

**12.0 WATERSHED ACTION PLANS**

**12.1 Introduction**

The Third Term Permits have, with varying degrees of specificity, required the Permittees to develop and implement a watershed-based approach to urban stormwater management to complement the established jurisdictional-based approaches. In the area of the County under the jurisdiction of the San Diego Regional Board, Watershed Urban Runoff Management Plans (WURMPs) termed DAMP/Watershed Action Plans<sup>1</sup>, have been prepared for each of the six principal watersheds. In the Santa Ana Regional Board area of the County, which has a long history of watershed planning focused on the Newport Bay, the Permittees were required to update Appendix N of the DAMP to reflect the implementation measures and schedules related to the fecal coliform TMDL.

Watershed management is the term used for the approach to water quality planning that places an emphasis on the watershed (the area draining into a river system, ocean or other body of water through a single outlet) as the planning area and looks to multi-jurisdictional solutions to problems that cut across programs and jurisdictions. In Orange County, these efforts focus additional effort on the highest priority water quality constituents of concern in each watershed.

The approach taken to develop the DAMP/Watershed Action Plans recognizes that the jurisdictional DAMP/LIPs and the DAMP/Watershed Action Plans represent the principal policy and program documents for two separate, but nonetheless similar and highly interdependent, water quality planning processes targeting the control of pollutants in urban runoff (see **Section 3.0, 2007 DAMP**). There is also recognition that these efforts are, in many watersheds in Orange County, supportive of a third planning process that is focused on achieving broader objectives such as watershed habitat restoration and connectivity rather than specific water quality outcomes.

There are 5 distinct watersheds within the Santa Ana Regional Board area which are identified below:

| <b>Region 8</b> | <b>Watershed Planning Area</b>         | <b>Major Watercourses</b>                                 |
|-----------------|--|---|
| Santa Ana       | San Gabriel River/Coyote Creek         | Coyote, Carbon, Fullerton, and Brea Creeks                |
|                 | Anaheim Bay/Huntington Harbour         | East Garden Grove Wintersburg Channel/Bolsa Chica Channel |
|                 | Santa Ana River (within Orange County) | Talbert Channel, Santiago Creek and Santa Ana River       |
|                 | Newport Bay                            | San Diego Creek , Santa Ana Delhi Channel                 |

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<sup>1</sup> Previously termed DAMP/Watershed Chapters

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|--|-------------------------|--|
|  | Newport Coastal Streams | Buck Gully, Los Trancos Canyon Creek, Muddy Canyon Creek |
|--|-------------------------|--|

**12.2 Accomplishments**

Through the current Permit term, these watersheds (**Figure 12.1**) have been the focus of a number of continuing environmental restoration and watershed-based water quality planning efforts.

**12.2.1 Environmental Restoration Planning Efforts**

- **San Gabriel River - Coyote Creek:** Coyote Creek - Lower San Gabriel River Watershed Feasibility Study:

The Army Corps of Engineers (ACOE) has commenced a Feasibility Study for the Coyote Lower San Gabriel River Watershed. The purpose and goal of the Study is to develop a rehabilitation plan and identify projects for ecosystem restoration, recreation, water quality improvement and resolve some flooding issues. The study will take approximately three years to complete and will be cost shared (50-50) by the Corps and the local sponsor (County of Orange). The watershed is divided between the County of Orange and the County of Los Angeles. Los Angeles County Department of Public Works has also agreed to contribute to the local cost share.

- **Anaheim Bay/Huntington Harbour:** Westminster Watershed Management Plan

The ACOE is undertaking a comprehensive study of the Westminster Watershed including the East Garden Grove-Wintersburg Channel and the Bolsa Chica Channel in order to develop a rehabilitation plan that will investigate flood control, ecosystem restoration, recreation, water quality and shoreline protection. The Feasibility Study Phase is estimated to cost a total of \$5,500,000 and will take approximately three years to complete.

- **Santa Ana River:** Orange Coast River Park

The goal of the project, being promoted by Friends of Harbors, Beaches and Parks, is to create a shared management structure and identity for a 1000+ acre park at the mouth of the Santa Ana River. At the Park’s upstream boundary, is Fairview Park located in the City of Costa Mesa. An extensive restoration project along with a proposed, water treatment and riparian habitat development is in the master plan for the park.

The Fairview Park Wetlands and Riparian Habitat Project include the restoration of approximately 30 acres containing the following four major design elements:

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- 17-acre riparian habitat area;
- 5-acre area of water treatment ponds for water quality improvement and percolation;
- 13-acre area of upland habitat including a 2-acre public park; and
- Water delivery system to the ponds and riparian area from a modified pump station along the Greenville-Banning Channel.

Existing dry weather flows, currently being pumped to Orange County Sanitation District (OCSD) from nearby Greenville-Banning Channel, will be diverted into the wetlands where it will flow through a series of engineered wetland channels and infiltration ponds. Water diverted into the wetlands will be infiltrated into the groundwater or removed through evapotranspiration as well as support riparian habitat throughout the park. The completed project will include walking paths, flow diversion structures and bridges located amongst a series of streams and channels covered with thick wetland vegetation.

- **Newport Bay:** Upper Newport Bay Ecosystem Restoration Project

The project includes expanding and deepening the two In-Bay Basins and relocating a tern island from the upper basin to the lower basin. Restoration measures include wetland creation and restoring degraded habitat. In addition, the project will support sediment TMDL goals. The project is cost-shared with the ACOE. The cost apportionment for this ecosystem restoration project require Federal interests to provide 65% of the total costs, which is estimated to be \$38.4 million, and the County of Orange as the local sponsor to pay 35% through California Coastal Conservancy Bond funds. Dredging commenced in spring 2006.

- **Newport Bay:** Newport Bay/San Diego Creek Watershed Management Plan and Feasibility Study

The ACOE is conducting a study to develop a comprehensive framework to improve the health of the Newport Bay/San Diego Creek watershed. The process will address the protection and enhancement of watershed habitats, flood protection, water quality improvements, and reduction of erosion and sedimentation. A draft Newport Bay/San Diego Creek Watershed Feasibility Study Report was released in October 2005 and will be finalized in 2006-07.

### 12.2.2 Watershed-Based Water Quality Planning Efforts

- **San Gabriel River / Coyote Creek:** San Gabriel River Watershed Monitoring Workgroup

The Los Angeles County Sanitation District is required, as a condition of its NPDES Permit, to work with all agencies and interested parties in developing a watershed-wide monitoring program for the San Gabriel River Watershed. The project's ongoing planning and implementation is coordinated by the Southern California

Coastal Water Research Project (SCCWRP) and Brock Bernstein, PhD. A first round of sampling was completed in 2005 and a second round was completed in June of 2006. The County, as Principal Permittee, is participating in this workgroup which is facilitated by the Los Angeles River - San Gabriel River Watershed Council.

- **Santa Ana River:** Talbert Channel and Lower Santa Ana River Water Quality Diversions and Investigation

On October 15, 1999, the Santa Ana Regional Board issued a Section 13267 Directive to the County of Orange and five cities concerning bacteriological water quality impairments in the Talbert and Lower Santa Ana River watersheds that maybe affecting surfzone water quality. In response to the Regional Board's Directive, the County of Orange constructed dry weather urban runoff diversion projects in four flood control facilities [Huntington Beach Pump Station (D01PS1), Talbert Channel (D03), Santa Ana River (E01); and Greenville Banning Channel (D03)] for the diversion of all dry weather urban runoff in the Talbert - Lower Santa Ana River Watershed, an area of 16,575 acres. Similar diversion actions were taken by the City of Huntington Beach at a number of pump stations. The project goals were to divert dry weather urban runoff from the watershed year round and reduce the number of beach postings and closures due to high bacteria counts at the Huntington Beach State Beach.

On December 24, 2003, the Santa Ana Regional Board issued a second California Water Code Section 13267 letter to the County of Orange and five cities in the area of the Talbert and Lower Santa Ana River watersheds. The letter specifically requested a special investigation into any drains downstream of the diversions to determine if these non-diverted drains were contributing to bacteriological water quality impairments at Huntington State Beach. This letter was subsequently revised by the Regional Board on February 3, 2004 to rescind the 13267 requirements on two of the cities as their land area is entirely upstream from the point of diversion. The requested investigation was conducted in the Spring of 2004 and a full report was delivered to the Regional Board. The investigation determined that there were twenty one (21) non-diverted drains, but the majority did not show any evidence of discharge. In a September 10, 2004 letter from the Regional Board, a few drains were identified for follow-up investigations to ensure that no discharge was occurring. These follow-up investigations were conducted from 2004 through 2005 and a final report was delivered to the Santa Ana Regional Water Quality Control Board on July 29, 2005.

- **Newport Bay:** Nitrogen and Selenium Management Program

The Nitrogen and Selenium Management Program (NSMP) was launched by a group of watershed stakeholders, including all Watershed Permittees, in response to Order No. R8-2004-0021 (NPDES No. CAG998002) issued by the Santa Ana Regional Water Quality Control Board on December 20, 2004. Over the five year permit term, the NSMP Working Group is implementing a comprehensive work plan focusing on

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developing watershed based management strategies for groundwater inputs of selenium and nitrogen in the Newport Bay watershed. This work plan has been approved by the Executive Officer of the Santa Ana Regional Board and the key elements of the work plan include, (1) collecting additional data to fill knowledge gaps regarding the movement and impacts and selenium and nitrogen in the watershed, (2) examining Best Management Practices (BMPs) and treatment technologies that can reasonably and effectively be applied in the watershed, (3) developing an offset, trading, or mitigation program for both selenium and nitrogen, (4) using the increased knowledge and treatment opportunities developed in previous tasks to evaluate the Nutrient TMDL, and (5) if appropriate, develop a site specific objective for selenium.

The National Water Research Institute (NWRI) has assembled an independent advisory panel to evaluate key work products and provide recommendations to the NSMP Working Group. In particular, the independent advisory panel will be providing a recommendation on whether or not a site specific objective for selenium is appropriate for the Newport Bay watershed.

In addition to entities regulated by the permit, the Santa Ana Regional Water Quality Control Board, Orange County Coastkeeper, and Stop Polluting Our Newport (Dr. Jack Skinner) are serving as Participatory Members of the NSMP Working Group. As Participatory Members, these three entities are providing key public input and feedback to the NSMP Working Group but are not financially responsible for implementing the work plan.

The NSMP Working Group currently consists of twenty members:

- o County of Orange
- o Orange County Flood Control District
- o City of Costa Mesa
- o City of Irvine
- o City of Laguna Hills
- o City of Laguna Woods
- o City of Lake Forest
- o City of Newport Beach
- o City of Orange
- o City of Santa Ana
- 11. City of Tustin
- 12. California Dept. of Transportation
- 13. Irvine Ranch Water District
- 14. The Irvine Company
- 15. Golden State Water Company
- 16. Tustin Legacy Community Partners
- 17. Lennar
- 18. The Great Park Corporation
- 19. Nexus Construction Services
- 20. Maguire Properties

In a separate, but related effort, the Newport Bay Watershed Permittees, the Irvine Ranch Water District, and The Irvine Company funded a special study in the San Joaquin Marsh and San Diego Creek to investigate concentrations of selenium in key parts of the food web, including benthic invertebrates, plants, sediment, and water. The study was conducted by Dr. Alex Horne and the final report has been completed.

- **Newport Bay:** Newport Bay Watershed Nutrient Total Maximum Daily Load

(TMDL)

The nutrient TMDL establishes targets for reducing the annual loading of nitrogen and phosphorus to Newport Bay by 50% and meeting the numeric and narrative water quality objectives by 2012. To achieve these targets, the TMDL establishes a number of interim targets requiring a 30% and 50% reduction in nutrients in summer flows by 2002 and 2007, respectively, and a 50% reduction in non-storm winter flows by 2012.

The Newport Watershed Permittees have evaluated compliance with the TMDL targets (Newport Bay Watershed TMDL Compliance Evaluation, Tetra Tech, July 2000). The report indicated significant compliance with the 2002 targets and slight nutrient loads in excess of the future targets. It concluded that current programs are working and that further minor program revisions will achieve all TMDL targets.

The findings of the compliance studies are further supported by nutrient loading studies that were conducted by the Principal Permittee in September 1999, June 2000, May 2001, and May 2003. These studies demonstrate compliance with the 2002 target based on extrapolation of the data collected to date. This assessment was verified when analysis of the summer 2002 water quality data illustrated the reduction of nutrient loading in the Newport Bay watershed was greater than the 30% reduction target.

In February 2000, the Principal Permittee on behalf of the Watershed Permittees, initiated the Regional Nutrient Monitoring Program (RMP) for the Newport Bay and its watershed pursuant to the requirements established by the Santa Ana Regional Board (Resolution 99-77 to establish an RMP pursuant to the TMDL). Annual data analysis reports have been submitted each November to document watershed nutrient concentrations and loadings, algal biomass and bay nutrient concentrations. Analysis of the RMP watershed and bay data indicate compliance with the 2002 and 2007 TMDL targets. At the request of the Regional Board, beginning in 2006, the Principal Permittee will begin submitting quarterly data analysis reports and data transmittals.

In addition to the routine watershed and bay monitoring, the RMP requires several special studies to be conducted. Progress on the special studies is described below.

- Newport Bay Watershed Nutrient TMDL – Dissolved Oxygen (DO) and Algae Distribution Grant Study

In March 2005 the Principal Permittee on behalf of the Watershed Permittees was awarded a \$250,300 Prop. 13 grant from the State Water Resources Control Board to conduct The Newport Bay Nutrient TMDL DO and Algae Distribution Study. The study characterized the dissolved oxygen and macroalgae regimes of Upper Newport Bay (UNB) by completing two special investigations identified in the Nutrient TMDL RMP. First, the spatial and temporal extent of hypoxia/anoxia

in UNB will be determined. Then, to determine if there is a quantitative relationship between intertidal macroalgal abundance and the frequency of hypoxic events, macroalgal abundance will be estimated using remote sensing techniques during the period of deployment of DO sensors in UNB. These data are essential in determining the relationship, if any, between hypoxia/anoxia and macroalgal abundance. A final report is due at the end of October 2006.

◦ Newport Bay Watershed Nutrient TMDL – Urban Nutrient Special Investigations

A Proposition 13 grant was received in 2003 to fund a characterization study of the sources and magnitude of urban nutrient loading. The specific study objectives were to: (1) Quantify nutrient loading of dry weather runoff from urban residential and business areas which drain to Upper Newport Bay; (2) Identify and characterize runoff quality of specific urban activities and sources which contribute to urban nutrient loading from each study area, and (3) Estimate to what extent urban runoff quality may be influenced or compromised by infiltration of shallow groundwater into the drainage network. The grant amount was \$295,000 with \$100,000 matching funds from the Watershed Permittees. Field work for these investigations was completed in 2004, and draft final reports of research findings and project accomplishments were completed in the spring of 2006.

Mean TIN areal loading rates ranged between 0.029 – 0.415 lb/acre-year across study areas, while TN loading rates ranged between 0.242 – 1.228 lb/acre-year. Mean TP areal loading rates varied between 0.019 - 0.232 lb/acre-year. Areal loading rates were substantially lower in the Costa Mesa study areas than in the San Diego Creek watershed study areas for all three parameters. There was no apparent meaningful difference between loading based on land use (residential vs. business).

Findings in the Como Channel study area demonstrated that dry weather discharge and related contaminant loadings from confined pipe systems in areas of the San Diego Creek watershed should not be presumed to be exclusively from surface runoff. It was conclusively demonstrated that shallow groundwater infiltration into the storm drain system contributed 27% of dry weather discharge from the study area, and comprised a disproportionately high 84% of the NO<sub>3</sub>/NO<sub>2</sub>-N load of what was ostensibly an urban area discharge. This finding likely applies to all urban areas which overlie the nitrate-rich shallow groundwater area in the center of the San Diego Creek - Peters Canyon Wash watershed.

• **Newport Bay:** Newport Bay Watershed Sediment TMDL

The TMDL allocation for sediment in the Newport Bay Watershed was approved in March 1999. The objectives of the TMDL are to reduce the annual average sediment

load in the San Diego Creek watershed from a total of 250,000 tons per year to 125,000 tons per year, thereby reducing the sediment load to Newport Bay to 62,500 tons per year and limiting sediment deposition in the drainages to 62,500 tons per year within 10 years (a 50% reduction) and to lower the frequency of dredging within the Bay.

To comply with the sediment TMDL, an annual report has to be submitted to the Santa Ana Regional Board by November 15 of each year verifying that the basins have at least 50% capacity and an annual compilation of sediment monitoring data and TMDL compliance analysis is required by February 27 of each year.

In general, the available data suggests that sediment loads in the San Diego Creek watershed have been reduced significantly from rates recorded in the pre-TMDL period. Since implementation of the TMDL, the average suspended sediment load measured at San Diego Creek at Campus Drive has been approximately 55,360 tons per year.

- **Newport Bay:** Newport Bay Watershed Fecal Coliform TMDL

The fecal coliform TMDL establishes a long-term, prioritized, phased approach to meeting recreational contact (REC1) and shellfish harvesting (SHELL) water quality standards in Newport Bay. In response to the 13267 letter, dated January 7, 2000, from the Santa Ana Regional Board, the Newport Watershed Permittees, IRWD and The Irvine Company are currently supporting studies and monitoring in the Bay that are expected to result in the development of a TMDL implementation plan.

To date, work has been carried out in a collaborative manner by the Newport Watershed Permittees with technical support from the Irvine Ranch Water District and their consultants, Eisenberg, Olivieri and Associates (EOA) and Resource Management Associates (RMA). In September 2001, EOA and RMA issued their final report entitled Public Health Risk Assessment for the Newport Bay Watershed: Recreational Contact and Microbial Risk. Reported findings are that exceedances of Basin Plan fecal coliform objectives for REC-1 beneficial use are temporally sporadic and geographically limited and that they generally occur during the time of year when REC-1 use is low or in areas of the bay where the level of body contact recreation is low or prohibited. Additionally, the risk of enteric viral disease from body contact recreation in Newport Bay is well below EPA's "accepted illness rate" of 19 illnesses per 1,000 swimmers for recreation in marine waters. The report also indicates that the urban runoff identified in the Clean Water Act 303(d) listing as the likely source of pathogens in Newport Bay do not substantially impact the risk to public health from body contact recreation.

A Proposition 13 Grant has been obtained to conduct a set of field studies that will provide data necessary to identify and prioritize urban and natural sources of fecal coliform to the Bay. This data will provide the basis for the formulation of a Fecal Coliform Source Management Plan needed to implement the fecal coliform TMDL

for Newport Bay. The field studies are designed to provide information on Bay-wide impact of fecal indicator bacteria from urban and natural sources, measurement and prioritization of specific urban sources in Lower Bay, estimates for the magnitude and kinetics of within-Bay natural sources and processes that affect the concentration of fecal indicator bacteria in the water column, and information on the community structures and species abundance of *Enterococcus* and relatedness of *E. Coli* strains in the bay. The grant award amount for the studies is \$780,000 with a \$50,000 match provided by the Watershed Permittees and others.

- **Newport Bay Fecal Coliform TMDL - Shellfish Harvesting Beneficial Use Assessment**

The shellfish harvesting beneficial use assessment was initiated in 2003 with the goal of developing recommendations for prioritizing areas within Newport Bay for purposes of evaluation and implementation of cost-effective and reasonable control actions. The primary objectives of the assessment are to: 1) Identify historic areas of bivalve mollusk shellfishing (shellfishing) in Newport Bay; 2) Establish the existing level of the shellfishing resource in Newport Bay; 3) Characterize current levels of shellfish collection (for consumption and bait) as a beneficial use in Newport Bay; 4) Investigate impediments to, and the possibility of enhancing the potential for, increased levels of shellfish collection in Newport Bay, and; 5) Document the results of the investigation in a manner that will be useful to the Regional Board for decision-making purposes.

Both qualitative and quantitative surveys were conducted to identify the current extent of intertidal shellfish resources in Newport Bay. The results of these surveys indicate large differences in the composition and abundance of shellfish in Lower Newport Bay compared to Upper Newport Bay. Shellfish species that are of potential interest to shellfisherman for consumption are predominantly located in Lower Newport Bay, despite the fact that this region has only 5 percent of the intertidal habitat found in Upper Newport Bay.

Two major factors were identified that prevent utilization of this resource by shellfishermen. The most significant is that the populations were found almost exclusively in areas with eelgrass. These areas are not open to shellfishing since Section 30.10 under Title 14, Chapter 4, Article 1 of the California Code of Regulations prohibits cutting or disturbance of eel grass. A second factor was the size composition in the Bay. Only three out of 419 littleneck clams collected from Lower Newport Bay met the legal minimum size of 38.1 mm (1.5 inches) under California's Ocean Fishing Regulations. One-third of the Venus clams that were collected from this region met the size limits for harvesting but overall abundances were 25% of the littleneck clam population. Many factors may have influenced the size composition of littleneck clams including possible differences in annual recruitment and survival of littleneck clams over the past five to 10 years.

The beneficial use data collection program surveyed 1,100 individuals. Over 99% of those respondents who collect shellfish in Newport Bay reported doing so for fishing bait. Mussels collected from piers, pilings, and docks are the most common shellfish targeted by fishermen. On rare occasions, fishermen were also observed to use clams as bait. Only two individuals interviewed reported that they had consumed shellfish. In both cases, the shellfish collected and consumed were mussels. Based upon the beneficial use surveys, it is clearly evident that intertidal clam populations in Newport Bay are not currently being used for human consumption.

The cost of the Beneficial Use Assessment was \$453,000 provided by the Watershed Permittees and others.

- **Newport Bay:** Newport Bay Watershed Toxics TMDL

On June 14, 2002, EPA Region 9 established the Toxics TMDL for the Newport Bay Watershed. The Santa Ana Regional Board is currently splitting the EPA promulgated Toxics TMDL into five separate constituent and geographically specific TMDLs. The five resulting TMDLs will include (1) diazinon and chlorpyrifos, (2) organochlorine compounds, (3) selenium, (4) metals, and (5) Rhine Channel. Each of these individual TMDLs must proceed through the full approval process before they are officially adopted and made a part of the Basin Plan. Currently, the only TMDL to complete the approval process is the diazinon and chlorpyrifos TMDL. The Santa Ana Regional Board approved an amendment to include the diazinon and chlorpyrifos TMDL on April 4, 2003.

A Pesticide Research and Identification of Source and Mitigation (PRISM) grant was received in 2005 to evaluate legacy organochlorine pesticide mass loadings with respect to geographic location, flow, sediment particle size, and total organic carbon within the watersheds. The information gathered by the study will assist with the evaluation of waste load allocations and the development of an implementation plan for the Organochlorine Compounds TMDL. The PRISM Grant provides \$188,254 for this study with a match of \$9,906 by the Watershed Permittees and others.

Samples from approximately five storms were collected during the 2005-06 storm season (September - April). Storm and dry season sampling will conclude in 2006 with a final report due in 2007.

- **Newport Coastal Streams:** City of Newport Beach Initiatives

The Newport Coast Watershed area covers about 10 square miles and eight coastal canyons it extends south of Corona Del Mar in Newport Beach to El Morro Canyon in Crystal Cove State Park. Two of the canyons are 303(d) listed and the entire watershed drains to one of two ASBS's (the Newport Beach Marine Life Refuge and/or the Irvine Coast Marine Life Refuge). The following actions are under way by the City of Newport Beach to address canyon degradation, ASBS concerns and

the 303(d) listing:

- Initiated a erosion control project in Buck Gully;
- Performing canyon stability inspections of Buck Gully, Los Trancos and Muddy Creek;
- Preparing a Watershed Management Plan for each of the eight canyons;
- Performing a series of investigations to determine primary sources of degradation to the ASBS's (Public Use Study, Canyon flows and water quality, cross contamination investigation from Newport Bay);
- Reducing negative impacts to the two Marine Life Refuge Areas (ASBS's) by reducing unnatural dry-weather canyon flows and improving storm-flow water quality;
- Working with IRWD, Coastkeepers, California Department of Parks and Surfriders to expand educational and training programs and expanding the City's Tide Pool Ranger Program;
- Implementing a continuing program of flow and water quality monitoring for the canyons;
- Implementing a suite of canyon water quality BMP's (wetland improvements, native plantings, grade control structures, retention basins, a watershed ET controller retrofit program), and
- Implementing a series of structural and non-structural BMP's (increased WQ enforcement, increased street sweeping, installation of catch basin screens, and educating the community relative to over-watering and runoff)

In addition, the following actions have been completed:

- A canyon stabilization project in Morning Canyon;
- A draft groundwater seepage study;
- A draft Landscape and Irrigation Ordinance (to be reviewed with City Council), and
- A Runoff Reduction Program to address dry-weather runoff.

### **12.3 Assessment**

Four separate, but nonetheless highly interrelated, planning processes have continued to develop through the period of the Third Term Permits. These processes are (1) DAMP/LIP focused Countywide implementation of a baseline of BMPs, (2) DAMP/Watershed Action Plan focused on enhanced BMP implementation targeting specific constituents of concern, (3) IRWD's Natural treatment system designed to treat dry weather runoff with man-made wetlands. The natural treatment system will rely on natural ecosystems to remove sediment, nutrients, pathogens and other contaminants from the runoff and prevent these contaminants from reaching Upper Newport Bay, and (4) a process that is focused on achieving broader objectives such as watershed habitat restoration and connectivity rather than specific water quality outcomes. The first three processes align with the CWA's interim goal, which is to attain water quality sufficient to provide for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water. The third process aligns with the overarching objective of the CWA which is to restore and maintain the chemical, physical

and biological integrity of the nation's waters. While the interim goal is subordinate to the broader objective, it nonetheless continues to be the primary focus of the Permittees efforts since it is the basis of the long-established NPDES permitting framework to which the Permittees, as a consequence of Section 402(p) of the CWA, are subject.

### 12.3.1 Environmental Restoration Planning Efforts

The Permittees' environmental restoration efforts focused on ecological outcomes are broad stakeholder initiatives rather than permit compliance driven planning processes, and are predominantly cooperative projects with the ACOE. Federal funding of ACOE watershed management and restoration initiative will continue to be a major determinant of progress with respect to these planning efforts.

### 12.3.2 Watershed-Based Water Quality Planning Efforts

The Permittees' watershed-based water quality planning efforts are focused on water quality standard attainment; involve the Permittees and other regulated entities, and represent collective and cooperative compliance efforts. In the Santa Ana Regional Board area of Orange County, TMDL promulgation (first addressed in **Appendix N** of the **DAMP**) has resulted in two regulatory approaches, specifically (1) California Water Code 13267 Directives and (2) the incorporation TMDL provisions for nutrients and fecal coliform in the Newport Bay Watershed into the Third Term Permit. The Permittees' response to (and full compliance with) these regulatory initiatives has preceded the development of **DAMP/Watershed Action Plans**. In south Orange County the reverse situation has occurred since the specific WURMP requirements of the Third Term Permits have preceded TMDL development and implementation and led to the creation of six DAMP/Watershed Action Plans. These plans are deemed to usefully provide:

- A holistic account of all water quality protection and management activities in the watershed;
- A basis for developing establishing and communicating common goals for the watershed with an action plan to achieve them, and
- A framework for monitoring and assessing the progress of projects individually and cumulatively at the watershed scale.

**ROWD Commitment**

- Complete **DAMP/Watershed Action Plans** for all 11 Orange County watersheds (See Appendix A: Model Watershed Action Plan prepared as Newport Bay Watershed Action Plan<sup>2</sup>).

**12.4 Summary**

The watershed-based approach to water quality planning has been advocated by many constituencies for over 30 years. In Orange County, this approach has been the basis of efforts to protect and manage Newport Bay, notably for sediment, for almost the same period of time. With the completion of **DAMP/Watershed Action Plans** for the south Orange County watersheds and with a number of areas of Orange County facing TMDL implementation over the period of the Fourth Term Permits, these documents essentially represent implementation plans for urban sources of constituents of concern.

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<sup>2</sup> The Newport Bay Watershed Action Plan is being presented as a Model DAMP/WAP. It will be presented as a final document with the Annual Progress Report in November, 2006.