

**MISSION BAY &
COASTAL LA JOLLA WATERSHEDS
URBAN RUNOFF MANAGEMENT PROGRAM**

**FISCAL YEAR 2003
ANNUAL REPORT**

Prepared by:

City of San Diego, Lead Agency

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CERTIFICATION STATEMENT

January 22, 2004

RE: STATEMENT OF CERTIFICATION for the Fiscal Year 2003 Mission Bay and Coastal La Jolla Watersheds URMP Annual Report

I certify under penalty of law that the Fiscal Year 2003 Watershed Urban Runoff Management Program Annual Report for the Mission Bay and Coastal La Jolla Watersheds was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for knowingly submitting false information, including the possibility of fine and imprisonment for knowing violations.

Karen Henry,
Deputy Director
City of San Diego

EXECUTIVE SUMMARY

1.0 Introduction

This Annual Report represents the City of San Diego's efforts, as the only Copermitee¹ in the Mission Bay and Coastal La Jolla watersheds, during the Fiscal Year (FY) 2003 reporting period (July 1, 2002 to June 30, 2003) to develop and implement the Mission Bay & Coastal La Jolla Watersheds Urban Runoff Management Program (Mission Bay & Coastal La Jolla Watersheds URMP). This reporting period covers periods of initial program development (July 2002 through January 2003) and the start of program implementation (February 2003 through June 2003). The five-month implementation period represents a very small increment in the overall development and augmentation of the programs and activities proposed in the Watershed URMP. However, the City of San Diego is proud to report that progress has been made and the Copermitees will continue to implement, improve and enhance these programs and activities over the next several years.

It is also important to emphasize the unique and significant past and present water quality and environmental protection efforts contributed by the City of San Diego and others in the Mission Bay watershed. As was the case prior to the development of the Mission Bay and Coastal La Jolla Watershed URMP, the City continues to lead and participate in many water quality and watershed protection efforts in the Mission Bay watershed. Specifically, prior to the Municipal Permit's requirement to implement a Watershed URMP, the City of San Diego's Storm Water Pollution Prevention Program created the Mission Bay Water Quality Management Plan and associated management structure. The management structure includes the stakeholder-driven Mission Bay Clean Water Technical Advisory Committee (Mission Bay TAC) which focuses on the science issues associated with projects in Mission Bay, and seeks policy direction from Mayor Dick Murphy's Clean Water Task Force and the City Council (this structure is described in more detail in Section II – *Implementation*). In essence, the City's collaborative efforts with the public, environmental organizations and other agencies in the watershed were already successfully in place prior to the implementation of the Mission Bay and Coastal La Jolla Watershed URMP. Therefore, this annual report should be viewed in light of the fact that the Watershed URMP provides not a foundation, but merely a more formalized framework for water quality protection efforts in the watershed.

2.0 Report Organization & Summary

The Mission Bay & Coastal La Jolla Watersheds URMP Annual Report consists of a total of five sections, and is organized as follows. A summary of the highlights from each section is also provided.

Section I – Introduction

Section I of the Annual Report provides a summary of the program background, program approach to improving water quality, the regulatory requirements that the Copermitees must meet and a general overview of the organization and content of the report.

¹ Copermitee refers to the municipalities in the San Diego region subject to the National Pollutant Discharge Elimination System [NPDES] Municipal Storm Water Permit for San Diego Copermitees [Order No. 2001-01, NPDES No. CAS 0108758, "Municipal Permit"]

Section II – Activity Implementation

The “Plan of Action” Section of the Mission Bay & Coastal La Jolla Watersheds URMP identifies several activities and programs aimed at improving the quality of surface storm water runoff within the watershed. These activities focused specifically in the areas of water quality, land use planning, education, and public participation. Section II of this Annual Report provides a status report of the work completed on these activities and programs.

Section III – Water Quality Assessment

In our effort to assess the water quality of receiving waters in the watershed, the Copermittees’ monitoring programs make use of a variety of methodologies to document the physical, chemical and biological characteristics of streams, creeks, rivers, enclosed bays, lagoons, estuaries and beaches.

As summarized in Section III, the 2003 assessment of the Mission Bay & Coastal La Jolla Watersheds yielded the following constituents of concern with a high frequency of occurrence: fecal coliform, diazinon, and copper. Potential constituents of concern with a low or medium frequency of occurrence were: turbidity, total suspended solids, zinc, chemical oxygen demand, and malathion.

The constituents of concern for the Mission Bay & Coastal La Jolla Watersheds identified in 2003 were compared to last year’s water quality assessment (2002). The following changes were noted for the Mission Bay & Coastal La Jolla Watersheds in 2003 as compared to the previous year’s assessment.

- ✓ Fecal coliform, total suspended solids, turbidity, and zinc remain unchanged in their frequency of occurrence.
- ✓ Diazinon, copper, chemical oxygen demand and malathion are more apparent as constituents of concern.

Updated List of Constituents of Concern

Based on a combined analysis of the 2002 and 2003 assessments, bacterial indicators (fecal coliform), diazinon, eutrophication, toxicity, zinc, lead, copper and cadmium remain constituents of concern (See Table III-4).

Updated List of High Priority Water Quality Issues

The data set considered to date is too limited to draw strong conclusions about high priority water quality issues and associated actions. In addition, developing an effective list of activities that properly identifies and addresses significant water quality issues requires additional validation. Therefore, the high priority water quality issue identified in the Mission Bay & Coastal La Jolla Watersheds URMP remains the same in FY 2004: Limiting recreation opportunities in bay and coastal waters due to potential for pathogens. This high priority issue and the constituents of concern identified in the 2002 and 2003 watershed water quality assessments will continue to be tracked (See Table III-4).

Section IV – Effectiveness Assessment

Section IV provides an initial assessment of the implementation and effectiveness of the Mission Bay & Coastal La Jolla Watersheds URMP for FY 2003. This assessment is limited by the short period during

which the new standards of the Municipal Permit (National Pollutant Discharge Elimination System [NPDES] Municipal Storm Water Permit for San Diego Copermittees [Order No. 2001-01, NPDES No. CAS 0108758]) were in effect. Since the Municipal Permit provided a 365-day period for the development and implementation of most programs, the Watershed URMP's formal structure was not in place for the majority of the reporting period. However, the activities the City has been supporting or leading in Mission Bay to protect and improve water quality have continued to be implemented. In light of this, the program effectiveness assessment concludes that the City of San Diego is successfully implementing many activities to understand issues and protect and improve water quality and receiving waters in the watershed.

Section V – Conclusions and Recommendations

Section V provides a conclusion of the Annual Report and makes recommendations for improving future reporting efforts, as summarized below.

Between July 2002 and June 2003, the City of San Diego continued to make progress in developing and implementing programs aimed at improving storm water quality in the watershed. Most significantly, during the first five months of implementation (February to June, 2003), the City of San Diego continued to implement the FY 2003 activities identified in the Mission Bay & Coastal La Jolla Watersheds URMP. A few of the highlights are listed below:

- *The Mission Bay & Coastal La Jolla Watersheds URMP.* In January 2003, the City successfully completed the development and continued the implementation of a watershed-based program that addresses surface storm water quality for the Mission Bay & Coastal La Jolla Watersheds. The work product is a compilation of assessments, activities and strategies the City plans to undertake over the remaining life of the Municipal Permit.
- *Special Investigations:* The City of San Diego completed or continued to implement five special investigations in Mission Bay in FY 2003, which are:
 - Mission Bay Bacteria Source Identification Project
 - Mission Bay Water Quality Survey
 - Mission Bay Epidemiology Study
 - Mission Bay Contaminant Dispersion Study
 - Mission Bay Water and Sediment Testing Project
- *Special Projects:* The City continued in the design and construction phases for three projects that will address beneficial uses in Mission Bay:
 - Coastal Low Flow Storm Drain Diversion Project
 - Rose and Tecolote Creeks Water Quality Improvement Project
 - Tecolote Creek Treatment Wetland Project
- *Stormwater Quality and Watershed Protection - Looking at Alternative Development Policies.* The County of San Diego, in cooperation with the City of San Diego, is developing a land use professional's reference manual, which focuses on site design solutions (as opposed to structural treatment devices) as viable, and in some cases superior, best management practices. The Manual

is structured to assist land use professionals (e.g. municipal, environmental or community planners, engineers, architects, site-designers) in identifying the following:

- Major types of storm water pollution;
 - Possible sources of pollution;
 - Adverse impacts such pollutants have on the environment;
 - Description of the Mission Bay & Coastal La Jolla Watersheds as well as other watersheds in San Diego County;
 - Pollution problems found within the watersheds; and,
 - Listings of the site design and programmatic tools land use professionals have at their disposal to address water quality issues at the planning level.
- Watershed-Based Public Awareness Surveys. In fiscal year 2002 and 2003, the City of San Diego has conducted a watershed-based public awareness survey in the City's jurisdictional boundaries within the Mission Bay & Coastal La Jolla Watersheds. In addition, the Copermittees have started the process of developing a public awareness survey for the Mission Bay & Coastal La Jolla Watersheds in order to establish a baseline of watershed understanding. Watershed surveys not only determine whether the educational message is being heard and understood, but surveys help Copermittees focus educational and outreach concepts in order to meet the needs of different sub-regions and associated land uses within the watershed. The survey results of the copermittees' survey will be detailed in the FY 2004 Annual Report.

The City of San Diego's history of participating and leading water quality and watershed protection efforts in the watershed demonstrates its long-term commitment. The Mission Bay & Coastal La Jolla Watersheds URMP and Annual Report should be considered part of the City's overall program development and efforts in the watershed. It is also recognized that improvement and refinement is an important part of all program areas and the Watershed URMPs will need to be improved over the long term as the Copermittees continue to develop a better understanding of the complex issues affecting the Mission Bay & Coastal La Jolla Watersheds.

In summary, a number of important challenges have arisen during the implementation of this revised Municipal Permit. Budgetary challenges, unnecessary duplication of jurisdictional and watershed programs and efforts, and water quality monitoring data limitations are just some of the challenges we face. While the Copermittees have generally responded well to meet them, some requirements are not easily addressed. Continued collaboration and thoughtful coordination and integration between jurisdictional and watershed programs are keys to the development of quality programs that are cost-effective and responsive to the needs of our customers. Only time and continued implementation will tell whether or not the programs established pursuant to this Municipal Permit will meet the standards of water quality improvement and cost-effectiveness that together define practicability. Increased cooperation between Copermittees and the RWQCB will be necessary as we continue to move our programs forward. In some instances, the issues confronting us may be within the ability of Copermittees to resolve. In other cases, more innovative approaches, including Municipal Permit amendments, may ultimately be required. Keeping these lines of communication open is crucial to our long-term success.

1.0 Background

Copermittees in the San Diego region also implement jurisdictional urban runoff management programs (Jurisdictional URMPs) that include education, enforcement, land use planning, construction, facility inspection, and water quality monitoring components, to name a few. In addition, the National Pollutant Discharge Elimination System (NPDES) Municipal Storm Water Permit for San Diego Copermittees (Order No. 2001-01, NPDES No. CAS 0108758, hereafter referred to as “Municipal Permit”) requires that the Copermittees within the Mission Bay & Coastal La Jolla Watersheds collaborate in the development of a watershed-based program that addresses surface storm water quality. The rationale for this need is simple; urban runoff does not follow jurisdictional boundaries, and often travels through many jurisdictions while flowing to receiving waters. Therefore, the actions of various municipalities within a watershed regarding urban runoff can have a cumulative impact upon shared receiving waters. The Municipal Permit directs the City of San Diego to collaborate in developing and implementing a Watershed URMP for the watershed.

The purpose of the Watershed URMP is to identify and address the highest priority water quality issues/pollutants in each watershed. In addition, the Municipal Permit requires that the City develop activities that addressed education, public participation and land use planning. It is important to note however, that prior to the development of the Watershed URMP, the City of San Diego had already participated, and continues to participate in many efforts to identify water quality issues and associated activities. Thus, the Mission Bay and Coastal La Jolla Watershed URMP is best utilized as a framework for informing stakeholders and coordinating efforts.

2.0 Program Approach

In broad terms, the overall purpose of the Mission Bay & Coastal La Jolla Watersheds URMP is to address the surface storm water quality issues and any ongoing degradation within the Mission Bay & Coastal La Jolla Watersheds. Fundamental to both establishing specific Watershed URMP goals and measuring achievement, is the understanding that long-term solutions to water quality issues will be more effective if the issues are correctly and comprehensively identified and characterized. Based upon the proper identification and targeted characterization, true “watershed-approach” solutions can then be applied.

In order for a plan to be successful, clear goals and objectives must first be established, agreed to and implemented by the City of San Diego and interested stakeholders. Otherwise, program activities and tasks are adopted without an understandable purpose or clear direction. The following provides the program goal of the Watershed URMP and specific objectives that the Mission Bay & Coastal La Jolla Watersheds Copermittees will strive to meet as part of this effort.

TO POSITIVELY AFFECT THE WATER QUALITY OF THE MISSION BAY & COASTAL LA JOLLA WATERSHEDS WHILE BALANCING ECONOMIC, SOCIAL AND ENVIRONMENTAL CONSTRAINTS.

Objective #1: Develop/expand methods to assess and improve water quality within the watershed.

Objective #2: Integrate watershed principles into land use planning.

Objective #3: Enhance public understanding of sources of water pollution within the watershed.

Objective #4: Encourage and enhance stakeholder involvement within the watershed.

As outlined in the Watershed URMP, specific activities and programs have been identified in an effort to meet these objectives. The City of San Diego recognizes that the City faces several significant challenges in developing and implementing this program (funding, coordination/alignment with existing programs, to name a few). Further, the City considers this watershed-based effort to be in its infancy and expect this program will be refined and augmented over the long term as we develop a better understanding of the complex issues affecting our watersheds and learn to identify and pursue joint opportunities to positively affect the water quality in the region.

3.0 Municipal Permit Requirements

The Municipal Permit requires that each Watershed URMP Annual Report shall, at a minimum, contain the following:

- Comprehensive description of all activities conducted by the watershed Copermittees to meet all requirements of each component of Watershed URMP section 'J' of the Municipal Permit;
- Public participation mechanisms utilized during the Watershed URMP implementation process;
- Mechanism for watershed-based land use planning;
- Assessment of effectiveness of the Watershed URMP;
- Proposed revisions to the Watershed URMP;
- A summary of watershed effort related data not included in the annual monitoring report (e.g. special investigations); and,
- Identification of water quality improvements or degradation.

The first Watershed URMP Annual Report is due to the San Diego Regional Water Quality Control Board (SDRWQCB) no later than January 31, 2004, and every January 31st thereafter. The reporting period for the Annual Reports must cover the previous fiscal year. As such, the FY 2003 Watershed URMP Annual Report will cover the reporting period from July 1, 2002 to June 30, 2003.

4.0 Organization and Content of the Report

The Annual Report is largely organized according to the “Standardized Format for Watershed URMP Annual Report,” agreed upon by the Copermittees and submitted as part of the Unified Watershed Urban Runoff Management Program in January 2003. In addition, the Copermittees have endeavored to stay close to the organization requirements of the Municipal Permit. However, in some instances, the Copermittees felt that it made sense to consolidate sub-sections that are logically addressed together. Also, some activities covered multiple Municipal Permit requirements (e.g. the *Land Use Professional's Reference Manual* addresses both land use planning requirements and public participation requirements). To avoid unnecessary duplications and to simplify the annual report, any activity covering multiple requirements will only be discussed in the most relevant section of the annual report (e.g. the *Land Use Professional's Reference Manual* deals more with planning issues than public participation and will be discussed in land use planning section of the report). The structure of the Annual Report is as follows:

- **SECTION I.** Section I of the Annual Report provides a summary of the program background, program approach to improving water quality, the regulatory requirements that the City of San Diego must meet and a general overview of the organization and content of the report.
- **SECTION II.** Section III of the Mission Bay & Coastal La Jolla Watersheds URMP (Plan of Action) identifies several activities and programs aimed at improving the quality of surface storm water runoff within the watershed. These activities focused specifically in the areas of water quality, land use planning, education, and public participation. Section II of the Annual Report provides a status report of the work completed on these activities and programs.
- **SECTION III.** In an effort to assess the effects of urban runoff on receiving waters, the Copermittees’ monitoring programs make use of a variety of methodologies to document the physical, chemical and biological characteristics of streams, creeks, rivers, enclosed bays, lagoons, estuaries and beaches. Section 3 of the Annual Report is designed to summarize the quality of the water in the Mission Bay & Coastal La Jolla Watersheds based upon data that was collected and analyzed between February 2003 and June 2003; information collected between July 2002 and January 2003 was already discussed in the Water Quality Assessment section of the Watershed URMP.
- **SECTION IV.** Section IV provides an initial assessment of the implementation and effectiveness of the Mission Bay & Coastal La Jolla Watersheds URMP for the period of July 2002 and June 2003. This assessment is limited by the short period during which the new standards of the Municipal Permit were in effect. Since the Municipal Permit provided a 365-day period for the development and implementation of most programs, many were not fully in place for the majority of the reporting period. Furthermore, many of the programs that were in place before the Municipal Permit requirement were not tracked because there was no prior need.
- **SECTION V.** Section V provides a summary conclusion of the Annual Report and makes recommendations for improving future reporting efforts.

The Municipal Permit establishes new and aggressive standards for program development and implementation. This has often required the City of San Diego to complete these programs on short time frames; in many respects, they are in their infancy. The period from July 2002 and June 2003 represents a very small increment in the overall development and augmentation of these programs; the City will continue to improve and enhance them over the next several years. Although certain elements of the Watershed URMP were in effect prior to the January 31, 2003 implementation schedule, the first seven months of FY 2003 were spent developing the Mission Bay & Coastal La Jolla Watersheds URMP. Therefore, it is important to note that this Annual Report includes information regarding five months of program implementation (information regarding program development during the fiscal year is addressed, as well).

The Plan of Action (Section III) of the Mission Bay & Coastal La Jolla Watersheds URMP includes several activities the City of San Diego has or is intending to implement over the remaining life of the Municipal Permit in an effort to meet the four primary objectives of the program, which are:

- *Develop/expand methods to assess and improve water quality within the watershed;*
- *Integrate watershed principles into land use planning*
- *Enhance public understanding of sources of water pollution; and,*
- *Encourage and develop stakeholder participation*

Sections 1.0 to 5.0 below summarize the efforts the City of San Diego undertook to develop the Mission Bay & Coastal La Jolla Watersheds URMP and implement the Plan's activities during the FY 2003 reporting period. It is important to note that the City of San Diego implemented all of the activities scheduled for FY 2003.

1.0 Program Development & Implementation Structure

As required under the Municipal Permit, the City of San Diego was tasked with developing and implementing a watershed-based urban runoff management plan. Fortunately, for years the City of San Diego and many other agencies, institutions and non-profit groups have already taken many proactive and coordinated steps to address water quality issues in Mission Bay. The Mission Bay & Coastal La Jolla Watershed URMP could tap into existing efforts. However, some additional coordination was required to integrate some "regional" efforts (such as, the conducting similar, comparable water quality assessments in each watershed) in the Mission Bay & Coastal La Jolla Watershed URMP with other Watershed URMP's in the region. To ensure successful development of the program, the City of San Diego participated with the Regional Watershed URMP Working group to address regional and watershed-specific issues at appropriate scales.

- Regional Watershed URMP Workgroup. To address shared regional issues, the Copermittees assembled the Regional Watershed URMP Workgroup, co-chaired by the Port of San Diego and the City of San Diego. This group met eight times (between January and November 2002), and helped create the framework for how the Mission Bay & Coastal La Jolla Watersheds URMP document would eventually be organized, in addition to helping develop a methodology for identifying water quality issues in the watershed, watershed education strategies, and mechanisms for watershed-based land use planning, among other items.
- Mission Bay & Coastal La Jolla Watersheds URMP Development. To address watershed-specific issues in developing the Mission Bay & Coastal La Jolla Watersheds URMP, the City of San Diego held meetings with other active members of the public and consultants in the Mission Bay watershed. The City also collaborated through email and postings of draft documents on the Project Clean Water website (www.projectcleanwater.org), to collaboratively develop and write the

Mission Bay & Coastal La Jolla Watersheds URMP document. The City of San Diego developed the Mission Bay & Coastal La Jolla Watersheds URMP between March 2002 and January 2003.

In addition, it is important to note that a large part of the Watershed URMP's implementation structure and activities were designed to align with and preserve the existing framework of activities and efforts ongoing within the Mission Bay watershed through the City of San Diego's Mission Bay Water Quality Management Plan. The Mission Bay Water Quality Management Plan was developed and submitted to the State Water Resources Control Board in March 2002 to provide a formal management structure for coordinating efforts in Mission Bay.

The Mission Bay Water Quality Management Plan is implemented by the City of San Diego under the direction of the City's Storm Water Pollution Prevention Program (Storm Water Program). The Storm Water Program is responsible for the day-to-day activities, administration of the contracts for projects and studies named in the Plan with various consultants and institutions, and liaison with the San Diego Regional Water Quality Control Board. The Storm Water Program will refer issues to one of three groups for resolution in the implementation of the Mission Bay Water Quality Management Plan:

- Mission Bay Clean Water Technical Advisory Committee
- Mayor's Clean Water Task Force
- Mayor and City Council

In addition, as appropriate, items will be discussed at the Mission Bay Park Committee and the Park & Recreation Board. To extent possible, the Storm Water Pollution Prevention Program will incorporate the water quality actions derived from the implementation of the Mission Bay Water Quality Management Plan into the Watershed Urban Runoff Management Plan currently under development.

Mission Bay Clean Water Technical Advisory Committee - Science

The Mission Bay Clean Water Technical Advisory Committee was formed to coordinate the science of the various projects included in the Mission Bay Water Quality Management Plan over the next few years. The Mission Bay Clean Water Technical Advisory Committee, which meets on a quarterly basis, is a forum for project team leaders, technical advisors, contract managers and the public to share information with each other. This forum also discusses project approaches, results, data management and conclusions of the technical studies carried out in and around Mission Bay.

The Mission Bay Clean Water Technical Advisory Committee will also coordinate peer review of technical reports and products. It will refer issues to and make recommendations for adaptive management of the Mission Bay Water Quality Management Plan to the Mayor's Clean Water Task Force. The initial committee meeting will be held on March 27, 2002 and quarterly meetings will begin in July 2002.

Clean Water Task Force - Policy Recommendations

In April 2001, the City of San Diego Clean Water Task Force was established by Mayor Dick Murphy to advise the Mayor and City Council on water quality issues. "Clean up Our Beaches and Bays" is one of the City of San Diego's top ten goals. The Task Force, co-chaired by the Mayor and Councilmember Scott Peters, consists of elected officials, academics, environmentalists, business interests, professionals, and other related agency representatives. The Task Force meets routinely and will provide ample opportunities

to obtain input from community stakeholders and government agencies. In December 2001, the Task Force reviewed and approved the City's Urban Runoff Management Plan that was adopted by City Council on January 28, 2002. The Task Force has also advocated for State funding for specific water quality projects. The Task Force currently meets bimonthly.

The Task Force will review recommendations from the Mission Bay Clean Water Technical Advisory Committee. Possible issues include adaptive management strategies, Urban Runoff Management Plan implementation, project specific outcomes, and recommendations for future study.

Mayor and City Council

The Mayor and City Council, all elected officials, will determine the policy direction related to Mission Bay and water quality. It also decides on the City's budget. Issues relative to City funding would be decided at this level.

2.0 Water Quality Activities

The Plan of Action Section in the Mission Bay & Coastal La Jolla Watersheds URMP identifies proposed activities to address prioritized water quality issues. The sections below provide a status report of work completed to date on those activities.

2.1 Mission Bay Bacteria Source Identification Project

The City of San Diego received a Clean Beaches Initiatives grant from the State Water Resources Control Board for a total of \$1,300,000. The purpose of this Clean Beaches Initiative - Proposition 13 contract is to plan, design and implement the Source Identification Survey. This project identified sources of bacterial contamination in Mission Bay and recommended appropriate actions and activities to eliminate the input of those sources to Mission Bay.

The project is being conducted in two phases. Phase I was initiated on July 1, 2002 and encompasses the first year of the study. The study was prepared for the California State Water Resources Control Board by the City of San Diego (City) and MEC Analytical Systems, Inc. (MEC).

The goal of Phase I was to identify the major sources of bacterial contamination to Mission Bay. There were three major investigative tasks designed to achieve this goal:

Task 1 – Investigate potential sources of human sewage from Park restroom Infrastructure.

Task 2 – Investigate potential sources of human sewage from moored or anchored boats.

Task 3 – Conduct visual observations and bacterial assessment of other potential sources in the Park.

Twelve sites that had persistently elevated bacterial levels were identified for the investigation.

In Task 1, the comfort stations (restrooms) at the 12 sites were evaluated to determine if leaking infrastructure from these facilities was a source of bacteria to the Bay. The lateral lines of the comfort stations, which carry sewage to the sewer mains, were visually inspected with a closed-circuit television

(CCTV) system to assess their physical condition. The inspections revealed that the integrity of the lateral lines of all of the comfort stations investigated was intact and they were not a likely source of bacteria to the Bay. The sewer mains themselves were not inspected as part of this study.

In Task 2, illicit discharge of sewage from boat holding tanks was investigated as a potential source of bacteria at three locations in Mission Bay where boats moor or anchor: Bonita Cove, Santa Barbara Cove, and De Anza Cove. At each site, samples were collected for bacterial analyses in surface waters surrounding the moored or anchored boats and from a beach location where routine monitoring is conducted. The samples near the boats were collected by kayak. Each site was sampled in this way on three separate days. Very low concentrations of all three bacterial indicators were detected throughout the study at all three sites. In most cases, the concentrations were below or just above the detection limits. The lack of elevated levels of indicator bacteria from any of the samples collected indicates that illegal discharge of sewage from moored and anchored boats was not occurring during the time of sampling. The results also suggest that illegal sewage dumping from moored and anchored boats is not a likely chronic source of bacterial contamination at the beach. However, the illegal discharge of sewage holding tanks from moored boats is inherently episodic and the results of the study do not rule out the potential for isolated events.

Task 3 was designed to assess the numerous potential sources of bacteria to Mission Bay other than leaking comfort station infrastructure and illicit discharge from moored and anchored boats. The potential sources assessed in this task included fecal matter from birds and feral and wild animals that inhabit the park, the homeless population, the behavior of some park visitors, and park management practices, such as comfort station cleaning and irrigation procedures. Task 3 included comprehensive visual observations conducted in conjunction with samples taken at the observation areas for analysis of indicator bacteria. Observations and sampling took place during three periods between mid-August and mid-October, 2002: low-use, medium-use, and high-use. Within each of these periods, the study included three days of observation (sunrise to sunset). During each day of observation, samples for bacterial analyses (total coliform, fecal coliform, and *Enterococcus*) were taken at each of the 12 sampling locations, three times per day. The results were compared to standards for the three bacterial indicators (AB411 criteria). In addition, "spot sampling" was conducted at areas where bacterial influx to the bay was expected (e.g., flowing storm drains).

A total of approximately 1,300 man-hours of visual observations were made during the nine days of the study (over 100 hours per site). In addition, over 500 samples from receiving waters of the Bay and suspected sources were collected and analyzed for indicator bacteria. The results from the observations and bacterial monitoring suggested that several potential bacterial sources identified at the beginning of the study were not likely to be contributing bacteria to the Bay. These included rodents and wildlife other than birds, leaking garbage cans, trash or food in the Park, illicit boat discharge, improper use of recreational vehicle pump-outs, the homeless population, and pet waste (except at one site). The results also indicated that each site examined in the study was unique in terms of potential bacterial sources. The potential sources identified throughout the Bay included birds, flowing storm drains, groundwater, creek drainage, irrigation, restroom wash down practices, and boat cleaning (one site).

After the field work for the three major tasks had been completed, two additional tasks were initiated: 1) Weekly monitoring of the 12 sites from November through March, and 2) Follow-up studies. The weekly monitoring included visual observations, water quality measurements (temperature, pH, conductivity, and

turbidity), and water sample collection for bacterial analyses (total coliform, fecal coliform, and *Enterococcus*) at all 12 sites. The follow-up studies consisted of a series of investigations designed to track likely bacterial sources identified in Tasks 1, 2, and 3. The studies were all site-specific depending on the characteristics of the area.

The results of the weekly monitoring further demonstrated the unique characteristics of the 12 sites monitored in Mission Bay. Water quality parameters tended to be related to a site's proximity to the ocean or major drainage, such as Rose Creek or Tecolote Creek. One exception was salinity. Fanuel Park, which is far removed from the ocean inlet and major drainages, had the second lowest mean and median salinity values in the Bay.

Overall, there were a total of 39 beach postings throughout the duration of the sampling period. The highest mean and median bacteria values were found at Campland, Tecolote Creek, Visitor's Center, and Fanuel Park. Exceedances of standards at Tecolote Creek and Fanuel Park tended to be episodic, while those at Campland and Visitor's Center lasted several months. There were no obvious relationships between bacterial levels and water quality parameters.

The results of Phase I of this study demonstrated the complexity of identifying and accounting for bacterial sources in Mission Bay. The results strongly suggest that the sources of elevated levels of indicator bacteria are site specific and dependent on a broad range of variables. At some sites, identifying the source was fairly straight-forward, while at others further investigations will be necessary. The suspected sources varied at each site.

The final report for Phase I was submitted to the State Water Resources Control Board on June 30, 2003. A copy of the report was also provided to the Regional Board.

On July 1, 2003, Mission Bay Source Identification Study - Phase II started and three major questions emerged from Phase I that need to be addressed to understand the nature and sources of bacteria so that the City can make informed management decisions for abatement:

1. What is the origin (human, avian, etc.) of high bacterial levels measured in Phase I? Elevated bacterial levels were measured from flowing storm drains, grassy areas within the Park, and groundwater, but the ultimate source of the bacteria is unknown. If the City can understand the origin, informed management decisions can address the issue. For example, if a large percentage of bacteria found in groundwater sources are human, this would indicate leaking infrastructure from land use areas further up-gradient from the watershed draining to Mission Bay that the City would further investigate and remediate.
2. How much bacteria is transported from the surface of Mission Bay Park to the bay? Numerous samples taken from the grassy areas of the park were high in bacteria, but it is unclear how much of the bacteria identified in source waters are transported to the receiving waters of the bay.
3. Is sediment in Mission Bay serving as an on-going source of bacteria in the water column through re-suspension? Other studies have indicated that sediment may serve as a sink for bacteria, which tends to be particle associated. The results of Phase I suggest that sediment-sorbed bacteria may be a factor at three sites adjacent to the major drainages in Mission Bay. However, the extent to

which sediment associated with runoff from these drainages contributes to elevated bacterial levels needs to be assessed.

The Phase II final report will be submitted to the State Water Resources Control Board and the Regional Board on June 30, 2004.

2.2 Mission Bay Water Quality Survey

The Mission Bay Water Quality Survey provides for bacterial monitoring at five shoreline stations in Mission Bay and at nineteen stations in the main channels and tributaries of Rose and Tecolote Creeks. The SEP funds originated as fine monies paid by the City to the State of California following a major sewage spill in Alvarado Creek in 2000. The Regional Board agreed to return some of these funds to Mission Bay, to be used to improve the water quality in the Bay.

The survey began on July 1, 2001 and will continue until June 30, 2004. The purpose of this monitoring is to determine whether there are areas in the watersheds to Mission Bay that consistently show high levels of bacterial contamination. This is the only study that provides for monitoring water quality on a watershed basis. The Mission Bay monitoring points were set up to assist the Regional Board in developing the Total Maximum Daily Load program for the bay. The Metropolitan Wastewater Department staff is coordinating this project.

Water quality monitoring will continue until June 30, 2004. As data is analyzed, it is reported to the Regional Board and the County of San Diego Department of Environmental Health. The Metropolitan Wastewater Department will submit a final report to the Regional Board with 180 days of completion of this project.

2.3 Mission Bay Epidemiology Study

Mission Bay Project W.E.T: (Water Evaluation & Testing) Study is funded by the State Water Resources Control Board Cleanup and Abatement Account at the request of the Regional Board. The City of San Diego provided additional funding through a Regional Board approved Supplemental Environmental Project for the sewage spill into Tecolote Creek in 2001. Regional Board staff manage contracts with the University California, Berkeley and the Southern California Coastal Waters Research Project (SCCWRP) for the epidemiology and water quality tasks that need to be performed.

The goals of Project WET are to assess the risk of swimming related illness following exposure to runoff contaminated waters in Mission Bay. At the invitation of SCCWRP, the City of San Diego attended Steering Committee meetings on July 18, 2002, November 1, 2002, March 11, 2003, and May 8, 2003. At these meetings, City provided input on the selection of an epidemiologist and SCCWRP's water quality monitoring program. Interviews of the public started on May 24, 2003 and continued through Labor Day weekend. UC Berkeley and SCCWRP were scheduled to provide a final project report to the Regional Board by December 31, 2004.

2.4 Mission Bay Contaminant Dispersion Study

The Mission Bay Contaminant Dispersion Study was developed to address the frequent high levels of fecal indicator bacteria in the eastern parts of Mission Bay and the role that water-borne transport. Support for this work was provided through the City of San Diego as a Supplemental Environment Project approved by the Regional Water Quality Control Board. The SEP funds originated as fine monies paid by the City to the State of California following a major sewage spill in Tecolote Creek in 2001. The Regional Board agreed to return some of these funds to Mission Bay, to be used to improve the water quality in the Bay.

This study, combined with previous work on Mission Bay, has produced a coherent view of the circulation of water and dispersion in the Bay. Through comparative studies, it has also provided an improved view of circulation and residence in "low-inflow estuaries" - systems that are typical of southern California.

These estuaries (bays) exhibit a distinct seasonal cycle, with warm dry summers characterized by an absence of inflow, warm water in the inner basin and cool oceanic waters near the mouth. By late summer the backbay water has become hypersaline, saltier than the sea, and in fall there may be a brief period when these hypersaline waters cool and become denser than the ocean and outer bay waters. Interannual changes in this seasonal cycle may be influenced by ocean conditions, but the primary factor appears to be differences in the amount or timing of freshwater inflow events in winter. At short time scales, tidal variability dominates, with a twice-daily movement of water into and out of the bay. A weaker influence, but at a similar time scale, are the diurnal sea-breezes in summer. In winter, the synoptic weather patterns induce strong variability on the time scale of a week, with low-salinities and flow patterns affecting the backbay the most.

It is tidal currents that are most important in the exchange of bay water with the ocean and in the longitudinal exchanges within the estuary. As these tidal fluxes weaken with distance from the mouth, tending to zero at the landward end of the basin, there is a marked increase in the residence time of water with distance from the ocean. The outer bay is readily flushed with ocean waters every day, and the channels and island areas in mid-bay are also characterized by waters that have recently entered the bay from the ocean. However, the long, narrow, unbranched channels of the backbay exhibit long residence times and it is here that circulation/transport/dispersion is a major factor in observed contamination.

This study has confirmed that waters may be retained in the region off Tecolote Creek for over a week, with limited dilution (less than 10-fold). Further, waters in the backbay have been in Mission Bay for some time prior to being transported here and the total time in the Bay may be closer to a month. It is for this reason that these waters exhibit hypersalinity - each day over this long period the surface has lost zero-salinity water to evaporation, hence increasing the salt concentration in the backbay. This backbay retention is interrupted briefly by freshwater inflow events, with residence times being reduced through a combination of through-flow and vertical circulation effects.

The vertical stratification and shear leads to low salinity waters moving out near-surface and high-salinity water moving in near bottom, so that this dead-end channel is rapidly flushed under these conditions and the land runoff waters are quickly removed and after a few days any residual inflow is diluted order 100-fold. But, then the flushing returns to weak tidal effects and residence times rapidly increase - for example, hypersalinity was observed in the backbay during January within a few weeks of a rain/inflow event. Small

volume inflow events do not induce the strong stratification and rapid flushing, and these land runoff waters are not rapidly removed from the backbay.

In the deeper channel near the mouth, the density difference between cool ocean and warm bay waters also leads to vertical stratification and enhanced bay-ocean exchange. Further, the coastal waters off Mission Bay are characterized by alongshore flows so that tidal outflow from the Bay is removed alongshore and new ocean water moves into the Bay on the subsequent ebb tide. For these reasons, the outer parts of Mission Bay are very well flushed and exhibit water properties very similar to those in the ocean off Mission Beach. Whereas the backbay has longer retention times depending on the freshwater inflows.

The final supplemental environmental report was submitted to the Regional Board on April 30, 2003.

2.5 Rose & Tecolote Creeks Water Quality Improvement Projects

The purpose of the Rose & Tecolote Creeks Water Quality Improvement project is to construct structural controls (a.k.a. storm water Best Management Practices) within the watershed and evaluate their effectiveness. The project was initiated with a \$2 million from a 2000-2001 State Budget appropriation. The initial phase of the project was an extensive planning and storm water Best Management Practices evaluation process. The Storm Water Pollution Prevention Program's consultant, Rick Engineering Company, developed a program that ranked potential locations for BMP's based on several criteria and recommended various structural controls within the watershed. Based upon this analysis, several BMP's were selected and will be constructed.

In 2001, the Storm Water Pollution Prevention Program was successful in securing \$3 million from the State of California Governor's Clean Beaches Initiative (CBI) to implement two Mission Bay water quality projects. Some of these CBI monies (\$1.7 million) were earmarked for infrastructure improvements as part of the Rose and Tecolote Creeks Water Quality Improvement project. The CBI monies were intended to design and construct water quality features that were identified by this watershed planning effort. At the conclusion of the watershed study, it was determined that additional upstream controls would not significantly affect bacteria levels at the beach so two "in bay" projects were proposed and are being implemented.

The "in bay" projects known as the Mission Bay Clean Beaches project will construct new infrastructure within Mission Bay Park in an effort to reduce beach postings at two identified problem areas: 1) Cudahy Creek outlet, between the Visitor's Center and Leisure Lagoon and 2) Tecolote Creek outlet. This project uses conventional technology in a new way. As currently designed, this project will construct localized circulation systems in two specific problem areas in East Mission Bay. Goals include reducing bacteria levels through the saltwater/ freshwater mixing, particle size reduction, and filter feeder assimilation.

This is a 5 year project started in 2001 and is scheduled to be completed by 2006. Construction is anticipated to begin in September 2004.

By the end of this reporting period, cost estimates and preliminary design documents had been completed. The projects will next move into the Permitting and Environmental review phase.

2.6 Tecolote Creek Treatment Wetlands

The Tecolote Creek Treatment Wetland project consists of the design and construction of a wetland treatment marsh at the mouth of Tecolote Creek to assist with the removal of pollutants of concern that flow into Mission Bay from Tecolote Creek. The project is partially funded through the City of San Diego Water Utilities Sludge Mitigation Fund. While the costs of project implementation are estimated to range from \$4,500,000 to \$6,500,000, funding identified to date is limited to \$160,000 and has been allocated to design only. The project was launched in 2001. By the end of this reporting period, the majority of the first phase of project design (i.e. conceptual plan and schematic drawing) was complete.

Additional funds will need to be secured in order to complete environmental review, complete the design phase, construct the project and ultimately perform long term maintenance of the site. The consultant has been asked to prepare a cost estimate to include specific operations required for proper project maintenance. Once the cost estimate is complete, project management will work with City Council to determine if implementation of the project is feasible. If the project moves forward and is constructed, it is anticipated that the City Park and Recreation Department will be responsible for maintaining the site.

2.7 Mission Bay Water & Sediment Testing Project

The University of San Diego (USD), in conjunction with project partners AMEC Earth and Environmental and San Diego BayKeeper implemented a comprehensive study of water quality, sediments, and pelagic and benthic communities in Mission Bay. The project began in October, 2001, with sampling occurring from November 2001 through May 2003 at six key sites, one each near the three major sources of fresh water input to Mission Bay (Tecolote Creek Inlet, Cudahy Creek Inlet, Rose Creek Inlet), two representative of large regions of the bay (Fiesta Bay, Sail Bay), and one control site (Ventura Point). The goals of the Mission Bay Water and Sediment Testing Project are to:

- (1) Develop a baseline water quality, sediment and benthic community monitoring data for Mission Bay and began the process of analyzing the relation between monitoring data and environmental factors;
- (2) Provide the City of San Diego and other stakeholders with the necessary data to make informed choices while developing and implementing an effective Management Plan and other pollution prevention strategies (e.g. development of Total Maximum Daily Loads); and
- (3) Utilize the citizen monitoring aspect of the project as a means to educate USD students about the environmental and human health impacts of urban runoff and other pollution sources.

The project partners will continue review and analyze the Mission Bay water and sediment monitoring data. The final report will be submitted to the City of San Diego on January 31, 2004.

2.8 Coastal Low Flow Storm Drain Diversion Project

The City's Low Flow Diversion System is designed to capture urban runoff or sewage overflows from the City's storm drain system during dry conditions and divert them to the City's sanitary wastewater collection system for treatment at the Point Loma Water Treatment Plant. During the reporting period, the City operated and maintained 53 Low Flow Diversion Facilities; 45 facilities in operation protecting Mission Bay and another 7 facilities located in the La Jolla community. The facilities have proved to be extremely

effective in capturing and diverting urban runoff and sewage overflows before they reach our coastal waters.

Future plans for the Low Flow Diversion System include the development of 29 new diversion facilities and maintenance for the existing facilities. New Diversion facilities will be located at storm drain outfalls along the City's shoreline communities of Ocean Beach (the San Diego Bay watershed), Pacific Beach and La Jolla.

2.9 Data Collection & Analysis

A valid and comprehensive baseline assessment is imperative to quantify changes in water quality, and is the driving force behind responsible management decisions. To this end, each Watershed URMP was given the same activity, which was to develop a comprehensive water quality data management system for their watershed.

However, the Copermittees quickly realized that basic questions still needed to be answered before such a system could be developed. Specifically, how should we inventory the data? How do we check for quality achieved / quality controlled (QA/QC)? What data should be analyzed? As all of the Copermittees were faced with these unanswered questions, the jurisdictions agreed to make this project a "common" activity until a model management system could be developed by the Copermittees. Please refer to the Unified Watershed URMP document for an update on this activity.

2.10 Regional Integrated Pest Management Campaign

The Copermittees and their project partner (University of California Cooperative Extension - UCCE) intend to protect and restore affected beneficial uses of receiving waters throughout the San Diego region through a comprehensive approach to Integrated Pest Management (IPM) outreach and education. During this reporting period, the City of San Diego, as lead agency, applied for and was awarded a pesticide mitigation grant from the State Water Resources Control Board (Pesticide Research and Identification of Source and Mitigation Grant Program).

Water quality monitoring data (collected during both dry and wet weather seasons throughout the county) indicate that pesticides (especially diazinon) routinely exceed water quality standards in most of the region's watersheds. The grant funding was sought to develop and implement an IPM educational program, which is sustainable beyond the life of the proposed project. The project will also specifically target the TMDL for diazinon in the Chollas Creek watershed.

IPM promotes the use of integrated, ecologically sound pest management programs. The following is a description of the project strategy:

- Develop educational materials, pertinent to the region, under the leadership of the UCCE
- Integrate the educational materials into the UCCE Master Gardener's Program
- Develop and implement a model retail Point of Purchase Campaign in two targeted watersheds
- Perform regional IPM outreach activities
- Implement a focus community-based educational program in the Chollas Creek watershed.

- Implement a water quality monitoring program for diazinon in the Chollas Creek watershed.
- Conduct assessment on outreach effectiveness to provide for a model that can be rolled out to other watersheds throughout the State

The Copermittees will support the project by in-kind contributions of additional educational materials, outreach activities, and sponsorship of workshops. The project start date is planned for the second quarter of 2004.

3.0 Land Use Planning Activities

The Land Use Planning Context & Processes section of the Watershed URMP identifies several different activities and procedures designed to integrate watershed principles into comprehensive planning. The sections below provide a status report of work completed to date on those activities.

3.1 Jurisdictional Planning

Effective land use planning can provide important water quality protections by controlling the type and placement of activities allowed in critical areas, and by providing a framework within which site-specific control measures may be identified and imposed during land development and redevelopment activities. As such, the General Plan is crucial to the long-term success of its water quality and environmental programs.

A General Plan is the official city or county policy regarding the potential size and distribution of the jurisdiction's future population – balancing housing, employment and infrastructure needs with resource protection. The General Plan can be described as the city or county's blueprint for future development in that it represents the community's view of its future; a constitution made up of goals and policies upon which the city council, board of supervisors and planning commission base their land use decisions.

A city's land use authority, or ability to regulate land use development, does not extend beyond the jurisdiction's boundaries; cities are autonomous, and one jurisdiction cannot dictate or mandate local solutions in another. Historically, this has caused General Plans to focus almost entirely on local impacts rather than expanding the analysis to the watershed level.

Within recent years, however, jurisdictions have acknowledged the need to protect local assets as well as upstream and downstream resources within watersheds. As a result, jurisdictions have or are currently amending their General Plans to include similar goals and policies regarding water quality and watershed protection. Collectively, the jurisdictions' General Plans form the foundation for water quality betterment on a watershed level. Although adopted and implemented independently, jurisdictional land use policies and procedures function in concert with one another, jointly working towards the protection of the watershed and the improvement of water quality. However, the Mission Bay and Coastal La Jolla watersheds are totally within the City of San Diego's jurisdiction, and thus only subject to the City's development regulations and policies. Below is a status of the City's General Plan update process.

3.1.1 City of San Diego Progress Guide and General Plan

On October 22, 2002, the San Diego City Council adopted the Strategic Framework Element and Action Plan. In addition, the City Council Land Use and Housing Committee (LU&H) approved the General Plan work program on February 12, 2003. This work program is based upon priority actions identified in the City Council-Adopted Strategic Framework Action Plan to be accomplished by 2008. The Strategic Framework Element is a new element of the City of San Diego's General Plan and lays out a strategy for a comprehensive update of all of the elements of the General Plan. The Strategic Framework Element incorporates water quality and watershed protection principles in the Conservation and the Environment section of the document. The land use strategy proposed in the Strategic Framework Element incorporates a number of site and street design policies that achieve water quality and watershed protection principles such as reducing impervious surfaces and increasing vegetation. The water quality and watershed principles identified in the Urban Runoff Management Program were incorporated into the Strategic Framework Element and Five Year Action Plan and adopted by the City Council into the General Plan.

The Strategic Framework Five Year Action Plan includes direction to update the Conservation Element, among other General Plan elements, to further address storm water and urban runoff. In addition, the Strategic Framework Five Year Action Plan also includes recommendations to update other policies and regulations to address storm water and urban runoff, including amendments to the Street Design Manual, the Drainage Design Manual, and the Land Development Code.

Staff began work on Pilot City of Villages implementation and updates to elements of the General Plan upon adoption of the Strategic Framework Element in the fall of 2002. A summary of the status of the efforts to update the General Plan can be found in the City's Jurisdictional URMP Annual Report. It's important to note that since adoption of the City of Villages strategy and implementation of the Action Plan, new communication tools have been developed to leverage limited Planning Department resources and help provide tipping points in the ongoing dialogue with stakeholders. One of those innovations is development of a consolidated mailing database that has allowed for extensive use of e-mailings. Another is, creation of our "From Controversy to Solution Series", quarterly public forums designed to engage the public in spirited dialogue on the controversial issues related to the General Plan. Presentations to community planning groups and other stakeholder organizations remain a core component of the City's outreach program.

3.1.2 City of San Diego Development Review Process

Since December 10, 2002, all public and private development projects requiring permit approvals from the City of San Diego are subject to the requirements in the City's Storm Water Standards Manual². The Storm Water Standards Manual contains all of the City's requirements for storm water controls both during construction and once the development is in use, and are required to be included in projects, where applicable (i.e., depending on it's potential to impact water quality). The purpose of the Storm Water Standards Manual is to provide all the information needed to fully and adequately characterize the proposed project site's existing water quality and drainage, develop effective construction and post-construction storm water controls, and ensure the effectiveness of the controls through proper maintenance

² To view or print a PDF copy of the Storm Water Standards, please visit the City of San Diego's website at <http://www.sannet.gov/development-services/news/newslist.shtml>.

and long-term fiscal responsibility. Prior to being approved, the project plans, and associated water quality information and proposed controls and environmental documents prepared for the project (if any are required), are available to interested members of the public and adjacent jurisdictions for review and comment. The Storm Water Standards were applied to all proposed development projects in the Mission Bay and Coastal La Jolla Watersheds that had not received all necessary permit approvals by December 10, 2002

3.2 Watershed-Based Land Use Planning Mechanisms

The City's Storm Water Pollution Prevention Program (Storm Water Program) has continued the process of working with the City's planning department to facilitate the integration of watershed data and information into the land use decision-making processes. Specifically, staff from the Storm Water Program has continued to participate in the development and update of the City's Progress Guide and General Plan (See Section 3.1.1, above). Additional watershed-based planning efforts currently going on within the watershed are discussed in Section 3.3.1 below.

3.3.1 Land Use Professional's Reference Manual: "Stormwater Quality and Watershed Protection - Looking at Alternative Development Policies"

To date, jurisdictional and project level planning tools have been largely under utilized because storm water management is often viewed as an engineering issue. As a result, many site design solutions rely largely on structural treatment controls like detention basins and mechanical treatment devices, which can be expensive and maintenance intensive. In most cases, it is easier and cheaper to keep pollutants out of storm water by designing the pollutant source out of the project, while simultaneously preserving the site's natural filtration capacity.

Continuing the effort to educate planners on the need to incorporate watershed issues into land use planning principles, the County of San Diego, in cooperation with the City of San Diego (with staff from both the Storm Water Program and Planning Department), is in the process of developing a document entitled: *"The Stormwater Quality and Watershed Protection Manual – Looking at Alternative Development Practices"* (Manual). The Manual takes the first crucial step towards developing a mechanism for watershed-based land use planning by providing land use professionals (e.g. planners, engineers, architects, etc.) with a big picture overview of the water quality problems and the need for more site design solutions.

This Manual will help land use professionals understand first, how land use development affects water quality, and second, based on that understanding, why some tools are generally more effective than others at protecting water quality. This understanding will provide a theoretical approach – a storm water design philosophy – that will enable land use professionals to make more effective, cost-efficient decisions when "reaching into the planner's toolbox" at both the jurisdictional and project-level planning scales. This Manual will help land use professionals better understand the need for land use planning at the watershed level by explaining why pollutants lead to the detriment of the watersheds and what program and site design Best Management Practices land use professionals can considered when designing private development, redevelopment and public facility projects at the initial planning stages.

A summary of the Manual's contents is below.

- **POLLUTANTS:** Section II of the Manual provides a discussion on common storm water pollutants and the various land use types (e.g. residential, commercial, industrial) that generate them.
- **IMPACTS:** Section III of the Manual provides a discussion on the environmental impacts resulting from excessive pollution discharge.
- **LOCATIONS:** Section IV of the Manual provides a discussion on the watersheds found within the County of San Diego and a summary of the pollutants found within them.
- **TOOLS:** Section V of the Manual provides a discussion on the site design tools/techniques land use professionals can consider when designing (improving) either a water quality program or a specific development project.

The concept of the Manual has been discussed at numerous Copermittee and stakeholder meetings, where the idea of a planner's reference guide was well received. In an attempt to solicit ideas on document content and approach, both the County and City are currently collaborating with individuals from various stakeholder groups and organizations, including the California NEMO Partnership (Nonpoint Education for Municipal Officials), California Storm water Quality Association, Rick Engineering, Project Clean Water Comprehensive Planning TAC, and Mission Bay & Coastal La Jolla Watersheds Management Plan Workgroup.

The County anticipates that a draft document will be available for public comment sometime in the spring of 2004. It is anticipated that the Manual will be finalized sometime in the summer of 2004.

4.0 Educational Activities

This section describes actions taken by the City of San Diego during this reporting period to enhance the general public's understanding of basic watershed principles and sources of water pollution. Making all San Diegans aware of the importance of individual actions in protecting our water resources and promoting watershed stewardship are crucial components of this educational program.

4.1 Summary of Watershed Education Activities

The Copermittees in the region have started the process of refining current education programs in order to integrate watershed-based components. Education was generally focused in order to meet the needs of different sub-regions and associated land uses within the watershed. Suitable Best Management Practices (BMPs) were incorporated into the education efforts as determined appropriate to the targeted community.

Over the short and long term, the watershed educational strategy focuses on three key principles:

- What is a watershed?
- We all live in a watershed
- Watershed stewardship (all individual actions within our watersheds add up in a cumulative way to influence the health of our water resources)

4.2 Summary of Watershed Education and Outreach Conducted

The following is a description of the four-prong approach developed by the Copermittees during the reporting period:

- Incorporate core watershed principles into existing educational programs
- Promote watershed stewardship in communities
- Develop educational strategies to target priority pollutants within the watershed
- Achieve milestones as determined through annual assessments

How the Copermittees are implementing the first two prongs of the four-pronged approach can be summarized as follows: The key principles (“what is a watershed” and “we all live in a watershed”) were incorporated into appropriate educational efforts (some efforts occurred in other watersheds and did not focus on Mission Bay).

Building on these efforts, a watershed stewardship focus has been developed to establish community ownership of our water resources. Through various modalities described below (e.g. watershed model demonstrations, watershed address mapping and citizen watershed monitoring), the connection is made between “our backyard”, effects downstream, and preservation of our precious coastal habitats.

The third prong of the four-pronged approach focuses on priority pollutants within the watershed. Due to limited budgets and the benefits of economies of scale, the Copermittees are focusing on priority pollutants that span across multiple watersheds first and watershed specific pollutants second. One class of priority pollutants of concern that is found in a majority of the watersheds within the San Diego region is pesticides. Pesticide impacts to water quality are being addressed under the education strategy at the regional level across all watersheds. Based on continued monitoring, the education program will be refined over time to address other specific constituents of concern found in multiple watersheds.

The fourth and final prong in the approach is program effectiveness. The City of San Diego has conducted public awareness surveys of water quality and watershed issues within the City’s jurisdiction in each of the last two years. Although the results were separated by watershed within the City’s limits, the survey, entitled “City of San Diego Storm Water Pollution Prevention Program 2003 Follow-Up Survey of City Residents,” was not watershed-wide except in the Mission Bay and Coastal La Jolla watershed.

To expand on these surveys and allow Copermittees to measure the effectiveness of education efforts, the Copermittees have started the process of developing and coordinating consistent questions for public awareness surveys. Ensuring consistency in watershed questions will allow Copermittees to individually or collectively conduct comparable (“apples to apples”) surveys throughout each watershed. The Copermittee’s goal with these surveys is to develop effective public education programs that are founded upon community-based data that will generate locally tailored strategies. These surveys will measure baseline knowledge of pollution prevention/source reduction activities in the watershed communities.

4.3 Education Action Plan

The Educational Program of the Mission Bay & Coastal La Jolla Watersheds URMP identified actions that participating jurisdictions region-wide were going to undertake over the short and long term in order to further develop and implement the watershed-based education element. Progress on each specific educational activity identified in the program's Education Action Plan is described in the following sections.

4.3.1 Public Presentations & Media

Public presentations are aimed at professional organizations and industry-specific associations. They incorporate both general watershed principles common to all watersheds and specific best management practices of interest to the particular audience to address pollution prevention. Core watershed concepts and principles are incorporated into public presentations and media opportunities. Although no Mission Bay-specific presentations were held in FY 2003, the City conducted or participated in many presentations throughout the region addressing watershed issues and the importance of protecting and improving water quality City-wide.

A summary of the City of San Diego's Think Blue education and outreach program's media buy for fiscal year 2003 is shown in Table II-1, below. Note that the table summarizes media buys region-wide.

Table II-1. Think Blue FY 2003 Media Buy Year End Summary.

Station	FY 2002 Expenditure (\$)	Number of Paid PSAs	Number of Comp N/C PSAs	Value of In-kind (\$)	Total Value (\$)
FM Radio:					
Sets 102 /KPRI	8,000	156	48- 60 sec @ Interview 3 mins Web link	10,400	18,400
B 94.9 FM (JP)	5,000	65	3 Events 2@2,000; 1@4,000 6- Surf Sponsor; 34 PSAs	9,580	14,580
KFMB Star 100.7	6,997	131	Web Link -Feb	2,000	8,997
PLANET 103.7 (I)	5,000	82	20 @ 83.33 40 Planet Tips @ 150 1-Interview J.Lawrence	10,166	15,166
KPBS	7,500	74	Full Focus TV Interview ½ hour Karen Rostada	5,000	12,500
KGB 101 (cc)	6,000	80	10- 20 sec promos @ 75 1 Event-Ju	2,750	8,750
KHTS 933 (cc)	8,000	120	68 -60 sec events 1 print advertisement	17,080	25,080
AM Radio:					

Station	FY 2002 Expenditure (\$)	Number of Paid PSAs	Number of Comp N/C PSAs	Value of In-kind (\$)	Total Value (\$)
KOGO- 600 (cc)	7,000	60	20-5 sec promos @125 5 part interview; web, 10-60 second PSAs	10,750	17,750
COX 4/Padres**	12,000	32	23- Padres KUSI & COX4 5@750; 18@750	17,250	29,250
COX NETWORK DISC, CNN, BRAVO, MSNBC, TNT, FAM, SDN, SCI- "Taken" Spielberg	12,000	242	44 @ 59 ea average	2,596	14,596
FOX 6*	60,000	204	6a-9a live Coastal Clean Up 4-interviews w Kirby	4,000	64,000
Time Warner *** LIFE, DISC, USA, TLC, CNN, TNT, TRVL, FAM, HGTV, NATGEO,ANPL SCI- "Taken" Spielberg	15,000	188	107 PSAs- various	4,955	19,955
KGTV 10 * (ABC)	13,005	54	42 various @ 150 -600 ea	12,900	25,905
XEWT 12 *	20,000	304	36 PSAs @ 100 10 Did you Know tips @500 1 Cinco De Mayo Event 1 Live Interview AM Show	13,100	33,100
KUSI 9/51*	14,960	110	36- PSAs- @ various 1 morning Show interview 3 News stories	7,725	22,685
KFMB 8 * (CBS)	15,000	64	8- 10 sec billboards @120 Micro climate sponsorship	2,000	17,000
KNSD 7/39* (NBC)	11,000	47	4-Today Show Billboards @175 4- Local Billboards @200 3- News stories @500	3,000	14,000
TOTALS:	\$ 226,462	2013	# PSAs: 536 #Other: 30	\$ 135,252	\$ 361,714

* Aired entire County

** Aired Cox 4- @400,674 HH county wide + KUSI 51-16 games all county cable HH

*** Cities of San Diego, Del Mar, Poway and Fairbanks Ranch in the County

4.3.2 San Diego School District

The City of San Diego formed a unique and valuable partnership when the San Diego City School District (SDCS) agreed to join Think Blue in educating City school children about San Diego's unique marine environment and the impacts of pollution. San Diego City Schools is comprised of 20,000 students at 182 elementary, middle and high schools. Superintendent Alan Bersin is working with the Mayor Dick Murphy's Clean Water Task Force and the Storm Water Pollution Prevention Program to modify City School science curricula to include water awareness and pollution prevention lessons. The curriculum is titled, *Project SWELL; Stewardship: Water Education for Lifelong Learning*. San Diego City Schools launched the 5th Grade curriculum this school year (January 2004). In its entirety, the Project SWELL curriculum addresses the following topics: water conservation, water pollution, sources of pollution, water supply, trash as a pollutant, sewage collection systems and the like. We anticipate that over the next 2-3 years the full SWELL curricula (K-12) will be written and institutionalized in San Diego City Schools.

4.3.3 Regional Watershed Brochure: What is a Watershed?

The Copermittees recognized early that there was a need to develop a simple, relatively cost sensitive approach of informing the general public about watershed issues. It was generally felt that watershed messages needed to provide information on not only common terms and concepts (e.g. definition of a watershed), but specific and unique issues that were found in the watershed. To fill this need, the Copermittees elected to develop a brochure with maps, common terms and highlighted targeted messages, as determined by water quality assessment and other available information. In order to ensure consistency between watershed brochures, the Copermittees started the process of developing a model brochure.

Successful communication campaigns begin with key, core messages, which are repeated often and given time to become "common knowledge" with target audiences. During this reporting period, standardized watershed terms and definitions related to the San Diego region were established in order to enhance public understanding of watershed principles. These terms and definitions were posted on the Project Clean Water website and can be found at www.projectcleanwater.org/pdf/ed_tac/watershed_defs.pdf.³

Stakeholders participating in the Education and Resource Development Technical Advisory Committee (Ed-TAC) of Project Clean Water developed this list of terms and definitions by committee consensus that was approved in June, 2003. The Ed-TAC is a regional forum that met monthly to accomplish this action item. Stakeholders include Copermittees, other local government agencies, non-profit groups and individuals in the San Diego region. List development was accomplished over four Ed-TAC meetings:

- February 27, 2003 – The committee recommended the action item to develop the list of consistent terms;
- March 27, 2003 – The Ed-TAC refined the list and agreed that the terms and definitions for residential outreach be posted on the Project Clean Water Ed-TAC message board;

³ The definitions are provided on www.projectcleanwater.org to promote general awareness of watershed issues. More detailed and technical definitions relating to environmental laws and compliance issues exist. They may vary within each local jurisdiction of San Diego County and between local agencies and state and/or federal agencies. For more information, contact the appropriate agency.

- April 24, 2003 –The Ed-TAC further refined 15 key watershed definitions; and,
- May 29, 2003 – The first set of definitions were finalized and distributed to Ed-TAC members. During the development process, the Ed-TAC solicited comments and recommendation from the Copermittee Technical Outreach Workgroup.

The standardized language will be utilized in a regional watershed brochure template that can be refined and augmented with specific information relevant to each watershed. The branding of attention grabbing images and easily understandable language is crucial to program success. As such, the brochure template will mirror the model developed for the regional watershed poster in order to impart consistent messages to the public. The County of San Diego, in cooperation with the Ed-TAC and the Outreach Workgroup, are currently developing the layout of a draft brochure. It is anticipated that the draft will be available for stakeholder comments by July 2005.

4.3.2 Regional Watershed Poster: What Watershed Do You Live In?

It is important for the public to become acquainted with the defining features of watersheds – where the water bodies are, the high and low points, where water flows and where it discharges, and the various land uses within each watershed. Posters and maps are tools that illustrate these defining features in a visually attractive and simple way. To that end, the Copermittees initiated the process of developing a regional poster template, with embedded map, for use throughout the San Diego region. The template incorporates the following:

- Regional watershed relief map, including the entire San Juan, Santa Margarita, and Tijuana watersheds which extend beyond County boundaries;
- Major roads, watershed and jurisdictional boundaries, and key water bodies;
- Information bar and photo for each watershed, including a general locator map that highlights the specific watershed with a listing of water bodies and land uses;
- Standardized watershed definitions and terms; and,
- Graphic images of the biomes within the region.

During the latter part of the 2003 Fiscal Year, the County and the North County Storm Water Program (NCSWP) reviewed sample watershed maps from various sources and began to coordinate poster design by addressing the goals, features and distribution to target groups. A sample distribution list includes school classrooms, libraries, city halls, nature centers, community centers and for display at public events. To maximize resources and minimize costs to Copermittees, collaboration was initiated to combine educational goals targeted at planners and the general public within the regional poster design.

By the end of this reporting period, three draft formats were selected and edited to illustrate San Diego's Watersheds. During the next reporting period (FY 2004), the Project Clean Water Ed-TAC and the Copermittee Technical Outreach Workgroup will evaluate the draft templates. The Copermittees and watershed stakeholders groups will be asked to submit images and a brief watershed description to be inserted into the template. It is anticipated that by the end of the FY 2004 reporting period, a complete

poster template will be available for Copermittees and stakeholders to personalize with watershed specific information.

4.3.4 Integrated Pest Management Campaign

The Copermittees, and their project partner (University of California Cooperative Extension – UCCE) intend to protect and restore affected beneficial uses of receiving waters throughout the San Diego region through a comprehensive approach to Integrated Pest Management (IPM) outreach and education. During this reporting period, the City of San Diego, as lead agency, applied for and was given preliminary approval for a pesticide mitigation grant from the State Water Resources Control Board (Pesticide Research and Identification of Source and Mitigation Grant Program). A summary of the IPM strategy and approach is highlighted below.

Water quality monitoring data (collected during both dry and wet weather seasons throughout the county) indicate that pesticides (especially diazinon) routinely exceed water quality standards in most of the region's watersheds. The grant funding was sought to develop and implement an IPM educational program, which is sustainable beyond the life of the proposed project. The project will also specifically target the TMDL for diazinon in the Chollas Creek watershed.

IPM promotes the use of integrated, ecologically sound pest management programs. The following is a description of the project strategy:

- Develop educational materials, pertinent to the region, under the leadership of the UCCE;
- Integrate the educational materials into the UCCE Master Gardener's Program;
- Develop and implement a model retail Point of Purchase Campaign in two targeted watersheds;
- Perform regional IPM outreach activities;
- Implement a focus community-based educational program in the Chollas Creek watershed;
- Implement a water quality monitoring program for diazinon in the Chollas Creek watershed; and,
- Conduct assessment on outreach effectiveness to provide for a model that can be rolled out to other watersheds throughout the State.

The Copermittees will support the project by in-kind contributions of additional educational materials, outreach activities, and sponsorship of workshops. The project start date is planned for the second quarter of 2004.

4.3.5 Partners in Clean Water – Partnerships in Action

To maximize effectiveness, the Copermittees pursue partnerships and cooperative activities to enhance regional storm water activities. These partnerships are described in the Jurisdictional URMP annual report. Details on watershed stakeholder partnerships, above and beyond those identified in Jurisdictional URMP annual report, are described below.

4.3.5.1 Mission Bay Clean Water Technical Advisory Committee

The Mission Bay Clean Water Technical Advisory Committee (Mission Bay TAC) met five times in FY 2003 to coordinate and discuss water quality issues in Mission Bay. A description of the Mission Bay TAC is included in Section II.1.

4.3.5.2 San Diego Citizen Watershed Monitoring Steering Committee

The San Diego Citizen Watershed Monitoring Steering Committee (Steering Committee) is comprised of community, governmental, and scientific leaders: Clean Water Team – State Water Resources Control Board, San Diego Bay Keeper, Surfrider Foundation, San Diego State University, County of San Diego, City of San Diego, San Diego County Water Authority, San Diego Sea to Sea Trail Foundation, Sister Schools of San Diego, and Southwestern College. The Steering Committee fosters project-based learning by encouraging knowledge and resource sharing between groups performing watershed-monitoring activities in San Diego.

Sister schools, coordinating with San Diego BayKeeper and the Steering Committee coordinated Coastal Snapshot Monitoring Day (Bi-National Project) on May 17, 2003. This annual event promotes the citizen monitoring of coastal waters from the Oregon/California border to Ensenada, Mexico. Other efforts by the committee and its members include the coordination of the 1st Annual National Monitoring Day (October 2002) and a 2003 Consolidated Grants Program proposal to coordinate, evaluate, improve and expand citizen monitoring programs in the San Diego region (lead: San Diego State University Foundation).

5.0 Public Participation Activities

Public participation during the development and implementation of the Mission Bay & Coastal La Jolla Watersheds URMP has been, and will continue to be, encouraged to ensure that stakeholder interests and creative solutions are considered. Broad participation is critical to further development and implementation of the watershed program. While the City of San Diego aims to improve coordination among stakeholders, the watershed approach calls upon these agencies to engage diverse stakeholders in this process, and the City recognizes that mechanisms already exist for collaboration within the watershed. Further, the city of San Diego recognizes that no single agency has the capacity to address water quality issues on its own and broad partnerships are essential to positively affect the water resources in the watershed. It is only through a collaborative approach that we will develop a better understanding of these issues and processes affecting water quality in our watersheds and subsequently select and address priorities.

The following sections summarize the activities and efforts made by the City of San Diego to encourage public participation during this reporting period. *Please note that this section is not exhaustive and only discusses the activities that were identified in the Public Participation section of the Watershed URMP. Many municipalities have worked with stakeholders on efforts such as special projects in Mission Bay, the planner's reference manual, grant applications and water quality data collection. The Copermittees felt that it was not necessary to reiterate these activities in this chapter, if such public involvement and interaction was already discussed in the preceding chapters.*

5.1 Copermittee and Stakeholder Collaboration

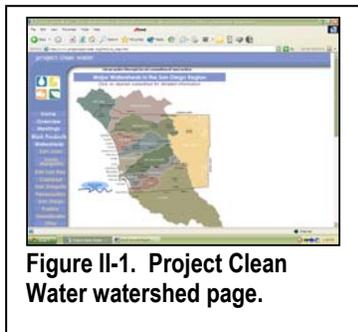
To address watershed-specific issues in developing the Mission Bay & Coastal La Jolla Watersheds URMP, the City of San Diego held meetings between the City and members of the public, and consultants. The City of San Diego also solicited input from all stakeholder through email and postings of draft Watershed URMP documents on the Project Clean Water website (www.projectcleanwater.org). The City of San Diego led the development of the Mission Bay & Coastal La Jolla Watersheds URMP between March 2002 and January 2003, along with numerous hours contributed by the other participating jurisdictions. The draft Mission Bay & Coastal La Jolla Watersheds URMP was presented to the San Diego River Coalition during one of their regularly scheduled meetings in October 2002. The City of San Diego also held a program kickoff meeting in April 2003, with watershed stakeholders to introduce the recently completed Mission Bay & Coastal La Jolla Watersheds URMP.

5.2 Integration and Participation in Local Planning Activities

Watershed planning has become an issue of increasing importance over the past few years. Various local planning efforts provide forums for exploring both the development of watershed and jurisdictional activities and programs. The relationship of these efforts to the Watershed URMP development and implementation cannot be overstated since both efforts address complementary issues that rely on public participation for success.

5.3 Project Clean Water – Mission Bay & Coastal La Jolla Watersheds Website

During this reporting period, Project Clean Water provided a venue for public participation and involvement in local watershed activities. The relationship of these efforts to Watershed URMP development and implementation cannot be overstated since they address complementary objectives and all rely on public participation for success. The Project Clean Water watershed website (www.projectcleanwater.org/html/ws_map.html) was revised in March 2002 to provide watershed-based resources (See Figure 5.1). The Watershed Map page shown in Figure 5-1 is the starting point of the watershed website. Visitors wishing to learn more about a particular watershed can simply “click” on a desired watershed in the Watershed Map. Once selected, the visitor is linked to the watershed’s summary page and provided with additional link options. The summary page and additional link options are summarized below.



- ✓ Mission Bay & Coastal La Jolla Watersheds Summary Page

The Mission Bay & Coastal La Jolla Watersheds Summary Page provides general information about the watershed including hydrologic units, major water bodies, 303(d) listed water bodies, major impacts resulting from high pollutant loads and possible sources of pollution. Also included in this page is a narrative that summarizes the unique features found within the watershed (habitat, landmarks, land use types, etc.), the municipalities with land use authority and a reference map. In some cases, the watershed boundary encompasses areas that are outside of the boundaries of the

Municipal Permit (such as the Santa Margarita River Watershed). In these cases, only the areas within the limits of the Municipal Permit are shown in detail.

✓ Mission Bay & Coastal La Jolla Watersheds Plan Page:

From the watershed summary page, visitors can access the Mission Bay & Coastal La Jolla Watersheds Plan Page. The plan page identifies the various known planning and management activities (both private and public) that are currently underway within the watershed (e.g. Watershed URMP, watershed management plans, etc.). Individuals interested in a particular plan can read the summary narrative that is provided or download the entire document (.PDF file). Where possible, this page also provides links to external websites for various projects and plans.

✓ Mission Bay & Coastal La Jolla Watersheds Project Page:

From the watershed summary page, visitors can also link to the Mission Bay & Coastal La Jolla Watersheds Project Page. This page identifies the known public and private projects currently underway within the watershed. The list can be very extensive and is comprised of the following project categories: monitoring efforts, education and outreach activities, conservation projects and special studies. Individuals interested in a particular project can link directly to the organizations website to get more information on the activity.

✓ Mission Bay & Coastal La Jolla Watersheds Activities Page:

Lastly, from the summary page, visitors can access the Watershed Activities Page for this watershed. The activities page lists the known stakeholder groups (Non-Governmental Organizations (NGOs), Non-Profit Organizations (NPOs), other environmental organizations, government, etc.) who are involved with activities aimed at preserving and protecting the watershed. The list identifies the group name or activity, the point of contact and a contact number. The page also provides links to these activities or groups, when available.

During the past reporting period, Project Clean Water had over 2,000 visitors per month with thousands of files downloaded daily. Close to 20 percent of the visitors linked to the watershed page to learn more about what was going on in the watersheds in San Diego County. During FY 2003, the Mission Bay & Coastal La Jolla Watersheds web page received a total of 236 hits. A monthly breakdown of the hits can be found in Table II-2 below.

Table II-2: Number of 'Hits' on the PCW Mission Bay & Coastal La Jolla Watersheds Web Site.

<u>July '02</u>	<u>August '02</u>	<u>September '02</u>	<u>October '02</u>	<u>November '02</u>	<u>December '02</u>
0	0	0	26	9	18
<u>January '03</u>	<u>February '03</u>	<u>March '03</u>	<u>April '03</u>	<u>May '03</u>	<u>June '03</u>
36	32	29	32	22	32

5.4 Stakeholder Workgroups

5.4.1 Mission Bay Clean Water TAC

The Mission Bay Clean Water Technical Advisory Committee (Mission Bay TAC) met five times in FY 2003 to coordinate and discuss water quality issues in Mission Bay. A description of the Mission Bay TAC is included in Section II.1.

5.4.2 City of San Diego Clean Water Task Force

The Clean Water Task Force met four times during the 2003 fiscal year, and sought public comment on all agenda items, in addition to reserving time for public comment on non-agenda items at each of these meetings (a list of the agendas for these meetings are attached). Some of the significant items discussed included:

- Storm Water Pollution Prevention Program yearly update
- Urban Runoff Management Program Funding Options
- City of San Diego's program to clean entire sewer system within two years
- Mission Bay Urban Runoff-Related Projects Update
- Sewer Spills Reduction Information for 2002
- Storm Water Education Activities (including Project SWELL, [Stewardship: Water Education for Lifelong Leadership])
- Chollas Creek Restoration and Water Quality Enhancement Project Grant
- Model SUSMP requirements and the City's Storm Water Standards Manual
- City of San Diego Volunteer Canyon Watchers Program
- Watershed Urban Runoff Management Plans (WURMPS)
- Dog Beach Pollution Status Report
- City of San Diego Low Flow Diversion Program

5.4.3 Direct Interaction

In addition to those methods already described, the Copermittees continued to rely heavily on the interaction of staff with members of the public during their regular job duties. As described further in the Jurisdictional URMPs, municipal staff with program implementation responsibilities received targeted training to increase their understanding of urban runoff issues. Staff interaction with the general public provides an additional avenue for obtaining a direct feedback from the public. Feedback and interaction were conducted during the discretionary permit review process, building permitting process, building inspections and public presentations and outreach campaigns.

This section provides a brief summary of the assessment of the water quality constituents of concern in the Mission Bay & Coastal La Jolla Watersheds conducted by MEC for 2003 (See Section III.2 – Summary of Mission Bay & Coastal La Jolla Watersheds Constituents of Concern). (Note: the analysis was based on water quality monitoring data gathered between July 2002 and June 2003). To review the complete water quality assessment report, please refer to Section 6 of the *2002-2003 Urban Runoff Monitoring Report* prepared by MEC, which is posted on the Project Clean Water website (www.projectcleanwater.org/html/wurmp_san_diego_river.html). In addition, based on the 2003 assessment data and constituent of concern results, this section provides an updated assessment of the high priority water quality issues in the Mission Bay & Coastal La Jolla Watersheds (an initial list of high priority and potential high priority issues was established in the Mission Bay & Coastal La Jolla Watersheds URMP).

1.0 Water Quality Assessment Program Implementation

Due to timing of monitoring activities, and the cost associated with the monitoring activities, the implementation of the water quality monitoring data program is occurring in logical phases. In most of the watersheds these activities formed the Core Monitoring Program for the 2001-2002 monitoring year and included the following activities:

- Mass Loading Station Monitoring;
- Urban Stream Bioassessment; and,
- Coastal Storm Drain Monitoring

During the initial phase, the Ambient Bay, Lagoon, and Coastal Receiving Water Monitoring program was in development. Further, the data from dry weather monitoring activities were not complete. During the assessment year covered by this report, data obtained from these two programs were incorporated into the complete assessment program.

During the upcoming assessment year (FY 2004), additional programs including the City of San Diego and Unified Port District's joint Toxic Hot Spots monitoring effort, and other special studies to address watershed-specific issues and data needs will be implemented, pending available funding.

During the final phase of the implementation of the assessment program, which will occur during the last year of the permit (assessment year 2004-2005), the monitoring programs will incorporate data obtained from citizen monitoring group efforts in the individual watersheds, such as the San Diego Stream Team (in the Mission Bay & Coastal La Jolla Watersheds) and the Home2Ocean Citizen's Monitoring Group (in the Santa Margarita Watershed), pending available funding.

The Copermittees believe that phased Implementation of these portions of the assessment program is the most efficient and economical strategy for coming to terms with the data needs in the watershed. Further, this phased implementation allows for refinement and development of consistency in data collection and management by the individual jurisdictions, without placing an undue financial strain on the smaller jurisdictions, while still achieving the purposes and goals of the assessment program outlined in the individual Watershed URMPs.

2.0 Summary of Mission Bay & Coastal La Jolla Watersheds Constituents of Concern

2.1 Interim Criteria for Evaluating Data

In preparing the 2002-2003 Urban Runoff Monitoring Report, the Copermitees requested that MEC conduct a comparison between constituents of concern identified in the Watershed Urban Runoff Management Plans and this year's water quality assessment. Because a uniform set of criteria was not applied in 2001-02 in the region, the methods used to determine constituents of concern in 2001-02 varied from watershed to watershed. The constituents of concern in 2002-03 have been determined using the interim criteria described in Table 6-4 of the 2002-2003 Urban Runoff Monitoring Report (shown as Table III-1 below). The interim constituents of concern criteria are anticipated to evolve as the program matures and the data set expands. The interim criteria takes into account the exceedances at the MLS and dry weather stations and classifies each condition of concern as high, medium or low frequency of occurrence in the watershed. For more detail on the criteria and methodology used to evaluate constituents of concern, please refer to Section 6 of the *2002-2003 Urban Runoff Monitoring Report* prepared by MEC (Attachment B).

Table III-1. Interim criteria for evaluating Mass Loading and Dry Weather Station Data.

COC Frequency of Occurrence	Criterion No.	Definition
High ◆◆◆	1	Mass loading station (MLS) tests results exceed water quality objectives (WQO) in greater or equal to 80% of samples.
	2	Six of the last consecutive storm samples at the MLS exceed WQO.
	3	Less than 80% and greater than or equal to 50% of the MLS samples exceed WQO <u>and</u> at least one dry weather sampling (DWS) exceedance.
	4	Less than 80% and greater than or equal to 50% of the MLS samples exceed WQO <u>and</u> a significant increasing trend is found.
Medium ◆◆	5	Less than 80% and greater than or equal to 50% of the MLS samples exceed WQO <u>and</u> no exceedances or data available for DWS.
	6	Less than 80% and greater than or equal to 50% of the MLS samples exceed WQO <u>and</u> one or more exceedances found in last 2 years of monitoring at the MLS (generally applies to historical datasets).
	7	Greater than 50% of the DWS samples have exceedances.
Low ◆	8	DWS exceedances in 10 to 50% of the samples.
	9	MLS exceedances found in 25% to less than or equal to 50% of the samples <u>and</u> at least one exceedances found in last 2 years at the MLS (with or without DWS exceedances).
	10	Greater than 50% of the MLS samples have exceedances <u>and</u> no exceedances in the last 2 years at the MLS.
Coastal Program	11	Persistent exceedances add one ◆ to bacteria determination (up to three ◆ maximum).

Note: Best professional judgment applies when unique situations arise (fewer samples at a site; sewage spills) and for toxicity once it is linked to a specific condition of concern.

2.2 Constituents of Concern Summary – 2003

For 2003, the interim constituent of concern criteria shown in Table III-1 were applied to the existing data set for Mission Bay & Coastal La Jolla Watersheds yielding three constituents of concern with a high frequency of occurrence: fecal coliform, diazinon, and copper. Fecal coliform and copper satisfied criterion three, while diazinon satisfied criterion one in Table III-1. Potential constituents of concern with a medium or low frequency of occurrence designation were: turbidity, total suspended solids, zinc, chemical oxygen demand, and Malathion. Turbidity and total suspended solids received a medium frequency rating based on criterion number six, and chemical oxygen demand, zinc, and Malathion were rated low frequency based on criterion number nine.

For the 2002 water quality assessment, constituents of concern were identified using the methodology presented in the Mission Bay & Coastal La Jolla Watersheds URMP, which relied more heavily on a qualitative process that considers watershed-specific conditions using the weight of the evidence approach as well as best professional judgment to interpret the relationships between exceedances, regulatory mechanisms, and beneficial uses. Table III-2 below shows the comparison for high, medium and low frequency of occurrence constituents of concern for both 2002 and 2003.

Table III-2. Summary of constituents of concern assessment comparison.

	Fecal Coliform	TDS	Diazinon	Chlorpyrifos	Turbidity	Total and dissolved Copper	pH/phosphate/ Dissolved Oxygen	Total Coliform/ Enterococcus
San Diego River 2002	◆◆	◆	◆◆◆				◆	◆◆
San Diego River 2003	◆◆◆		◆	◆◆	◆◆◆	◆◆◆		◆

The constituents of concern for the Mission Bay & Coastal La Jolla Watersheds identified in 2003 were compared to last year's water quality assessment as shown in Table III-2. The following changes were noted for the Mission Bay & Coastal La Jolla Watersheds in 2003 as compared to the previous year's assessment (2002).

- ✓ Fecal coliform, total suspended solids, turbidity, and zinc remain unchanged in their frequency of occurrence.
- ✓ Diazinon, copper, chemical oxygen demand and malathion are more apparent as constituents of concern.

Potential sources of the constituents of concern are identified in Table III-3. The Copermittees will continue to develop greater certainty of the sources of the constituents of concern as additional years of data are gathered.

Table III-3. Potential sources/causes of various constituents in the Mission Bay & Coastal La Jolla Watersheds.

Constituents of Concern:	Potential Sources / Activities:
Bacterial Indicators: Fecal Coliform bacteria, T. Coliform	Human sewage from failed septic systems, sewer spills or homeless encampments; wildlife-including birds, dogs, coyotes, raccoons, etc; domestic animals-including livestock and pets
Diazinon	Pesticide used residentially, agriculturally, and commercially.
Total suspended solids/Turbidity	Erosion, suspended sediment/solids, construction, sewage, eutrophication.
Toxic substances: Copper, Zinc	Automobiles or industrial wastes.
Chemical Oxygen Demand	Industrial wastes, agriculture.
Malathion	Pesticide used residentially, agriculturally, and commercially.

3.0 Water Quality Improvements or Degradation

The high priority water quality issues as well as other salient constituents of concern identified in this section are tracked and reassessed through the yearly assessment and reporting process.⁴ The updated constituents of concern and high priority water quality issues lists, and the justification for how these lists were developed, follows.

3.1 Updated List of Constituents of Concern

The interim criteria for determining constituents of concern provided in Section III.2.1 above provides clear, often quantifiable criteria for identifying constituents of concern based on water quality monitoring data. However, the criteria does not allow for comparison of data over time (trend analysis). The Copermittees are currently developing a framework for evaluating data temporally, which will be used for the 2004 assessment. In the interim, constituents of concern that have been identified in either the 2002 or 2003 assessments will be included in the updated constituents of concern list. Therefore, based on a combined analysis of the 2002 and 2003 assessments, bacterial indicators (fecal coliform), diazinon, eutrophication, toxicity, zinc, lead, copper and cadmium remain constituents of concern (See Table III-4).

3.2 Updated List of High Priority Water Quality Issues

As with the 2002 assessment provided in the Mission Bay & Coastal La Jolla Watersheds URMP, the 2003 assessment of high priority water quality issues provided in this section is determined by evaluating how constituents of concern impact beneficial uses. It is important to note that beneficial uses provide the context under which water quality issues are assessed, because it demonstrates that the Copermittees

⁴ For more detail, the strategy employed by the Copermittees for determining the high priority water quality issues in the watershed is listed in Section 3.3.4 of the Mission Bay & Coastal La Jolla Watersheds URMP. For more detail on how constituents of concern are identified each year, see Section III.2.1, *Interim Criteria for Evaluating Data*.

have appropriately focused the assessments on achieving the Watershed URMP program's goal: positively affecting water quality and beneficial uses (which does not necessarily mean reductions in constituents). Under this framework, a single constituent of concern (such as, high bacteria levels) may lead to the identification of a particular water quality issue (such as limited recreational opportunities), or one or more constituents of concern may be associated with the same beneficial use or various beneficial uses. These constituents are then evaluated to determine actions to be implemented in an effort to improve or sustain water quality and beneficial uses.

The data set considered to date is too limited to draw strong conclusions about high priority water quality issues and associated actions. In addition, developing an effective list of activities that properly identifies and addresses significant water quality issues requires additional validation. Therefore, the high priority water quality issues identified in the Mission Bay & Coastal La Jolla Watersheds URMP remain the same in FY 2004: Limiting recreation opportunities in bay and coastal waters due to potential for pathogens. These high priority issues and the constituents of concern identified in the 2002 and 2003 watershed water quality assessments will continue to be tracked (See Table III-4).

The high priority water quality issues have not been changed to allow for the establishment of longer term temporal trends to verify constituents of concern and high priority water quality issues that have been identified in the watershed are not merely a short term variation in conditions. Equally important, with limited funding available to tackle high priority issues, it is crucial to allow enough time to properly implement and measure the success of the activities implemented to address the water quality issues. Therefore, the activities identified in the Mission Bay & Coastal La Jolla Watersheds URMP have not been changed (See Table III-4). The scheduled and implemented actions to address high priority water quality issues need to be implemented consistently over time to be effective. For example, education and outreach efforts will take time and repetition for a community to hear, understand and effect behavioral changes. Stopping or changing the educational messages on a frequent basis (due to changed priorities) would lead to confusion and ultimately less effective implementation results.

Table III-4. Summary of Evaluation of Stressors and/or Constituents of Concern – Year 2 (2003).

POTENTIAL WATER QUALITY ISSUE(S)	CONSTITUENTS OF CONCERN, AND/OR STRESSORS ADDRESSED	HIGH PRIORITY?	COMMENTS AND PROPOSED ACTIVITIES
Limiting recreation opportunities in bay and coastal waters due to potential for pathogens	Bacterial Indicators (fecal coliform)	Yes	<p>Bacteria has been identified as a priority by the City of San Diego and Regional Board. Protecting our beaches as recreational resources is paramount to the protection of the quality of life and economic vitality of the San Diego Region.</p> <p>ACTIONS: Mission Bay Bacteria Source Identification Source Project; Mission Bay Human Pathogenic Viruses and Epidemiology Study; Rose and Tecolote Creeks Water Quality Improvements Project; Tecolote Creek Treatment Wetland; Coastal Storm Drain Low Flow Diversion Project; Mission Bay Contaminant Dispersion Study; and, Mission Bay Water Quality Survey.</p>

POTENTIAL WATER QUALITY ISSUE(S)	CONSTITUENTS OF CONCERN, AND/OR STRESSORS ADDRESSED	HIGH PRIORITY?	COMMENTS AND PROPOSED ACTIVITIES
Limiting habitat value of water bodies	Diazinon	No	<p>Diazinon levels were exceeded on three occasions in the 2001-2002 season at the mass loading station. Based on data collected across San Diego watersheds, local agencies are collaboratively addressing the use of pesticides as an important component of proactive storm water runoff management activities at the regional level.</p> <p>ACTION**: Integrated Pest Management Campaign</p>
Limiting habitat value of water bodies	Eutrophication	No	<p>The 1998 303(d) listing Mission Bay shoreline at the mouth of Rose and Tecolote Creeks for eutrophication. MLS (93-01) trend data suggest decreasing BOD levels (statistically significant at the 5% level). Total Kjeldahl Nitrogen is also found to be decreasing at a statistically significant rate. Need to continue monitoring and integrate more data scheduled to be collected into subsequent assessments in order to better understand conditions of concern as related to habitat protection.</p> <p>ACTIONS**: Mission Bay Water and Sediment Testing Project; Rose and Tecolote Creeks Water Quality Improvements Project; and, Tecolote Creek Treatment Wetland Project.</p>
Limiting habitat value of water bodies	Toxicity	No	<p>While 2002 MLS data do not indicate persistent toxicity, Tecolote Creek is 303(d) listed for toxicity. Linkages between MLS data and 303(d) listing cannot be made at this time.</p> <p>ACTIONS**: Data Collection and Analysis.</p>
Limiting habitat value of water bodies	Total Metals (Zinc, Lead, Copper and Cadmium)	No	<p>The MLS data for metals during 2001-2002 shows very low levels of metals in concentrations well below criteria levels. The historical data suggest decreasing levels over time for all metals identified as constituents of concern in 303(d) listing (Zinc, Lead, Copper and Cadmium). Notably, the downward trends for zinc, lead and cadmium as measured at the MLS over time are statistically significant at the 5% level. MLS data also indicate copper has been found consistently within acceptable thresholds.</p> <p>ACTIONS**: Data Collection and Analysis; Rose and Tecolote Creeks Water Quality Improvement Project; and, Tecolote Creek Wetland Treatment Project.</p>

***Although not required, the actions listed may address the corresponding constituents of concern.*

The Watershed URMP Annual Report marks the conclusion of the City of San Diego's first reporting period (July 2002 to June 2003) under the Municipal Permit. As stated in the preceding chapters, the City of San Diego implemented a number of new and expanded programs. An important aspect of these programs is ensuring their measurability and their nexus to changes in water quality.

This section provides an initial assessment of the implementation and effectiveness of the Watershed URMP for the period of July 2002 and June 2003. However, such an assessment is limited by the short implementation period. Since the Municipal Permit provided a 365-day period for the development and implementation of most programs, many were not fully in place for the majority of this reporting period. Furthermore, the programs that were in place before the Municipal Permit was issued were not tracked because there was no prior need. Because the data identified for each component reflects the result of the program's first year implementation (in most cases, reflects only five months of implementation between February 2003 and June 2003), final conclusions regarding program effectiveness on the improvement of receiving water quality cannot be made at this time. However, to help direct program improvements for future years, this assessment does report limited findings drawn in part from the quantitative and qualitative data presented.

1.0 Effectiveness in Program Implementation

In order for a plan to be successful, clear goals and objectives must first be established, agreed to and implemented by the stakeholders. Otherwise, program activities and tasks are adopted without an understandable purpose or clear direction and trying to measure program effectiveness becomes an exercise in futility. The following is a reminder of the overall program goal of the Watershed URMP and implementing objectives.

TO POSITIVELY AFFECT THE WATER QUALITY OF THE WATERSHED WHILE BALANCING ECONOMIC, SOCIAL AND ENVIRONMENTAL CONSTRAINTS.

- Objective #1: *Develop/expand methods to assess and improve water quality within the watershed (Water Quality Activities);*
- Objective #2: *Integrate watershed principles into land use planning (Land Use Planning Activities);*
- Objective #3: *Enhance public understanding of sources of water pollution within the watershed (Educational Activities).*
- Objective #4: *Encourage and enhance stakeholder involvement within the watershed (Public Participation Activities).*

Activities identified in the watershed program are categorized pursuant to these objectives.

Standard performance indicators for achieving objectives and determining whether activities are effective typically include percentage changes in water quality factors (e.g., reduction or increase in pollutant loads). Unfortunately, water quality information for the entire watershed is still not readily available, and not expected to be available for several years. As such, the stakeholders cannot establish a water quality baseline to measure the true effectiveness of these programs and will never really know whether their programs are positively affecting the water quality of the watershed until such as baseline is developed.

As stated in the Watershed URMP, in order to measure the effectiveness of the objectives, an inference must be made that completion or expansion of the activities and tasks identified for each respective objective would either indirectly or directly benefit the water quality within the watershed. However, because of the need to establish more data spatially and temporally, strong connections between program effectiveness and water quality should not be made. So, in the initial years of program implementation, the City of San Diego and other watershed Copermittees will focus program assessment strategies on indirect measures, with increased reliance on direct water quality measures over time. As we learn more about measuring productivity and effectiveness as well as develop and implement water quality programs, the Copermittees will be better able to produce more accurate and reliable effectiveness measures.

The sections below present the results of the quantitative (where available) assessment of the activities conducted, categorized by the above referenced objectives. Each assessment is followed with a discussion of program strengths (areas where the City of San Diego has excelled in program implementation), weaknesses or undeveloped areas (areas where the City of San Diego did not see favorable results in program implementation or identified the need for new/changed activities), and finally, recommended areas for program improvement based upon the assessment.

1.1 Objective #1: Water Quality Activities

The obvious purpose of a jurisdictional or watershed storm water program is ultimately to improve the quality of the water in the watershed. In order to accomplish this, we must expand upon existing methods, or develop new methods, to improve our understanding of the processes and issues that affect receiving waters, allowing stakeholders and the City to validate water quality concerns, identify constituents of concern, and move forward with meeting the water quality objectives of this program.

As indicated above, standard performance indicators for achieving objectives and determining whether water quality activities are effective typically include percentage changes in water quality factors (e.g., reduction or increase in pollutant loads). Unfortunately, water quality information for the entire watershed is still not readily available, nor expected to be available for several years. As such, the stakeholders cannot establish a water quality baseline to measure the true effectiveness of these programs and will never really begin to compare whether their programs are positively affecting the water quality of the watershed until such as baseline is developed. Therefore, in order to measure the effectiveness of the objectives, an inference must be made that completion or expansion of the activities and tasks identified for each respective objective would indirectly (or directly in rare cases) impact the water quality within the watershed.

1.1.1 Program Strengths

During the first five months of program implementation in FY 2003, the City of San Diego continued implementing (or began implementing according schedule) the planned actions identified in the Mission Bay & Coastal La Jolla Watersheds URMP. Specifically, the City of San Diego continued to implement the following studies and projects: Mission Bay Bacteria Source Identification Project, Mission Bay Water Quality Survey, Mission Bay Epidemiology Study, Mission Bay Contaminant Dispersion Study, Rose & Tecolote Creeks Water Quality Improvement Projects, Tecolote Creek Treatment Wetland Project, mission Bay Water and Sediment Testing Project, and the Coastal Storm Drain Low Flow Diversion Project. In addition, the City began initial discussions regarding the Regional Integrated Pest Control Management Campaign, and began discussions for improving the methods for both collecting and analyzing water quality monitoring data. The results of the monitoring and analysis discussions resulted in the improved watershed assessment strategy employed in the 2003 assessment.

Expanded implementation of a regional water quality monitoring and assessment program by the Copermittees has begun, in order to validate the constituents of concern and development of a baseline assessment of water quality issues regionally, and on a watershed-by-watershed basis. This program is designed to allow for the integration of diverse data sets, eventually allowing a relatively clear view of the water quality issues within each watershed. Further, the expanded program allows for sufficient flexibility to implement watershed-specific studies addressing watershed-specific issues, without compromising regional goals and/or programs.

Historically, individual jurisdictions implemented monitoring programs with slight variations of collection methods and/or dataset composition. During the 2003 assessment year, the Copermittee monitoring workgroup standardized dry weather monitoring programs and coastal storm drain monitoring programs. Standardization of this and other elements of the program facilitate the long-term integration of data from multiple jurisdictional programs, as well as facilitate assessment of new data on an annual basis.

1.1.2 Program Improvement Areas

Direct measures are the most definitive way of determining a program's overall effectiveness. Unfortunately, such direct measures (e.g. a watershed water quality baseline) are not readily available on a watershed scale and not anticipated to be available for several years. One of the most important goals of the program is the development of the baseline assessment through the implementation of the complete water quality monitoring program. As discussed in Section III above, this full implementation is anticipated by the end of the current Municipal Permit period. A complete watershed assessment using the current data, as well as expanded data is underway. Standardization of assessment methodologies for each element of the monitoring program will facilitate the development of this baseline.

A second area of improvement for the program is the development of a standard and guidance document for the maintenance and future integration of non-permit required data sets into water quality assessments. This will allow for integration of data obtained from stakeholders (through groups such as the San Diego Stream Team or the Home2Ocean Citizen's sampling programs) into jurisdictional assessments.

1.1.3 Recommended Program Improvements⁵

⁵ Copermittees will complete these activities contingent upon adequate funding in future years.

- As discussed in detail in Section III – Water Quality Assessment, plans are being developed to prepare a Watershed URMP Data Analysis Framework for Water Quality Assessment. The objective of the exercise is to create a document that will provide a consistent and scientific approach to conducting watershed water quality assessments. This document will provide a framework for the water quality assessment and water quality problem prioritization.

1.2 Objective #2: Land Use Planning

Developed areas vastly increase urban runoff volumes and the pollutant qualities carried in the runoff. However, land use professionals (e.g. municipal, environmental, community planners, engineers, architects, etc.) can help mitigate such impacts through efficient and effective use of design tools and techniques. Through the use of regulations (e.g. general plan, zoning, design manuals, development policies, etc.) site design (clustering, street design, parking lot layout, etc.) and structural treatment devices (filters, detention/retention basins, etc.), development projects can be constructed to reduce pollutant loads before entering neighboring water bodies.

Efforts are being made to strengthen and expand jurisdictional programs to not only address surface storm water quality resulting from new and redevelopment, but to also look at how these impacts affect down stream resources on a watershed level.

1.2.1 Program Strengths

The City of San Diego's land use policies and procedures, including the Progress Guide and General Plan, Mission Bay and La Jolla Community Plans, and the Storm Water Standards Manual, work in concert with one another, collectively striving towards the betterment of the water quality in the watershed. The Mission Bay and Coastal La Jolla watersheds provide a unique opportunity for effective implementation of watershed principles because the watersheds are entirely within the City's jurisdiction. The City has already amended the La Jolla Community Plan to include water quality and watershed protection principles. Also, the City is in the process of amending the Progress Guide and General Plan to include language on watershed preservation and water quality protection.

1.2.2 Program Improvement Areas

To date, jurisdictional and project level planning tools have been underutilized since storm water management has largely been viewed as an engineering issue. As a result, many site design solutions rely largely on structural treatment controls like detention basins and mechanical treatment devices, which can be both expensive and maintenance intensive. In most cases, it is easier and cheaper to keep pollutants out of storm water by designing the pollutant source out of the project while simultaneously preserving the site's natural filtration capacity. There needs to be a focus on the strategies that jurisdictions can consider when implementing regulations, policies and guidelines that require site designers to incorporate site design BMPs in development projects as opposed to structural BMPs.

1.2.3 *Recommended Program Improvements*⁶

- Complete development of a watershed planning reference manual for land use professionals use during project development and long-range planning activities.
- Develop and implement a mobile seminar that is designed to introduce the planner's manual to working planners and provide a general overview of the need for planning on a watershed level in order to protect water resources as well as a description of the site design tools that are available.

1.3 Objective #3: Educational Activities

To allow Copermittees to measure the effectiveness of education efforts, the Copermittees have started the process of developing and coordinating consistent questions for public awareness surveys. Ensuring consistency in watershed questions will allow Copermittees to individually or collectively conduct comparable ("apples to apples") surveys throughout each watershed. The Copermittee's goal with these surveys is to develop effective public education programs that are founded upon community-based data that will generate locally tailored strategies. These surveys will measure baseline knowledge of pollution prevention/source reduction activities in the watershed communities.

The Copermittees chose a scientifically valid telephone random sample survey (stratified by watershed) with the following objectives:

- Obtain scientifically reliable and sufficiently robust results to establish a baseline level of knowledge among residents of the watersheds;
- Determine the extent to which behaviors have been altered among activities that are known to cause water pollution and the cause of such behavioral changes;
- Obtain demographic data about the populations of the watersheds for use in descriptive analysis and cross tabulations of data that will result in optimally targeted and tailored public awareness programs.

1.3.1 *Program Strengths*

During the first five months of program implementation in FY 2003, the City of San Diego implemented (or began implementing according schedule) the planned education activities identified in the Mission Bay & Coastal La Jolla Watersheds URMP. The City of San Diego has conducted public awareness surveys of water quality and watershed issues within the City's jurisdiction in each of the last two years. The results were separated by watershed within the City's limits (refer to the City's Jurisdictional URMP Annual Report for more information on these surveys). Select Copermittees in other parts of the region have continued to consider the City of San Diego's survey during the development of the coordinated watershed awareness survey discussed in Section 1.3, above.

⁶ Copermittees will complete these activities contingent upon adequate funding in future years.

1.3.2 Program Improvement Areas

The City's goal with the public awareness surveys is to develop effective public education programs that are founded upon community-based data that will generate locally tailored strategies. These surveys will measure baseline knowledge of pollution prevention/source reduction activities in the watershed communities. The results and Watershed URMP activity changes/modifications resulting from the survey (if any) will be incorporated into next year's Annual Report.

1.3.3 Recommended Program Improvements

- In future years, the City will tailor watershed education activities based on the results of the public awareness surveys, as appropriate and as funding allows.

1.4 Objective #4: Public Participation Activities

While participating jurisdictions and regulatory agencies aim to improve coordination, the watershed approach calls upon these agencies to engage diverse stakeholders in this process. Further, the City recognizes that no single agency has the capacity to address water quality issues on its own and broad partnerships are essential to positively affect the water resources in the watershed (hence the development of the Mission Bay Clean Water TAC). It is only through a collaborative approach that we will develop a better understanding of these issues and processes affecting water quality in our watersheds and subsequently select and address priorities.

1.4.1 Program Strengths

Storm water pollution is an issue that affects, and is affected by, every person living or working in the watershed. The City recognizes this interdependence, and have been effective in providing, soliciting and allowing public participation in program activities through the implementation of the Mission Bay Water Quality Management Plan and conducting public meetings with the Mission Bay Clean Water TAC.

1.4.2 Program Improvement Areas

As the program matures, the City intends to maximize the number and quality of opportunities for the public to participate.

1.4.3 Recommended Program Improvements

- The City is always looking to improve public participation mechanisms by adjusting and expanding the types of opportunities the public has had to participate in the program. In future years, the City will be looking to add new participation opportunities through the parallel programs such as Think Blue events.

In summary, the most important measure of the Watershed URMP effectiveness over this first reporting period is the existence and quality of these new and continued programs. As the City continues to learn from their experiences over time, these programs will be the means by which many lasting improvements

will be made to water quality in the region. The City would like to do more with additional funding, but the efforts to date are an important success and a clear demonstration of program effectiveness.

2.0 Amendments to the Assessment Program

To ensure the long-term viability and success of our programs, we must confront the complicated issue of assessing the implementation of overlapping municipal storm water programs; specifically, the Jurisdictional and Watershed URMP programs. The Copermittees are currently in the process of retooling the methodology for assessing the components of the urban runoff management programs to address the assessment program's limitations.

In December 2002, a workgroup was created to collaborate on a Copermittee response to the long-term assessment strategy issue for the Jurisdictional URMPs. On April 15, 2003, the workgroup developed a scope of work and outline, which was shared with the RWQCB on June 15, 2003. The general approach to the proposed program is summarized below.

- ✓ Use a "model" approach similar to the model guidance documents previously developed in 2001 (i.e., the completed assessment document should provide steps and instructions that Copermittees can follow to conduct their assessments);
- ✓ Maximize the integration of Jurisdictional URMP and Watershed URMP assessment strategies to avoid duplication and ensure consistency;
- ✓ Focus assessment on the highest priority water quality issues / problems;
- ✓ Focus on assessing elements with the broadest applicability to all Copermittees (e.g., do not emphasize coastal and near-coastal monitoring data since it is not applicable to inland cities);
- ✓ Use year 4 of the Permit cycle (and every 5th year thereafter) as a baseline and regular interval for conducting long-term assessments;
- ✓ Consider building on or updating the MEC Future Monitoring Recommendations report;
- ✓ Consider supplementing efforts with "model" basin-specific studies (control vs. experimental) and/or BMP-specific effectiveness trials;
- ✓ Project expected changes in water quality given existing and future levels of development, land uses, etc. Use these projected trends as a "moving target" to assess improvement and/or decline in water quality;
- ✓ Focus on the constituents of concern that each program activity is intended to mitigate;
- ✓ Re-visit the common set of direct and indirect reporting measures initially established in the Jurisdictional URMPs; and
- ✓ Adequately consider costs in assessing the effectiveness (and therefore the practicability) of control programs and measures.

The Jurisdictional URMP assessment strategy, which includes general strategies to better assess the Watershed URMP programs, will be submitted to the RWQCB during the FY 2004 reporting period (September/October 2003) and implemented in FY 2005. Since the strategy itself was not fully developed by June 30, 2003, the program effectiveness assessment will not be discussed in this report, but will be integrated and discussed in the Watershed URMP Annual Report for FY 2005.

As stated in the Watershed URMP, updates and changes to this program would be submitted as part of the Annual Report and would include the annual reevaluation of high priority and other potential water quality issues, description of any changes to the priority listing, and the inclusion of any revisions to the list of activities. The following sections cover these proposed changes to program priorities and activities as well as the City of San Diego's closing comments on this reporting period.

1.0 Proposed Amendments to the Mission Bay & Coastal La Jolla Watersheds URMP

Based upon the updated water quality data discussed on Section III of the Annual Report and the activity effectiveness assessment completed in Section IV of the Annual Report, the City proposes the following changes/revisions to the Watershed URMP program.

1.1 Proposed Changes to Water Quality Priorities

Although data from the 2003 water quality assessment for the watershed suggests fecal coliform, total suspended solids, turbidity, and zinc remain unchanged in their frequency of occurrence, and diazinon, copper, chemical oxygen demand and Malathion are more apparent as constituents of concern than in 2002, the high priority water quality issue in the Mission Bay & Coastal La Jolla Watersheds URMP remain the same in FY 2004: limiting recreational opportunities in bay and coastal waters due to potential for pathogens. The high priority water quality issue has not been changed to allow for the establishment of longer term temporal trends to verify constituents of concern and the high priority water quality issue that have been identified in the watershed are not merely a short term variation in conditions.

1.2 Proposed Changes to Activities

Equally important to gathering data, with limited funding available to tackle high priority issues, it is crucial to allow enough time to properly implement activities and measure the success of those actions. The high priority water quality issues and associated activities have not been adjusted because scheduled and implemented actions to address high priority water quality issues need to be implemented consistently over time to be effective. For example, education and outreach efforts will take time and repetition for a community to hear, understand and effect behavioral changes. Stopping or changing the educational messages on a frequent basis (due to changed priorities) would lead to confusion and ultimately less effective implementation results.

2.0 City of San Diego Closing Comments

Between July 2002 and June 2003, the City of San Diego made progress in developing and continuing to implement programs aimed at improving surface storm water quality in the watershed. Most significantly, during the first five months of implementation (February to June, 2003), the City successfully implemented the FY 2003 activities identified in the Mission Bay & Coastal La Jolla Watersheds URMP. A few of these highlights are found below:

- *The Mission Bay & Coastal La Jolla Watersheds URMP.* In January 2003, the Copermittees successfully developed and initiated the implementation of a watershed-based program that addresses surface storm water quality for the Mission Bay & Coastal La Jolla Watersheds. The work product is a compilation of assessments, activities and strategies the Copermittees and stakeholders plan to undertake over the remaining life of the Municipal Permit.

- *Special Investigations.* The City of San Diego completed or continued to implement five special investigations in Mission Bay in FY 2003, which are:
 - Mission Bay Bacteria Source Identification Project
 - Mission Bay Water Quality Survey
 - Mission Bay Epidemiology Study
 - Mission Bay Contaminant Dispersion Study
 - Mission Bay Water and Sediment Testing Project

- *Special Projects.* The City continued in the design and construction phases for three projects that will address beneficial uses in Mission Bay:
 - Coastal Low Flow Storm Drain Diversion Project
 - Rose and Tecolote Creeks Water Quality Improvement Project
 - Tecolote Creek Treatment Wetland Project

- *Land Use Professional's Reference Manual.* The County of San Diego, in cooperation with the City of San Diego, is developing a land use professional's reference manual, which focuses on offering site design solutions (as opposed to structural treatment devices) as potentially viable permanent best management practices for new development and redevelopment projects. The manual is structured to assist land use professionals (e.g. municipal, environmental or community planners, engineers, architects, site-designers) in identifying the following:
 - Major types of storm water pollution;
 - Possible sources of pollution;
 - Adverse impacts such pollutants have on the environment;
 - Description of the Mission Bay & Coastal La Jolla Watersheds as well as other watersheds in San Diego County;
 - Pollution problems found within the watersheds; and,
 - Listings of the site design and programmatic tools land use professionals have at their disposal to address water quality issues at the planning level.

- *Watershed Surveys.* The Copermittees have started the process of developing a survey for the Mission Bay & Coastal La Jolla Watersheds in order to establish a baseline of watershed understanding. Watershed surveys not only determine whether the educational message is being heard and understood, but surveys help Copermittees focus educational and outreach concepts in order to meet the needs of different sub-regions and associated land uses within the watershed. The survey results will be detailed in the FY 2004 Annual Report.

Above all, the Mission Bay & Coastal La Jolla Watersheds URMP and Annual Report should be considered part of overall program development. The City has responded well to meet the challenges of implementing new and aggressive Municipal Permit requirements in a very short period of time. It is also recognized that improvement and refinement is an important part of all program areas and the Watershed URMP will need to be improved over the long term as the City continues to develop a better understanding of the complex issues affecting the Mission Bay & Coastal La Jolla Watersheds. During the development and initial implementation of this program, the City has identified a few lessons learned over the past year that deserve mentioning.

Most importantly, the City is utilizing a variety of revenue sources to fund program costs that are significantly increased over previous years. At a time when continued general fund allocations are uncertain if not declining, and Proposition 218 restrictions significantly restrict the establishment of new funding sources, the ability to pay for programs threatens to diminish the practicability of effectively implementing them. The City has worked diligently to identify adequate and stable revenue sources for these new programs, but have not found simple answers. Controlling program costs and establishing stable program funding must remain a key focus for the future.

In addition, it should be stressed that individual activities and efforts are best addressed at regional, watershed, or local scales, depending on the activity. The Municipal Permit establishes important obligations at all three levels, but provides little direction on how to pursue them. Avoiding redundancy and taking advantage of the strengths of each of the management scales should be a key focus. This need for efficient program implementation rings even more clear given the funding limitations all jurisdictions face.

Lastly, the region should continue to strive for more efficient collaboration among watershed stakeholders and efforts. For example, the City of San Diego has formed a working group (the Mission Bay Clean Water TAC) that is working to achieve many common objectives. To maximize our water quality protection and improvement efforts, The City and stakeholders should collaborate these efforts with the Watershed URMP to minimize any unnecessary duplication.

In summary, a number of important challenges have arisen during the implementation of this revised Municipal Permit. While the City has generally responded well to meet them, some requirements are not easily addressed. Continued collaboration and thoughtful coordination and integration between jurisdictional and watershed programs are keys to the development of quality programs that are cost-effective and responsive to the needs of our customers. Only time and continued implementation will tell whether or not the programs established pursuant to this Municipal Permit will meet the standards of water quality improvement and cost-effectiveness that together define practicability. Increased cooperation between Copermittees and the RWQCB will be necessary as we continue to move our programs forward. In some instances, the issues confronting us may be within the ability of Copermittees to resolve. In other cases, more innovative approaches, including Municipal Permit amendments, may ultimately be required. Keeping these lines of communication open is crucial to our long-term success.