

## 8 BENEFICIAL USES

### 8.1 Regulatory Context

Beneficial uses are defined as the uses of water necessary for the survival and well-being of man, plants, and wildlife (SDRWQCB 1994). The San Diego Region Basin Plan designates beneficial uses of surface waters within the SDRW, and establishes surface water quality standards required to protect the designated beneficial uses. The water quality standards must protect the most sensitive of the beneficial uses designated for a water body. The beneficial uses that require the highest standards of water quality in the SDRW are municipal and domestic water supply, contact recreation, and provision of habitat. The SDRW Water Quality Report (Anchor 2003<sup>1</sup>) provides a complete list of the beneficial uses designated in the SDRW.

Other regulatory protection afforded to beneficial uses include the NPDES regulations implemented by the USEPA pursuant to the CWA, which require that all wastewater discharges to surface waters comply with the assigned water quality standards.

Designated beneficial uses for the San Diego River, and its tributaries, include municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PROC), contact and non-contact water recreation (REC1 and REC2), warm freshwater habitat (WARM), cold freshwater habitat (COLD), wildlife habitat (WILD), and rare, threatened, or endangered species (RARE) (SDRWQCB 1994 and Anchor 2003<sup>1</sup>). Beneficial uses designated for reservoirs and lakes within the SDRW include the same designated uses named above.

The Basin Plan also designates beneficial uses for groundwaters and water quality objectives required to protect the designated groundwater beneficial uses. Basin Plan groundwater quality objectives are not standards, but SWRCB is required to regulate wastewater discharges to groundwater to ensure compliance of receiving waters, standards, and with the established groundwater quality objectives.

Designated beneficial uses for groundwaters within the SDRW include MUN, AGR, IND, and PROC. Within the Lower San Diego HA, groundwater beneficial uses do not apply westerly of the easterly boundary of the I-5 right-of-way.

Designated beneficial uses for the mouth of the San Diego River include REC1, REC2, commercial and sport fishing (COMM), estuarine habitat (EST), WILD, RARE, marine habitat (MAR), and migration of aquatic organisms (MIGR).

The SWRCB is also required to protect all designated beneficial uses and implement assigned water quality standards within the SDRW. While protection of all designated beneficial uses is required, an important component of a watershed management effort must be the identification, assessment, and prioritization of water quality issues that may adversely influence the beneficial uses. To identify and develop workable watershed management strategies, it is essential first to identify whether adverse water quality influences are human-induced (e.g., urban development, agriculture) or natural (i.e., a function of regional geology, soils, or other natural conditions).

Once the human-induced influences most likely to affect beneficial uses and water quality are identified, basin management strategies for reducing or eliminating these influences can be evaluated and prioritized. Therefore, management strategies that offer the highest potential for the greatest benefit for the management areas should represent a high priority for implementation. Lowest basin management priorities should be given to water quality influences that are determined to be associated natural causes, since basin management actions or controls on human-induced discharges are unlikely to affect such natural influences.

## **8.2 Beneficial Uses and Watershed Capacity**

In addition to understanding the regulatory context of beneficial use protection, it is important to recognize that fully developed beneficial uses are defined by the natural capacity of the hydrologic system on which the uses are dependent. The natural capacity of the system is defined by physical, chemical, biological, and geographic characteristics of the watershed and drainage system. As a result, beneficial uses are expected to differ from water body to water body and even within a given HU. The Basin Plan begins to recognize such differences in system capacity in a regulatory context with the establishment of distinct warm freshwater habitat (WARM) and cold freshwater habitat (COLD) beneficial uses. However, given the varied form that fully developed beneficial uses may take, the Basin

Plan does not provide sufficient guidance as to what is required to protect or enhance beneficial uses for any given water body.

Within the SDRW it is important to recognize the natural and human-induced environmental conditions that determine much of the character of the aquatic environment of the watershed. It is also important to establish more precisely the characteristics of the beneficial uses to be protected for different stream reaches and other water bodies. This characterization will provide a metric for evaluating the actions that can be undertaken to maintain or attain applicable and appropriate beneficial uses.

An example is provided to illustrate the importance and complexity of this concept. The Basin Plan designates WARM as a beneficial use of the lower San Diego River. This designation of this beneficial use is intended to protect aquatic communities, including fish. Historically, the lower San Diego River was predominantly a dry stream and was not believed to support a fish community. At present, the lower San Diego River supports a fish community comprised exclusively of hardy exotic species.

This exotic species assemblage serves a significant role in the ecosystem and also supports a recreational fishery on the river. However, this community is less susceptible to many pollutants, such as moderately high TDS, that may be limiting to native fish species that never have and never will exist in the lower San Diego River. For this reason efforts to generally improve TDS conditions within the river system should not be based on anticipated benefits or protection of the fish community.

Further, it is important to acknowledge the relative contribution of controllable sources and uncontrollable natural sources of constituents. The San Diego River is fed by surface and groundwater sources that accumulate high mineral content from the region's geology and soils. The lower San Diego River is geographically situated in a region of high evapotranspiration rates, low run-off gradients, as well as limited and fluctuating source water volumes. These factors collectively combine to limit the capacity to influence TDS and mineral hardness of the river waters through regulation and watershed improvements of controllable sources.

With these limitations in mind, the WMP is being developed in a manner that focuses on management activities that are anticipated to result in improvements or substantive protection of beneficial uses. Therefore, management measures must target those issues that are linked to degradation of the specific beneficial uses as they are or could be developed in the watershed considering natural environmental and geographic conditions. In addition, management efforts must be focused principally on controllable factors which contribute significantly to the characteristics of water quality, or which, by their contribution to the natural state, result in cumulative adverse effects to beneficial uses.

To begin the process as described above, the following sections will list the identified COC that affect beneficial uses, identify the human-induced and natural influences most likely to affect beneficial uses, and identify strategies that may be taken for the greatest benefit to beneficial uses and water quality.

### **8.3 El Capitan Management Area**

Identified impacts to water quality and beneficial uses in this management area include turbidity and nutrients (Pasek 2004<sup>2</sup>; Brown and Caldwell 2003). The human-induced water quality influences most likely to affect beneficial uses and water quality are septic tanks; new construction impacts, and sewer overflows. The natural influences include watershed runoff, such as topography, soils, and nutrients associated with decomposition of organic matter.

Management strategies that offer the highest potential for the greatest benefit are education of homeowners about the construction, use, and maintenance of septic tanks, the construction of sewer lines for new developments, and the wide-spread use and enforcement of BMPs for new development. Water quality influences that are determined to be associated natural causes, such as turbidity and nutrients associated with runoff from non-urbanized areas, would be the lowest management priorities for the El Capitan Management Area.

### **8.4 San Vicente Management Area**

Identified impacts to water quality and beneficial uses in this management area include turbidity, bacteria, TDS, and nutrients (Pasek 2004<sup>2</sup>; Brown and Caldwell 2003). The human-

induced water quality influences most likely to affect beneficial uses and water quality are septic tanks, new construction impacts, and agricultural practices. The natural influences include watershed runoff, such as topography, soils, and nutrients associated with decomposition of organic matter.

Management strategies that offer the highest potential for the greatest benefit are education of homeowners about the construction, use, and maintenance of septic tanks, the construction of sewer lines for new developments, the wide-spread use and enforcement of BMPs for new development, and the development of alternative BMPs to reduce agricultural use of fertilizers and pesticides. Water quality influences that are determined to be associated natural causes, such as turbidity and nutrients associated with runoff from non-urbanized areas, would be the lowest management priorities for the San Vicente Management Area.

### **8.5 San Diego Management Area**

The San Diego Management Area is the only management area within the SDRW that has water bodies on the 303(d) list. The identified stressors include eutrophic conditions, bacterial indicators pH, TDS, low DO, and phosphorus. The sources of the COC are to a great degree human-induced and related to urbanization of the management area. Designated beneficial uses of the groundwater resources adjacent to, and west of I-5, do not apply.

Development dramatically alters the hydrologic cycle within a management area. Trees, meadows, grasses, and agricultural crops that had intercepted and absorbed rainfall, are removed and natural depressions that had temporarily ponded water are cleared and graded. The increased runoff as a result of these activities is then collected and conveyed into curbs and gutters, enclosed storm sewers, and lined channels. The stormwater runoff is then discharged into the Pacific Ocean (MEC 2004).

The human-induced water quality influences most likely to affect beneficial uses and water quality are pesticides and fertilizers, new construction impacts, and residential and commercial development. Few natural influences on water quality exist in the San Diego Management Area.

Management strategies that offer the highest potential for the greatest benefit are education of homeowners and builders about construction BMPs, and land use policy making on the siting of new developments, and wide-spread use and enforcement of BMPs for new development. Education of home and business owners is important to reduce the use of fertilizers and pesticides. Additional treatment of stormwater might reduce the amount of pollutants from discharging to the streams and ocean. Low water quality influences that are determined to be associated natural causes, such as TDS, would be among the lowest management priorities for the San Diego Management Area.

Management strategies for reducing or eliminating these influences in the SDRW will be evaluated and prioritized in WMP.