



Santa Monica Bay National Estuary Program's Draft Comprehensive Conservation and Management Plan

8 August 2018

Prepared by TBF and SMBRC staff for review by SMBNEP's Management Conference



www.santamonicabay.org
www.smbrc.ca.gov

| | | CCMP GOALS | | | | | | | | | | |
|----------------------|---------------------------|--|----------------------------|-----------------------|---|---|--|--|--|--|--------------------|--|
| CCMP Action Category | DRAFT CCMP ACTION | Protect, enhance, and improve ecosystems of Santa Monica bay and its watersheds | Improve water availability | Improve water quality | Enhance socio-economic benefits to the public | Enhance public engagement and education | Mitigate impacts and increase resiliency to climate change | Improve monitoring and ability to assess effectiveness of management actions | | Lead Entity | SMBNEP Entity Role | |
| 1 | Direct Management Actions | Acquire open space for preservation of habitat and ecological services | | | | | | | | SMMC, MRCA, NPS, State Parks, MRT | Support | |
| 2 | Direct Management Actions | Restore kelp forests in the Bay to improve the extent and condition of the habitat | | | | | | | | TBF | Lead | |
| 3 | Direct Management Actions | Recover abalone populations in the Bay and region to support rare species and socioeconomic benefits to people | | | | | | | | TBF | Lead | |
| 4 | Direct Management Actions | Assess and restore seagrass habitats in the Bay and nearshore environments to support benefits to marine ecosystems and improve coastal resilience | | | | | | | | TBF | Lead | |
| 5 | Direct Management Actions | Restore coastal strand and foredune habitat to beaches and sandy shores to improve coastal resilience | | | | | | | | TBF, coastal cities, LAC-DBH | Co-Lead | |
| 6 | Direct Management Actions | Restore and maintain the entire LAX Dunes system to support native plants, wildlife, and rare species | | | | | | | | City of LA (LAWA), TBF | Co-Lead | |
| 7 | Direct Management Actions | Restore coastal bluff habitats in the SMB watersheds to support ecosystem services | | | | | | | | LAC-DBH, CDFW, beach cities, USFWS | Participate | |
| 8 | Direct Management Actions | Implement Malibu Creek Ecosystem Restoration Project (Rindge Dam and other barrier removals) to support ecosystem restoration | | | | | | | | State Parks, Army Corps | Support | |
| 9 | Direct Management Actions | Remove additional barriers to support fish migration and ecosystem services | | | | | | | | State Parks, CalTrans, LAC-DBH, RCDSMM | Support | |
| 10 | Direct Management Actions | Restore urban streams, including daylighting culverted streams, removing cement channels, and restoring riparian habitats | | | | | | | | LAC-FCD, CalTrans, State Parks, municipalities | Support | |
| 11 | Direct Management Actions | Restore smaller coastal lagoons to increase wetland habitat area and condition throughout the watershed | | | | | | | | State Parks, RCDSMM, NPS | Participate | |
| 12 | Direct Management Actions | Restore Ballona Wetlands Ecological Reserve to enhance wetland habitats and benefits to people | | | | | | | | Army Corps and CDFW | Participate | |

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| 13 | Direct Management Actions | Implement wildlife crossings and other innovative projects for benefits to wildlife and people | | | | | | | | State Parks, SCC, NPS, MRCA, CalTrans, RCDSMM | Support |
| 14 | Direct Management Actions | Support the implementation of activities and projects such as those in Enhanced Watershed Management Plans (EWMPs) to help achieve TMDL goals for 303d listed waterbodies in the Bay and its watersheds | | | | | | | | SWRCB, LARWQCB, USEPA, permit holders | Support |
| 15 | Direct Management Actions | Support installation and monitoring of additional sewage and bilge pumpout facilities in Southern California harbors | | | | | | | | LAC-DBH, marina operators | Participate |
| 16 | Direct Management Actions | Infiltrate, capture, and reuse stormwater and dry-weather runoff through green infrastructure, LID, and other multi-benefit projects and improve understanding of ecosystem services provided | | | | | | | | municipalities, water agencies, businesses | Support |
| 17 | Direct Management Actions | Implement projects that improve understanding and/or enhance endangered and threatened species populations (e.g. habitat improvements for Western Snowy Plover, genetic banking) | | | | | | | | CDFW, USFWS, NOAA, State Parks, RCDSMM | Participate |
| 18 | Governance and Policy | Support elimination of biological impacts of water intake and discharge from coastal desalination facilities and other facilities, including public engagement and education | | | | | | | | SWRCB | Support |
| 19 | Governance and Policy | Support elimination of non-point pollution from onsite wastewater disposal systems | | | | | | | | SWRCB, LARWQCB, municipalities | Support |
| 20 | Governance and Policy | Support policies that promote reuse, recycling, and advanced wastewater treatment to reduce reliance on imported water sources | | | | | | | | POTWs, LADWP, LASAN, LVMWD, WBMWD, LACSD | Support |
| 21 | Governance and Policy | Support policies and implement projects that divert landfill waste and encourage composting to improve water quality and lower greenhouse gas emissions | | | | | | | | schools, municipalities | Participate |
| 22 | Governance and Policy | Support best management practices, increased public access, and improved public facilities for beaches and other public trail systems to support both enhanced natural resources values and benefits to people | | | | | | | | CCC, SCC, LAC-DBH, coastal cities, State Parks, others | Support |

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| 23 | Governance and Policy | Facilitate development and adoption of natural stream and riparian protection ordinances and/or policies, including restoration | | | | | | | | LA County and watershed cities | Support |
| 24 | Governance and Policy | Evaluate and develop recommendations for offshore artificial reefs | | | | | | | | SLC, CDFW, NMFS, SCC, SCMI, NOAA | Participate |
| 25 | Governance and Policy | Support the inclusion of coastal resilience through natural means and softscape measures into local coastal plan updates | | | | | | | | CCC, coastal cities, LAC-DBH | Support |
| 26 | Stakeholder education and engagement | Participate in research, education, outreach, and policy on invasive species removal and control | | | | | | | | CDFW, State Parks, NPS | Participate |
| 27 | Stakeholder education and engagement | Reduce marine debris by supporting bans on single-use items, conducting outreach, and participating in trash reduction programs | | | | | | | | municipalities | Participate |
| 28 | Stakeholder education and engagement | Produce educational resources and materials and conduct outreach to improve best management practices for Southern California boaters (e.g. fuel, sewage, and hazardous waste management) | | | | | | | | TBF, CCC | Co-Lead |
| 29 | Stakeholder education and engagement | Support efforts of disadvantaged communities to achieve healthy habitats, implement green infrastructure, and reduce pollution | | | | | | | | municipalities | Support |
| 30 | Stakeholder education and engagement | Reduce health risks of swimming in contaminated waters and consuming contaminated seafoods through more comprehensive source control and, advanced monitoring and public notification | | | | | | | | USEPA, OEHHA, LACDPH, LARWQCB, municipalities | Support |
| 31 | Stakeholder education and engagement | Conduct community engagement, education, and inform policies related to water conservation and reuse to reduce water demand and reliance on imported sources | | | | | | | | LADWP, MWD | Participate |
| 32 | Stakeholder education and engagement | Achieve water quality benefits by businesses through community engagement and implementation of best management practices | | | | | | | | TBF, businesses | Co-Lead |
| 33 | Research and Monitoring | Monitor invasive and other species as indicators of climate change impacts | | | | | | | | | |
| 34 | Research and Monitoring | Monitor and inform management actions for Harmful Algal Blooms (HABs) | | | | | | | | SCCWRP, SCCOOS, NOAA, USC SeaGrant, LACSD | Participate |

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| 46 | Research and Monitoring | Facilitate research, monitoring, and assessments that inform more accurate waste load allocations and development of new water, sediment, and biological objectives | | | | | | | | SCCWRP, SWRCB, LARWQCB | Support |
| 47 | Research and Monitoring | Continue research and monitoring to inform climate change mitigation and/or response actions | | | | | | | | | |
| 48 | Develop Funding and/or Partnerships | Implement the County-wide Clean Water and Clean Beach funding to support stormwater pollution control projects | | | | | | | | LA County | Support |
| 49 | Develop Funding and/or Partnerships | Fund and implement the Comprehensive Conservation and Management Plan and the Comprehensive Monitoring Program | | | | | | | | | |
| 50 | Develop Funding and/or Partnerships | Support the development and implementation of a comprehensive regional sediment management plan for restoring natural hydrological functions of river systems and mitigating impacts from climate change | | | | | | | | LAC-FCD, LAC-DBH, municipalities, USEPA, CCC, SLC, State Parks, SCC | Support |

CCMP ACRONYM LIST

| | |
|------------|---|
| Army Corps | Army Corps of Engineers |
| ASBS | Areas of Special Biological Significance |
| BEP | Boater Education Program |
| BRP | Santa Monica Bay Restoration Plan |
| BWER | Ballona Wetlands Ecological Reserve |
| CalTrans | California Department of Transportation |
| CCMP | Comprehensive Conservation and Management Plan (formerly BRP) |
| CCVA | Climate Change Vulnerability Assessment |
| CDBW | California Department of Boating and Waterways |
| CDFW | California Department of Fish and Wildlife |
| CDPH | California Department of Public Health |
| CDWR | California Department of Water Resources |
| CMP | Santa Monica Bay Comprehensive Monitoring Program |
| CNRA | California Natural Resources Agency |
| CoSMoS | Coastal Storm Modelling System |
| CRI | Loyola Marymount University's Coastal Research Institute |
| CVA | Clean Vessel Act |
| DDT | Dichlorodiphenyltrichloroethane |
| EWMP | Enhanced Watershed Management Plans |
| FMP | Fishery Management Plan |
| FOLD | Friends of the LAX Dunes |
| GB | Santa Monica Bay Restoration Commission Governing Board |
| GHG | Greenhouse Gases |
| GPRA | Government Performance and Results Act |
| HABs | Harmful Algal Blooms |
| HHW | Household Hazardous Waste |
| JWPCP | Joint Water Pollution Control Plant (Carson) |
| LAC-DBH | Los Angeles County Department of Beaches and Harbors |
| LAC-DPH | Los Angeles County Department of Public Health |
| LAC-DPW | Los Angeles County Department of Public Works |
| LAC-FCD | Los Angeles County Flood Control District |
| LACSD | Sanitation Districts of Los Angeles County |
| LADWP | Los Angeles Department of Water and Power |
| LARC | Los Angeles Regional Collaborative for Climate Action |
| LARWQCB | Los Angeles Regional Water Quality Control Board |
| LASAN | City of Los Angeles Sanitation |
| LCP | Local Coastal Plan |
| LVMWD | Las Virgenes Municipal Water District |
| MDRA | Marina Del Rey Anglers |
| MPA | Marine Protected Area |
| MRCA | Mountains Recreation and Conservation Authority |
| MWD | Metropolitan Water District of Southern California |

| | |
|-------------|---|
| NEP | National Estuary Program |
| NMFS | National Oceanic and Atmospheric Administration's National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |
| NPS | National Parks Service |
| NRC | Natural Resource Council |
| NZMS | New Zealand Mudsnails |
| OA | Ocean Acidification |
| OPC | Ocean Protection Council |
| OREHP | Ocean Resource Enhancement Hatchery Program |
| OWDS | On-site Wastewater Disposal Systems |
| PCB | Polychlorinated biphenyls |
| POTW | Public Owned Treatment Works |
| Prop. | Proposition Grant |
| PVPLC | Palos Verdes Peninsula Land Conservancy |
| RCDSMM | Resource Conservation District of the Santa Monica Mountains |
| SCC | California State Coastal Conservancy |
| SCCOOS | Southern California Ocean Observing Systems |
| SCCWRP | Southern California Coastal Water Research Project |
| SCMI | Southern California Marine Institute |
| SFEP | San Francisco Estuary Partnership |
| SLC | State Lands Commission |
| SLR | Sea Level Rise |
| SMBNEP | Santa Monica Bay National Estuary Program |
| SMBRA | Santa Monica Bay Restoration Authority |
| SMBRC | Santa Monica Bay Restoration Commission |
| SMMC | Santa Monica Mountains Conservancy |
| State Parks | California Department of Parks and Recreation |
| SWRCB | State Water Resources Control Board |
| TAC | Santa Monica Bay Restoration Commission Technical Advisory Committee |
| TBF | The Bay Foundation (also known as the Santa Monica Bay Restoration Foundation) |
| TMDL | Total Maximum Daily Load |
| UCD | University of California, Davis |
| UCLA | University of California, Los Angeles |
| UCSB | University of California, Santa Barbara |
| USC | University of Southern California |
| USEPA | United States Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| USGS | United States Geological Survey |
| WAC | Santa Monica Bay Restoration Commission Watershed Advisory Council |
| WBMWD | West Basin Municipal Water District |
| WMP | Watershed Management Plans |

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TEMPLATE AND STRUCTURE OF AN ACTION

Action: The language of the action itself, describing the type of action (such as protect, restore, support), the object of the action (such as habitats, monitoring programs, policies), and when appropriate any key qualifiers or targets (such as support for specific goals or services).

Action History and Summary: The history and summary section provides supporting information to further explain the action, why it is a priority of the SMBNEP, and how the next steps will serve to advance the action over the course of the next five years. It includes background information such as the planning context or scientific basis of the action, as well as its brief and recent history, and larger connections or relevance to other efforts, plans, or programs. It is intended to be a brief summary, rather than a full narrative history of an action.

Lead Entity(ies): The lead entity or entities are those organizations, agencies, or other bodies that are the key responsible parties for accomplishing the action. These entities are directly engaged in implementation and lead the progress of the action. This list is not intended to be comprehensive, rather it is focused on identifying leadership in responsibility for implementation of an action. The lead entity may vary based on which portion of the action or next steps are being referenced.

Collaborating Partner(s): Collaborating partner(s) is a list of key entities, in addition to the lead(s), who are directly engaged in accomplishing the action. Collaborating partners represent organizations that might implement, champion, permit, or provide scientific or technical expertise in support of the action and next steps. This list describes central partners but may not include all possible partners associated with a collaborative action and should not be interpreted as an exhaustive list of supporting entities for a particular action. There are often many additional supporters of a particular action.

SMBNEP Role: This section categorically describes the role of the Santa Monica Bay National Estuary Program entity, i.e., SMBRC and/or TBF, which is involved in progress towards the completion of an action or steps within the action. The role categories are similar to previous SMBNEP CCMP's but streamlined to ease in interpretation. The role is defined in the order of responsibility as: lead, participate, or support. The categories are further defined as follows:

- **Lead:** SMBNEP entity is the lead sponsor and oversees completion of the project activity, and/or the entity carries out the projects directly. These tasks are priorities for SMBNEP over the next five years. The lead category is equivalent to the “primary” role identified in the USEPA funding guidance.
- **Participate:** SMBNEP entity contributes staff and/or other resources and actively engages in project activities. The participate category is equivalent to the “significant” role identified in the USEPA funding guidance.
- **Support:** SMBNEP entity assists to a lesser extent with coordination, communication, information exchange and dissemination, technical support, etc., for the associated activities. The support category is identified in a similar manner to the USEPA funding guidance “support” role, with SMBNEP playing a less significant or minor role in the implementation of the action.

Next Step(s): This describes the specific next steps to be accomplished over the next five years to support the implementation of the action. Next steps are intended to describe clear, concise “to do” items for the next five years and may reference the context in which the step should take place. Next steps also reflect the consensus building and input from the management conference parties regarding details of action implementation. Most actions will require multiple steps. The steps are intended to be focused on the activities to be conducted within the time frame of this CCMP; whereas, the actions are based on a long-term timeframe of 20+ years, varying by action. The steps are intended to occur in a logical progression, from collecting data or information or conducting outreach to making a management decision or implementing a restoration project. Other actions may have multiple steps that address the variety of geographic areas or gaps in achieving a comprehensive action.

Performance Metric(s): The performance metric is a method of tracking progress towards achieving completion of an action. In some cases, this may be readily quantifiable such as for a restoration project that can record “X acres completed”, or a policy objective that has a completed and adopted policy in place. However, for some actions, the objective may be more difficult to quantify, such as increasing public engagement, or those difficult to assess through monitoring. In those cases, progress may be tracked through completion of steps within the action or completion of a specific deliverable related to that step. A subset of the CCMP actions and steps will be included in each annual Work Plan, based on the priorities, projects, and available funding for that fiscal year. The performance metrics for that subset of actions and steps will be further evaluated and tracked via the performance metrics in six-month intervals by SMBNEP through the production of semi-annual reports submitted to USEPA.

Timeline: This is the intended timeline associated with each step to effectively track progress towards completion of the action. The timeline reflects the planning horizon of the CCMP, from 2019-2024, and in most cases is identified as a year by which the step is intended to be completed. If funding has not yet been identified for a particular step, the timeline associated with that step is identified as “2024”, which in some cases may roll over to the next CCMP.

DRAFT ACTION #1 – Acquire Open Space

Action: Acquire open space for preservation of habitat and ecological services

Action History and Summary: Acquisition of private lands (through purchase or conservation easements) in the Santa Monica Bay watershed provides protection of habitat for sensitive plant and wildlife species, recreational opportunities, and enables better maintenance of coastal water quality by preventing conversion to impervious surfaces. The Santa Monica Mountains National Recreation Area, which encompasses more than 150,050 acres of public parkland and lands in other private or other government ownership, is the largest urban park in the United States. Public access to the area and its recreational facilities is made possible primarily by more than 30 years of continuous land acquisition by federal, state, and local public agencies, but also through required access easements to mitigate the impacts of development on public access. Acquisition of habitat in the Santa Monica Mountains should be focused on lands with highest diversity or connect wildlife corridors and recreational trails and areas that are at risk of conversion to some other land use such as intensive agriculture or urban development.

The acquisition of private land in urbanized areas of the Santa Monica Bay watershed, especially in the context of managed retreat and climate change, will ensure that stream and habitat restoration is focused in the most important locales and increases proper land use practices in key areas, providing multiple benefits such as new land for parks, playing fields, infiltration basins, and constructed wetlands, etc. Private land acquisition will also better enable local agencies to advance watershed recovery initiatives. SMBNEP has played a role in the acquisition of many thousands of acres of open space either directly through bond funded grants like the 588-acre Soka University property, or indirectly through staff recommendations to the State Resource Agency’s California River Parkways and Urban Greening Programs as Technical Advisory Committee members.

Lead Entity(ies): SMMC, MRCA, NPS, State Parks, MRT

Collaborating Partner(s): SCC, CNRA

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------------------|
| Continued participation on resources agency Technical Advisory Committees | Acres acquired or protected as reported in NEPORT | Annually through 2024 |
| Bond funded acquisitions (Prop 12) | Acres acquired or protected as reported in NEPORT | 2022 |
| Support partners in identification and prioritization of key acquisition or conservation easement properties | Acres acquired or protected as reported in NEPORT | Annually through 2024 |

DRAFT ACTION #2 – Restore Kelp Forests

Action: Restore kelp forests in the Bay to improve the extent and condition of the habitat

Action History and Summary: The kelp forests of Santa Monica Bay are one of the most biodiverse, productive communities in existence. Like tropical coral reefs, kelp beds are highly productive ecosystems that support a plethora of aquatic life. The health of underwater kelp forests is vital for the survival of many threatened animal species including black sea bass and sea otters. Acreage of kelp forests in Santa Monica Bay has declined from historical highs for many years. Potential contributors to this decline include pollution, change in ocean temperature and current (e.g. El Nino), and sedimentation (excessive erosion or deposition from landslides). Also contributing to the destabilizing of the kelp forest ecosystem is the over harvesting of key sea urchin predators like the spiny lobster and California sheephead. As a result, sea urchins now dominate many of the rock beds where kelp was once plentiful.

Sea urchin removal and relocation have shown to be effective in restoring kelp forest in the affected areas. Such efforts should continue and expand as much as feasible. Mechanisms to restore kelp beds that are damaged by sedimentation should also be investigated and tested (e.g. artificial reefs, enhancement of nature reefs with quarried rock). Preliminary investigation has shown that a fair amount of material behind Rindge dam could be used for nearshore reef restoration (i.e. boulders cobbles and gravels). These materials placed in the nearshore environment would augment the supply of nonconsolidated material to the bay enhancing reefs and aid in reducing impacts from storm events and sea level rise. The development and implementation of a plan for the beneficial use of this natural sediment values should be further pursued.

Lead Entity(ies): TBF

Collaborating Partner(s): SCMI, NOAA, Montrose Settlements Trustees, Occidental College Vantuna Research Group, California Sea Urchin Harvesters, CDFW

SMBNEP Role: Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------------------|
| Implement the rocky reef/kelp forest restoration project | Restore 20 acres of kelp forest | 2019-2024 |
| Biological response monitoring of restoration areas | Annual Report (5) | Annually through 2024 |
| Develop recommendations for the deposition of materials from Rindge Dam or other suitable sources to augment sediment supply | Environmental review of Rindge Dam removal and nearshore placement of materials | 2024 |

DRAFT ACTION #3 – Recover Abalone Populations

Action: Recover abalone populations in the Santa Monica Bay and region to support rare species and socioeconomic benefits to people

Action History and Summary: Once abundant within the kelp forests of the SM Bay, abalone (black, white, pink, red, pinto, threaded, and green) populations have declined rapidly and some of the species are now federally endangered. The causes of the decline are attributed to a combination of overharvesting, disease, and other environmental factors. As a result of the populations precipitous declines, abalone fisheries have been closed throughout Southern California since 1997. Unfortunately, the populations of abalone have yet to recover with abalone densities remaining low. Re-introduction and re-population of abalone may not only be feasible, but necessary to restore the local abalone populations. Abalone are density dependent broadcast spawners, which need individuals of both sexes within close proximity to have a successful fertilization.

Several projects have been developed to aid in the recovery and enhancement of abalone including: *Haliotis fulgens* (green), *H. rufescens* (red), and *H. sorenseni* (white). White abalone are a NOAA “Species in the Spotlight,” as one of eight species considered among the most at risk of extinction within the United States of America. The White Abalone Recovery Project developed by the National Marine Fisheries Service is part of a statewide collaboration dedicated to the restoration of federally endangered white abalone to the rocky reef habitats of southern California, with the habitat off the waters of Palos Verdes Peninsula as one of the prime locations. Green and red abalone are being used as proxies for white abalone, which allow researchers to develop and refine infrastructure, culturing, outplanting techniques, and evaluate habitat suitability. In addition, both green and red abalone are species of concern. Increasing densities of these species will help recover populations throughout southern California and further the kelp restoration efforts by providing competition for sea urchins. The revival of healthy abalone populations in the SM Bay has the long-term potential to one day reopen and support commercial and recreational fisheries of abalone.

Lead Entity(ies): TBF

Collaborating Partner(s): NOAA, NMFS, SCMI, CDFW, UC Davis

SMBNEP Role: Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------------------|
| Establish abalone outplanting sites | Minimum of 4 sites | 2024 |
| Juvenile and larval abalone outplant | 2 outplants per year | Annually through 2024 |
| Monitor abalone restoration and reference | 2 surveys per year | Annually through 2024 |
| Captive spawn abalone | 2 captive spawns per year | Annually through 2024 |
| Maintain aquaculture facility for abalone | Successful maintenance of live abalone populations | Annually through 2024 |

DRAFT ACTION #4 – Seagrass Assessment and Restoration

Action: Assess and restore seagrass habitats in the Bay and nearshore environments to support benefits to marine ecosystems and improve coastal resilience

Action History and Summary: Seagrass habitats provide important ecological services, both biotic and abiotic, for marine and terrestrial systems. These ecosystem services support nursery habitat for marine fishes, improve sediment and water quality, stabilize and accrete sediments, and attenuate wave energy and shore erosion. More recently, the role seagrasses play in sequestering atmospheric carbon and combatting ‘greenhouse’ gas emissions has gained more recognition. Although seagrass ecosystems only cover approximately 0.1% of the ocean floor, they account for nearly 20% of the total oceanic carbon burial (48 to 112 Tg C / yr).

Our current understanding of the extent and condition of these habitats in the Santa Monica Bay is limited. TBF and partners will continue to deploy its remotely operated underwater vehicle (ROV), R2Deep2, alongside SCUBA divers to support the ongoing assessment of the extent and general condition of seagrasses in the Bay to inform the Comprehensive Monitoring Program. Identifying stressors to this habitat may also be an important component of understanding the condition. Additionally, a pilot restoration project for eelgrass is needed in our region to increase our understanding and to evaluate restoration methods, cost-effectiveness, and restoration suitability and survivorship in various areas of the Bay.

Lead Entity(ies): TBF

Collaborating Partner(s): NOAA, CDFW, Occidental College Vantuna Research Group, CRI, UCD

SMBNEP Role: Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|-------------------------------------|-----------------------|
| Survey the extent and condition of seagrasses in the Bay using R2Deep2, side-scan sonar, and SCUBA divers | 5 surveys | Annually through 2024 |
| Develop restoration methods for eelgrass (<i>Zostera pacifica</i>) in the Santa Monica Bay | Project report from empirical study | 2021 |
| Conduct pilot restoration project(s) of offshore eelgrass in the Bay | Area of eelgrass restored | 2024 |

DRAFT ACTION #5 – Beach Restoration

Action: Restore coastal strand and foredune habitat to beaches and sandy shores to improve coastal resilience

Action History and Summary: Sandy beaches are the most extensive feature along the Santa Monica Bay coastline. Although sandy beaches traditionally have been, and continue to be managed primarily as recreation areas, they are also important natural ecosystems that link marine and terrestrial environments and are considered one of the seven major natural habitats in the Bay. Animals and plants, including many endemic species, depend on sandy beaches for critical periods of their lives. The habitat provides foraging and nesting grounds for many shore birds, fish, and marine invertebrate species, and is essential to the population recovery of two endangered species, the California Least Tern and Western Snowy Plover. The protection of sandy beaches and an understanding of their condition has become increasingly important because of the roles of beaches in addressing the impacts of sea level rise.

TBF and their partners are conducting several beach restoration projects in the Santa Monica Bay area. In 2016, TBF, in partnership with the City of Santa Monica, implemented the Santa Monica Beach Restoration Pilot Project to restore three acres of coastal strand and foredune habitat and to benefit the federally threatened Western Snowy Plover. Long-term monitoring of this project to inform its potential to improve coastal resilience to sea level rise, wave erosion, and sediment accretion is ongoing. In 2017, TBF and City of Malibu initiated the Malibu Living Shoreline Project, which will design and implement a three-acre restoration project along Zuma Beach and Westward Beach, with support from SCC. TBF and partners are exploring ideas for future beach restoration projects.

Lead Entity(ies): TBF, City of Santa Monica, City of Malibu, LAC-DBH, City of Los Angeles

Collaborating Partner(s): State Parks, USFWS, SCC, Audubon Society (multiple chapters), UCSB, CRI, other interested stakeholders

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|----------------------------------|
| Continue long-term monitoring of the Santa Monica Beach Restoration Pilot Project | Annual Reports | Annually through 2024 |
| Conduct Phase 1 (outreach and planning) and Phase 2 (implementation) of the Malibu Living Shoreline Project | 3 acres coastal strand and foredune habitat restored; Annual Reports | Phase 1 by 2019; Phase 2 by 2023 |
| Find funding for and implement another beach and bluff restoration project | Funding acquired; Project initiated | 2020; 2021 |
| Support efforts to standardize sandy beach monitoring and a regional approach to restoration | Standardized protocol(s) | 2024 |

DRAFT ACTION #6 – LAX Dunes Restoration

Action: Restore and maintain the entire LAX Dunes system to support native plants, wildlife, and rare species

Action History and Summary: The El Segundo/LAX Dunes (LAX Dunes) in the City of Los Angeles, at the Los Angeles World Airports (LAWA), is the largest remaining contiguous coastal dune system in Southern California. Covering a total area of over 300 acres, it is home to an estimated 900 species of plants, insects, and other wildlife. Set aside as a natural wildlife preserve by LAWA, native plants and animals that once seemed destined for extinction, including the El Segundo Blue Butterfly and the California legless lizard, are thriving once again, thanks to large-scale habitat restoration efforts by LAWA and partners. However, invasive species continue to encroach on the native plants, reducing the diversity and health of the ecosystem.

In 2013, LAWA began removing approximately 32,000 square feet of hardscape within the northern dune area, which included abandoned streets, curbs, gutters, sidewalks, retaining walls, foundations, and above-ground utilities from old residential development. LAWA and their partners subsequently seeded and planted native vegetation. TBF has been partnering with LAWA since 2015 to conduct community restoration activities within the northern 48 acres of the LAX Dunes, and in 2017, TBF began leading the scientific monitoring and ecological restoration assessment of the northern dune area. Opportunities to expand work into the whole dune complex will be explored.

Lead Entity(ies): LAWA, TBF

Collaborating Partner(s): FOLD, CRI, other stakeholders and volunteers

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---|-----------------------|
| Conduct community restoration events in the northern 48-acre dune area | 12 events per year | Annually through 2024 |
| Support LAWA in long-term maintenance and adaptive management of the 48-acre northern dune area | Summary of restoration and monitoring activities | Annually through 2024 |
| Engage underserved students and volunteers and inland communities | 30% of participants from DAC/SDAC; 50% of participants from inland communities | Annually through 2024 |
| Initiate planning for areas within the adjacent dunes, including baseline monitoring | Engage responsible agencies and stakeholders; Monitoring report | 2023; 2024 |

DRAFT ACTION #7 – Restore Coastal Bluffs

Action: Restore coastal bluff habitats in the SMB watersheds to support ecosystem services

Action History and Summary: Remnant bluff habitats throughout the SMB watersheds have been subject to erosion and invasive plants. Establishment of natural reserves and habitat mitigation requirements for new development have helped protect some of the remnant bluff habitats, especially in the South Bay watersheds. The Palos Verdes Land Conservancy has actively restored some of those areas.

The El Segundo blue butterfly was placed on the endangered species list in 1976, the first invertebrate to make the list. Once relegated to a few small and fragile reserves, the nearly extinct butterfly with bright blue wings has expanded its territory to include the bluffs along Redondo Beach, thanks to a pilot beach bluff restoration project in 2005, supported by SMBNEP. Additionally, a Beach Bluff Restoration Master Plan was developed which lays out a vision for the restoration of dune and bluff scrub along the southern portion of the Santa Monica Bay, from Ballona Creek to the Palos Verdes Peninsula. As laid out in the Master Plan, the objective of SMBNEP’s restoration effort is to increase the ecological values of bluffs and dunes. Restoration efforts shall: 1) contribute to the recovery of the El Segundo blue butterfly, 2) provide habitat for unique and rare plants, 3) increase biological connectivity, and 4) increase biodiversity. Priority sites for restoration are those that meet one or more of the above objectives, but are also technically feasible, cost-effective, and provide educational opportunities.

Lead Entity(ies): LAC-DBH, CDFW, PVPLC, beach cities, USFWS

Collaborating Partner(s): TBF, SMBRC, CRI

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---------------------------------------|-----------|
| Use Beach Bluff Restoration Master Plan to explore bluff restoration and continue recovery of El Segundo blue butterfly | Prioritization of restoration areas | 2024 |
| Identify partners and funding to support bluff restoration projects | Partners identified; funding acquired | 2024 |
| Initiate restoration of one bluff restoration project | Initiation of project; permitting | 2024 |

DRAFT ACTION #8 – Malibu Creek Ecosystem Restoration

Action: Implement Malibu Creek Ecosystem Restoration Project (Rindge Dam and other barrier removals) to support ecosystem restoration

Action History and Summary: Rindge Dam is located on Malibu Creek in Malibu Creek State Park, three miles upstream from Surfrider Beach and the City of Malibu. This large dam is the “keystone” barrier within Malibu Creek, stopping the movement of endangered steelhead trout and other fish and wildlife species that require uninhibited movement through the watershed. Additionally, an estimated 780,000 cubic yards of sediment is trapped behind the dam, resulting in four miles of impaired waterways.

To date, SMBNEP has made \$625,000 available to support the U.S. Army Corps of Engineers (Army Corps) and the California Department of Parks and Recreation (State Parks) in the development of the Malibu Creek Ecosystem Restoration Feasibility Study (Study) since 2001. SMBNEP staff also serve on the project’s Technical Advisory Committee. The Draft Study was completed in 2017 and includes several alternatives for ecosystem restoration, which consider removal of Rindge Dam and additional human-made structures located upstream within the Malibu Creek watershed. The Study is currently undergoing review by Army Corps Civil Works Review Board and State Parks, with final approval and project authorization estimated in fall 2020.

Lead Entity(ies): State Parks, Army Corps

Collaborating Partner(s): TBF, SMBRC

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------|
| Support lead agencies in efforts to complete the design and engineering plans for the Malibu Creek Ecosystem Restoration Project | Completed & Approved Final Design and Engineering Plans | 2024 |

DRAFT ACTION #9 – Remove Stream Barriers

Action: Remove additional barriers to support fish migration and ecosystem services

Action History and Summary: Blocked access to steelhead spawning and rearing habitat is a major obstacle to the recovery of endangered steelhead trout in the northern Santa Monica Bay watershed. Restoration of steelhead trout to its historic range could serve as a key indicator of ecosystem health for the Bay and region at large. Steelhead populations in major creeks in the Santa Monica Mountains should be restored via removal of barriers to fish migration barriers, restoration of spawning and riparian habitat, and restoration of associated buffer habitat.

The Santa Monica Mountains Steelhead Habitat Assessment study completed by SMBRC in 2006 identified all migration barriers in the region and recommended major barriers that should be targeted for removal should funds become available. Several migration barrier removal projects have also been successfully carried out, including most notably the replacement of the Arizona Crossings with bridges on lower Malibu Creek, Malibu Creek State Park, and Arroyo Sequit. However, many more barriers still remain.

Lead Entity(ies): State Parks, CalTrans, LAC-DBH, RCDSMM, municipalities

Collaborating Partner(s): SCC

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|------------------------------|-----------|
| Identify, prioritize, and acquire funding for barrier removal projects | Funding acquired | 2024 |
| Implement priority barrier removal projects | 3 miles of habitat available | 2024 |

DRAFT ACTION #10 – Restore Urban Streams

Action: Restore urban streams, including daylighting culverted streams, removing cement channels, and restoring riparian habitats

Action History and Summary: Santa Monica Bay watersheds were at one time covered with a web of streams that were fed by natural springs and seasonal rains. Riparian zones, or the interface between land and flowing surface water, were once abundant along the banks of streams that flow into Santa Monica Bay. These vital natural areas act as biofilters that protect bodies of water from runoff and erosion. Today most of those streams and riparian zones have been paved or channelized, which has resulted in the loss of their natural ability to cleanse water, recharge water supplies and store floodwater. Channelization and paving of most of the once abundant natural streams and associated riparian habitats have resulted in the loss and severe degradation of streams’ ecological functions in the Bay watershed. Functions include: habitat for wildlife, water filtration and cleansing, erosion control, water supply recharge, and floodwater storage. Restoring many of these lost streams will aid in the recovery of Santa Monica Bay. SMBNEP has funded and implemented several projects to restore urban streams including the removal of 500 feet of concrete channel in Las Virgenes Creek in Calabasas that was replaced with a stable, natural, revegetated channel, and the restoration of Stone Canyon Creek on the UCLA campus. SMBNEP will continue to seek opportunities for urban creek restoration.

Lead Entity(ies): LAC-FCD, CalTrans, municipalities, State Parks, NPS

Collaborating Partner(s): SCC, CNRA, SWRCB

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------|
| Identify additional urban streams for restoration. | Develop partnerships with lead entities to develop plans for stream restoration | 2021 |
| Implement urban stream restoration projects | Linear extent of restored streams | 2024 |

DRAFT ACTION #11 – Restore Small Coastal Lagoons

Action: Restore smaller coastal lagoons to increase wetland habitat area and condition throughout the watershed

Action History and Summary: Wetlands, streams and riparian zones are the lifeline of the Bay watershed ecosystem and their preservation and restoration is a high priority of SMBNEP. Wetlands are areas of transition between land and water, where soils, plants, and animals are adapted to periods of inundation and saturation. Wetlands are one of the most productive ecosystems in nature, providing essential habitat for a variety of species, including birds, fish, reptiles, invertebrates, and mammals.

While significant progress has been made in recent years towards the restoration of the larger wetlands and lagoons in the Bay area, such as the completion of the restoration of Malibu Lagoon in 2013, the Oxford Basin Multiuse Enhancement Project in 2016, and the Draft Environmental Impact Statement and Report for the Ballona Wetlands Ecological Reserve in 2017, there are also many small bar-built coastal lagoons in the northern portion of the SM Bay watershed that are currently degraded and prioritized for restoration by several agencies. Topanga Lagoon, historically 30 acres in size, has been severely reduced in size and function due to the development of Pacific Coast Highway and other impacts to an approximately two-acre area. State Parks is leading the restoration planning efforts for the lagoon, and removing remnant fill and completing a restoration of this site remains a high priority. Similarly, other wetlands such as Del Rey Lagoon, Trancas Lagoon, and others provide additional opportunities for restoration and improved health of wetlands throughout the Bay watershed.

Lead Entity(ies): State Parks, RCDSMM, NPS

Collaborating Partner(s): SCC, TBF, SMBRC, CRI

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---|--------------|
| Complete the final post-restoration assessment of the Malibu Lagoon Restoration and Enhancement Project | Final Post-Restoration Report | 2019 |
| Finalize restoration planning and permitting for Topanga Lagoon restoration project | Approved permits; Final restoration design plans | 2022 |
| Complete land acquisition and feasibility analyses for Trancas Lagoon | Acquired land in acres; Final Feasibility Study | 2023 2024 |
| Conduct comprehensive monitoring of small lagoons in northern Bay to inform CMP | Completed CRAMs and other metrics | 2023 |

DRAFT ACTION #12 – Restore Ballona Wetlands Ecological Reserve

Action: Restore Ballona Wetlands Ecological Reserve to enhance wetland habitats and benefits to people

Action History and Summary: Over 96% of the vegetated estuarine wetlands have been lost over the past 150 years in the Los Angeles region. Thus, restoration to bring back higher-level ecosystem functions and services of wetlands is of the utmost importance in our area. The largest coastal wetland remaining in the Los Angeles region is part of the Ballona Wetlands Ecological Reserve (Reserve), once over 2,100 estuarine acres (near present-day Marina del Rey) rich in biological diversity and abundance. The Reserve has suffered over a century of degradation, including the dumping of millions of cubic yards of fill from the excavation of Ballona Creek in the 1930’s and Marina del Rey in the 1950’s, and the continued encroachment of habitat-altering invasive species. In 1998, the Ballona Wetlands were included on California’s 303(d) list of impaired water bodies due to excessive sediment dumping, hydrological impairments, and exotic vegetation.

In 2003 and subsequent years, the Reserve was purchased by the State of California for the purposes of restoration and public access, and the current approximately 577-acre Reserve is now managed by CDFW. In 2012, USEPA completed a Total Maximum Daily Load for the Reserve, including recommendations for restoration. TBF and many partners completed an extensive baseline monitoring program to inform the restoration process including comprehensive biological, chemical, and physical monitoring parameters between the years of 2009-2015. Restoration of the Reserve has been a multi-year process initiated in 2012 with the release of the Notice of Intent / Preparation. In 2016, the lead agencies, Army Corps and CDFW, released a joint Draft Environmental Impact Statement and Report, which went out for public comment for 133 days and received thousands of public comments, highlighting its regional importance. Small-scale community restoration has been conducted by Friends of Ballona Wetlands (FBW) for 40 years, and TBF since 2016.

Lead Entity(ies): CDFW, Army Corps

Collaborating Partner(s): TBF, FBW

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|------------------------------|-----------|
| Support the lead agencies by contributing technical information to the Final Environmental Impact Statement and Report and permitting | Completed FEIS/R and permits | 2020 |
| Continue community engagement and hand-restoration within the Reserve with FBW | 3-acre restoration footprint | 2024 |

DRAFT ACTION #13 – Implement Wildlife Crossings

Action: Implement wildlife crossings and other innovative projects for benefits to wildlife and people

Action History and Summary: Malibu Creek State Park extends across the crest of the Santa Monica Mountains, encompassing thousands of scenic acres filled with craggy canyons, gorges, and meadows. Divided by a section of 14-mile-long Malibu Creek, the park has been a popular recreation and relaxation venue for visitors since it opened in 1976. Habitat fragmentation is an ongoing concern for the plant and animal species of the Santa Monica Mountains. Human development hinders the ability of species to move between natural areas and obtain the resources needed to survive. Roadways are a major source of wildlife mortality and present a safety issue for drivers. Wildlife crossing structures are an important tool to allow safe passage for wildlife across roadways, including enhanced habitat connectivity. It is critical that wildlife corridors are established and maintained between the Santa Monica Mountains, including Malibu Creek State Park, Simi Hills, and the Santa Susana Mountains.

In the first of its kind in California, a proposed wildlife crossing over the 101 Freeway at Liberty Canyon would allow mountain lions and other wildlife to safely cross the 101 Freeway, increasing genetic diversity, and reduce wildlife-related automobile accidents. SMBNEP has helped the lead agencies, State Parks and RCDSMM, in the design of the proposed overpass-crossing and the construction of a temporary corridor under the existing Liberty Canyon overpass. SMBNEP will continue to work with Caltrans, National Park Service, and watershed stakeholders to implement the 101 Freeway crossing and identify additional locations such as underpasses and culverts, that can be retrofitted to support wildlife movement.

Lead Entity(ies): State Parks, CalTrans, RCDSMM, NPS, SCC, MRCA

Collaborating Partner(s): Others depending on location

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------|
| Support lead agencies to find funding for Phase 2 of the Liberty Canyon Wildlife Crossing project | Funding acquired | 2022 |
| Support lead agencies in permitting and environmental review of Liberty Canyon Wildlife Crossing project | Completed permitting and environmental review | 2024 |
| Identify additional locations for wildlife crossings | Identify five locations for wildlife passage retrofit | 2022 |

DRAFT ACTION #14 – Support Activities to Achieve TMDLs

Action: Support the implementation of activities and projects such as those in Enhanced Watershed Management Plans (EWMPs) to help achieve TMDL goals for 303d listed waterbodies in the Bay and its watersheds

Action History and Summary: One primary goal of SMBNEP is to improve water quality through reduction or elimination of pollution from storm water (including urban runoff) and point and nonpoint (including on-site wastewater disposal) sources. Despite significant improvement achieved over the last 30 years, Santa Monica Bay and many waterbodies in the Bay watershed are still listed as impaired due to pollutant loading (i.e. 303d listed). To continue improving condition of the listed waterbodies, water quality regulatory agencies established total maximum daily loads (TMDLs) that require dischargers to achieve pollutant load reduction targets through various means, including implementation of projects identified in the Watershed Management Plans (WMPs) and Enhanced Watershed Management Plans (EWMPs) under the storm water discharge (MS4) permits. There are also collaborative and integrated watershed-wide planning and implementation efforts, such as the Storm Water Strategy, an effort led by SWRCB to sustainably manage and utilize storm water in California to support water quality and water availability, and Integrated Water Resource Management Plan (IRWMP) for the Los Angeles Metropolitan region, including the availability and allocation of bond funding to facilitate and contribute to water quality improvement planning and implementation efforts in the region.

Programs and projects implemented under the current TMDL-based regulatory framework have been and will continue to be the main driver for achieving the improvement of impaired water bodies. Federal and state water quality regulatory agencies and discharge permit holders will continue to be the lead entities in these efforts. SMBNEP will continue to contribute by facilitating regional integrated water resource management and quality improvement planning, by recommending awards and overseeing implementation of State bond funding (e.g., Prop. 50 and 84) for stormwater pollution reduction projects, and by facilitating other sources of State funding.

Lead Entity(ies): SWRCB, LARWQCB, USEPA, NPDES and MS4 permit holders

Collaborating Partner(s): SCC, SMBRC

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|--------------------|
| Continue to support implement projects identified in EWMPs and WMPs | # and percentage of projects completed | See EWMP deadlines |
| Continue implementation of LA IRWMP | # of projects and funding amount implemented | Annually |
| Facilitate other sources of State funding | Amount of state funded received | Annually |

DRAFT ACTION #15 – Pumpout Installation and Monitoring

Action: Support installation and monitoring of additional sewage and bilge pumpout facilities in Southern California harbors.

Action History and Summary: California has one of the highest levels of recreational boating activity in the nation with approximately two million recreational boats. To reduce the potential discharge of boat-based pollution sewage, bilge pumpouts have been installed and are maintained and monitored by project partners. Santa Monica Bay’s Marina del Rey and King Harbors are home to approximately 7,500 berths and many more boats launched on a day-use basis.

Since 1996, SMBNEP has implemented a successful Southern California Boater Education Program with major accomplishments that include installing the third bilge pumpout in southern California, regular sewage pumpout monitoring, publication of a Boating Guide which directs boaters to sewage and bilge pumpout facilities, and release of the Pumpout Nav application. The app is the first of its kind nationwide and is used for data collection as well as an outreach tool. Other programs educate while providing free access to sewage pumpouts and oil absorbent exchange. Several opportunities to further advance the reduction of boat-based pollution in southern California and Santa Monica Bay have been identified. These include necessary maintenance and monitoring of existing as well as the development and installation of additional infrastructure. Continued community engagement and outreach are central to build awareness and encourage clean boating practices.

Lead Entity(ies): LAC-DBH, marina operators

Collaborating Partner(s): TBF, CCC, CDBW, CalRecycle, SFEP, City of Redondo Beach

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--------------------------------|-----------------------|
| Continue quarterly monitoring of public sewage pumpout stations | Annual Reports (5) | Annually through 2024 |
| Update CA Vessel Waste Disposal Plan | Updated plan document | 2020 |
| Support installation of sewage pumpouts in Marina del Rey or King Harbor | 1 new sewage pumpout installed | 2024 |
| Support installation of bilge pumpouts in Marina del Rey or King Harbor | 1 new bilge pumpout installed | 2024 |
| Support efforts of neighboring harbors in installation of bilge and sewage pumpouts in southern California | Number of planned pumpouts | 2024 |

DRAFT ACTION #16 – Implement and Study Runoff Capture Projects

Action: Infiltrate, capture, and reuse stormwater and dry-weather runoff through green infrastructure, LID, and other multi-benefit projects and improve understanding of ecosystem services provided

Action History and Summary: Green infrastructure and low impact development (LID) practices are increasingly used as an effective tool to capture, treat, and infiltrate stormwater and dry weather runoff. In addition to improving surface water quality, these practices also provide multiple benefits including creation of native habitat, beautification of the urban landscape, and reduction of outdoor water use for irrigation, etc. SMBNEP has given priority to green infrastructure projects when recommending the allocation of state bond funding (e.g., Prop. 50, 84) and seeking grants to implement LID projects directly. Additionally, several large-scale commercial projects such as the Ballona Creek Rain Garden (BCRG) have been implemented since 2010. Future additional implementation of LID by agencies, businesses, and private landowners is recommended.

While it is largely understood that these LID projects produce multiple benefits, the quantification of some of those services remains a significant data gap for our region. From 2016-2018, TBF and LMU partnered on a study to evaluate how stormwater is retained by BCRG, as well as the quantification through loading of several constituents of concern across two storm seasons. The garden retained between 73-100% of all storms surveyed, and average pollutant retention between 80-90%. Constructed biofilters (e.g. bioswales, rain gardens, bioretention gardens) have been shown to significantly reduce pollutant load by mimicking natural processes and filtering out pollutants; however, their fate within the biofilter itself is largely unknown. Future studies should address these data gaps, as well as designing LID projects with monitoring and assessment in mind.

Lead Entity(ies): municipalities, water agencies, businesses, others

Collaborating Partner(s): TBF, CRI, many others depending on location

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---|-----------|
| Complete rain garden metal fate study with CRI | Completed Master's Thesis | 2020 |
| Complete additional LID projects throughout the watershed | 3 new commercial-scale rain gardens installed | 2024 |

DRAFT ACTION #17 – Enhance Populations of Rare Species

Action: Implement projects that improve understanding and/or enhance endangered and threatened species populations (e.g. habitat improvements for Western Snowy Plover, genetic banking)

Action History and Summary: Habitats throughout Santa Monica Bay have the potential to support rare species, including those restoration efforts that have already been successful such as the LAX Dunes supporting El Segundo blue butterflies, California legless lizard, and California gnatcatcher; the beaches of the Bay supporting western snowy plover, California least tern, and the potential for rare vegetation; subtidal kelp forests protecting white abalone; streams of the Santa Monica Mountains supporting Southern California steelhead trout and California red legged frog; and many other examples. The Comprehensive Monitoring Program tracks many of these groups of species as indicators of particular habitats, but additional efforts for broader habitat improvements would support these species and many others. This action in particular is tied to many others, including restoration projects, critical habitat identified by agencies, municipalities, and other partners, outreach efforts, etc.

Lead Entity(ies): CDFW, USFWS, NOAA, State Parks, RCDSMM

Collaborating Partner(s): TBF, CRI, Audubon Society, many, depending on species

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---|-----------|
| Support Southern California Steelhead Trout genetic banking study | Completed study | 2024 |
| Support restoration and monitoring activities to benefit California red legged frog populations | Successful wild breeding population | 2024 |
| Support projects within western snowy plover critical habitat | Restoration acres within critical habitat | 2024 |

DRAFT ACTION #18 – Eliminate Biological Impacts from Water Intake Facilities

Action: Support elimination of biological impacts of water intake and discharge from coastal, power generation and desalination facilities, including public engagement and education

Action History and Summary: The once-through cooling system used by coastal power generation facilities negatively impacts the ocean environment on both the intake and discharge side in the form of impingement (the entrapment and death of large marine organisms on cooling system intake screens), entrainment (the death of small plants and animals that pass through the intake into the plant’s heat exchanger), and the discharge of heated ocean water back into the Bay (thermal pollution). In compliance with the new policy adopted by the SWRCB in 2010, all power generation facilities in Santa Monica Bay have developed a plan and timeline to permanently end all ocean water intake, with the Scattergood Generation Station achieving the goal by the end of 2024 at the latest.

Like coastal power plants, desalination plants also take up ocean water and may even use the intake water from adjacent coastal power plants. New policies have been adopted by the SWRCB since 2015 to address the potential impacts of such intake as well as issues associated with the disposal of brine discharges from desalination facilities. The new state-wide policy supports the use of ocean water as a reliable supplement to traditional water supplies while protecting marine life and water quality and at the same time requires new or expanded seawater desalination plants to use the best available, site, design, technology, and mitigation measures feasible to minimize intake and mortality of all forms of marine life. Additionally, mitigation measures are required to address harmful impacts on marine life that occur after a desalination facility uses the best available site, design, and technology feasible.

Lead Entity(ies): SWRCB

Collaborating Partner(s): Local water districts, LADWP, power generation companies

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|---|-----------------------|
| Educate and increase public support of the state-wide desalination policy | Increased public awareness | Annually through 2024 |
| Support development of alternative and advanced mitigation measures to minimize seawater intake by desalination | Amount of seawater intake prevented/reduced | 2024 |

DRAFT ACTION #19 – Eliminate OWDS Non-Point Pollution

Action: Support elimination of non-point pollution from onsite wastewater disposal systems

Action History and Summary: Onsite wastewater disposal systems (OWDS), also commonly known as septic systems are still prevalent in many coastal areas in northern Santa Monica Bay, due to the lack of a connection to a centralized sewer system. Though each system is designed according to site conditions to ensure proper treatment, inadequate design and/or maintenance can lead to wastewater leakage and contamination of groundwater or surface waters. Progress has been made in recent years. The most significant step is the enacted Prohibition of OWDS by LARWQCB, and the resulting construction of a centralized wastewater treatment facility that will eliminate the use of septic systems in the commercial Civic Center area of Malibu. Permitting and inspection of the remaining OWDS have also been improved through the collaborated implementation by LARWQCB and municipalities of an Integrated Wastewater Management Action Plan.

To allow the continued use of OWDSs, while protecting water quality and public health, the SWRCB adopted in June 2012 a statewide policy for siting design, operation, and maintenance of OWDSs. This Policy establishes a statewide, risk-based, tiered approach for the regulation and management of OWDS installations and replacements and sets the level of performance and protection expected from OWDS. Implementation of the OWDS Policy will be overseen by the State Water Board and the regional water quality control boards, and local agencies (e.g., county and city departments and independent districts) through local management programs.

Lead Entity(ies): SWRCB, LARWQCB, municipalities

Collaborating Partner(s): SMBRC

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------------------|
| Complete sewer connections of residential properties to the centralized wastewater treatment facility in the Malibu Civic Center area | Establishment of the local assessment district and progress in # of sewer connection | 2024 |
| Continue the coordinated OWDS permitting and inspection system between the LARWQCB and the cities and Counties in the watershed | Number of permits and inspections | Annually through 2024 |

DRAFT ACTION #20 – Support Policies to Reduce Reliance on Imported Water

Action: Support policies that promote reuse, recycling, and advanced wastewater treatment to reduce reliance on imported water sources

Action History and Summary: Much of the water consumed in Southern California is imported from hundreds of miles away. However, with the significant upgrading in the level of wastewater treatment, reclamation and recycling of treated wastewater has become more feasible and an important alternative source of water supply for non-potable uses. Recycled water, which has undergone tertiary treatment, is currently used for a variety of purposes: landscape and agricultural irrigation, industrial uses such as cooling water supply, recreational and landscape impoundments, and environmental benefits such as re-establishing water-related habitat areas. Highly treated reclaimed water can also be injected into a groundwater basin to replenish water that has been removed through pumping or to create a seawater intrusion barrier. All allowable uses of reclaimed/recycled water are subject to strict water quality regulations overseen by the LARWQCB and the California Department of Public Health (CDPH).

The two major POTWs with ocean outfalls in Santa Monica Bay now have ambitious programs and have teamed-up with local water districts to significantly increase the amount of wastewater reclamation and recycling. Both the City of Los Angeles and Los Angeles County Sanitation District have formulated ambitious targets for their recycling efforts. In addition, the LADWP is implementing a Recycled Water Master Plan adopted in 2010 that will identify uses and projects to further expand and maximize recycled water use from available Hyperion Treatment Plant effluent. While of modest size, the Tapia Wastewater Reclamation Facility in the Malibu Creek watershed achieved 100 percent recycling – zero discharge - of its effluent in the summer by focusing its efforts on irrigated landscape at public parks, schools and road medians in this important watershed in north Santa Monica Bay.

Lead Entity(ies): POTWs, LADWP, LASAN, LVMWD, WBMWD, LACSD

Collaborating Partner(s): SWRCB, LARWQCB, CDPH, SMBNEP

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-----------|
| Support recycled wastewater efforts by JWPCP of LACSD | 230,000 acre-feet per year | 2020 |
| Increase use of recycled water recharge volume from Hyperion Treatment Plant | 14,300 ac-ft/year in addition to the potential to supply WBMWD | 2020 |
| Support recycled wastewater efforts by Tapia Water Reclamation Facility through expansion of distribution system and regional partnerships | Improved percent use of recycled water | 2024 |

DRAFT ACTION #21 – Community Composting and Landfill Diversion

Action: Support policies and implement projects that divert landfill waste and encourage composting to improve water quality and lower greenhouse gas emissions

Action History and Summary: Approximately seven percent of all global greenhouse gases (GHG) come from food waste decomposing in landfills. To reduce GHG generation resulting from food waste, local composting of these materials is preferential as it aerobically degrades and reduces transport related emissions. Additional benefits of food waste diversion to compost is its application to soils which improves soil quality and water retention. These improvements lead to improved water quality in groundwater and surface waters, and ultimately to increased food security and decreased negative impacts to ecosystems. The Table to Farm Composting program is a diversion program that collects food waste from restaurants to enrich local compost facilities and supplies Community Supported Agriculture (CSA) with needed nutrients and organics.

TBF will partner with local community groups and schools on a “Table to Farm” composting program. TBF will work with these groups to install and manage community composting sites and assist restaurants with source reductions, organics recovery, and food donations. In addition to addressing air quality and healthy soil issues, TBF will raise awareness about CSA programs and the benefits to restaurants of buying from local CSAs.

Lead Entity(ies): Schools, municipalities, LA Zero Food Waste Task Force

Collaborating Partner(s): Social Justice Learning Institute, municipalities, restaurants, LA Compost, LA Food Policy Council, LA Food Waste Prevention and Rescue Working Group

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|--------------|
| Support continuation of Table to Farm compost hubs | 15,000 lbs of food waste diverted | 2020 |
| Find funding for and implement an additional community composting hub in Santa Monica Bay watershed | Funding acquired; One new compost hub installed | 2022 2024 |
| Support expansion, outreach and implementation for residential and commercial organics collection and recycling | Legislation mandating residential collection | 2024 |

DRAFT ACTION #22 – BMPs, Public Access, and Improved Trail Systems

Action: Support best management practices, increased public access, and improved public facilities for beaches and other public trail systems to support both enhanced natural resources values and benefits to people

Action History and Summary: In 2016, TBF implemented the Santa Monica Beach Restoration Pilot Project which provides an enhanced beach experience for the community through educational opportunities, interpretive signage, and ecotourism. Community restoration events in otherwise non-accessible locations like the BWER and LAWA El Segundo Dunes also provide opportunities for public access. This action supports best management practices that promote natural habitat values while providing benefits to people. This action also supports programs like the State Coastal Conservancy’s Explore the Coast Program which aims to improve public access to beaches, promote and expand the California Coastal Trail, and create pathways for inland and underserved communities to experience the coast.

Trail systems and increased outreach are central components of these efforts. There is growing recognition that increased access to coastal areas with natural features support improved public health via reduced stress, anxiety and depression. In context to increasing temperatures associated with anthropogenic climate change, cooler areas neighboring the coast of Los Angeles will become increasingly important as a thermal refuge for people. The development of sufficient infrastructure will be needed to meet this increasing demand. Public transport and related services will need to be maintained or increased to meet demand. Concordantly, sea level rise and increased storminess will require the creation of new infrastructure including bathrooms and other facilities further from the current shoreline.

Lead Entity(ies): CCC, SCC, LAC-DBH, RCDSMM, coastal cities, State Parks, CalTrans, Metro

Collaborating Partner(s): TBF, CRI

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------|
| Support implementation of identified actions within plans such as the LAC-DBH Sea Level Rise Vulnerability Assessment | Actions implemented | 2024 |
| Support creation of increased public transit to and from beaches to enable access | Public transit improvements | 2024 |
| Continue to advise BMPs for beaches that promote habitat condition improvements and support for unique species | BMPs adopted and implemented; acres protected | 2024 |

DRAFT ACTION #23 – Develop and Adopt Stream Protection Ordinances

Action: Facilitate development and adoption of natural stream and riparian protection ordinances and/or policies, including restoration

Action History and Summary: The lack of enforceable regulations and/or conservation policies is a major cause of the loss of land-based habitats, such as riparian corridors and wetlands, due primarily to land encroachment. Therefore, new regulations and policies should be developed and executed to prevent further loss of the remaining habitat areas and living resources within the watershed and Bay. Adoption of regulations and policies must be supported by information on the geological, hydrological, and ecological characterization of the subject area. Therefore, it is important to ensure that studies and assessments are carried out to provide information on historical ecology, water budget, fish population density, etc. Collection and compilation of existing information is an expected and necessary first step in development of strategies and policies to address emerging issues such as climate change.

Rivers, creeks, and streams are an integral part of the watershed and provide multiple benefits including water supply, pollutant removal, flood water drainage, wildlife habitat, as well as the beautification of the neighborhood. However, it is estimated that as much as 80 percent of the natural streams in the watershed have been either paved over, culverted, or channelized. Many of the remaining natural streams are also at risk from encroachment of urbanization. The fact that most existing municipal codes of watershed cities do not provide sufficient protections to streams only exacerbates the situation. To protect the remaining benefits, it is vital that a buffer zone adjacent to a steam system be preserved. Recently, the LA City Department of Public Works has spent several years working on a stream protection ordinance for areas within LA City. Based on Watershed Protection Division analysis, there are approximately 462 miles of riparian habitat that would receive some level of protection under the draft ordinance. Additionally, SWRCB has lead ongoing efforts in multiple phases to create a wetland and riparian area protection policy. Local governments will need to adopt and enforce stream protection ordinances that establish minimal acceptable requirements for stream buffers and prohibiting impactful development.

Lead Entity(ies): LA County, LA City, other watershed cities

Collaborating Partner(s): Heal the Bay

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|------------------------|-----------|
| Complete and adopt LA City stream protection ordinance | Adopted ordinance | 2024 |
| Inform other regional ordinances | Adopted ordinance(s) | 2024 |

DRAFT ACTION #24 – Evaluate Options for Offshore Artificial Reefs

Action: Evaluate and develop recommendations for offshore artificial reefs

Action History and Summary: Vantuna Research Group at Occidental College has led efforts to map and understand the extent and condition of rocky reef complexes of the Santa Monica Bay for many years, expanding to a regional assessment since 2011, which has been included in a California-wide assessment of Marine Protected Areas (MPAs) throughout Southern California. These results, including quantification of regional standing stock biomass and production, have allowed an expansion of the management goals of the Bay and the Southern California Bight. These data have also allowed for an understanding of the importance and potential of artificial reefs, their design and construction, and the direct benefit these reefs may have for the management and sustainability of our fisheries and their associated economies.

Recently, TBF and Occidental College have collaborated on the highly successful rocky reef restoration project to benefit local fisheries, with the first phase focused on natural reefs. The early results of this work, started in summer 2013 indicate increased production and species richness as indicated by sea urchin gonadosomatic indexes, finfish biomass, and fish species richness. The second phase involves the design and implementation of more than 60 acres of artificial reefs. These projects have gathered significant support from the fishing community. In the case of the kelp restoration project, fishermen have been involved in the direct implementation of the project and have become strong advocates for novel approaches to the enhancement of marine resources.

Lead Entity(ies): SLC, CDFW, NMFS, SCC, SCMI, NOAA

Collaborating Partner(s): TBF, Montrose Settlements Restoration Program Trustees

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------------------|
| Construct artificial reef off Palos Verdes | 40 acres of new rocky reef habitat | 2021 |
| Annual monitoring with the use of side scan sonar and SCUBA based surveys | Annual reports | Annually through 2024 |
| Preliminary work regarding the benefits of dynamic revetments and nearshore reefs | Data gathering and concept development | 2023 |

DRAFT ACTION #25 – Include Coastal Resilience into LCP Updates

Action: Support the inclusion of coastal resilience through natural means and softscape measures into local coastal plan updates

Action History and Summary: Local Coastal Programs (LCPs) govern land use and development in the coastal zone and once an LCP’s certification becomes effective, the local government becomes responsible for reviewing most Coastal Development Permit (CDP) applications. LCPs include a Land Use Plan (LUP) and an Implementation Plan (IP), and are required to be prepared and submitted to the California Coastal Commission for review for consistency with Coastal Act requirements. With models like the USGS Coastal Storm Modeling System (CoSMoS) and new hazard and coastal resource analyses being released, SMBNEP and TBF will continue to support the integration of implementing sea level rise adaptation efforts and natural soft-scape alternatives into new and future amended LCPs. Living shoreline approaches incorporating different habitats across elevational gradients are worthy of further development and implementation as they sequester carbon, provide ecosystem services, and create resilient biogenic structure. These approaches are a means to address the cause of and locally respond to the manifestation of climate change stressors.

Lead Entity(ies): CCC, coastal cities, LAC-DBH

Collaborating Partner(s): TBF, USGS

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|-----------------------------------|-----------------------|
| Attend stakeholder meetings for local cities LCP development / updates / implementation | Attend or present at two meetings | Annually through 2024 |
| Opportunistically assist cities in the development of sea level rise vulnerability studies | Attend or present at two meetings | Annually through 2024 |
| Use data collected from beach restoration “soft-scape” projects to inform and assist LCP development | Attend or present at two meetings | Annually through 2024 |

DRAFT ACTION #26 – Invasive Species Research and Outreach

Action: Participate in research, education, outreach, and policy on invasive species removal and control

Action History and Summary: Invasive plants and animals have become recognized in recent years as a major threat to the integrity of natural resources in the Bay watershed. These species can invade natural systems and proliferate, often dominating a community to the detriment and sometimes the exclusion of native species. Introduced species may also compete directly with native species for nutrients, sunlight, and space, and indirectly by altering the food web or physical environment. Invasive species may also prey on or hybridize with natives. Native species with limited population size or ecological range are particularly susceptible to displacement by aggressive exotic or translocated species.

Major invasive species of concern in the Bay watershed include plant species such as *Arundo donax*, pampas grass, iceplant, and animal species such as crayfish, bullfrogs, and New Zealand mudsnails (NZMS). An adequate prevention strategy must rely on a diverse set of tools and methods including regulations and policies banning import, use, and disposal of invasive species, and public outreach that increases the awareness of the issue and reduce the chance of unintentional introduction and spread of invasive species.

SMBNEP will continue to participate in invasive species research and control efforts, including NZMS surveys, funding invasive species control projects, and participating in statewide leadership efforts to control invasive species. Invasive species will also continue to be tracked within several habitat types as part of informing the CMP.

Lead Entity(ies): CDFW, State Parks, NPS

Collaborating Partner(s): Heal the Bay, UCSB, MRT, MRCA, State Parks, TBF, SMBRC, Cal-IPC, others

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|------------------------------------|-----------------------|
| New Zealand Mudsnail Survey | Biennial Report for NZMS | 2020; 2022; 2024 |
| Attend and participate in Invasive Species Council of California and regional meetings focused on management of invasive species | Attend or present at one meeting | Annually through 2024 |
| Additional studies and outreach efforts to control impacts of, manage, or reduce the sale of invasive species | Species targeted and actions taken | 2024 |

DRAFT ACTION #27 – Marine Debris Reduction

Action: Reduce marine debris by supporting bans on single-use items, conducting outreach, and participating in trash reduction programs

Action History and Summary: Evidence indicates that quantities and impacts of plastic marine debris are significant and increasing. Investigation of plastic in the North Pacific Central Gyre of the Pacific Ocean showed that the mass of plastic pieces were six times greater than the mass of zooplankton floating on the water’s surface. Plastic pieces photodegrade into smaller plastic particles. Zooplankton are ingesting these plastic particles, posing a serious threat to the marine animals that consume them and the subsequent food chain.

The majority of marine debris is comprised of plastic materials. Most of this debris comes from land-based sources which are transported to oceans via storm water runoff. The main sources of plastic found in stormwater runoff include litter (mostly cigarette butts, food wrappers, lids, bags, cups/plates/utensils, straws, beverage bottles). Much of this debris is a result of disposable products, the result of convenient ‘to go’ items that have a short useful life span and then are quickly disposed. The most effective measure that can reverse the trend and ultimately prevent disposal of plastics into the ocean is to reduce at the source and reduce or entirely stop using single-use disposable plastic products. In 2018, TBF in partnership with Clean Water Action, implemented ReThink Disposable LA: a technical assistance program for food service businesses targeting the reduction of single-use disposable items used on-site.

Lead Entity(ies): municipalities

Collaborating Partner(s): TBF, City of Culver City, City of Malibu, City of Santa Monica, LA County, Clean Water Action / Clean Water Fund, commercial businesses, 5 Gyres, Surfrider Foundation, Algalita, OPC, NOAA, USEPA, other stakeholders

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|---|
| Find funding for and continue ReThink Disposable LA | Funding acquired; Project initiated | 2020 |
| Support municipality bans of polystyrene, non-recyclable plastics, and single use items | # Watershed cities passing ordinances; LA County ordinance; CA statewide ban | Annually through 2024; 2020; 2024 |

DRAFT ACTION #28 – Conduct Boater Outreach

Action: Produce educational resources and materials and conduct outreach to improve best management practices for Southern California boaters (e.g. fuel, sewage, and hazardous waste management)

Action History and Summary: California has one of the highest levels of recreational boating activity in the nation with approximately 2 million recreational boats. Santa Monica Bay’s Marina del Rey Harbor and King Harbor are home to approximately 7,500 berths and many more boats launched on a day-use basis. Boating related pollution can directly impact water quality.

Since 1996, the SMBNEP has implemented a successful Southern California Boater Education Program. Major accomplishments include establishing four new household hazardous waste drop off facilities, hosting four annual stakeholder trainings on boating BMPs, and developing successful educational materials, including an instructional Y-valve video, and the popular Southern California Boater’s Guide. However, the on-going outreach effort needs to be sustained, improved, and expanded, for there is evidence that a large proportion of boaters still do not dispose of their boating wastes properly, and remain unaware of some clean boating practices.

Lead Entity(ies): TBF, CCC

Collaborating Partner(s): CDBW, marina operators, SFEP

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-----------------------|
| Produce educational materials | 3 Changing Tide newsletters; 4000 Tide calendars; 3000 Boater Kits; | Annually through 2024 |
| Conduct outreach | 5 events and 5 presentations; 4 Dockwalker trainings | Annually through 2024 |
| Manage Pumpout Nav app | Number of downloads | Annually through 2024 |
| Research public engagement metrics and specific engagement tools on reduction of pollutants to waterways | Literature Review | 2021 |
| Find funding and implement fuel spill prevention tools and outreach | Funding acquired; Project initiated | 2022 |
| Support and develop marine debris reduction and cleanup efforts | 295 fishing line collection bins statewide; 70 boating facilities participating in CCD statewide | 2024 |

DRAFT ACTION #29 – Support Disadvantaged Communities

Action: Support efforts of disadvantaged communities to achieve healthy habitats, implement green infrastructure, and reduce pollution

Action History and Summary: This action supports efforts to promote environmental equity and justice for the underserved, including disadvantaged communities, persons with disabilities, tribes, and others, through work to restore habitats and watersheds, provide public access and recreational opportunities, and increase resilience to climate change. Projects and partnerships can be prioritized as part of this action to support acquisition of funding, allocation of resources, indirect benefits, education, and / or implementation of projects within disadvantaged communities.

The need to increase park land and other greenspace in vast areas of Los Angeles, coupled with the needs to capture, treat, and infiltrate stormwater and urban runoff to attain TMDL’s and increase local water supplies create a powerful nexus to achieve this action. State and County programs exist or are in process to develop and fund projects that will accomplish these complimentary environmental services. These greenspaces, if thoughtfully designed, could also enable biodiversity and connectivity for wildlife in the urban environment.

Lead Entity(ies): municipalities

Collaborating Partner(s): TBF, LAC-DPW, City of LA, LARWQCB, STAND LA, Communities for a better environment, Food and Water Watch LA, Heal the Bay

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|-----------------------------------|-----------|
| Support WMPs and EWMPs to prioritize projects that produce multi-benefits | % of funding and projects in DACs | 2024 |
| Utilize the Ballona Greenway Plan to identify parcels in disadvantaged communities for implementation | Projects implemented | 2024 |
| Support IRWMP and similar programs to preferentially invest in disadvantaged communities | % of funding and projects in DACs | 2024 |

DRAFT ACTION #30 – Reduce Health Risks to People

Action: Reduce health risks of swimming in contaminated waters and consuming contaminated seafoods through more comprehensive source control and, advanced monitoring and public notification

Action History and Summary: Primary sources of health risks associated with swimming in the surfzone can be traced to both dry weather urban runoff and wet-weather stormwater that convey pathogens (pathogenic bacteria and viruses) and other pollutants (human- and animal-caused) to the coast. The completion of the Santa Monica Bay Epidemiological Study in 1995 established causation between increased illnesses in swimmers and surfers and proximity to areas with contaminated runoff. Extensive efforts involving the investment of billions of dollars to reduce sewage spills, divert runoff, and awareness campaigns have improved the water quality along most Bay beaches over the past several decades and new efforts are being undertaken through WMPs and EWMPs.

Risk assessments conducted by the State and USEPA indicate that there are still health risks associated with consuming seafood contaminated with historical dumping and deposition of DDT and PCBs on Palos Verdes Shelf. Several important steps have been taken to address the seafood contamination issues, including fish consumption advisories, white croaker commercial fishery closures, and public outreach and enforcement efforts. USEPA has also been investigating engineering options to remediate the DDT and PCB contamination on the Palos Verdes shelf. Major challenges lay ahead despite the progress made and several steps should be taken to ensure public health is protected from these risks. More coordinated efforts should be made to address runoff through integration across jurisdictional boundaries. Meanwhile, more technical investigations and evaluations should be conducted to identify the sources of pollutants and alternative control measures for the few remaining chronically affected areas. For seafood contamination, a comprehensive approach should be undertaken that builds and improves upon existing efforts in risk assessment, risk communication, risk reduction BMPs, monitoring, and enforcement.

Lead Entity(ies): USEPA, OEHHA, LAC-DPH, LARWQCB, municipalities

Collaborating Partner(s): SMBRC, Heal the Bay, LA Waterkeeper

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-----------------------|
| Continue implementation and improvement of beach water quality monitoring and reporting system | Publication of beach water quality report | Annually through 2024 |
| Update fish contamination advisory and associated public education materials based on new data | Publication of new fish advisory | 2024 |
| Maintain and enhance the existing seafood contamination education and enforcement program | # of health inspections and outreach materials | Annually through 2024 |

DRAFT ACTION #31 – Engage Community in Water Conservation and Reuse

Action: Conduct community engagement, education, and inform policies related to water conservation and reuse to reduce water demand and reliance on imported sources

Action History and Summary: The importance of adequate water supply to residents in the arid Southern California region cannot be overstated and has gained more urgency amid one of the worst drought periods in the state’s recent history. Drought, increasing threats due to climate change, cost of importation, and increasing water use, mean that the region should continue efforts striving towards water independence and reducing our reliance on imported sources.

Since 2014, a diverse array of water conservation outreach strategies have been designed, developed, and implemented. Methods of community engagement included the production of high-quality PSAs, numerous tabling events which distributed LADWP conservation devices and rebate information, a social media campaign, newsletters, and press releases. Water conservation education for students has included the production of a water and energy conservation video for kids; water, energy, and climate change infographics; and an engaging at-home or classroom activity packet with conservation games and home assessment tools. Finally, to demonstrate water conservation and stormwater capture methods, rain gardens have been installed on multiple properties throughout the watershed after lawns and irrigation systems were removed. Recontouring created bioswales to capture stormwater, and drought-tolerant, California native vegetation were planted throughout the sites. Based on data collected as part of a grant from MWD, homeowners reduced potable water usage by up to 94% and captured over 700 gallons of stormwater for each 1-inch storm. Through social media, videos, and public events, hundreds of thousands of residents have been engaged.

Lead Entity(ies): LADWP, MWD

Collaborating Partner(s): TBF, CRI, LA San

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------------------|
| Link water conservation with outreach events and social media | At least 1 event | Annually through 2024 |
| Educate, engage communities, and provide resources that promote the importance of native plants | At least 1 event; multiple social media posts | Annually through 2024 |
| Support efforts by water agencies to promote water conservation and reuse including dissemination of materials | Event notices; cross-promotion efforts | Annually through 2024 |

DRAFT ACTION #32 – Business Engagement in Water Quality Improvements

Action: Achieve water quality benefits by businesses through community engagement and implementation of best management practices

Action History and Summary: Activities in commercial and other high-density areas in the watershed may contribute significantly to polluted stormwater runoff because of the concentration of businesses such as restaurants and the large volume of vehicular and foot traffic. Potential sources of pollutant loading can range from improper waste disposal and cleaning practices by restaurants, excessive landscape irrigation from commercial businesses, and more. Efforts should be made to reduce pollutant loading from these sources through engagement as well as best management practices (BMPs) that can be rather simple but effective.

TBF’s Clean Bay Certified program has worked with hundreds of restaurants over the years to improve compliance with urban runoff and stormwater management techniques. Inspections of participating restaurants conducted by municipalities are subject to criteria that target best management practices to reduce trash, organic and non-organic pollutants. Clean Bay Certified has expanded to include source reduction, sustainable seafood, and other environmental factors related to restaurants. Other commercial operations could benefit from a similar program.

Lead Entity(ies): TBF, commercial businesses

Collaborating Partner(s): municipalities, LARWQCB, other stakeholders

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------------------|
| Research contaminants, environmental laws, sustainability, pollution prevention standards, and BMPs for commercial businesses such as nurseries, landscapers, restaurants, and horse stables. | Literature review | 2024 |
| Distribute restaurant engagement tools | # of restaurants reached, # of each tool distributed | 2024 |
| Develop funding to support the expansion of best management practices to incorporate other business sectors | Annual submission of proposals and industry support | Annually through 2024 |

DRAFT ACTION #34 – Monitor Harmful Algal Blooms

Action: Monitor and inform management actions for Harmful Algal Blooms (HABs)

Action History and Summary: Harmful Algal Blooms (HABs) can occur when certain types of microscopic algae grow quickly in water, forming visible patches of algae that may harm the health of the environment, plants, or animals. Some species of these algae can produce the potent neurotoxins domoic acid and saxitoxin. While these toxins cause no direct harm to shellfish, the shellfish serve as vectors that transfer the toxins to humans and animals. Bioaccumulation of algal toxins through vector organisms (such as krill and filter feeding fish) in the food web has been linked to erratic behavior in birds and marine mammals, as well as marine animal mortality events. Large scale persistent HABs have the potential to absorb light, shading out and impacting other photosynthetic organisms, e.g. kelp forests or eelgrass habitats. HABs also have the potential to lower dissolved oxygen levels in coastal waters impacting aquatic life.

Awareness of the occurrence of harmful algal blooms along the coastline of the greater Los Angeles area of the Southern California Bight has increased significantly in recent years. There is also evidence that HAB occurs more often and are more widely spread and may further increase with increases in climate change stressors such as warmer waters. More research is needed to understand the timing, geographical distributions and types of harmful blooms, the environmental forcing factors leading to toxic blooms and toxin production, and to link harmful/toxic events with impacts on populations of marine organisms and potential threats to human health. These are important information needed by public health managers, resource managers, and water quality managers for decision-making purposes.

Lead Entity(ies): SCCWRP, SCCOOS, NOAA, USC SeaGrant, LACSD

Collaborating Partner(s): UCLA, TBF, LA Waterkeeper, City of LA EMD

SMBNEP Role: Participate

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-------------------------------|
| Continue to support research and monitoring efforts for HABs, especially in context of climate change and CMP implementation | Monitoring data acquired | 2024 |
| Conduct monthly maintenance of SCCOOS shore station at Santa Monica Pier and seek support for additional sensors | Functioning monitoring station throughout year; new sensor additions | Monthly through 2024; 2024 |

DRAFT ACTION #35 – Monitor Climate Change Impacts and Ocean Acidification

Action: Monitor chemical, physical, and biological characteristics in the Bay to inform climate change impacts such as ocean acidification

Action History and Summary: Santa Monica Bay is an integral part of the Southern California Bight and its watershed provides habitat for more than five thousand species of plants, fish, birds, mammals, and other wildlife. There has been a broad consensus that climate change has, and will have, significant effects on these habitats. As the effects continue to occur, natural community responses are inevitable. Monitoring this change is crucial for understanding the impacts they will have on local communities. In 2016, SMBNEP conducted a broad, risk-based, Climate Change Vulnerability Assessment (CCVA) of the objectives in SMBNEP’s 2013 Bay Restoration Plan (BRP). The CCVA identified risks, vulnerability, and the potential for objectives within the BRP to adapt to the impacts of climate change.

Climate change stressors adopted from the USEPA Workbook included warmer temperatures, warmer waters, increasing drought, increasing storminess, sea level rise, and ocean acidification, which can all be directly or indirectly surveyed through chemical, physical, and biological characteristics in Santa Monica Bay. This monitoring can be used to inform and prioritize future restoration projects, identify stressors, and to highlight potential adaptive management scenarios. An additional consideration is invasion by non-native species, and what that may mean in habitats that continue to experience significant changes. This action also is meant to inform and fill data gaps in the Comprehensive Monitoring Program.

Lead Entity(ies): TBF, CRI, UCLA, SCCWRP, USGS, Scripps

Collaborating Partner(s): SCCOOS, UC Davis, LACSD, City of LA EMD, CSUN, others

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|-----------------------|
| Kelp Forest Hydrodynamic Study | Instruments deployed at 2 new sites | 2020 |
| Support OA sensor array maintenance, calibration, and data downloads in accordance with SOP | Quarterly data downloads and annual calibration | Annually through 2024 |
| Support inclusion of climate change impacts into CMP, especially through new models and data | CMP implementation report | Annually through 2024 |
| Convene technical advisors to prioritize actions based on information from CMP | TAC subcommittee meeting recommendations | 2020 |

DRAFT ACTION #36 – Research and Monitor Deep Water Habitats

Action: Increase understanding of deep water habitats such as submarine canyons, deep reefs, and outfall pipes

Action History and Summary: The 306 square miles of open ocean in Santa Monica Bay provides three types of marine habitats: pelagic, soft-bottom, and hard-bottom. The pelagic habitat, or open waters community, is the most obvious habitat in the Bay, extending from the surface to depths of 1,640 feet and having a total water volume of about 6,840 billion gallons. The pelagic environment supports a wide range of organisms of all trophic levels including planktonic (e.g. bacteria, phytoplankton, and zooplankton) or nektonic (e.g. fish, sharks, and whales). Major threats to the health of the pelagic habitats include overfishing, pollutant loading, impingement and entrainment, climate change, and harmful algal bloom. Strategies to deal with some of these threats are laid out in other sections of this plan. Except for Short Bank, which is the only naturally occurring deep rocky area in the Bay, most of the deep seafloor in Santa Monica Bay consists of soft sediments, which are a mixture of sand, silt and clay. Over 100 species of bottom-dwelling (demersal) fish utilize this habitat, including Pacific sanddab, rockfish, white croaker, surfperches, and California halibut. Over the last 70 years, a large part of this habitat (as much as 10 percent to 20 percent of the Bay’s seafloor) has been degraded by wastewater discharges from the two ocean wastewater outfalls operated by the Hyperion Treatment Plant and JWPCP. One of the most severely damaged areas is around the JWPCP outfall where deposits of sludge and contaminated sediments with high levels of DDTs, PCBs, and other pollutants had at one time created a dead zone, and resulted in contamination of sportfish, marine birds and mammals through bioaccumulation and biomagnifications.

In recent years, however, there has been evidence that marine habitats surrounding the outfalls have improved, especially after both POTWs achieved full upgrading to secondary level for their wastewater treatment. Aside from bathymetry, much of the sea floor of Santa Monica Bay is unexplored, despite its proximity. Advancements in remote technologies and environmental monitoring have removed or reduced the barriers to the exploration of these habitats. In the coming years, TBF and partners will advance the understanding of these habitats through innovative technologies.

Lead Entity(ies): TBF, CRI, UCLA, SCCWRP

Collaborating Partner(s): Blue Robotics

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---|--------------------------|
| ROV surveys to collect physical, chemical, and visual data | Two deployments per year; Protocol development | Annually through 2024 |
| Identify and apply emerging technology and techniques to better characterize Bay habitats, including recommendations | Data collection and recommendations | 2024 |

DRAFT ACTION #37 – Monitor Rocky Intertidal Habitats

Action: Monitor and improve understanding of rocky intertidal habitats to inform restoration actions

Action History and Summary: A continuing threat to rocky intertidal habitats and the associated biological communities is direct human disturbance in the form of trampling, rock turning, and collecting by the many visitors to these areas. Two protected areas have been established on the PV Peninsula, and State Parks oversees the rocky intertidal areas at Leo Carillo State Beach. In all cases, the educational materials are intended to inform visitors and protect to help save rocky intertidal habitat from these visitor impacts. The two PV areas, one at Abalone Cove and the other at Point Fermin, are designated as Ecological Reserves by CDFW. Restrictions in these areas include: no taking or disturbing of any plant or animal; no commercial fishing; no pets without a leash; and no fires. However, without active enforcement, the protection afforded by these areas is limited.

In 2005, SMBRC completed a feasibility study for the restoration of natural resources in rocky intertidal habitats in the Bay. The study shows that high levels of human use have negatively impacted many intertidal species and current management practices are not effective in protecting the intertidal communities. In response to the study findings, recommendations support a set of management measures including signs and/or information displays at rocky intertidal habitats, development and distribution of brochures at parking lot entrances, development and/or enhancement of existing docent programs, implementation of educational programs for park rangers and lifeguards, and expansion of existing exclusion zones. In 2017, CRI monitored rocky intertidal habitat at Point Fermin to inform potential sea level rise impacts on physical and biological conditions. Greater understanding of these habitats is vital to their protection and improvement.

Lead Entity(ies): TBF, CRI, State Parks

Collaborating Partner(s): UCLA

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|-------------------------------------|-----------|
| Support study recommendations and outreach efforts for improved protection | New signs and materials distributed | 2024 |
| Develop mitigation measures for rocky intertidal habitats, including restoration and enhancement of physical structure | Measures produced | 2024 |

DRAFT ACTION #39 – Monitor and Inform MPAs, FMPs, and Local Fisheries

Action: Monitor and inform effective management of Marine Protected Areas, Fishery Management Plans, and local fisheries for recreational and commercially important species

Action History and Summary: Declines in fisheries and degradation of vital marine habitats have led to a growing demand for ecosystem-based and spatially-based approaches to fisheries management, including marine protected areas (MPAs). MPAs are discrete geographic marine or estuarine areas designed to protect or conserve marine life and habitat. When designed and managed effectively, MPAs can help to preserve biological diversity, protect habitats, aid in the recovery of depleted fisheries, and promote recreational, scientific, and educational opportunities. In 2012, the state created a network of MPAs for southern California, including four in the Santa Monica Bay: Point Dume State Marine Conservation Area, Point Dume State Marine Reserve, Point Vicente State Marine Conservation Area, and Abalone Cove State Marine Conservation Area.

The creation of MPAs affords protection to some marine life, but the decline of fishery resources in and around the Bay will continue to remain a risk until effective management measures are implemented, such as state fishery management plans (FMPs). Additionally, these MPAs and FMPs need to be informed by reliable information which is critical to their effective management (e.g. populations, take information, and life-history data). Local fisheries have also been supported by data and efforts of the Marina Del Rey Anglers, including an FMP for white seabass and a draft FMP for halibut.

Lead Entity(ies): CDFW, NMFS, OREHP, LAC-DBH

Collaborating Partner(s): Marina Del Rey Anglers

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|----------------------------------|------------------|
| Support MDRA in their implementation of the youth and veteran fishing program | # of boat trips and participants | Annually by 2024 |
| Support MDRA in the completion of a halibut FMP | Completed FMP | 2024 |
| Continue opportunistic aerial surveys to track boating and vessel activity | Reporting as possible or funded | 2024 |

DRAFT ACTION #41 – Monitor Microplastics and Other Marine Debris

Action: Monitor microplastics (including microfibers) and other marine debris in the Bay and coastal environments to inform management actions

Action History and Summary: Microplastics are small plastic pieces less than five millimeters long which can be harmful to our ocean and aquatic life. Plastic is the most prevalent type of marine debris found in our oceans, and microplastics are considered an emerging constituent of concern due to their ubiquitous presence in the environment, danger to marine life when ingested, and potential to bioaccumulate chemicals up the food web. Microplastics result from degrading macroplastics or are manufactured for areas like the cosmetic industry. A pilot study led by Loyola Marymount University’s Coastal Research Institute (CRI) in 2017 analyzed microplastics from the Santa Monica Bay beaches; however, the method used yielded a low percent recovery for microplastic seeded sand samples and allowed sand to be carried over from samples. This protocol has been further refined by CRI in 2018 and pilot studies conducted. Further research is necessary to establish trends for this constituent throughout the Bay as well as improve our understanding of long-term impacts. This action also supports the implementation of the Comprehensive Monitoring Program.

Lead Entity(ies): TBF, CRI

Collaborating Partner(s): USEPA, UCLA, SCCWRP, SCCOOS

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|---------------------------|-----------|
| Complete the development of a microplastics in sediment extraction and analysis method | Completed method protocol | 2019 |
| Publish a manuscript on the results of SM Bay studies | Completed manuscript | 2021 |

DRAFT ACTION #42 – Improve Understanding of Emerging Contaminants

Action: Improve understanding of emerging contaminants through monitoring and research to inform source control and reduce loading, especially in the context of climate change (e.g. fire retardants)

Action History and Summary: While existing water quality improvement programs, especially the program for controlling point source pollution from POTWs, has achieved significant reduction of loading for pollutants such as DDT, PCBs, and heavy metals, many new contaminants are emerging and causing concern due to their potential detrimental impacts on the marine ecosystem and human health. The so-called emerging contaminants include, but are not limited to, polybrominated diphenyl ethers (PBDEs), which are used primarily as flame retardants, perfluorinated chemicals that are used as stain repellants, and other pharmaceuticals or other personal care products that may harm aquatic life or the environment.

A comprehensive strategy should be developed and implemented to address the issues of emerging contaminants. First, more monitoring and studies need to be conducted to estimate the scale of the contamination and determine the environmental risk of many of these and other compounds. For emerging contaminants known to pose high environmental risk, standard and routine monitoring should be conducted. Meanwhile, actions such as outreach and education should be taken to reduce the loading of emerging contaminants for which the risks are better known. Finally, new technology and methodology need to be developed to identify new, potential emerging contaminants and verify their damaging effects.

Lead Entity(ies): SCCWRP, SWRCB, LARWQCB

Collaborating Partner(s): POTWs, TBF, CRI

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|--|-----------|
| Conduct more studies to assess the effects of emerging contaminants on riparian and marine ecosystem | Study findings and reports | 2024 |
| Improve analytical methodology and standardize monitoring of more emerging contaminants | Expanded list of contaminants monitored and monitoring reports | 2024 |
| Enhance and expand existing educational programs and enforcement efforts to reduce the use and dispersal of emerging contaminants | Program implementation progress reports | 2024 |

DRAFT ACTION #43 – Inform Non-Point Source Pollution

Action: Research and inform best management and pollution reduction practices to address non-point source pollution

Action History and Summary: Non-point Source (NPS) pollution is generally defined as pollution that occurs when rainfall picks up pollutants as it runs over the land, then carries the pollutants into rivers, lakes, coastal waters, or groundwater. Careless or uninformed household use of water, pesticides and chemicals also adds to the problem. Excessive landscape irrigation, sidewalk and driveway rinsing, fire hydrant testing, etc. by residential, industrial, and commercial properties in the watershed are a major source of NPS dry- weather runoff which contributes to pollutant loading to the Bay. Some of these pollutants are visible such as sediment, motor oil and trash, and others that are not easily visible such as dissolved metals, nutrients, oxygen demanding substances, and organic chemicals. Source control and awareness for non-point source pollution can greatly reduce loading. Within the Santa Monica Bay watershed, these efforts work in conjunction with infrastructure intended to further limit or treat the water before releasing back to the environment.

Green infrastructure and low impact development (LID) practices are increasingly used as a tool to capture, treat, and infiltrate stormwater and dry weather runoff. In addition to improving surface water quality, these practices can also provide multiple benefits including creation of native habitat, beautification of the urban landscape, and groundwater recharge. Green infrastructure and LID practices are still relatively new methods of controlling NPS pollution and need additional research and monitoring to document the efficacy of these technologies. SMBNEP has facilitated monitoring at the Ballona Creek Rain Garden, but this program should be expanded to additional projects such as Milton Green Street, University Park Rain Gardens, Torrance Stormwater Basin Enhancements, and Oxford Basin in Marina del Rey. Additionally, TBF and SMBRC will seek new partnership and funding opportunities for new rain garden, water conservation, and other LID project monitoring efforts.

Lead Entity(ies): LARWQCB, SCCWRP, watershed municipalities, companies, others

Collaborating Partner(s): SWRCB, SMBRC, TBF

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-----------|
| Identify partners and identify funding sources for long-term monitoring efforts for LID and water conservation efforts | MOUs or other agreements with partners | 2019 |
| Implement monitoring programs for long-term monitoring | Monitoring Reports | 2021 |

DRAFT ACTION #44 – Inform Greenhouse Gas Emissions / Carbon Sequestration

Action: Inform strategies to reduce greenhouse gas emissions and increase carbon sequestration

Action History and Summary: Greenhouse gases (GHGs) trap heat in the atmosphere and are a leading cause of climate change. The gases produced by industrial processes, burning of fossil fuels, agriculture, and decay of organic wastes in landfills are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. In 2016, USEPA determined CO₂ accounts for 81% of the greenhouse gases emitted into the atmosphere. Carbon dioxide is removed from the atmosphere when it is absorbed by plants, sequestered in sediments, and incorporated into plant or animal tissue as part of the biological carbon cycle. It is scientifically recognized that many of the Bay’s habitats, including kelp forests, wetlands, dunes, and others provide natural carbon sequestration mechanisms.

Investments in ecological restoration or enhancement of habitats that increase biological production are a means to increase carbon sequestration. California recognizes this benefit and directs funds to projects that increase carbon sequestration often in conjunction with related benefits to people and wildlife. This is a potentially significant source of funding for coastal restoration projects like those identified elsewhere in this plan. Further literature review and research conducted locally will increase our knowledge for the rate(s) and pathways of carbon moving through our natural systems. This concept will generate access to funding and advance project implementation (to achieve other actions in this plan) while reducing GHG concentrations in the atmosphere and surface waters. Additionally, TBF’s Table to Farm Composting for Clean Air program connects restaurants with compost hubs, urban farms, and community gardens in an effort to mitigate methane generation from landfills and increase the production of organics recycling and healthy soils.

Lead Entity(ies): TBF, CRI

Collaborating Partner(s): UCLA, USC SeaGrant, others

SMBNEP Role: Co-Lead

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|------------------------------|-----------|
| Research landfill diversion’s reduction on greenhouse gas emissions and carbon sequestration due to compost application | Literature review | 2024 |
| Conduct research to establish rate of carbon sequestration associated with key habitats in the Santa Monica Bay its Watershed | Literature review | 2024 |
| Identify projects or programs that will prioritize carbon sequestration and resilience | Summary of priority projects | 2024 |

DRAFT ACTION #46 – Inform New Water, Sediment, and Biological Objectives

Action: Facilitate research, monitoring, and assessments that inform more accurate waste load allocations and development of new water, sediment, and biological objectives

Action History and Summary: The current water quality regulatory framework has been credited as the primary force in bringing significant improvement in water quality over the last decades and should be strengthened to ensure continued progress. The central pieces of this system are federal (NPDES) and state (WDR) wastewater discharge permitting requirements to ensure attainment of TMDL waste load allocations, and ultimately the objectives established for water, sediment, and biological conditions. The consent decree reached in 1999 for compliance with TMDL requirements in federal law was a major breakthrough and as a result, development of TMDLs had been scheduled for nearly all pollutants of concern. At the local level, LARWQCB is the primary state agency responsible for implementing these programs. Meanwhile, the ultimate attainment of water quality standards must rely on the joint efforts of the regulators and the regulated communities through collaborative, integrated watershed-wide planning and implementation activities. The 2012 MS4 permit created a new, watershed-focused process for compliance. The permit encourages the use of Green Infrastructure, Low Impact Development (LID), and multi-benefit regional projects. The spatial scale of this water quality program captures the entirety of the Santa Monica Bay Watershed. Effective monitoring to demonstrate the results of these efforts will be necessary to describe water quality benefits and inform adaptive management of the MS4 and other TMDL’s.

As of October 2018, 13 TMDLs have been adopted and become effective at targeting loading of trash, bacteria, metals, toxics, nutrients, sediment, and invasive vegetation for various waterbodies in the Bay watershed. To assist in TMDL implementation, SMBNEP will conduct or support additional monitoring and technical studies to better characterize pollutant loading including both natural and anthropogenic sources, understand pollutant impacts, evaluate effectiveness of pollutant control measures, and fill other data gaps. SMBRC will also play a supporting role in the attainment of water quality goals in adopted TMDLs by implementing the CCMP.

Lead Entity(ies): SWRCB, LARWQCB, SCCWRP

Collaborating Partner(s): watershed municipalities, SMBRC, TBF

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|--|-----------|
| Conduct or support monitoring and special technical studies to better characterize pollutant loading, impacts and evaluate effectiveness of pollutant control measures | Study findings and reports | 2024 |
| Conduct or support data collection for water quality objective development | Water quality objectives or TMDLs newly developed or updated | 2024 |

DRAFT ACTION #48 – Clean Water and Clean Beach Funding Mechanism

Action: Implement the County-wide Clean Water and Clean Beach funding to support stormwater pollution control projects

Action History and Summary: Lack of stable funding resources has been a substantial obstacle for carrying out storm water pollution control programs in the Region. While a few municipalities in the watershed have been successful in securing funding from voter-approved property assessment fees to meet the need for storm water pollution control, the County and most municipalities in the watershed have not made or succeeded in similar efforts. A concerted effort by a coalition of environmental organizations, and state, county, and local governments finally succeeded in placing a property tax on the November 2018 ballot to raise money for the Safe Clean Water L.A. Program.

The measure would allow the county to levy a tax of 2.5 cents per square foot of impermeable space on private property. Revenue from the tax, estimated to amount to \$300 million annually, would fund projects that capture, clean, and conserve storm water, increasing local water supplies, improving water quality, and creating opportunities for new recreational green space and habitat. It would also enable cities across the county to comply with federal clean water regulations as well as increase the local water supply.

Lead Entity(ies): LA County

Collaborating Partner(s): SMBRC, Heal the Bay, LA Waterkeeper

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|--|----------------------------------|-----------|
| Support passage of the County-wide property tax measure for funding of the Safe Clean Water LA Program | Passage of the funding measure | 2018 |
| Participate in advisory board and support implementation of projects from the new funding mechanism | # of projects; amount of funding | 2024 |

DRAFT ACTION #50 – Support Comprehensive Sediment Management Plan

Action: Support the development and implementation of a comprehensive regional sediment management plan for restoring natural hydrological functions of river systems and mitigating impacts from climate change

Action History and Summary: Nearly one hundred years of flood control and coastal development have attenuated the delivery of sediment to the coast of Santa Monica Bay. Roads, culverts, bridges, sea walls, dams and detention basins all intended to promote commerce and protect the public have done so at the cost of sediment supply or transport. With recognition that sea level rise will continue the beaches and flood plains of coastal wetlands will need sediment to keep pace with the ocean’s rise. Developing plans and programs that will encourage the deposition and retention of sediments along the coast will protect public health and commerce.

Surf culture and going to the beach with family and friends is a characteristic of life in Los Angeles. With increased warming the need for people to escape the heat and find relief at the beach or in the water will become increasingly important. The enhancement and ecological restoration of beaches and wetlands will promote wildlife and improve water quality while increasing flood protection for public and private infrastructure. To advance this concept an analysis involving the hydrodynamics of the Los Angeles Basin would need to be undertaken, identifying opportunities and limitations to enhanced sediment transport. Sea level rise scenarios and areas particularly vulnerable to coastal squeeze would need to be similarly analyzed and management actions developed. Coastal wetlands and adjacent uplands should be managed with sea level rise incorporated into the design and implementation of future development, restoration or management actions.

Lead Entity(ies): LAC-FCD, LAC-DBH, municipalities, USEPA, CCC, SLC, State Parks, SCC

Collaborating Partner(s): TBF

SMBNEP Role: Support

| Next Step(s): | Performance Metric(s): | Timeline: |
|---|----------------------------|-----------------------|
| Convene meetings to initiate program development and identify opportunities | Meeting summaries | Annually through 2024 |
| Develop plans to promote sediment transport and deposition along the coast | Final plans | 2024 |
| Build capacity and conduct pilot projects to inform future actions and advance program development/design | Summary of recommendations | 2024 |