

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.