

## **SANTA MONICA BAY RESTORATION PLAN CHECK-UP: IMPLEMENTATION PROGRESS UPDATE**

**1995-2008**

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## INTRODUCTION

Santa Monica Bay teems with life, serving as home to over 5000 species of birds, fish, mammals, plants and other wildlife and providing the two million-plus humans who live in its watershed with a mild climate, aesthetic beauty, recreation, food, fresh oxygen, and commercial opportunities.

In December 1988, the State of California and the U.S. Environmental Protection Agency designated the Bay as a \*nationally significant estuary\* and established the Santa Monica Bay Restoration Project as a National Estuary Program in recognition of the need to restore and protect the Santa Monica Bay and its resources. In 2003, the Santa Monica Bay Restoration Project formally became the Santa Monica Bay Restoration Commission, an independent non-regulatory state agency charged with promoting comprehensive watershed and coastal resources management of Santa Monica Bay. The Santa Monica Bay NEP is a unique coalition of governments, environmentalists, scientists, industry and the public charged to develop and implement a Comprehensive Conservation Management Plan (CCMP) for Bay protection and management. The CCMP for Santa Monica Bay, known as the Bay Restoration Plan (BRP) was completed and approved by the Governor of the state of California and federal EPA Administrator in 1995. Since then, the primary mission of the Santa Monica Bay NEP has been to facilitate and oversee the Plan's implementation.

The BRP is a consensus document that embodies the goals and aspirations we share for the Bay, and serves as a blueprint to guide recovery of the Bay's health. With nearly 250 recommended actions, including 74 designated as high priorities, the BRP targeted critical problems such as polluted urban runoff, degraded wetlands, and risks to public health associated with seafood consumption and swimming near storm drain outlets. It outlined specific programs to address them and identified implementers, timelines, and funding needs.

2008 marks the twentieth anniversary of the Santa Monica Bay National Estuary Program and is an ideal time to celebrate the program's remarkable accomplishments. It is also a good time for a BRP implementation checkup – a section-by-section examination of how much progress we have made in completing the recommended actions. The program and its partners' achievements over the last thirteen years are truly extraordinary: completing secondary treatment upgrades at the two major wastewater treatment plants, securing more than 60 million dollars of state bond funding for projects to restore the Bay, completing more than 30 capital outlay projects for improving dry-weather water quality at Bay beaches, and acquiring thousands of acres of open spaces and key wetland and riparian habitats in the Bay watershed. These are some of the significant milestones among many other success stories depicted in this document.

While we can all be proud of these accomplishments, we are also aware of many underperforming areas revealed by this checkup. To improve performance in these areas, we identified the major remaining gaps and roadblocks, and provided recommendations on “next steps” toward achieving our goals. Specific strategies, actions, and timelines to address the remaining issues identified during this checkup as well as new issues and challenges that have emerged over the last thirteen years are laid out in the accompanying BRP Update document.

This document provides a full check up on all action categories included in the 1995 Bay Restoration Plan. As such, it is structured similarly to the 1995 BRP – grouped by sections and chapters in the same order as they were in that document. The Checkup for each chapter of the BRP includes an

introductory summary and a matrix that provides an assessment on the level of progress, a description of associated major events, identified gaps and roadblocks, and next steps. Like any grading system, the assessments on the level of progress can be seen as somewhat subjective. However, these are not intended to be final. Instead, we see them as starting points to move forward with a bolder and faster stride.

In each chapter below, the implementation status of each action is described as minimal, moderate, substantial (Sub.) or full. This judgment was based in each case on data obtained from project leads, personal communications with people directly involved in the actions, and knowledge of SMBRC staff who also participated in the actions. Progress was considered minimal if none of the goals were actually met, and few or no other, non-BRP actions were taken toward achieving the goal. Progress was moderate if some of the BRP goals were met or other actions were taken that moved us toward the desired goal. Progress was substantial if most of the recommended actions were met or nearly met, and actions were considered fully implemented if all recommended actions were completed or the BRP goals were achieved through other, non-BRP actions.

## **SECTION A: PREVENTING POLLUTION AT THE SOURCE**

Actions recommended in this section address pollutant loading – the most significant contributor to impairment of the Bay’s beneficial uses. Nineteen pollutants of concern were identified as the most problematic to the Bay and specific recommendations on how to reduce loading of these pollutants were described in the following six chapters.

1. Integrated Pollution Management
2. Pollution Prevention and Source Reduction
3. Storm Water/Urban Runoff
4. Municipal and Industrial Discharges
5. Oil and Hazardous Materials Spills
6. Contaminated Sediments

### **CHAPTER 1: INTEGRATED POLLUTION MANAGEMENT**

Recognizing the need to integrate pollutant management of various point and nonpoint sources, the actions recommended in this chapter are aimed at modifying the existing regulatory framework in order to carry out Bay water pollution management on a watershed basis. The chapter includes specific recommendations on how several new pollution management approaches can be incorporated into the current regulatory framework and how source/pathway-specific management programs can be coordinated watershed-wide.

Specifically, this chapter emphasizes the need to apply a new mass emissions approach as the means to comprehensively manage pollutant inputs. It describes specific actions that should be taken to implement the mass emissions approach for pollutants of concern that accumulate in the marine environment (12 of the 19 pollutants of concern), including development of mass loading discharge performance goals.

The Los Angeles Regional Water Quality Control Board was designated as the lead for implementing most of the action recommendations in this chapter. Other responsible parties included federal EPA, State Water Resources Control Board, POTWs, watershed cities, and various County Departments.

Significant progress has been made over the last thirteen years in implementing the actions in this chapter and in many aspects the progress has exceeded expectations. A major breakthrough came in 1999 with the approval of a consent decree for compliance with TMDL requirements. At that point the LARWQCB took a leadership role in developing and implementing TMDLs in the region. As a result, development of a TMDL is now complete or underway for nearly all pollutants of concern that were recommended for mass emission approach in the BRP.

As of June 2008, ten TMDLs have been adopted, targeting trash, bacteria, metals and nutrients for various waterbodies in the Bay watershed. The new pollution management approaches adopted in the TMDLs have also been integrated into the existing regulatory framework as provisions of the TMDLs were incorporated into the Basin Plan, and the TMDL implementation plans were incorporated into the NPDES permits. The adoption and implementation of TMDLs have not only superseded the mass emission approach recommended in the original BRP; TMDLs have also resulted in mandatory numeric pollutant allocations that are more stringent and enforceable than the voluntary performance goals.

Despite significant progress, obstacles to fully meeting water quality goals still exist, while new challenges continue to emerge. Significant amounts of pollutants such as trash, pathogens, and heavy metals continue to flow into the ocean through the storm drain system. It also appears that cities and the county will likely fail to comply with many of the adopted TMDLs if they do not significantly and rapidly enhance their current programs.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
PM-1	Incorporate the Bay Water Pollution Management Approach into the Current Water Quality Management Framework	Subs.	<ul style="list-style-type: none"> <li>All TMDLs adopted in the SMB watershed have been incorporated into the regional Basin Plan.</li> <li>Mass loading performance goals have been incorporated into major POTW NPDES permits.</li> <li>Municipal storm water permits have undergone major revisions to incorporate TMDL implementation.</li> </ul>	<ul style="list-style-type: none"> <li>Cities and counties have already failed to comply with the Bay bacterial TMDL and may encounter difficulties in complying other adopted TMDLs as well.</li> </ul>	<ul style="list-style-type: none"> <li>Complete development and adoption of all TMDLs scheduled for waterbodies in the Santa Monica Bay watershed</li> <li>Implement and achieve compliance with adopted TMDLs for waterbodies in the Santa Monica Bay watershed</li> </ul>
PM-2	Coordinate Various Pollution	Moderate	The preferred approach has changed. While NPDES permits are not issued on a watershed basis, TMDLs are implemented on a watershed	<ul style="list-style-type: none"> <li>The jurisdictional groups could be more effective in developing and implementing regional,</li> </ul>	Assess the effectiveness of the jurisdictional group structure and recommend improvement

	Management Programs on a Watershed Basis		basis. In addition, watershed-based coordination of efforts to comply with permits and regulations have increased. Every major subwatershed in Santa Monica Bay has a watershed (jurisdictional unit) group to coordinate implementation of TMDLs and compliance with water quality regulations.	cross-jurisdictional solutions for achieving TMDL compliance.	
PM-3	Develop and Implement a Mass Emissions Approach	Subs.	The mass emissions approach advocated in this action (determination of "no impact" cumulative loading) has been replaced by the adoption of TMDLs. As of June 2008, ten TMDLs in the Santa Monica Bay watershed have been adopted. According to the Regional Board's TMDL schedule, 5 more TMDLs are scheduled for development/consideration by 2012.	See PM-1	See PM-1
PM-4	Collect and Evaluate Information Necessary to Implement the Bay Water Pollution Management Strategy	Moderate	<ul style="list-style-type: none"> <li>See Chapter 15 and 16 for information collection and evaluation through implementation of a comprehensive monitoring program and research plan.</li> <li>The original pollutants of concern list is still considered valid and no reassessment has been recommended</li> </ul>	There is increasing concern regarding emerging contaminants but there is not enough information to assess their loading and impacts	Consider adding emerging contaminants to the pollutants of concern list based on new information

## CHAPTER 2: POLLUTION PREVENTION AND SOURCE REDUCTION

This chapter addresses the many diffuse but potentially significant sources of pollution to the Bay – the millions of people, cars, homes, boats, and businesses that are part of the Santa Monica Bay watershed and watershed (the portions of Los Angeles and Ventura counties which are served by sewage treatment plants that discharge to the Bay). These sources contribute a wide variety of pollutants to the Bay, indirectly through sewer and storm drain systems or directly into the marine environment. Toxic pesticides and chemicals, metals, oils, plastics and debris are among the many types of pollutants released into the environment from these sources.

These actions promote the simple notion that it is more effective to reduce or eliminate pollutants at their sources than to remove them after they contaminate runoff. Pollution prevention encompasses a wide range of activities and programs – e.g., promoting the use of alternatives to toxic products, encouraging implementation of practices and technologies that produce less waste, promoting public awareness of the impacts of pollution on the marine environment and providing viable options for proper disposal of hazardous wastes – to name a few.

Various state and local agencies and community and environmental organizations were designated as leads and responsible parties for actions in this chapter because many programs included had already been initiated by these entities in response to needs such as eliminating household toxics from landfills, reducing pollutant loads to sewage treatment plants and educating the public about the impacts of marine debris and litter on the ocean environment. All are part of a comprehensive strategy that has been implemented with considerable progress in preventing and reducing pollutant releases into the environment.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
PP-1	Reduce Generation of Pollutants from Households	Subs.	<ul style="list-style-type: none"> <li>Multi-lingual outreach program that focusing on reducing generation of household toxics has been significantly expanded, reaching more both English and non-English speaking populations than ever before.</li> <li>LA County has continued to hold HHW round-ups, and – with the help of cities – continues to promote HHW recycling opportunities.</li> <li>Significant efforts have been made on the state and local levels promoting re-refined oil.</li> </ul>	<ul style="list-style-type: none"> <li>More permanent HHW collection facilities are needed in the watershed (including curbside pickup).</li> <li>Addressing the emergence of e-waste, along with the continued generation of traditional HHW will require continuing and potentially increased effort on this action</li> <li>Little progress has been made in increasing sales of non-virgin motor oil. No known widespread efforts to support markets for use of other recycled hazardous materials.</li> </ul>	Support the long-term continuation and expansion of the ongoing HHW and e-waste collection program
PP-2	Reduce Generation of Pollutants from Businesses and Industries	Moderate	<ul style="list-style-type: none"> <li>The City of Los Angeles Bureau of Sanitation and LA County Sanitation Districts continue to provide industrial pollution prevention and hazardous waste minimization technical assistance to private industry.</li> <li>Expanded educational inspection programs have been incorporated into new NPDES permits. Nationwide and locally, green business programs are expanding, and participation increasing, including LEED, ISO, and the SMBRF's Green Marina program.</li> <li>A Restaurant Certification program has been implemented in South Bay.</li> </ul>	<ul style="list-style-type: none"> <li>More education and assistance programs are needed to reach the many small businesses in the Santa Monica Bay watershed.</li> </ul>	<ul style="list-style-type: none"> <li>Support expansion of existing programs</li> <li>Expand the SMBRC restaurant certification program</li> </ul>
PP-3	Implement Water Conservation Measures in Homes and Businesses	Subs.	<p>Many municipalities and water districts have adopted and implemented water conservation measures for homes and businesses. These include, but are not limited to</p> <ul style="list-style-type: none"> <li>Rebate programs offered by the Metropolitan Water Districts of Southern California</li> <li>Mandatory conservation measures implemented by the Las Virgenes Municipal Water District</li> <li>Trees for a Green LA, water conservation rebates</li> </ul>	In some jurisdictions, conflicting or insufficient policies are acting as disincentives for water reclamation. For example, few cities have policies to direct the re-use of treated stormwater for irrigation purposes, resulting in delays in important water quality and water conservation projects that could otherwise move forward.	Resolve existing policy conflicts.

			<p>for business and multi-family homes, retrofit on resale ordinance, Drought Busters, LA's Mobile Water Conservation Team, and high-efficiency clothes washer rebate program, all provided by the LA Department of Water and Power.</p> <ul style="list-style-type: none"> <li>• Selling Your Home/Property Ordinance, Good Housekeeping Ordinance, and No Water Waste Ordinance by the City of Santa Monica</li> </ul>		
PP-4	Develop Economic Incentives to Reduce Toxic discharges to Sewer and Storm Drain System	Min.	The recommended study to evaluate incentive options was not carried out and the status on the use of economic incentives remain unknown.	None identified due to the lack of assessment	Evaluate the feasibility and effectiveness of economic incentives and develop recommendations for next steps
PP-5	Reduce Marine Debris and Beach Litter	Subs.	<ul style="list-style-type: none"> <li>• Annual Beach clean-up has continued and expanded in volunteer base and number of participating organizations. Last year, 11,020 volunteers participated in Coastal Cleanup Day in Los Angeles County alone, where 65 cleanup locations gathered an astounding 83,434 pounds of trash and recyclables.</li> <li>• Several cities in the watershed, including Cities of Malibu, Manhattan Beach, Santa Monica, Los Angeles, and Calabasas, have passed ordinances banning or limiting the use of plastic bags and/or Styrofoam containers, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• LA County and most cities have not adopted bans, taking a wait-and-see attitude.</li> <li>• Statewide ban on plastic bags, etc. is currently stalled due to opposition from plastic manufacturing industry.</li> </ul>	<ul style="list-style-type: none"> <li>• Support adoption of bans on plastic fast-food containers and plastic bags at all retail stores by cities and L.A. County</li> <li>• Support state legislation for similar bans, or fee requirements, statewide.</li> <li>• Institutionalize SMBRC participation in Coastal Cleanup Day.</li> <li>• Promote and facilitate inland cleanups as part of Coastal Cleanup Day efforts</li> </ul>
PP-6	Prevent Pollution Associated with Marina and Boating Activities	Subs.	<ul style="list-style-type: none"> <li>• Major accomplishments include: Implementation of clean marina programs and development of the CCC's Clean Marina Guidebook. Most fuel docks now receive trainings on proper fueling technique at least once a year. New HHW drop off facilities have been built and events are publicized through environmental websites. In-water hull cleaners have received certification for use of BMPs. Educational materials on all these pollution issues have been created and continue to be distributed to the boating public.</li> <li>• More than five pumpout stations have been newly installed in Marina del Rey. However, the number is still far below the one pumpout facility/300 boats recommended under EPA guidance. Also, there</li> </ul>	<ul style="list-style-type: none"> <li>• More support and cooperation from local marina management agencies are needed to sustain and expand the on-going outreach effort and install more vessel sewage pumpout facilities.</li> <li>• The effectiveness of the on-going outreach effort needs to be improved through face-to-face and hands-on education.</li> </ul>	<ul style="list-style-type: none"> <li>• Work with marinas to adopt sewage management plans</li> <li>• Install bilge pumpouts at all marinas</li> <li>• Increase frequency in the use of currently installed vessel sewage pumpouts</li> <li>• Incorporate mobile pumping service into Marina del Rey slip lease agreements</li> </ul>

			<p>is evidence that a large proportion of boaters still does not use pumpout facilities for waste discharge.</p> <ul style="list-style-type: none"> <li>• City of Los Angeles installed nine used oil recovery sites at Wilmington/San Pedro marinas for collection of used motor oil, used oil filters, and used oil absorbents. Installation of another 5 used oil recovery sites has been planned in the next three years.</li> <li>• SMBRF, with a grant from CA Department of Boating and Waterways, conducted a marina wide survey of over 3,500 wet slip tenants in Marina del Rey to study boater habits, perceptions, and attitudes regarding vessel sewage management.</li> </ul>		
PP-7	Reduce Aerial Fallout	Moderate	<p>The SMBRC obtained EPA funding and initiated the first aerial deposition study in the region. The study demonstrated that both direct and indirect aerial depositions are a major source of pollutant loading into Santa Monica Bay</p>	<p>California Air Resources Board (CARB) has opened dialogue with the Water Board. But CARB and local air quality management districts have not taken meaningful steps to address the issue, including updating the list of regulated "air toxics" to include pollutants with known impacts on the marine ecosystem, and reviewing regional and local transportation and air quality plans to ensure consistency with urban runoff plans and aerial fallout pollution prevention efforts.</p>	<ul style="list-style-type: none"> <li>• Work with SWRCB and CARB to conduct further studies on airborne pollutant loading from area-specific sources.</li> <li>• Promote coordination and collaboration between SWRCB and CARB to establish airborne pollutant loading reduction policies, including reduction goals.</li> </ul>

### CHAPTER 3: STORM WATER/URBAN RUNOFF

The actions in this chapter address storm water and urban runoff, the most significant sources of nonpoint pollution to Santa Monica Bay. Storm water/urban runoff is a source of 12 of the 19 pollutants of concern, including trash and debris, pathogens, five heavy metals, chlordane, PAHs, TSS, nutrients, and oil and grease. These pollutants are generated by human activities associated with different types of land uses in the Santa Monica Bay watershed.

Actions recommended in this chapter are part of a comprehensive program which promotes many innovative approaches to address distinct problems associated with storm water/urban runoff pollution. The program proposes that most storm water/urban runoff control measures be implemented under the framework of current storm water NPDES programs. It also includes actions that would enhance the current regulatory framework and

improve compliance and enforcement of the storm water regulations. Control measures included in this chapter emphasize Best Management Practices (BMPs), including land use planning, public education and involvement, and other source control and treatment measures. It also includes recommendations on how BMPs should be selected and implemented.

Progress made in addressing urban runoff and storm water over the last thirteen years is not just evident. In fact, what we have witnessed could rightly be called tide-turning: from minimal awareness of the issue among regulators, municipal staff, and the general public, to widespread recognition and implementation of every kind of BMP, throughout the region. The municipal storm water (MS4) NPDES permit has evolved and taken the lead in addressing the problematic land use practices as the causes of the urban runoff pollution.

The LARWQCB, the County of Los Angeles, and municipalities are identified as leads or co-implementers for most of the actions in this chapter because they have jurisdiction over the region's storm drain system and bear the primary responsibility of compliance with the municipal storm water permit. On the other hand, the plan also recognizes the roles of other federal and state agencies as well as the environmental communities and calls for better coordination and participation by everyone involved.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
UR-1	Improvement of regulatory framework for management of storm water/urban runoff	Subs.	<ul style="list-style-type: none"> <li>Improved requirements for stormwater management are evident in the 2001 MS4 permit, for which mandates include: performance measures for routine maintenance activities, augmented inspection requirements, active IC/ID investigation program, improved monitoring, and increased public outreach. The new permit is scheduled for adoption in 2008 (UR-1.1)</li> <li>Coordination among the County and co-permittees has improved as TMDL jurisdictional groups meet regularly for progress review and information exchange and pool resources to conduct monitoring and assessment (UR-1.2)</li> <li>Increased staffing achieved in the past 8 years, demonstrated increased coordination and accountability in permitting activities. For example, based on survey conducted in 2001 by the SMBRP, municipalities' funding of stormwater staffing had increased between 10% and 150% from 1996.</li> <li>California Coastal Commission has maintained staff water quality specialist since early 1990s.</li> <li>A significant step has been the development of Regional Board guidance on allowed and prohibited non-stormwater discharges. Study conducted in 1995</li> </ul>	<ul style="list-style-type: none"> <li>Staffing resources are still below what is needed. Current staffing level is limited to general oversight and update of existing permits. It is not sufficient to carry out many recommended activities including: update the legislature and the public on water quality status and trends, compile and update monitoring data, provide technical support to local governments and other responsible agencies regarding implementation of BMPs, and initiate and manage projects to evaluate effectiveness of BMPs.</li> <li>Training of staff at municipalities apparently remains inadequate</li> <li>Jurisdictional groups sometimes fell short of planning and implementing BMPs across jurisdictional boundaries when necessary</li> <li>Enforcement varies significantly from city to city; it is not known how effectively non-exempted discharges are being addressed</li> <li>While TMDLs provide the basis for</li> </ul>	<ul style="list-style-type: none"> <li>Explore new funding mechanisms to increase staff resources at the LARWQCB.</li> <li>Support adoption and enforcement of residential and commercial runoff bans by local municipalities</li> </ul>

			<p>on effects of small non-stormwater discharges on receiving waters led to prohibition of several such discharges in the 1996 permit. The 2001 MS4 Permit assures prohibition of illegal discharges of non-stormwater by requiring inspections of closed drains and open channels, and mandates municipalities to educate the public and provide an illegal dumping hotline.</p> <ul style="list-style-type: none"> <li>EPA has allowed 319 grant funding for projects in areas covered under the municipal storm water permits.</li> </ul>	<p>stormwater numeric limits, some still debate the need for effluent limits</p> <ul style="list-style-type: none"> <li>Although CCC staff now routinely consider storm water impacts in approving coastal development permits, it is still a challenge to incorporate storm water/urban runoff reduction measures into local coastal plans.</li> </ul>	
UR-2	Develop and Implement Land Use Management Tools	Moderate	<ul style="list-style-type: none"> <li>The adoption of SUSMP (Standard Urban Stormwater Mitigation Plan) into the 1996 and 2001 MS4 permit was a major milestone in implementing this action. SUSMP regulates storm water pollution from certain categories of new development and redevelopment projects from the private sector by specifying treatment or BMP criteria necessary to mitigate runoff contamination.</li> <li>All permittees in the watershed have met permit requirements for legal authority.</li> </ul>	<ul style="list-style-type: none"> <li>Enforcement of SUSMP remains a significant challenge, as does assuring that the BMPs implemented under this program are appropriate to land uses.</li> <li>Existing MS4 permits do not require new developments to significantly increase permeable surfaces and maximize infiltration.</li> <li>Status of enforcement/ promotion of land use ordinances is not known.</li> <li>There is still a lack of policies to encourage reclamation of urban runoff and storm water.</li> </ul>	<ul style="list-style-type: none"> <li>Inventory of re-development permits since 2000 and ground-truthing to determine if SUSMP requirements were met</li> <li>Increase pervious surfaces and decrease impervious surfaces by supporting green infrastructure</li> <li>Incorporate green infrastructure, eg. biofiltration and rain gardens, into the standard street maintenance practices of cities and L.A. County</li> </ul>
UR-3	Expand Public Awareness and Involvement	Subs.	<ul style="list-style-type: none"> <li>This action was written into the 1996 MS4 permit, and has been implemented by the County of Los Angeles.</li> <li>Fully implemented, efforts on-going. The 2001 MS4 Permit outlined 9 education activities, which the County of LA, City of LA, watershed municipalities, and other organizations are currently implementing. Educators at state and local levels continue to seek ways to measure the effectiveness of various education strategies, working on how to connect educational efforts to behavioral change. One of the key achievements is the completion of the County's 1997 segmentation study, which categorized residents by pollution potential and identified primary target audiences for education.</li> <li>Non-profits have developed citizen monitoring programs. For example, the Santa Monica BayKeeper's BeachKeeper Program involves volunteers in identifying sources of stormwater pollution. The Regional Board (as part of the State Board's Clean</li> </ul>	<p>No storm water public involvement programs sponsored directly by the county and cities are known at this time.</p>	<p>Support to secure long-term funding and continuation of the existing efforts.</p>

			Water Team) has also put forward a citizen monitoring program.		
UR-4	Implement Source Control and Treatment BMPs	Subs.	<ul style="list-style-type: none"> <li>• Implementation of Menu A (Mandatory) BMPs is complete. Implementation efforts are non-going.</li> <li>• Construction and industrial good housekeeping BMPs have been incorporated into the NPDES permit. Funding – including PIE grants from the SMBRC – has been made available for promoting implementation of these BMPs.</li> <li>• Implementation of pilot and demonstration projects continues to evolve as new BMPs are developed. Many structural BMPs have been piloted, many of those demonstrated to be effective have been implemented at high-priority sites throughout the watershed.</li> <li>• Since 1997, millions of dollars in state and federal assistance grants have been allocated to the Santa Monica Bay watershed for long-term structural BMP installations (including over 18M by the SMBRC alone). The County and cities have also spent millions of local bond money and other funds for installation of these devices. The total funds allocated has far exceeded the original \$40 million estimate.</li> </ul>	<ul style="list-style-type: none"> <li>• Even full implementation of Menu A, B, and C BMPs is deemed insufficient for achieving compliance with waste allocations under the adopted TMDLs. New BMPs (e.g. new ordinances requiring LID in new and redevelopment, and bans on disposable plastics) need to be implemented.</li> <li>• Insufficient funding, especially the lack of a stable, long-term local funding source, remains the major roadblock to further progress.</li> </ul>	<ul style="list-style-type: none"> <li>• Support city and L.A. County bans or fee requirements on disposable plastic fast-food containers and disposable plastic bags</li> <li>• Develop a regional funding mechanism, such as a County-wide property assessment, for stormwater controls.</li> </ul>
UR-5	Monitor Success of the Storm Water/Urban Runoff Management Program	Subs.	A comprehensive monitoring program has been in place since adoption of the 2001 MS4 permit that meets the BRP objectives for collecting information on total loading and mass loading from major land use categories, and helps to detect illegal and illicit connections	<ul style="list-style-type: none"> <li>• Monitoring at industrial and construction sites is still deemed insufficient.</li> <li>• There is still no standard program for testing and evaluating BMP effectiveness.</li> </ul>	Develop and implement a standard program for evaluation of BMP effectiveness.
UR-6	Conduct Additional Technical Studies	Subs.	<ul style="list-style-type: none"> <li>• All recommended studies have either been completed or are in progress. Completed studies include a dry-wet-weather runoff and sediment toxicity study, sediment survey near storm drain outlets, hazardous constituents source identification, flow rate and discharge database, maintenance and update of land use maps, BMP clearing house, etc.</li> <li>• Many new studies have been initiated/completed that further advanced our understanding beyond what was recommended by the BRP at the time.</li> </ul>	<ul style="list-style-type: none"> <li>• Progress has been made to develop methods to distinguish naturally-occurring oil from human-use origin but there is still no readily applicable method.</li> <li>• No entities have been able to develop and establish an effective storm drain sensor system for detecting incidence of pollutant discharge.</li> </ul>	N/A

CHAPTER 4: MUNICIPAL AND INDUSTRIAL DISCHARGES

This chapter encompasses a range of actions that are directed toward reducing discharges and improving management of pollutants associated with municipal and industrial wastewater sources. The primary components of this program are: to promote programs that prevent and reduce pollutants at their sources, to ensure that all municipal wastewaters discharged to the Bay receive at least secondary treatment; to support efforts to maximize water reuse in the region, and to improve, where necessary, the existing regulatory framework for management of point source discharges.

Implementation responsibilities fall primarily on local municipalities and special districts as they are the owner and operators of the waste treatment facilities and have oversight role on industrial facilities with their jurisdictions. EPA and LARWQCB also bear lead responsibility through issuance and enforcement of NPDES permits that set the discharge limits on these facilities.

Over the past thirteen years, significant gains have been made in controlling pollutant discharges from point sources. Most notably, both the Hyperion and JWPCP facilities completed upgrades to full secondary treatment, and are now removing over 85% of the solids and a majority of the contaminants in the wastestream. All POTWs have also continued to maintain the extensive improvements in treatment processes and stringent industrial waste source controls which have reduced contaminant inputs to a fraction of former levels. The impact of these improvements has started to be seen in the Bay’s environment.

After completing treatment upgrades, the main challenges faced by POTWs is how to prevent future increases in pollutant loading as the volume of discharge increases with the growth of the region’s population. POTWs also need to make more efforts to reclaim and recycle more treated wastewater to further reduce discharge to the ocean and help reduce our region’s dependence on imported potable water. In addition, and major new challenge faces us in the form of emerging contaminants, which are not removed by the current pretreatment and treatment process. How to replace aging ocean outfalls without causing environmental harm is another difficult issue. Finally, while much environmental improvement has been seen around the area of POTW outfalls thanks to the upgraded treatment, there has been almost no progress in reducing the effects of impingement and entrainment from cooling water intake by coastal power generation stations.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
MI-1	Reduce/Eliminate Discharges of Pollutants of Concern by Implementing Programs that Prevent Pollution at the Source	Subs.	Progress has been made to integrate pollution prevention and source control from municipal and industrial discharges, storm water/urban runoff, and oil and hazardous materials spills under the TMDL management framework.	<ul style="list-style-type: none"> <li>• Technical measures to reduce the effects of impingement and entrainment from cooling water intake by coastal power generation stations are considered ineffective and may be cost-prohibitive</li> <li>• Suspension of federal regulatory requirement (Section 316(b)) has stalled efforts to reduce the effects of impingement and entrainment</li> </ul>	Eliminate discharge of heated cooling water from coastal power plants. Require switch to dry-cooling or other methods as a permit condition of facility upgrades.

MI-2	Complete Upgrades to Full Secondary Treatment of All Direct Municipal Wastewater Discharges to Santa Monica Bay (P).	Full	<ul style="list-style-type: none"> <li>Completed. Upgrade to full secondary treatment was completed at the City of LA's Hyperion plant in 1998. Environmental improvements resulting from wastewater treatment plant upgrades have already been detected in the TSS loading since 2002.</li> <li>Completed. Upgrade to full secondary treatment was completed at the County of LA's JWPCP in late 2002.</li> <li>Significant effort has been made to decrease incidence of sewage overflows. Sewer system structure upgrades and efforts by cities such as Los Angeles to regulate the discharge of oil and grease into the sewer system helped lead in 2002 to the achievement of zero beach closures caused by sewer spills. However, high volume of rain in the 2004/05 rainy season caused increased sewage overflows; at high rainfall, sewage overflow continues to be an issue of concern.</li> </ul>	N/A	N/A
MI-3	Maximize Reuse of Reclaimed Water	Moderate.	<p>More wastewater has been tertiary-treated, reclaimed and recycled.</p> <ul style="list-style-type: none"> <li>Eight water reclamation facilities (WRF) currently produce about 255 mgd of reclaimed water in the Santa Monica Bay area. In addition to producing effluents suitable for reuse, these water reclamation plants provide hydraulic relief for downstream plants (Hyperion and JWPCP) and their tributary sewers.</li> <li>The LA County Sanitation Districts have a large water reclamation system. Plan is in place to initiate 10,000 AFY recycled water/groundwater recharge project by 2016.</li> <li>The City of Los Angeles has a goal to increase wastewater recycling from 4,500 AFY in 2008 to 50,000 AFY in 2019. West Basin Municipal Water District has steadily increased its treatment/reclamation capacity of secondary-treated wastewater from Hyperion with the goal of reducing the volume of secondary treated wastewater discharge to the Bay by 25%.</li> <li>LVMWD currently has achieved recycling 20% of its discharge (9.5 mgd in average) and plans to further expand water recycling facilities.</li> <li>All new developments served by LVMWD are</li> </ul>	Wastewater re-use has increased but there is still enormous potential for more wastewater reclamation. As freshwater supplies become more limited and expensive, demand for recycled water is increasing. Remaining obstacles to more widespread use of reclaimed water include pricing, public concerns about the safety of reclaimed water, and financing the construction of water reclamation facilities and distribution infrastructure. Seasonal fluctuations and weather also affect re-use.	Further upgrade wastewater treatment at POTWs to increase recycled water use, to eventually replace most of the imported water in our region.

			required to use reclaimed water for irrigation.		
MI-4	Promote Beneficial Use of Biosolids (Sludge)	Subs.	Beneficial reuse of biosolids from the two major wastewater treatment facilities has greatly increased, so that virtually all biosolids are transported by truck to and used as fertilizer on animal feed crops outside of LA County.	The quantity of biosolids increases as secondary treatment and plant capacities increase, and it is challenging to find new beneficial reuses. At the same time, the current recipients of LA biosolids may not continue to accept even the current levels of biosolids.	Find new or more uses for biosolids
MI-5	Improve the Framework for Regulating and Managing Point Source Discharges	Subs.	LA Regional Board has increased effectiveness by reorganizing staff to separate permit issuance and enforcement functions.  Over the past seven years, Enforcement staffing and training have increased and improved significantly.  Through establishment of the SEP program, more penalties from Bay-related legal proceedings are directed to projects that benefit Bay water quality.	More resources are still needed to boost the number of staff for enforcement activities.  The Regional Board still does not have the authority to "write tickets" for violations of NPDES permits and WDRs.	Explore new funding mechanisms to increase enforcement resources at the LARWQCB
MI-6	Enhance POTW Pretreatment Programs	Subs.	POTWs have been active in enforcing pretreatment programs through verification of discharger self-monitoring reports, industrial inspections, spot checks and other surveillance efforts. Each year, over 40,000 inspections were conducted at industrial sites by the City of LA-DPW Enforcement Division and by CSDLAC. Successful implementation of local industrial pretreatment programs is reflected in the achievement of significant reductions of trace metals, toxic organics and oil and grease in the influent (and therefore the effluent and biosolids) from Santa Monica Bay municipal treatment plants.	City of LA continues to be hindered by the inadequate staffing and inability to enforce discharge requirements or ensure proper performance of programs in contributing communities.	Encourage and support the City's effort to achieve adequate staffing to enforce discharge limits/prohibitions.

## CHAPTER 5: OIL AND HAZARDOUS MATERIALS SPILLS

This chapter addresses issues relating to oil and hazardous materials spills. Strategies and management measures focused on spill prevention, effective response, and restoration of resources to their pre-spill condition. The actions described in this chapter attempted to improve upon existing prevention and response programs to marine- and land-based spills. Additionally, they propose methods which would aid the development of a database to more accurately assess and document ecological damages from spills. Means of increasing public involvement in spill response preparation are also proposed.

Marine spill prevention and response programs are under the jurisdiction of the U.S. Coast Guard Marine Safety Office (MSO) and the California Department of Fish and Game (CDFG) Office of Oil Spill Prevention and Response (OSPR). Therefore these agencies are designated as leads for implementation of most of the actions addressing oil spills. On the other hand, land spills fall under an entirely separate program, mostly under the jurisdiction of local fire and public works departments.

A number of programs to prevent spills and improve spill response capability in the Santa Monica Bay and its watershed are now in place. While there is a continuing need to better coordinate the existing programs, the progress to date is encouraging. Overall, the programs have been largely successful: the response capability to marine spills in the State has been increased significantly, and the trend has been towards fewer spills and more effective response actions.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
SP-1	Prevent Marine and Land-Based Spills	Min.	Marine tankers rather than land-based pipelines remain the major means of crude oil transportation. There is no indication that the inventory of spillable hazardous waste in the Bay watershed has been reduced.	There is still no consensus on whether land-based pipeline is a safer alternative to marine tankering	Support federal and state regulatory measures aimed at reducing likelihood of spills by both marine tankers and land-based pipelines.
SP-2	Respond to Marine and Land-Based Spills	Subs.	The statewide response system coordinated by OSPR seems to be functioning as designed through development and implementation of an Area Contingency Plans. But the readiness of local agencies and coastal cities is uncertain. A new oiled wildlife center was opened in San Pedro in 2001 and has been adequately funded by the State OSPR. The 10,000 square foot facility can offer high-quality of care for up to 1,000 birds affected by an oil spill in the Los Angeles area including Santa Monica Bay. Cities and the County have an agreement in place authorizing entry into storm drains under each other's jurisdiction to respond to and investigate spills.	None at this time	Ensure long-term adequate funding of the wildlife rehabilitation center. Update and revise the spill response agreement if needed.
SP-3	Develop the Data Base Necessary for Damage Assessment and Restoration Efforts.	Subs.	OSPR and MMS have documented "biological baseline" conditions for damage assessment purposes. Further, OSPR, NOAA, SWRCB, and SMBRC collaborated to conduct a beach use study that established economic baselines for damage assessment purposes.	None at this time	Periodically update the damage assessment database.
SP-4	Expand Public Awareness and Knowledge of Oil and Hazardous	Subs.	OSPR's ongoing outreach efforts include interactive training courses, brochures, handouts, regularly scheduled and unannounced drills, etc OSPR also has a new volunteer program that allows concerned citizens to participate in tasks connected to	None at this time	N/A

Materials Spills and Involve the Public in Related Activities		saving wildlife and habitats during oil spill response and cleanup.		
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## CHAPTER 6: CONTAMINATED SEDIMENTS

This chapter addresses contaminated sediments, particularly toxic hot spots. Sediments are a reservoir for many pollutants that contaminate animal life. Sediments are also a major source of contaminants that, once introduced into the food web, can pose human health risks from contaminated seafood consumption. This chapter describes specific remediation needs and actions to manage historical deposits of DDTs, PCBs, and TBT; to minimize adverse contaminant effects; and to restore and protect biological resources.

One of the most notorious cases of marine pollution was the discharge and disposal of DDT wastes, of which an estimated 200 metric tons remain in the sediments off the Palos Verdes Peninsula. Polychlorinated biphenyls (PCBs) also occur at elevated levels on the PV Shelf. The consent decree reached between the Government’s natural resources trustees and the polluting chemical company (Montrose Co. and other defendants) in 2001 resulted in the largest settlement amount in U.S. history (over \$70 million). However, after site investigation and engineering evaluation by EPA for nearly ten years, including implementation of a pilot capping project, a feasible remediation and clean-up plan still has not been completed. This is partly due to the challenges posed by the sheer size of the contamination footprint (9 square miles) and the complex geological, oceanographic, and biological conditions at the site.

Progress has been made in developing sediment quality objectives and finding suitable options for disposal of the dredged contaminated sediment from the PV shelf hot spot. However, progress has been slow in developing and adopting clean-up plans for contaminated sediments in Marina del Rey and Ballona Creek entrance channel, the other two toxic hot spots in the Bay.

The EPA, SWRCB, and LARWQCB are lead implementers for actions in this chapter because of their mandated responsibilities for setting water and sediment quality objectives and overseeing remediation of contaminated sites.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
CS-1	Identify and Target the Most Contaminated Toxic Hot Spots for Cleanup and Remediation	Full	The Statewide Consolidated Toxic Hot Spots Clean-up Plan was adopted by SWRCB in 1999 and revised in 2004. Three sites in Santa Monica Bay were listed as toxic hot spots. Palos Verdes Shelf was ranked high. Ballona Creek Entrance Channel and Marina del Rey were	<ul style="list-style-type: none"> <li>Primarily due to shortage of state funding, no progress has been made toward actually cleaning up of the listed hot spots almost ten years after the designation.</li> <li>The development of toxics TMDLs for</li> </ul>	<ul style="list-style-type: none"> <li>Implement toxics TMDLs for Marina del Rey and Ballona Creek Estuary.</li> <li>Explore funding mechanisms for toxic hot spots clean-up.</li> </ul>

			ranked as moderate.	Marina del Rey and Ballona Creek Estuary should address and may help to facilitate the remediation process.	
CS-2	Develop Sediment Quality Objectives and Site-Specific Cleanup Criteria for Contaminated Sites	Subs.	<ul style="list-style-type: none"> <li>A Regional Contaminated Sediment Task Force (CSTF) was funded by the State and convened for 6 years to develop site-specific sediment screening criteria. That effort informed SWRCB's SQO development process.</li> <li>Sediment quality objectives for enclosed bays and estuaries were developed and initially adopted by the SWRCB in February 2008.</li> </ul>	Legal challenges could delay the implementation of the new objectives.	N/A
CS-3	Develop Remediation Options and Disposal Plans for Contaminant Deposits and Recommend the Most Effective Feasible Alternatives	Subs.	<ul style="list-style-type: none"> <li>The CSTF developed a long-term strategy with a decision tree for contaminated sediment disposal which can be applied to dredged contaminated sediments from Ballona Creek entrance channel.</li> <li>EPA has been investigating engineering options to remediate the DDT and PCB contamination on Palos Verdes shelf since 1989 when it added the site to the Superfund List. The investigation is still on-going.</li> </ul>	The development of an engineering remediation solution is extremely challenging due to the large footprint and the complex physical and chemical conditions at the contaminated site on PV shelf.	<ul style="list-style-type: none"> <li>Complete and publicize the draft plan for remediating contaminated sediments on Palos Verdes shelf.</li> <li>Finalize and implement a remediation plan.</li> </ul>
CS-4	Minimize Input of Contaminants from Point and Nonpoint Sources	Subs.	<ul style="list-style-type: none"> <li>The completion of the secondary treatment upgrade at the Bay's two largest POTWs greatly reduces inputs of new contaminants from point sources.</li> </ul>	None at this time	N/A
CS-5	Understand the Linkages Between Discharge Quality and Sediment Quality, Contaminated Seafood and Ecological Damage.	Moderate	Review of existing information was done as part of the CSTF and PV Shelf Superfund Investigation.	Understanding of the linkages relies primarily on past knowledge, some of which is from studies conducted decades ago.	N/A

## **SECTION B: PROTECTING PUBLIC HEALTH**

Actions recommended in this section address fishing and swimming - the two major recreational beneficial uses of the Bay. Health risks associated with these activities are a major public concern because some local sport fish are contaminated with DDT and PCBs, and because swimming beaches are contaminated with viruses that make people sick. Recommendations on how to reduce the dangers of these pollutants to the people using the Bay were described in two separate chapters.

### **CHAPTER 7: SEAFOOD CONSUMPTION**

This chapter addresses potential human health risks associated with consumption of local sport fish contaminated with DDT and PCBs. Actions proposed in this chapter help to answer the question: “Is it to eat seafood from the Bay?” They include risk assessment and risk communication programs, and a seafood monitoring program. These actions will ensure that formal risk communication - or public awareness – measures are in place to give the public useful information in a timely fashion.

The California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) must conduct risk assessments and issue guidelines for reducing human exposure to contaminated sportfish. Therefore OEHHA is primarily responsible for implementing the actions recommended in this chapter. As recommended in the BRP, OEHHA planned to use data collected by SMBRP in the 1992 seafood contamination and consumption studies to conduct a specific health risk assessment by mid-1995, to calculate the possible risk(s) of consuming contaminated seafood and provide the basis for an updated seafood consumption advisory that should have been published around the same time. Now more than ten years later, there is still no risk assessment completed and no consumption advisory update. This is viewed by stakeholders as one of the biggest failures in the BRP implementation.

One bright spot amid the disappointment with OEHHA’s lack of progress is the advancement made by the EPA-sponsored institutional control (IC) program for the PV Shelf Superfund site. Among the three main components of the IC program (risk communication, enforcement, and monitoring), the community-based risk communication program led by the Fish Contamination and Education Collaborative (FCEC) has stood out for its broad stakeholder support, its effective engagement of local health departments, and its success in focusing and reaching out to the most vulnerable segments of the population. This program has in fact become a model for other contaminated estuaries nationwide.

Enforcement of the existing commercial fishing ban and recreational bag limit on contaminated fish has been insufficient, largely because of the lack of available resources at Dept. of Fish and Game (DFG). Recently however DFG has stepped up to the plate, and is about to enter an agreement with

EPA to expand its enforcement capacity and activity. How effective the improved enforcement is at preventing contaminated fish from reaching anglers and local markets will be critical in determining the success of the IC program in reducing human health risks.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
SC-1	Prevent Contaminant Inputs	Subs.	See Chapters in Section A, Preventing Pollution at the Source.	N/A	N/A
SC-2	Conduct Seafood Consumption Health Risk Assessments	Min.	The seafood health risk assessment has not been updated by OEHHA in more than twenty years. It is finally underway after data from the latest fish contamination survey conducted by Montrose Settlement Restoration Program (MSRP) and EPA was released in 2007. The new risk assessment is scheduled for completion and publication in early 2009.	institutional barriers at OEHHA may further delay the completion of the new risk assessment	Complete the seafood consumption risk assessment.
SC-3	Update Seafood Consumption Advisories	Subs.	A pilot outreach and education project was initiated by EPA in 1999, involving local community-based organizations (CBOs) to increase the awareness of fish contamination in LA and Orange Counties.  Since 2003, the Fish Contamination Education Collaborative (FCEC) has been working to protect the most vulnerable population from the health risk of consuming contaminated fish through outreach to affected communities, anglers, and businesses.	As for the risk assessment, the seafood consumption advisory still has not been updated by OEHHA more than twenty years after the last advisory was issued. As a result, the on-going risk communication program while effective may be using outdated information.	<ul style="list-style-type: none"> <li>Develop and issue new fish consumption advisory by 2008 (Objective and milestone under Goal #11)</li> <li>Update fish advisory signs and develop and distribute new educational materials based on the new advisory</li> </ul>
SC-4	Monitor Program Effectiveness	Subs.	Since 2000, a coordinated seafood monitoring program regularly collects and analyzes common seafood species from Santa Monica Bay for contamination levels.	There is a lack of regular monitoring of contaminant level in nearshore surfzone fish.	Incorporate nearshore surfzone monitoring into the coordinated seafood monitoring program.
SC-5	Conduct Additional Technical Studies	n/a	Most of the additional studies recommended here were later deemed unnecessary because some of the relevant information was obtained from other sources or the original technical questions were no longer relevant.	N/A	N/A

## CHAPTER 8: SWIMMING

This chapter address the health risks from the most popular and economically important recreational use of the Bay: swimming at our beaches. Ensuring safe swimming in the Bay has been a very high priority for our stakeholders. The actions proposed in this chapter are designed to prevent pollution in the surfzone areas (where most recreational swimming, surfing, etc. occur) and to effectively communicate potential risks to the public. In addition, there are recommendations for improving the regulatory framework and establishing a cooperative working relationship between the involved agencies and interested parties.

In 1995 the SMBRC conducted the first large-scale epidemiological study in the nation to investigate possible adverse health effects associated with swimming in ocean waters contaminated by urban runoff. This was the first study to illuminate the link between illnesses in swimmers and proximity to contaminated runoff (i.e. storm drains). The study also demonstrated increased risk of illness associated with swimming in areas with high densities of certain types of bacteria (called indicator bacteria).

The 1995 “epi study” provided a strong scientific backing for decisive actions by federal, state and local government. Since then, remarkable progress has been made in improving beach water quality, enhancing monitoring and reporting, and increasing the public awareness of the health risks. Among the major achievements are the following highlights:

1995	LA County adopts new beach closure and warning protocol.
1996	LA County voters pass second Prop. A bond measure. Eight dry-weather runoff treatment and diversion projects are funded.
1997	California State Legislature passes SB411 which strengthens and standardizes beach warning and closure protocols and shoreline monitoring throughout the state; EPA launches the BEACH program
2000	State launches the Clean Beach Initiative (CBI) Grant Program which provides more than \$40 million for projects to improve coastal water quality, including 30 projects along Santa Monica Bay beaches.
2001	SMBRC launches the Santa Monica Bay Restoration Grant Program which significantly boosts funding for implementation of storm water BMPs aimed at improving beach water quality in the Ba; the City of Santa Monica completes construction of the Santa Monica Urban Runoff Recycling Facility (SMURRF); the California State Legislature passes AB639, requiring state agencies to develop reliable and rapid pathogen indicators
2002	LARWQCB adopts a dry- and wet-weather pathogen TMDL for Santa Monica Bay beaches The SMBRC establishes a task force to address pollution from on-site wastewater systems (septic systems)
2004	SMBRC completes a risk assessment of decentralized wastewater treatment systems in high priority areas in the City of Malibu.
2006	State CBI program funds new studies on source ID technology, rapid indicators and further work on epidemiology in the surf zone
2007	City of Malibu completes construction of the Civic Center Runoff Treatment Facility.

Water quality improvement have been noticeable on beaches near diverted storm drains and now over 90% of beaches along Santa Monica Bay have very good-to-excellent water quality during summer. However, water quality problems persist at a number of chronically affected areas where diversion is not feasible. Also, high bacteria levels during wet weather are still widespread and difficult to address.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
SW-1	Find and Remove Sources of Human Pathogens from the Storm Drain System.	Moderate	<ul style="list-style-type: none"> <li>The State Water Resources Control Board (SWRCB) has developed standard protocols for sanitary surveys. Work by the Southern California Coastal Water Research Project (SCCWRP) on rapid indicators has made some progress under the state's Clean Beaches Initiative (CBI).</li> <li>Substantial progress has been made in combating incidences of sewer leaks through replacement of aging sewer line and inspection of illicit connections.</li> <li>Moderate progress has been made in dealing with on-site wastewater treatment systems (OSWT, or septic systems). A groundwater study was completed to determine impacts of septic systems on Malibu Creek and Lagoon. An OWTS Task Force was convened and made recommendations to improve management of OSWTS. Some recommendations have been implemented (see MCW-1 for detail).</li> <li>The City of Malibu, LA County and Regional Board signed and MOU to improve regulation of septic systems in Malibu.</li> </ul>	<ul style="list-style-type: none"> <li>Practical methods for conducting sanitary surveys remain elusive. Some molecular methods for source ID have been tested and shown promise. But the results of field testing so far are mixed and no method is reliable enough for broad application.</li> <li>Management of OWTS in the City of Malibu continues to be problematic, with new development contributing more wastewater while the City struggles to cope with existing sources.</li> </ul>	<ul style="list-style-type: none"> <li>Promote and support research efforts by the SWRCB CBI program on development of new rapid pathogen indicators</li> <li>Achieve full compliance of waste discharge requirements (WDRs) issued by the LARWQCB.</li> <li>Complete construction of a centralized wastewater treatment facility for the Malibu Civic Center area.</li> </ul>
SW-2	Protect Swimmers, by Taking Actions that Remove Pathogens from the "Swimming Surfzone."	Subs.	<ul style="list-style-type: none"> <li>Dry- and wet-weather bacteria TMDLs were adopted for Santa Monica Bay beaches.</li> <li>Santa Monica Bay beaches are considered safe for swimming and surfing more than ninety percent of the time during dry weather. Most problem drains have been diverted to a sanitary sewer except when it rains. Wet weather discharges continue to be a major concern.</li> </ul>	Removal of pathogens from wet-weather storm runoff is far more difficult than dry-weather runoff because neither diversions nor treatment are practical, due to the extremely high flow volumes during some storms.	<ul style="list-style-type: none"> <li>Fund diversion of all dry weather (summer and winter dry periods) at remaining un-diverted drains.</li> <li>Explore and promote storm water infiltration to reduce contaminated storm runoff during wet weather.</li> </ul>
SW-3	Assess health Risks Associated with Swimming in the Bay and Revise Water Quality Standards.	Subs.	An epidemiological study of health risk from storm drain runoff exposure was completed and released in 1996. The study for the first time demonstrated the link between increased illnesses in swimmers and proximity to areas with contaminated runoff. State public health standards (passage of AB411) and water quality objectives (TMDLs and Basin Plan) have been revised based on the results of the study.	The existing regulatory system still relies on conventional bacterial indicators that are not a direct measurement of human pathogenic contamination.	<ul style="list-style-type: none"> <li>Incorporate effective indicator monitoring techniques into current monitoring programs</li> <li>Support new epidemiological study and disseminate the results</li> </ul>
SW-4	Communicate Potential Health	Subs.	The development of Beach Grades and Beach Report Card by Heal the Bay was a significant step in better communicating		<ul style="list-style-type: none"> <li>Link SMBRC website to HTB Beach Report Card</li> </ul>

	Risks to the Public.		health risks to the public. Today, several environmental organizations attempt to communicate risk, along with signage placed by lifeguards at the direction of LA County Dept. of Health Services (DHS).		and LA County DHS websites <ul style="list-style-type: none"> <li>• Obtain more beach warning signs for L.A. County DHS</li> </ul>
SW-5	Monitor Program Effectiveness.	Moderate	See Chapter 15, Comprehensive Monitoring Program		

## SECTION C: RESTORING, PROTECTING AND MANAGING BAY HABITATS AND RESOURCES

Actions recommended in this section address restoration, protection and management of the Bay's habitats and resources, including marine habitats, wetlands, and beaches and intertidal zones. These actions are recommended in response to the need for a healthy ecosystem while recognizing the need for human use of resources. The approach emphasizes long-term, comprehensive management and protection of habitats and resources. Actions are recommended that restore priority habitat areas, increase enforcement of natural resource regulations, and promote stewardship of the Bay's environment.

### CHAPTER 9: MARINE ECOSYSTEM

This chapter focuses on three marine habitats -- pelagic, soft-bottom, and hard-bottom. Major areas of concern include: rebuilding certain key marine populations; increasing protection for unique and sensitive habitats; increasing enforcement of laws and regulations to benefit the Bay's marine ecosystem; and building public awareness of the need to restore, protect, and manage the marine ecosystem.

Improved wastewater treatment and source control have resulted in significant recovery of marine communities, especially soft bottom animal communities around outfalls over the past fifteen years. The return of kelp forests and rocky intertidal plant and animal communities of Palos Verdes represent a landmark recovery resulting from a number of factors, including waste controls implemented since the 1970s. With termination of sludge discharge and continued high levels of sewage treatment, marine communities continue to recover. However, bioaccumulation of toxins in outfall communities remains a problem.

Many serious information gaps on the biological conditions of marine habitats have been filled in recent years, thanks to a series of surveys sponsored by the SMBRC, including the Marine Resources Inventory; a kelp assessment in northern Santa Monica Bay; mapping and assessment of shallow water habitats; an assessment of nearshore fish populations; a rocky intertidal habitat restoration feasibility study; an assessment of marine mammal and seabird populations; and a nearshore rocky reef habitats assessment. These projects have greatly enhanced our knowledge of the Bay's ecosystem and the factors that affect the health of the Bay's habitats and living resources.

Fishing is one of the most fundamental human uses of the Bay and includes commercial passenger fishing vessels (party boats), private boat fishing, pier fishing, scientific collecting, and limited commercial fishing. Progress in protection of fishery resources in the Bay has been relatively slow despite the catch data compiled by DFG, showing a continuous decline in fishery yield. There has been growing concern that the current regulatory framework that relies on establishment and enforcement of various forms of catch limits may not be effective in protecting the fishery resources. This framework should be replaced and/or supplemented by an ecosystem-based approach such as a network of marine protected areas (MPAs). The State has accelerated the process to establish the MPA network along California's coast and plans to complete the process by 2010.

The DFG bears the primary responsibility for protecting the living resources within three nautical miles of the coastline while a federal agency, the National Marine Fishery Service, is responsible for protection of living resources within the 200-nautical-mile zone. The DFG has suffered from chronic shortage of funding and staff and there is no sign that the situation will improve anytime soon. The state and federal agencies are also challenged to balance the development and recreational needs of the area with the goals of conserving and enhancing the Bay's natural resources. The conflicts among different beneficial uses will be heavily contested during the MLPA process. Furthermore, effective management, including enforcement and long-term monitoring, of established MPAs may prove even more daunting, given the projected insufficient resources to support these activities.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
MEC-1	Reduce Pollutant Inputs.	Moderate	See Section A		
MEC-2	Restore and Enhance Marine Habitats and Species.	Moderate.	<ul style="list-style-type: none"> <li>• Except for the on-going white seabass restock program, not much progress has been made to rebuild declining populations of key species such as abalone, Pismo clam, spiny lobster, and California halibut. The status of Southern California Edison's halibut study is unknown (P).</li> <li>• The bottom habitats of the entire Bay were mapped using state-of-the-art back scan sonar technology by SMBRC and USGS between 1998 and 2002. The State plans to use the mapping information in the south coast MLPA process beginning summer 2008. (P).</li> <li>• Much progress has been made to eventually restore remaining coastal wetlands and lagoons to provide habitats for estuary-dependent species.</li> </ul>	<ul style="list-style-type: none"> <li>• Proposals for restoring declining populations of species like abalone were either deemed technically unfeasible or tabled for lack of funding.</li> <li>• Opposition is still strong from interest groups against reintroduction of the sea otter, for example.</li> <li>• Still no consensus on the benefits of artificial reefs. NOAA's MSRP is reviewing existing data and collecting new information to determine the feasibility of establishing more artificial reefs.</li> <li>• The pilot study on "rotating harvest refugia" was not carried out because it is widely accepted that the establishment of MPAs under the State mandate will provide optimal habitat protection.</li> </ul>	Evaluate and support potential Marine Protected Areas in the Bay
MEC-3	Enhance Management and Protection of Marine Resources.	Minimal.	<ul style="list-style-type: none"> <li>• No increase achieved in DFG's wildlife protection officers along the Bay.</li> <li>• Use of DFG's fishery data has increased and will be used extensively during the MLPA process.</li> </ul>	DFG's budget shortfall has been a chronic problem and a major roadblock.	
MEC-4	Monitor Success of the Marine Ecosystem Actions in the	Subs.	See Chapter 15, Comprehensive Monitoring Program	N/A	N/A

MEC-5	<p>Environment.</p> <p>Expand Public Awareness and Knowledge of the Marine Ecosystem and Involve the Public in Related Activities.</p>	Moderate	<ul style="list-style-type: none"> <li>• Since 1999, a citizen monitoring program spearheaded by Pepperdine University has been assessing grunion runs in the Bay.</li> <li>• The Santa Monica Baykeeper has continued to implement its Kelp Monitoring project (begun in 1996), which relies on volunteer divers from local communities, who assist in research, monitoring and restoration of historic kelp beds off of Malibu and the Palos Verdes Peninsula.</li> <li>• SeaLab has run a successful marine environmental education program for years.</li> <li>• The Santa Monica Pier Aquarium, managed by Heal the Bay since 2003, offer school groups, families and visitors aquaria exhibits and other public programs</li> <li>• The Cal-Tip seems to have lead to increased investigation and prosecution of illegal activities by DFG and federal agencies in recent years.</li> </ul>	Lack of funding, especially funding for long-term maintenance and expansion of programs, continues to be the major roadblock.	Continue to support funding and seek expansion of the existing educational institutions and programs
MEC-6	Conduct Additional Technical Studies.	Subs.	<ul style="list-style-type: none"> <li>• SMBRC has sponsored a series of technical studies which improved our understanding of several important habitats and resources in the Bay including the status and trends of fish populations, marine mammals, and the biological conditions of the nearshore rocky reef habitats.</li> <li>• EPA and NOAA MSRP have further studied and modeled the biotransfer of contaminants through the food chain on PV Shelf.</li> </ul>	Remaining data gaps include: condition of shallow nearshore sandy fish and invertebrate community, tissue contamination in surfzone fish and sand crabs, condition of and potential human impacts on grunion runs, fish spawning and larval movement patterns, condition of deeper water rocky habitats, etc.	Secure funding for studies designed to fill the remaining data gaps.

## CHAPTER 10: WETLANDS

The loss of nearly 95 percent of the historic wetlands acreage in the Santa Monica Bay watershed makes remaining wetlands, already an important part of the Bay’s ecosystem, even more precious. This chapter focuses on restoration, protection, and management of the remaining wetlands. The SMBRC’s focus in this chapter is on restoration of priority wetlands, with the Ballona Wetlands being one of the highest priorities. Actions were also recommended to improve existing regulations and policies, enhance inter-agency coordination, and ensure long-term management and monitoring for wetlands.

Public acquisition of the Ballona Wetlands complex, lower Topanga Creek and Lagoon, and several other coastal habitats in the late 1990s were undoubtedly among the most important milestones in the history of Bay restoration. Enormous public support and concern for wetlands, along with funds made available from state bond measures (Prop. 12, 40 and 50) were critical to these acquisitions.

Placing these properties under public ownership is however a first step on a long road to achieving full restoration of these wetlands. Malibu Lagoon restoration is funded and underway. Significant progress has been made in restoration planning for Ballona Wetlands, but the challenge of securing funding still lies ahead, and the Topanga Lagoon restoration planning has yet to get started.

Because wetland management and protection includes an array of regulatory schemes with various missions and overlapping authorities, it takes a concerted effort at all levels of government to make wetland restoration happen. In Ballona Wetlands, the SMBRC has partnered with the State Coastal Conservancy, other agencies and the public to develop consensus on the restoration plan and interim use of the wetlands by the public. The final design for the wetlands is still in development and is somewhat controversial because of the various demands placed on the largest remaining wetland in urban Los Angeles County. The SMBRC has also contributed funding, expertise and assistance with permitting issues to help complete the Malibu Lagoon restoration. Many interested stakeholders, including SMBRC, are eager to work with California Dept. of Parks and Recreation (State Parks) on a plan for the wetlands at Topanga Lagoon.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
W-1	Restore Priority Wetlands	Moderate	<ul style="list-style-type: none"> <li>Ballona wetlands is now publicly owned – a significant milestone towards full implementation of this action – and restoration planning is under way. The SMBRC staffs the planning process, provides technical oversight of plan development, and serves on the Science Advisory Committee for restoration plan development.</li> <li>Malibu Lagoon restoration plan and new zero-runoff parking lot are complete, and the full Lagoon restoration will begin in 2009.</li> <li>Restoration of Zuma lagoon and Ballona Lagoon are complete.</li> <li>Lower Topanga Canyon and Lagoon are also under public ownership and early restoration work has started (berm removal).</li> <li>Development of restoration plans for other sites including Trancas Lagoon, Upper Medea Creek, Arroyo Sequit Canyon, and La Sierra Canyon has yet to be initiated.</li> </ul>	<ul style="list-style-type: none"> <li>Funding is not secured to complete planned restoration activities (Restoration of ballona wetlands alone will likely cost \$100–200 M).</li> <li>Some of the responsible agencies have yet to become fully involved and support the restoration process in various areas.</li> <li>Some permitting issues have been addressed but others are outstanding.</li> <li>Long-term maintenance issues, including practices such as vector control that conflict with restoration goals, have yet to be resolved.</li> </ul>	<ul style="list-style-type: none"> <li>Complete Ballona Wetlands restoration plan (including feasibility study and determination of preferred alternative). Secure funding source to complete implementation of the preferred alternative.</li> <li>Fully implement the restoration plan for Malibu Lagoon.</li> <li>Develop and implement the restoration plan for Topanga Lagoon.</li> <li>Develop and implement restoration plans for Oxford Lagoon and Del Rey Lagoon.</li> <li>Evaluate feasibility of Trancas Lagoon restoration.</li> </ul>
W-2	Improve	Subs.	Most of the steps recommended under this action have	N/A	N/A

	Regulatory and Resource Management		not been followed up. On the other hand, it is unclear if they are still relevant under the current regulatory framework for wetland protection and restoration.		
W-3	Wetlands Acquisition – Determine Willingness to Sell and Approximate Value of Lands.	Subs.	This action has already been accomplished for wetlands that are now under public ownership. The need remains for wetlands to be acquired including land adjacent to Trancas Lagoon and Upper Medea Creek area.	Additional acquisition will continue to depend on availability of funding and willing sellers..	Explore opportunities for acquisition of lands adjacent to remaining wetlands/lagoons.
W-4	Fund Wetlands Restoration, Creation, and Acquisition	Subs.	More than \$180 million dollars of State Bond money were allocated for the acquisition of Ballona wetlands and lower Topanga Canyon and Lagoon.	Same as W-1	Explore new partnerships and funding mechanisms.
W-5	Expand Public Awareness and Knowledge of Wetlands Protection and Involve the Public in Related Activities	Moderate	See Chapter 14.	N/A	N/A
W-6	Monitor Success of Wetland Actions in the Environment.	Moderate	<ul style="list-style-type: none"> <li>The Bay Commission developed a wetland monitoring design as part of its comprehensive Bay monitoring program. SCCWRP has taken the lead in developing a region-wide monitoring protocol using CRAM methodology.</li> <li>The Southern California Wetlands Recovery Project has developed and maintained a wetland database.</li> <li>Recently, socioeconomic evaluation of use of restored wetlands has begun as another measure of restoration success.</li> </ul>	No funding mechanism is in place to implement the monitoring protocol in the long term.	<ul style="list-style-type: none"> <li>Complete Ballona Wetlands baseline monitoring, in part to facilitate post-restoration monitoring and evaluation.</li> <li>Facilitate establishment of long-term funding mechanism</li> </ul>
W-7	Conduct Additional Technical Studies.	Subs.	The recommended studies (to better understand wetland processes, and the viability and success of created wetlands) are generally undertaken as part of wetland restoration planning efforts and monitoring program development.	N/A	N/A

CHAPTER 11: BEACHES AND INTERTIDAL ZONES

This chapter focuses on restoring, protecting and managing the beaches and intertidal zones of Santa Monica Bay. It addresses human impacts on these transition zones between land and water and suggests actions for restoring and protecting threatened and endangered species and habitats. This chapter also recommends actions leading to cleaner beaches in the Bay, emphasizing education and public involvement.

Beaches and intertidal zones, like wetlands, are areas of transition between land and water and are home to hundreds of species of birds, fish, mammals and other wildlife, including some endangered species. These organisms are important links in the aquatic foodweb and serve as indicators of the overall health of the marine habitat. They are also often the first organisms to encounter land-based pollution (urban runoff, trash, sedimentation, etc.) and may be subject to profound disturbances from large numbers of visitors, due to their proximity to the dense urban populations.

However, protection of living resources in the intertidal zone has not always been given a high priority. The need to maintain the recreational values of beaches often takes precedence over the need for habitat protection. While we have generally protected existing habitats and made progress in restoring native plants on beach bluffs, it has been difficult to protect a greater variety of intertidal habitats. In addition, despite many public programs to discourage littering and encourage recycling, trash on beaches continues to be a problem.

Several State and local agencies, including DFG, State Parks, and LA County Dept. of Beaches and Harbors, share responsibilities for protection of intertidal habitats, while protecting endangered species and their habitats is the responsibility of the U.S. Fish and Wildlife Service. Management and protection of intertidal habitats may improve if the MLPA process results in a protected area designation for some of the Bay's intertidal habitats.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
BIZ-1	Enhance and Protect Beach and Intertidal Habitats for Threatened and Endangered Species (and Other Species of Concern).	Moderate	<ul style="list-style-type: none"> <li>While least terns at the Venice Beach colony continue to breed successfully, no new breeding site has been established in the Bay. New breeding sites established in near LA Harbor, while outside the Bay, have helped to sustain the least tern population in the region.</li> <li>The El Segundo beach dune habitat has been restored and removal of non-natives continues on regular basis.</li> <li>A segment of beach bluff habitat was restored in Redondo beach and resulted in re-colonization by the endangered El Segundo blue butterfly.</li> </ul>	<ul style="list-style-type: none"> <li>Due to heavy human use of beaches, protection of beach habitats for threatened and endangered species remains difficult.</li> <li>There remains a lack of information on what levels of protection/ restoration are needed and how best to protect sandy and rocky intertidal areas from human impacts.</li> </ul>	Complete restoration work identified in the Beach Bluff Restoration Master Plan.
BIZ-2	Improve Current Beach Litter Cleanup Methods and Develop Specific Best Management Practices (BMPs).	Minimal	<ul style="list-style-type: none"> <li>A modified beach grooming protocol has been adopted by LA County to protect spawning grunion population.</li> <li>A non-profit group (BEACH Professionals) has been formed to develop more resource-sensitive beach management practices.</li> </ul>	The primary focus of beach management has been human use. There is a need to expand the focus to include the impact on beach habitats and natural resources.	Conduct opinion survey of beach goers and studies on the environmental impacts of current beach cleaning practices. Assist BEACH Professionals in developing new BMPs.
BIZ-3	Improve and	Moderate.	The SMBRC conducted an rocky intertidal restoration feasibility	Lack of resources continues to	<ul style="list-style-type: none"> <li>Conduct a pilot project to</li> </ul>

	Increase Enforcement of Existing Regulations Concerning Harvesting Marine Life/Tidepool Organisms by Increasing Warden Patrols Along the Rocky Shoreline of Santa Monica Bay.		study and adopted a series recommendations to increase the enforcement of current regulations and reduce adverse human impacts. A pilot project is planned to test some of the recommended measures such as citizen patrol, etc.	hinder implementation of the SMBRC report recommendations	test three different methods of intertidal protection <ul style="list-style-type: none"> <li>Propose adoption of optimal management scheme(s) by responsible agencies</li> </ul>
BIZ-4	Protect Beaches and Intertidal Zones from Oil and Other Hazardous Materials Spills.	Subs.	See Chapter 5, Oil and Hazardous Materials Spills	N/A	N/A
BIZ-5	Expand Public Awareness and Knowledge of Beaches and Intertidal Protection and Involve the Public in Related Activities.	Moderate	The California Coastal Commission's successful "Adopt-a-Beach" program continues to involve the public in beach clean-up. Also see Chapter 14, Public Education and Involvement Program.	N/A	N/A
BIZ-6	Monitor Success of Actions in the Environment.	Moderate	<ul style="list-style-type: none"> <li>Long-term, comprehensive monitoring of rocky intertidal habitats has been implemented through establishment of the MARINe monitoring network.</li> <li>A volunteer-based program regularly monitors the condition of grunion runs.</li> </ul>	There is still no comprehensive assessment or regular monitoring of sandy intertidal habitats	Develop sandy intertidal monitoring protocol as part of the Bay Comprehensive Monitoring Program.
BIZ-7	Conduct Additional Technical Studies.	Moderate	<ul style="list-style-type: none"> <li>The state Office of Spill Prevention and Response (OSPR) and the federal Mineral Management Service (MMS) have developed maps of the habitats and inventory of biological assemblages for spill damage assessment purposes.</li> <li>A study funded by the SMBRC assessed the ecological condition of rocky intertidal habitat in the Bay.</li> </ul>	There is still no comprehensive assessment and regular monitoring of sandy intertidal habitats	Develop sandy intertidal monitoring protocol as part of the Bay Comprehensive Monitoring Program.

## SECTION D: WATERSHED PLANNING

Actions recommended in this section focus on the need for watershed-based planning and management. These recommended recognize that water quality, resource protection, and human health issues addressed separately in the previous three sections need to be managed across jurisdictional boundaries in an integrated fashion.

Chapter 12 discusses actions related to general watershed planning and management. Chapter 13 uses the planning and management process developed for the Malibu Creek watershed as an example of integrated actions that can be taken to protect a natural riparian system while maintaining valuable natural and recreational resources.

### CHAPTER 12: PLANNING AND MANAGEMENT FOR SUB-WATERSHEDS

This chapter approaches planning and management of complex environmental issues at the watershed level. It emphasizes actions that integrate land use, resource management, and water quality protection decisions among many jurisdictions to address the effects of pollutants, stream flow alterations, and habitat loss on natural and recreational resources of the Bay as a whole. It also recommend management strategies designed for individual sub-watershed with differing problems.

In recent years, more and more coordinated watershed planning and management efforts have occurred at regional and watershed levels. The most significant regional effort in recent years is the Integrated Regional Water Management Plan (IRWMP) process that has brought together key stakeholders from the water supply, sanitation, urban runoff, open space and flood protection in a coordinated planning effort. The newly adopted IRWMP for the Greater Los Angeles County is not perfect and continues to evolve toward greater integration, and represents a bold and positive step toward crafting and implementing regional solutions.

Stakeholders in the Malibu Creek watershed continue to work together to address watershed-wide issues such as altered flows in Malibu Creek and removal of fish migration barriers. The SMBRC helped establish and staffed a Ballona Creek Watershed Task Force, a stakeholder group that completed a watershed management plan and continues to work on implementation. The SMBRC also convened a working group to prioritize water quality, habitat and outreach activities in the South Bay portion of the Santa Monica Bay watershed.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
WSP-1	Establish Formal Mechanisms for Coordinating and Integrating	Moderate	<ul style="list-style-type: none"> <li>To improve cost-effectiveness and streamline administrative and management processes – and to widen the "umbrella" for accepting funding – many cooperative entities such as JPAs have been</li> </ul>	There is still a need to reconcile attainment of water quality and resource protection objectives with other, possibly conflicting, public service goals.	Continue to participate in IRWMP Leadership Committee and facilitate watershed management and regional

	Environmental Management on a Watershed Basis.		<p>developed in the watershed. The Leadership Committee of the Greater Los Angeles IRWMP also serves as an umbrella for regional cooperation.</p> <ul style="list-style-type: none"> <li>The development of the IRWMP and the new MS4 permits should further facilitate coordination of water quality regulations with land use, resource protection and management, and other regulatory functions.</li> <li>Newly adopted TMDLs were designed to address the cumulative impacts of point and nonpoint pollution sources on beneficial uses by targeted watershed.</li> </ul>		coordination.
WSP-2	Determine Linkages Between Land Use Practices, Pollutant Loads, Beneficial Uses, and Various Permitting and Monitoring Programs.	Moderate.	<ul style="list-style-type: none"> <li>SMBRC funded a series of studies that establish links between land use practices, pollutant loads, and beneficial uses including the latest Green Solution study. These studies, including the models developed, have helped target and prioritize BMP implementation throughout the watershed.</li> <li>The SMBRC stream restoration program is working to restore natural ecological functions in disturbed/ degraded streams. Studies of historical ecology and development of a water budget are underway.</li> </ul>	An historical ecology and current water budget watershed are needed to help understand how various ecosystem components have functioned in a natural state, and provide context for management decision and for future restoration.	Complete historical ecology and water budget studies for Ballona Creek watershed and determine need in other Bay watersheds.
WSP-3	Develop Management Plans for Priority Sub-watersheds.	Moderate.	<ul style="list-style-type: none"> <li>An initial IRWMP was completed for the LA region. Its implementation is ongoing, led by two Santa Monica Bay sub-regional stakeholder groups.</li> <li>In addition to Malibu Creek watershed (Chapter 13), development of a watershed management plan for Ballona Creek was completed in 2004. Plan implementation has been facilitated by the Ballona Creek watershed Task Force.</li> </ul>	Implementation of the Ballona Creek watershed management plan is hindered by a lack of funding. Different groups are now overlapping and would benefit from more consolidated and coordinated work.	Explore the need for combining separate stakeholder efforts in the Ballona watershed. Define potential mechanisms for establishing formal connections among existing stakeholder groups.
WSP-4	Provide Effective Means to Enforce Pollutant Reduction Programs and to Monitor Their Effectiveness.	Min.	The current status of Santa Monica Mountains Task Force is unknown.	The delineation of enforcement authority among agencies for illegal grading, waste dumping, and development still seems to be an issue.	Conduct an assessment and develop recommendation for addressing the identified gaps and overlaps.
WSP-5	Promote Effective Public Education and Participation in Watershed Management.	Subs.	The watershed coordinator program implemented in the Malibu and Ballona Creek watershed have greatly increased public awareness of watershed issues and promoted public participation in watershed restoration activities.	There is no secure, long-term funding mechanism for the watershed coordinator positions.	Partner with agencies to obtain funding for watershed coordinators Ballona Creek and Malibu Creek watersheds. Develop long-term funding mechanism for the watershed coordinator program

WSP-6	Monitor the Success of Environmental and Management Improvement Steps on a Watershed Basis.	Moderate	See Chapter 15, Comprehensive Monitoring Program	N/A	N/A
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### CHAPTER 13: MALIBU CREEK PILOT PLAN

This chapter presents a watershed planning process that provides a model for other Santa Monica Bay sub-watersheds. The recommended early actions aim to integrate jurisdictions and special interest groups in planning and managing the natural and recreational resources of Malibu Creek, Malibu Lagoon and immediate offshore areas.

This chapter emphasizes the need to apply a watershed-based approach to address three major environmental issues: pollutant inputs, stream flow modifications, and alteration of sensitive habitats. Key recommendations to address these issues include early actions, an erosion and sedimentation control strategy, BMPs for hillside development, and a native biodiversity restoration and protection plan. Finally, it is recommended that the applicable elements of this chapter be used for development of management plans in other priority sub-watersheds.

The most remarkable achievement over the last fourteen years in the Malibu Creek and other north bay watersheds is undoubtedly the public acquisition of thousands acres of land for preservation, including most prominently the Ahmanson Ranch, the King Gillette Ranch, Lower Topanga Creek and Lagoon, and Legacy Park (formerly the Chili Cook-off property). In addition, several significant projects have improved ecological functioning in lower Malibu Creek and Lagoon by replacing an Arizona crossing with a bridge to allow fish passage and initiating the Malibu Lagoon restoration. Significant progress has also been made to restore a more natural hydrology at Malibu Lagoon by eliminating unseasonal flows from the Tapia sewage treatment plant.

Despite these remarkable achievements, there is a long way to go to meet the water quality improvement and habitat restoration goals in the Malibu Creek watershed. Surfrider beach notoriously remains one of the most polluted beaches in the State. Progress in addressing leaking septic systems has been lacking or inconsequential. LVMWD continues to face a daunting challenge to meet the upcoming nutrient TMDL requirements and the need to find more options for reuse of their reclaimed water. Finally, the shortage of funding is and will be a significant obstacle for full restoration of the Malibu Lagoon and eventual removal of the Rindge Dam.

Action #	Action Description	Implementation	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
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		Status			
MCW-1	Develop and Implement Early Actions Designed to Reduce the Impacts of Pollution on the Lower Sub-Watershed, Lagoon and Surf Zone Area, and to Maximize Biodiversity, Protection and Enhancement of Keystone Species.	Subs.	<ul style="list-style-type: none"> <li>• Most of the recommended early actions (procedure for Malibu Lagoon breaching and water level management, improvement of the percolation pond, storm drain identification and groundwater movement, investigation in the Malibu Civic Center area, reduction of unseasonable flow from Tapia) were implemented and/or completed.</li> <li>• A storm water treatment facility was constructed and in operation since 2006.</li> <li>• A nitrogen TMDL was adopted by EPA in 2003</li> <li>• A new epidemiological study is under way including Surfrider Beach as a survey location.</li> <li>• An On-Site Wastewater Treatment System Task Force was convened and a set of recommendations to improve management of OSWTS was developed.</li> <li>• In response to recommendations of the Task Force, the City of Malibu adopted an Integrated Wastewater Management Action Plan and signed and MOU with the LARWQCB that clarified permitting responsibilities. The City has since adopted a point-of-sale ordinance, and implemented an OWTS inspector registration and operating permit programs, as well as an integrated wastewater information management system.</li> <li>• A groundwater study was completed to help determine impacts of septic systems on Malibu Creek and Lagoon.</li> </ul>	<ul style="list-style-type: none"> <li>• Although several source ID projects have been implemented over the years, there is still no definitive profile of bacteria sources in the watershed.</li> <li>• Despite the improvement made by the LARWQCB to its WDR compliance program, they still lack the resources to implement an effective septic system inspection and surveillance program.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement and achieve compliance with TMDLs adopted in this watershed (pathogen, trash, nutrients, etc.)</li> <li>• Complete the proposed Malibu Civic Center wastewater treatment facility</li> </ul>
MCW-2	Develop a Specific Erosion and Sedimentation Control Strategy for the Malibu Creek Sub-Watershed.	Moderate	<ul style="list-style-type: none"> <li>• A sedimentation and sediment transport study was funded by the SMBRC and was completed for the Topanga Creek watershed to support the development of the Topanga watershed and Lagoon restoration plan.</li> </ul>	<ul style="list-style-type: none"> <li>• There is still no specific erosion and sedimentation control strategy for Malibu Creek sub-watersheds.</li> <li>• No known effort on comprehensive evaluation and establishment of priorities for erosion control and remediation projects, thus no implementation of priority projects</li> </ul>	<ul style="list-style-type: none"> <li>• Develop specific erosion and sedimentation control strategy and stream protection strategies.</li> </ul>
MCW-3	Develop Specific BMPs for Hillside Development within the Malibu Creek Sub-Watershed (P).	Moderate	Generic BMPs for hillside development are required under the municipal storm water permit and have been developed	No known effort on development of BMPs targeted or tested specifically for the Malibu watershed	See MCW-2 above.

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MCW-4	Develop a Native Biodiversity Restoration and Protection Plan for the Creek and Lagoon.	Subs.	<ul style="list-style-type: none"> <li>• A comprehensive assessment of steelhead habitats and barriers was completed.</li> <li>• Several barriers to fish migration have been removed in the Watershed, including most prominently the Arizona Crossing on Malibu Creek near PCH bridge.</li> <li>• Feasibility study that investigate the environmental costs/benefits of removal of Rindge Dam is underway and scheduled for completion in 2009.</li> <li>• More than 5900 acres of privately-owned parcels have been purchased since 1995, including Ahmanson Ranch, King Gillette Ranch, Lower Topanga Canyon, Legacy Park, and Corral Canyon.</li> <li>• A comprehensive Malibu Lagoon restoration plan based on water quality, salinity, habitat, and biodiversity objectives was developed and is now being implemented.</li> </ul>	<ul style="list-style-type: none"> <li>• An IBI was developed for Malibu Creek and tributaries and resulted in a sediment impairment listing for the Creek, but no quantifiable goals based on the IBI have been set for protection and restoration of habitats or species</li> <li>• Little progress has been made in creating or preserving buffer zones adjacent to sensitive habitats (P)</li> <li>• Besides the removal of a major fish barrier, little progress has been made in achieving a plan to enhance and restore lower portions of Malibu Creek (north of PCH bridge) (P).</li> <li>• Restoration plans for upland wetland areas as identified in the 1993 SMBRP Wetland Inventory have not been implemented</li> </ul>	
MCW-5	Use Applicable Elements of the Malibu Creek Watershed Comprehensive Plan to Develop Management Plans for Other Priority Sub-Watersheds.	Subs.	<ul style="list-style-type: none"> <li>• A restoration plan has been developed for Topanga Creek watershed</li> <li>• A comprehensive watershed management plan was developed for the Ballona Creek watershed</li> </ul>		
MCW-6	Expand Public Awareness of and Promote Effective Public Participation in Restoring and Preserving Natural Resources in the Malibu Creek Sub-Watershed and in Contributing to Pollution Reduction Steps.	Subs.	Public awareness and participation were greatly enhanced thanks to the successful the watershed coordinator programs in Malibu and Ballona Creek watersheds in the last five years.	There is no stable, long-term funding source for the watershed coordinator program. State Dept. of Conservation has not made Southern California watershed coordinator programs a high priority	Partner with agencies to obtain funding for watershed coordinators. Develop long-term funding mechanisms for the watershed coordinator program (also see WSP-5)
MCW-7	Monitor success of environmental	Moderate	An assessment of watershed monitoring was conducted by the SMBRP in the late 1990s which	Ongoing monitoring programs by environmental groups and municipalities	Promote and support comprehensive, ongoing

	management and improvement steps.		identified gaps and overlaps in the existing monitoring efforts at the time.	have provided comprehensive data but program overlap and lack of continuous funding have hampered efforts at times.	monitoring in Malibu Creek watershed.
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## **SECTION E: CROSS-CUTTING ISSUES**

This section introduces the “cross-cutting” programs of the BRP. Specific recommendations concerning public education, monitoring, and research in each of the previous chapters are summarized so that frameworks for cooperatively and systematically undertaking them can be developed and implemented. An entity is also designated to be in charge of facilitating and overseeing activities under the education, monitoring, and research framework.

### **CHAPTER 14: PUBLIC EDUCATION AND INVOLVMENT PROGRAM**

In addition to synthesizing public education messages and actions contained in other chapters of the BRP, this chapter recommends two actions that the SMBRC is directly responsible for, which are designed to enhance the role of the SMBRC in promoting coalitional efforts of environmental organizations, government agencies, schools and other entities to inform and educate the public about Bay-related issues.

Many programs currently exist which are reaching out to the public, providing young and old not only with knowledge, but also a sense of appreciation for the beauty and value of the Santa Monica Bay environment. The Santa Monica Baykeeper, Heal the Bay, the Audubon Society, American Oceans Campaign, the Friends of Ballona Wetlands, and the Ballona Lagoon Marine Preserve are just a few of the non-profit environmental organizations that provide opportunities to both learn and teach about our relationship with Santa Monica Bay. User groups such as the Surfrider Foundation and LA Rod and Reel also communicate specific information about the Bay to their numerous constituents.

But public education on Santa Monica Bay is not the exclusive realm of environmental and user groups. A number of state, county, and city agencies also offer materials and educational outreach about their services, as well as how to help protect and safely use the Bay and its resources.

The California Coastal Commission, the California Department of Fish & Game, the City of Los Angeles Wastewater Program, the Las Virgenes Municipal Water District, and the Los Angeles County Fire Department – through its Lifeguard Division – are among those agencies with specialized outreach programs and materials relating to Santa Monica Bay. In addition, both the City of Los Angeles’ Storm Water Management Division and the L.A. County Department of Public Works have campaigns to educate the public about the link between urban runoff and our coastal waters, and the EPA and NOAA are co-sponsors of a risk communication program aimed at reducing consumption of contaminated fish.

In addition, local learning centers such as the Cabrillo Marine Museum, the SEA Lab, and the Santa Monica Pier Aquarium are among the institutions offering outstanding opportunities to learn about our connection to the Bay, with special programs geared specifically toward young people.

Finally, the SMBRC’s boater education and Public Involvement and Education programs are highly successful and widely known as catalysts for the development of innovative programs undertaken by schools, community groups, business leaders and local governments.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
PO-1	Coordinate Public Outreach Programs	Moderate	The originally envisioned Bay Information and Education Council was never established because the role of the SMBRC has changed. A new SMBRC public outreach strategy was developed and adopted in 2007.	N/A	Implement the SMBRC public outreach strategy.
PO-2	Administer Public Involvement and Education (PIE) Program	Full	Between 1994 - 2006, The SMBRC has launched and overseen seven rounds of the PIE program. More than 60 PIE projects were successfully completed. The PIE program owes its success partially to having the LARWQCB's SEP program as its major funding source (P).	The PIE program relies on SEP funding which is periodic and not necessarily stable. A more stable source of funding would allow more frequent offerings of PIE grants.	Continue to fund the PIE program whenever funding is available. Seek more SEP funds for the PIE program. Explore additional sources of funding.

## CHAPTER 15: COMPREHENSIVE MONITORING PROGRAM

Environmental monitoring is the primary method of collecting information on the Bay in order to evaluate trends in environmental health over time. This chapter recommends steps for developing and implementing a comprehensive, integrated monitoring program to help answer basic questions such as: “How safe is it to swim in the Bay?“, “How safe is the seafood to eat?“, “Is the health of the ecosystem improving?”

Development of the first Comprehensive Bay Monitoring Program was completed in 2000. To facilitate implementation of the comprehensive monitoring program, the SMBRC in the following year conducted an assessment of existing compliance monitoring programs that identified and recommended mechanisms to incorporate the new monitoring elements into the existing monitoring framework. As a result of these two reports, new and revised sampling designs (for bacteriology, seafood tissue, and kelp bed coverage) have been implemented through NPDES permit revisions, as well as other inter-agency agreements. In addition, independent but complementary monitoring efforts, such as the periodic Southern California bight-wide regional surveys, have helped to address status and trends questions on the regional scale.

Prompted by new requirements in the NPDES permit for the City of Los Angeles’ Hyperion Wastewater Treatment Plant, a new process to accelerate the implementation of the Comprehensive Bay Monitoring Program was undertaken between 2005 and 2006. This process included a review of implementation efforts to date and an update of the preliminary monitoring objectives from the 2000 comprehensive monitoring program.

An updated Comprehensive Bay Monitoring Program was completed and adopted in early 2007. It lays out new monitoring designs for five major habitat types within the Bay (pelagic, soft bottom, hard bottom, rocky and sandy intertidal, and wetlands). Each includes a core motivating question, a number of related objectives, specific monitoring approaches, indicators, data products, and sampling designs detailing number and locations of stations, sampling frequency, and measurements to be collected. The report includes an implementation plan that provides detailed cost estimates and potential funding sources and models.

Several challenges lie ahead before the comprehensive monitoring program can be fully implemented. They include overcoming traditional ways of thinking about monitoring and the conflict with existing, long standing methods of funding and managing monitoring efforts. This often means difficult negotiations with reluctant entities for modifications to regulatory procedures and permit requirements. Also, innovative methods of cost-sharing and funding will have to be found to meet the projected \$8.7 million cost over five years.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as related to 2008 BRP Update)
M-1	Phase in Monitoring Changes, Using Comprehensive Monitoring Framework as Guidance	Moderate	<ul style="list-style-type: none"> <li>The SMBRC completed development of a Comprehensive Bay Monitoring Program in 2000 and an assessment of existing compliance monitoring program in 2002. The comprehensive monitoring program was last updated in 2005.</li> <li>Some key changes to the existing compliance monitoring program as recommended by the CMP, especially the bacterial, seafood and kelp monitoring components, have been incorporated into NPDES permits monitoring requirements.</li> <li>Bight-wide surveys are now conducted on every five years and have expanded to include shoreline bacteriology, subtidal rocky reefs, bays and harbors, and wetlands.</li> </ul>	More funding and staff resources are needed to facilitate changes to the existing monitoring program as recommended by the CMP.	Explore and secure funding to support a full-time monitoring coordinator at SMBRC.
M-2	Develop Quantifiable Monitoring Endpoints	Moderate	Quantifiable monitoring endpoints have been developed and adopted in the comprehensive monitoring program for bacterial indicators, seafood contamination and benthic fauna	Development of quantifiable monitoring endpoints are still needed for many monitoring components	Work with the SMBRC Technical Advisory Committee to develop additional quantifiable monitoring endpoints
M-3	Develop and Implement New Protocols and Standardized	Moderate.	The CMP includes new protocols and standardized procedures for all monitoring components and some of them have been incorporated into	N/A	Incorporate standardized protocols and procedures for all monitoring components into NPDES permits.

	Procedures		NPDES permits.		
M-4	Improve Existing Management and Financing Structures	Moderate	Cost sharing and resource exchange among monitoring entities have been routinely and widely utilized to implement filling some monitoring gaps such as Bight survey and regional kelp survey.	<ul style="list-style-type: none"> <li>No long-term funding source has been established.</li> <li>There is still lack of contribution and participation by resource agencies in implementing the Bay Comprehensive Monitoring and bight-wide monitoring programs.</li> </ul>	Continue to encourage and facilitate establishment of a "funding pool", and the participation of resource management agencies.
M-5	Coordinate Decisions made for Santa Monica Bay Bight-Wide to Facilitate Ultimate Regional applicability	Subs.	Great progress has been made to standardize monitoring protocols throughout the Bight to make the data compatible and comparable.	N/A	N/A
M-6	Develop and Implement a Information Management System in Support of Comprehensive, Integrated Monitoring and Information Transfer	Moderate	<ul style="list-style-type: none"> <li>Development of a Bay data management system with a centralized index is complete</li> <li>Standard data transfer format is now widely used</li> <li>An inventory of information on habitats and living resources was completed by the SMBRC in 2004</li> </ul>	The Bay data management system and the information index are out-dated and have not been well-kept, or upgraded.	Continue to maintain and upgrade the information inventory.
M-7	Institutionalize Feedback Mechanisms Between Data Collection, Data Analysis and Interpretation and Management Decisions.	Moderate	Feedback mechanisms exist through TAC review and reporting to the Governing Board. However, no mechanism has been institutionalized.	Feedback from the Governing Board to the TAC and vice versa need to be enhanced	Continue to coordinate and support the activities of the new TAC, which was re-constituted to enhance its advisory role to the Governing Board.
M-8	Develop Protocols for Public Involvement in Monitoring Activities	Subs.	Several local environmental groups are active in conducting citizen monitoring. Heal the Bay's stream team and Baykeeper's Ballona Creek monitoring program are two good examples.	N/A	N/A

CHAPTER 16: RESEARCH NEEDS

Scientific research is essential for understanding the problems associated with Santa Monica Bay and its watershed. Knowledge and information provided by scientific research are also the bases for development of management strategies and management actions. In addition to synthesizing the recommended technical studies contained in other chapters of the BRP, this chapter recommends two actions that are designed to improve coordination of Bay-related scientific research, help meet funding needs, and facilitate the application of data generated by research and monitoring.

The SMBRC has been a leader in the region in sponsoring cutting-edge research that helps answer some of the most critical questions that affect management decision-making. Best examples of such research projects include the epidemiological study of swimming health risks, the aerial deposition study, and the Green Solutions study. The SMBRC has also been successful in obtaining and leveraging grant funds to meet research needs. More than \$3 million dollars have been made available by the SMBRC to complete more than 20 research projects, ranging from high-resolution seafloor mapping to economic valuation of coastal recreational uses.

Research projects carried out by the SMBRC have been overseen and coordinated through the efforts of our Technical Advisory Committee (TAC). The SMBRC TAC was restructured in 2007 to make it more effective in addressing the research and monitoring needs associated with new Bay restoration priorities.

In addition to the efforts of SMBRC, scientific research is funded, administered, and conducted in the Santa Monica Bay area by other federal and state agencies, local dischargers, environmental organizations and research institutes. Existing mechanisms such as the Southern California Coastal Water Research Project (SCCWRP) have also been effective in coordinating coastal water research in the Southern California Bight. Since Santa Monica Bay is part of the larger Southern California Bight ecosystem, research conducted within the Santa Monica Bay should support the needs of outside regions and vice versa. For this reason, the SMBRC has will continue to collaborate with these organizations on important research efforts in the future.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as relate to 2008 BRP Update)
RN-1	Establish and Utilize Research Coordination Mechanisms.	Moderate	SMBRC's Technical Advisory Committee has been active throughout the years. The TAC was restructured in 2007 to make it more effective in addressing the research needs. A Center for Santa Monica Bay Studies was established through a partnership with Loyola Marymount University in 2008 to facilitate collaboration with academic institutes and attract increased research funding to Bay projects.	A stable source of funding is needed to support the Center for Santa Monica Bay Studies.	Explore the feasibility of establishing a trust fund to support the Center for the Study of Santa Monica Bay.
RN-2	Coordinate	Subs.	The SMBRC has secured funding from	No stable funding source to meet	See RN-1.

	<p>Research Projects and Funding Needs.</p>	<p>various sources and conducted high priority research projects through the Santa Monica Bay Restoration Foundation. The SMBRC was also successful in getting stakeholders and agencies to collaborate in funding and implementing research projects, such as the epidemiological study and the aerial deposition study, to fill critical data gaps</p>	<p>research needs in the long-term.</p>	
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**SECTION F. MAKING THE PLAN WORK**

This section addresses management and financial needs for effective plan implementation. The recommended organizational structures and financing strategies are designed to assure effective oversight and adequate funding of the plan implementation.

**CHAPTER 17: OVERSIGHT AND MANAGEMENT OF PLAN IMPLEMENTATION**

The implementation of the BRP depends on the establishment of an effective oversight and management strategy. Without a strategy, the BRP could become just another “plan on the shelf.”

Since 1995, as a member of the National Estuary Program, the SMBRC has received continuous annual grant funding from federal and state appropriations which ensured the SMBRC continued its core functions of facilitation, implementation, and management of the BRP. The change of the program’s status in 2003 to a locally-based State Commission has greatly enhanced the organization’s ability to engage other state and local agencies and to obtain funding from various sources. The Santa Monica Bay Restoration Foundation has increased its governance and operations in recent years and now plays an important role in fundraising and in grant and staff management for the SMBRC.

Action #	Action Description	Implementation Status	Progress Up to Date	Remaining Gaps and Roadblocks	Next Steps (as relate to 2008 BRP Update)
IM-1	Carry out work to assure BRP implementation.	Moderate	Efforts have been initiated to develop a system for monitoring BRP implementation and development of a finance strategy. This action continues to evolve as needs change.	N/A	N/A
IM-2	Establish a structure that would effectively implement the Bay Restoration Plan.	Subs.	The establishment of the Santa Monica Bay Restoration Commission greatly enhanced the organization’s capacity in allocating financial resources to promote BRP implementation.	N/A	N/A
IM-3	Provide organizational home base for the post-SMBRP organization.	Subs..	A new, closer-to-the-Bay home base for the SMBRC was established at Loyola Marymount University.	N/A	N/A

## CHAPTER 18: FINANCE SUMMARY

The SMBRC has been very successful in raising grant funds to implement the BRP and has surpassed the goal set in the original BRP. To date, the SMBRC has overseen and is overseeing more than \$50 million in bond-funded projects, plus several million in other grant funds dedicated to the implementation of Bay Plan actions. Most partner agencies have also fulfilled or surpassed their commitments to finance and implement BRP actions that they are responsible for. However, the next ten to twenty years could prove to be much more challenging if we want to achieve or surpass our previous successes, especially given the uncertainty in current federal and state budgets.