion of the program is intended to address polluted runoff (which is currently the primary cause of water quality problems); and requirements in storm water permits are changing more than those in waste water permits.

Over the years since the inception of the NPDES program, increasingly stringent limits on waste water discharges have greatly reduced water quality and beneficial use problems resulting from such discharges. Waste water discharges continue to pose the potential to cause problems, but, as a group, they are no longer the primary cause of current water quality problems. Polluted runoff is now the primary cause of water quality problems. The Nonpoint Source program and the storm water portion of the NPDES program are intended to correct these problems.

By law, NPDES permits are supposed to be reissued every five years. However, NPDES waste water permits have progressed to the point where the changes in permit requirements in the current reissuance cycle are, in most (but not all) cases, relatively minor and are of relatively minor significance to the protection of water quality and beneficial uses. Nevertheless, even where there are no significant changes, the reissuance process is time consuming and resource intensive. In contrast, major changes in requirements are still being made (or considered) as NPDES storm water permits are reissued and those changes often are of major significance to protection of water quality and beneficial uses.

Where major changes in permit requirements are proposed (or where the proposed permit requirements are controversial for any other reason), the permit reissuance process can be extremely time consuming and resource intensive. This has been the case with the still-ongoing reissuance process for the municipal storm water permit for San Diego County. This process was initiated more than five years ago, but a reissued permit has yet to be adopted. This was also the case during the last NPDES permit reissuance cycle with the permit for the discharge from South Bay Power Plant to San Diego Bay and the permits for discharges from shipyards to San Diego Bay. After a very protracted SDRWQCB reissuance processes, petitions were filed for SWRCB review of these permits. After the SWRCB acted on the petitions, lawsuits were filed on these permits. Over three years elapsed between when the permit reissuance process for the South Bay Power Plant was initiated and when all permitting actions associated with the lawsuit settlement were completed. Over four years elapsed between initiation of the permit reissuance process for the shipyards and the final superior court ruling on the lawsuit. Such lengthy permitting processes, appeals, and lawsuits require substantial SDRWQCB staff resources, as well as time. The South Bay Power Plant permit is due to be reissued in FY 01-02 and the shipyard permits are due to be reissued in FY 02-03. The reissuance process for these permits may again prove to be protracted, especially to the extent that more stringent requirements may be appropriate. Consequently, it is important to recognize that "uniform cost factors" for NPDES permit reissuance are unlikely to provide a realistic estimate of the actual resources needed for the SDRWQCB to reissue these or certain other permits.

Most of the NPDES waste water permit reissuance workload is concentrated in one year of the five year reissuance cycle. This makes it difficult or impossible to maintain adequate compliance oversight activities level during that year. In order to even out the reissuance workload in the past, the SDRWQCB has issued permits for a period of less than five years. By shortening the reissuance cycle, this approach increases the staff resources devoted to reissuance, and, therefore, reduces the staff resources devoted to compliance oversight. Since this approach has not been advantageous for purposes of protecting water quality or beneficial uses, SDRWQCB staff does not plan to recommend that permits be issued for periods of less than five years. In order to even out the reissuance workload, SDRWQCB staff is considering allowing some low threat-to-water-quality permits to expire and be automatically administratively extended pending reissuance, as provided for by state and federal law. No adverse impacts to water quality or beneficial uses are expected to result from this approach.

Largely due to the priority USEPA and the SWRCB have assigned to eliminating and avoiding backlogs of expired permits, reissuance has been emphasized over issuance of new permits. This has the potential for two undesirable results. First, permits for proposed new discharges are likely to be delayed, with possible resulting adverse consequences for permit applicants. Second, permits for existing, but previously

unpermitted discharges are likely to continue without permits and the accompanying compliance oversight, with possible resulting adverse consequences for water quality and beneficial uses. In the future, after the permits that expire in FY 2001-2002 are reissued, SDRWQCB staff intends to prioritize new permits over permit reissuance. At this time, new permits are planned for existing discharges from Navy facilities concentrated around San Diego Bay and for discharges from recreational boat marinas in the several small craft harbors located in the San Diego region. These permits are likely to include requirements for both waste water and storm water, as is the case in SDRWQCB-issued permits for boatyards and shipyards. One new NPDES permit is also planned for a dairy. This permit would replace existing non-NPDES waste discharge requirements for the dairy. Three other recently adopted NPDES permits replaced non-NPDES waste discharge requirements for other dairies.

Facilities regulated under the waste water portion of the NPDES program are inspected infrequently – often less than once annually at “minor” facilities. In contrast, most facilities regulated under the Non Chapter 15 program are inspected at least three times annually. SDRWQCB staff intends to pursue adequate resources to conduct additional inspections at facilities regulated under that NPDES waste water program. A preliminary goal is to conduct three inspections annually at all facilities which are categorized as “major,” “threat to water quality category 1,” or “complexity category A;” or where compliance is based on best management practices (BMPs) and to conduct one inspection annually at all other facilities.

Facilities regulated under the storm water portion of the NPDES program are also inspected infrequently. SDRWQCB staff intends to pursue adequate resources to conduct additional inspections at facilities regulated under that NPDES storm water program. The following are preliminary goals:

1. Inspect each municipal storm water co-permittee at least once annually. Such inspections could consist of both field work and file reviews analagous to a pretreatment compliance audit or inspection.
2. Inspect each industrial storm water site on the average of once every two years.
3. Inspect each construction storm water site once per year. Annual inspections are important because construction is often completed in less than one year and even more often in less than two years.

SDRWQCB staff intends to increase the number of inspections over a period of years, as the level of staff effort necessary to deal with industrial storm water non-filers is expected to decrease.

Since they are both intended to deal with polluted runoff, the storm water portion of the NPDES program and the Nonpoint Source program need to be closely integrated and coordinated. SDRWQCB staff needs to determine how the two programs can fit and work together most effectively. One area where the storm water portion of the NPDES program and the Nonpoint Source program, as well as the Water Quality Certification

program, can be integrated and coordinated is participation in the CEQA process. Although new development is a major cause or source of water quality and beneficial use problems and threats (from polluted runoff and physical modifications), and although the CEQA process is an important tool for preventing or mitigating those problems and threats, the SDRWQCB has not had adequate resources to participate in the CEQA process. SDRWQCB staff intends to pursue funding to enable it to fully participate in the CEQA process. SDRWQCB staff anticipates that participation in the NPDES program to address needs and concerns related to the storm water portion of the NPDES program, the Nonpoint Source program, and the Water Quality Certification program can be readily integrated and coordinated.

It is important to distinguish between different roles for SDRWQCB role in the CEQA process. Although it is seldom the CEQA lead agency, the SDRWQCB has an important role to play in the CEQA process when it is not lead agency. Early and ongoing SDRWQCB participation in the CEQA process when another agency is the lead can prevent water quality / beneficial use problems and/or reduce the time and expense of preventing and/or correcting such problems.

NON CHAPTER 15 PROGRAM

Since discharges to land from point sources are regulated by waste discharge requirements issued under the Non Chapter 15 Program, this program is often assumed to be applicable only to discharges to land from point sources. In fact, discharges to land from nonpoint sources can also be regulated by Non Chapter 15 waste discharge requirements. More importantly, certain discharges to surface waters from sources that are not subject to NPDES permits can be regulated under Non Chapter 15 waste discharge requirements. Such discharges include those from dredge and fill activities and those from nonpoint sources. Polluted runoff, (i.e., nonpoint source pollution) is now the primary cause of water quality problems in the San Diego region. Consequently, the authority of the SDRWQCB to issue Non Chapter 15 waste discharge requirements for nonpoint sources is a potentially very important tool to be used in addressing current water quality problems. SDRWQCB staff anticipates making increased use of this tool as greater attention is directed towards nonpoint source pollution. (See previous section on Nonpoint Source Program.) Where it is practical to do so, individual or general waste discharge requirements may be adopted for nonpoint source discharges to surface waters. Some of these nonpoint sources may be in categories for which waste discharge requirements have not been issued by the SDRWQCB in the past, possibly including categories for which waste discharge requirements are currently waived by the SDRWQCB.

Recent legislation requires that RWQCBs review and reevaluate waivers of waste discharge requirements. It is apparent from **Table NPS-5** that many of the categories

of discharges covered by waivers may be considered nonpoint source discharges. Consequently review and reevaluation of waivers will provide an excellent opportunity to coordinate and integrate the SDRWQCB Non Chapter 15 and Nonpoint Source Programs. The waiver review and reevaluation will also help to bring Non Chapter 15 resources to bear on water quality and beneficial use problems and threats resulting from nonpoint sources. In some cases existing waivers and waiver conditions may be appropriate. In other cases, waivers with revised conditions, including revised monitoring and reporting requirements, may be appropriate. In other cases, it may be appropriate to replace categorical waivers with general or individual waste discharge requirements. In any case, SDRWQCB staff will need to consider how to identify and keep track of the facilities to which waivers apply and how to evaluate whether waiver conditions are met. It appears that there are not good records on which waivers apply to which facilities. It also appears that, in many cases, existing information and procedures are not adequate to enable determination of whether waiver conditions are met.

Coordination and integration of the Non Chapter 15 Program and Water Quality Certification (Wetlands) Program could also help prevent and respond to water quality and beneficial use problems. As discussed previously, water quality certification is an important tool for protecting beneficial uses of the region's waters. However, enforcement authority is a potential weakness of the water quality certification program. In order to strengthen the ability to take enforcement action in connection with activities requiring water quality certification, it may be appropriate for waste discharge requirements incorporating the conditions of water quality certification to be issued for such activities. This would enable all the enforcement tools provided by the Porter-Cologne Act for dealing with violation of waste discharge requirements to be used where violations of conditions of water quality certification occur.

For some proposed discharges subject to regulation under the Non Chapter 15 program, the SDRWQCB is the lead agency for purposes of CEQA. This has been the case for waste discharge requirements for several different activities related to the US Navy nuclear aircraft carrier San Diego Bay homeporting project. When the SDRWQCB is the CEQA lead agency, issuance of waste discharge requirements can be extremely time consuming and resource intensive. Consequently, it is important to recognize that "uniform cost factors" for issuance of waste discharge requirements are unlikely to provide a realistic estimate of the actual resources needed for the SDRWQCB to issue waste discharge requirements where the SDRWQCB is the CEQA lead agency.

PRIORITIES AND ALLOCATION OF RESOURCES

SWRCB and RWQCB priorities should be established and resources should be allocated on the basis of what is most important and effective for purposes of protecting

and restoring water quality and beneficial uses. A variety of different types of priorities are important to protection of water quality and beneficial uses. These include:

- Type 1: Priorities between programs (i.e. which program is a higher priority?)
- Type 2: Priorities within a program (i.e. which activity in a particular program is a higher priority?)
- Type 3: Priorities between water quality and beneficial use problems and threats (i.e. which problem / threat is a higher priority?)
- Type 4: Priorities between sources / causes of water quality and beneficial use problems and threats (i.e. which source / cause is a higher priority?)
- Type 5: Geographic priorities (i.e. which site, place, area, body of water, water body type, watershed, or portion of a watershed is a higher priority?)

Setting one type of priority may be useful in setting another type of priority. For example, determining Type 4 priorities may help determine Type 1 priorities. The following paragraphs briefly discuss current priorities for the San Diego region. SDRWQCB staff intends to further define different types of priorities in the future.

The Type 1 priority question of which program is a higher priority is, for practical purposes, a question of where additional funding is most needed. In other words, it is a question of where an additional increment of resources (i.e. beyond current levels) would do the most to protect water quality and beneficial uses. The following programs are most in need of additional funding:

1. Water Quality Certification (Wetlands) Program
2. Nonpoint Source Program
3. Water Quality Assessment Program
4. NPDES Program (storm water portion)
5. Basin Planning Program

These programs are critical to addressing most of the San Diego region's most pressing water quality and beneficial use problems and threats. Although funding for some, if not all, of these programs has recently increased or is expected to increase, additional funding is needed for these programs in order to address these problems and threats effectively. The longstanding shortage of funding for these programs should not be interpreted to mean that these programs or the problems or threats they are intended to address are low priorities for the SDRWQCB. The shortage is, instead, a reminder that (1) the funding sources which provide the limited resources available for water quality / beneficial use protection generally require that the funds be used in specific programs and/or for specific activities and (2) that the SDRWQCB is obligated to fulfill its legal mandates. Consequently, discretionary resources and grant funds are quite small and the SDRWQCB has little flexibility in allocating resources to where they are most needed to protect water quality and beneficial uses.

Table 12 lists priorities for activities in various SDRWQCB programs, as well as some priorities that involve multiple programs or cross program lines. In general, these priorities represent work that would be done (or done sooner) if an additional increment

of funding (i.e. beyond current levels) were to become available for the listed SDRWQCB programs. As such, **Table 12** provides an indication of both Type 1 and Type 2 priorities. Some of these priority activities have been briefly discussed in previous sections of this document. In some cases (particularly some of the multi-program and cross-program items), the listed priorities represent needed changes that are entirely or partially beyond the control of the SDRWQCB to accomplish (i.e. other entities would need to be involved and/or take action). It is apparent from **Table 12** that oversight of new development (e.g. by participation in the CEQA process) and oversight of compliance with existing requirements are priority activities.

SDRWQCB staff understands that joint efforts of SWRCB and RWQCB staff are underway to better define Type 3 and Type 4 priorities statewide. However, priorities in a particular region may not coincide with statewide priorities. **Tables 8 through 11** provide different ways of looking at water quality / beneficial use problems and threats in the San Diego region, typical sources or causes of those problems and threats, and the stressors involved in those problems and threats. In some cases, the distinction between a problem or threat, a source or cause, a stressor, and a pathway is somewhat blurred. For example, urban runoff is sometimes identified as a problem or threat; sometimes as a source or cause. However, urban runoff might better be considered a pathway by which certain pollutants (which are stressors) enter bodies of water, rather than a problem or threat or a source or cause *per se*. **Table 11** indicates the San Diego region watershed management areas where the problems and threats listed in **Table 8** occur. SDRWQCB staff plans to refine and update these tables and to use them to better define priorities.

Targeted watersheds and the Unified Watershed Assessment priority watersheds represent geographic (Type 5) priorities. However, they should not be viewed as the only geographic priorities in the region. Geographic priorities may be defined in other ways, e.g. as specific to a portion of a watershed management area, to a particular water body, or to a particular type of water body. It would be a mistake to consider all waters, beneficial uses, problems and threats, discharges, activities, and programs in targeted watersheds or Unified Watershed Assessment priority watersheds to be higher priority than those in any other watershed (see previous section on Watershed Management Scale.) For example, there may be potential 205(j), 319(h), and/or Proposition 13 projects in non-targeted watersheds that warrant a higher priority (e.g. because they would be more effective in protecting water quality and beneficial uses) than such projects in targeted watersheds. With 205(j), 319(h), and Proposition 13 proposals, among other watershed-oriented, stakeholder-initiated activities, timing and windows of opportunity are often of the essence. In other words, it is important to take advantage of promising initiatives and efforts when they arise. A good project deserves support, whether or not it is in a targeted or priority watershed, and whether or not it is identified in RFPs for 205(j), 319(h), or Proposition 13 grants. SDRWQCB staff intends to rate projects on their merits (i.e., for protecting / restoring water quality and beneficial

uses), regardless of whether they are located in targeted or priority watersheds and whether they are identified in the RFPs for 205(j) / 319(h) / Proposition 13 grants. Although SDRWQCB staff strives to identify worthwhile projects for grant funding, it would be presumptuous to think that SDRWQCB staff has thought of or is aware of all such projects. In other words, SDRWQCB staff is committed to being open to worthwhile projects, whether or not SDRWQCB staff had the idea for the project or whether the project is identified in an RFP or some other list of projects. (All other factors being equal, lists of targeted watersheds and projects identified in the RFP could be used as a "tie-breakers.")

Historically, the SDRWQCB has established its priorities and allocated its resources on a program basis, with only limited consideration of resource allocations towards specific watersheds or to specific water quality or beneficial use problems or threats. The SDRWQCB cannot devote all of its resources to one watershed or to a few watersheds to the exclusion of all other watersheds. Neither can the SDRWQCB ignore its legal mandates nor the conditions attached to various funding sources. Accordingly, resources must be allocated to regionwide activities and to activities in each of the of the nine designated watershed management areas in order to accomplish work that the SDRWQCB is required to do (e.g. issue permits for new discharges, take necessary enforcement action, respond to citizen complaints etc.). It is also important to recognize that the "watershed approach" is not an end in and of itself. The desired end result is efficient and effective protection and restoration of water quality and beneficial uses. Prioritizing and doing work on the basis of hydrologic boundaries is appropriate only to the degree that it is advantageous for purposes of this end result. Some work may best be prioritized and done on some basis other than on hydrologic boundaries. Under the watershed management approach, the SDRWQCB will emphasize allocation of discretionary resources [e.g., 205(j), 319(h), and Proposition 13 grants] to where funding would be most effective in protecting water quality and beneficial uses.

Although the shift to a watershed management approach is a functional change for the SDRWQCB, it does not necessarily dictate a change in organizational structure. For some watersheds where there are numerous and complex issues with a high workload, it may be desirable for the SDRWQCB to make an "organizational" change to set up a permanent unit to work specifically on issues in the watershed. In other watersheds with less complex issues, a temporary "team" of staff members with a staff coordinator may be designated to work on the watershed issues for a distinct period of time outside of the framework of a formal or permanent organizational unit. With the recent availability of additional resources and the resulting increase in SDRWQCB staffing levels, reorganization of SDRWQCB staff is occurring incrementally. One of the recent changes has been the creation of two sub-regional units (one for the northern portion of the region, the other for the southern portion) that are responsible for several different programs (or portions of programs) in those two parts of the region. Another recent change is to create two units that would be responsible regionwide for several different

programs (or portions of programs) that apply to a particular type or category of facility. It is hoped that these changes will facilitate integration and coordination of programs and activities, improve efficiency and effectiveness, and enable additional resources to be directed to activities most critical to addressing the greatest water quality and beneficial use problems and threats. Most staff, including supervisors, in the recently reorganized units will need to become familiar with a number of different programs in which they do not have experience. Staff in the sub-regional (watershed) units will also need to become familiar with the geographic areas to which they are assigned. Since moving through these learning curves will take time, it will also take time for the benefits of the reorganization to be achieved.

The shift to watershed management will also require strong leadership and consensus building skills on the part of staff appointed to direct or participate in watershed management activities. The following important early steps for implementing the watershed management approach are currently underway at the SDRWQCB:

- Identification of key staff to participate in watershed management activities;
- Training staff on the principles of watershed management;
- Establishing an efficient means of communication among various watershed team staff members to ensure that staff work is consistent with the priorities and goals;
- Budgeting sufficient time for key staff to do priority work;
- Implementing functional or organizational changes as necessary; and
- Designating roles and responsibilities of each SDRWQCB organizational unit for implementation of the watershed management approach.