SANTA MONICA BAY NATIONAL ESTUARY PROGRAM Fiscal Year 2021 Work Plan

1 October 2020 – 30 September 2021

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Final Work Plan Approved by SMBNEP Management Conference

Table of Contents

Common Work Plan Acronyms

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
CRAM	California Rapid Assessment Method
CRI	Loyola Marymount University's Coastal Research Institute
CVA	Clean Vessel Act
CWMW	California Wetland Monitoring Workgroup
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)
LACDBH	Los Angeles County Department of Beaches and Harbors
LACDPH	Los Angeles County Department of Public Health
LACDPW	Los Angeles County Department of Public Works
LACFCD	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
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
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

I. INTRODUCTION

Santa Monica Bay National Estuary Program Entities

Section 320 of the federal Clean Water Act establishes the National Estuary Program (NEP), which is administered by the United States Environmental Protection Agency (USEPA)[1]. The Santa Monica Bay National Estuary Program (SMBNEP) is a locally driven program supported by a private-public partnership. This partnership is implemented by two entities during the FY21 Work Plan period: Santa Monica Bay Restoration Commission (SMBRC) and The Bay Foundation (TBF). The two entities work together to implement the Comprehensive Conservation and Management Plan (CCMP) for SMBNEP along with their many partners. Each entity is briefly described below, and more information can be found on the roles, membership, and relationship between entities on the following webpage: http://www.smbrc.ca.gov/about_us/orientation/.

SMBRC is a non-regulatory, locally based state entity established by an act of the California Legislature in 2002 [Pub. Res. Code §30988(d)]. SMBRC is charged with coordinating activities of state entities to restore and enhance the Santa Monica Bay, including identifying and leveraging funding to put solutions into action, building public-private partnerships, promoting cutting-edge research and technology, facilitating stakeholder-driven consensus processes, and raising public awareness (www.smbrc.ca.gov). SMBRC brings together local, state, and federal agencies, environmental groups, businesses, scientists, and members of the public on its 36-member Governing Board. SMBRC is also supported by a Technical Advisory Committee (TAC), and a broad stakeholder body, the Watershed Advisory Council (WAC). SMBRC is supported administratively by the State Water Resources Control Board (SWRCB).

TBF is an independent, non-profit 501(c)(3) organization founded in 1990. The mission of TBF is to contribute to the restoration and enhancement of the Santa Monica Bay and other coastal waters (www.santamonicabay.org/). TBF receives an annual grant from USEPA pursuant to section 320 of the Clean Water Act (33 U.S.C. §1330) to implement the CCMP. TBF also receives important grants and donations from other entities to support TBF and its implementation of the CCMP.

In addition, Loyola Marymount University's Coastal Research Institute (CRI) works collaboratively with TBF to support CCMP and Comprehensive Monitoring Program (CMP) efforts. CRI brings together expertise from Loyola Marymount University's Frank R. Seaver College of Science and Engineering and TBF to restore and enhance Santa Monica Bay and local coastal waters. CRI contributes to a better understanding of global urban coastal resource management through the execution of projects that stem from TBF's work as part of SMBNEP and its efforts to implement the CCMP. CRI

[1] Additional information on US EPA's National Estuary Program is available at https://www.epa.gov/nep.

engages educators, academics, graduate students, undergraduate students, agencies, industry, and more in research related to coastal resource management.

Comprehensive Conservation and Management Plan and FY21 Work Plan

The original CCMP, or Bay Restoration Plan (BRP), of 1995 was updated in 2008 and again in 2013. SMBNEP is currently undergoing a major CCMP revision, completing a revised Action Plan in October 2018 and a Finance Plan in December 2019 (both key components of the CCMP). USEPA's funding guidance describes a revision as an alteration of the CCMP that involves significant changes such as new or significantly altered goals, or to incorporate new information and data, such as climate change. Revisions are made to the CCMP through an iterative and public process with active participation from members of the Governing Board as well as members of the WAC and TAC. The 2018 CCMP Action Plan identified approaches and strategies intended to make substantial progress toward clean waters and healthy habitats over the next five to twenty years. It reflected the consensus of SMBNEP partners with regard to the best strategies and priorities to ensure continued progress and achieve improved water quality, protection and restoration of habitats, and benefits to humans in the Bay and its watershed. The current revision to the CCMP still requires the completion of several steps, including a supplemental information chapter, and consideration of the structure and governance of SMBNEP. Additionally, the CMP is also being revised, led by the TAC.

This Fiscal Year 21 (FY21) Work Plan builds off the 2018 CCMP Action Plan and is focused on a subset of the identified actions and next steps in the Plan. The purpose of Work Plan is to identify program objectives, tasks, and timelines of the work to be performed during the federal fiscal year (FY21): October 1, 2020 – September 30, 2021, specifically to accomplish the goals and actions of the 2018 CCMP Action Plan, the CMP, and various technical, managerial, and administrative activities necessary to continue to advance the mission of SMBNEP. .

In addition, USEPA identified two areas of special interest in NEP funding guidance that the FY21 Work Plan should focus on: nutrient pollution reduction and climate resilience. The 2018 CCMP Action Plan and the FY21 Work Plan incorporate several Actions that focus on these interests. For example, nutrient pollution reduction is addressed directly, by supporting elimination of non-point pollution from sources (Actions #18 and 20) and researching and informing best management and pollution reduction practices to address non-point source pollution and facilitate reduction (Action #40), and indirectly, by supporting pollution reduction research, projects, and policy (e.g. Actions #16, 17, 23, and 43) and restoring habitats that mitigate pollutant loading (e.g. Actions #11 and 28). Likewise and as mentioned below, mitigating impacts and increasing resilience to climate change is a critical goal of SMBNEP, highlighted in several Actions including preserving and restoring habitats to improve resilience (Actions #1-2, 4-8, and 12-13), increasing local water supplies (Actions #17 and 21), supporting effective governance and policy (Actions #24 and 25), improving stakeholder engagement and education on impacts and solutions (Action #30), conducting research and monitoring of mitigation

strategies (Actions #34-36 and 42), and developing funding and partnerships to further resiliency goals (Action #44).

The management conference and public stakeholders identified the need to retain the top priorities of SMBNEP from the previous BRP, which included improving water quality, conserving and rehabilitating natural resources, and protecting the Bay's benefits and values to people. Given the cross-cutting and multi-benefit nature of most of the projects and programs listed in this Action Plan, the management conference decided not to arbitrarily separate out projects based on categorizing them into one of those three priority areas. These three priority areas should be thought of as integrated and supported throughout the Work Plan, along with a new priority area, understanding and adapting to climate change impacts. Within these four priority areas, (including understanding and adapting to climate change impacts), seven goals were identified in the 2018 CCMP Action Plan and are listed below. All seven goals are to be addressed by the actions and next steps identified in this FY21 Work Plan. The goals are achieved through actions by many different entities, including public agencies and non-profit organizations that take the lead on specific projects.

Seven 2018 CCMP Action Plan Goals:

1. Protect, enhance, and improve ecosystems of Santa Monica Bay and its watersheds
2. Improve water availability
3. Improve water quality
4. Enhance socio-economic benefits to the public
5. Enhance public engagement and education
6. Mitigate impacts and increase resiliency to climate change
7. Improve monitoring and ability to assess effectiveness of management actions

Connection to USEPA Goals

The Clean Water Act section 320 grant is administered by USEPA and provided to TBF for carrying out certain Annual Work Plan activities. Non-federal grant matching funds are required at a minimum rate of 1:1. In lieu of direct funding, the State Water Resources Control Board (SWRCB) contributes by providing state staff, office space, and other administrative services to SMBRC. In addition to the SWRCB contribution, the federal grant match requirement is met using funds from the State bond grants [e.g., Proposition 50 and 84 grants administered by the SWRCB and Proposition 12 grants administered by the State Coastal Conservancy (SCC)], and other state and local grants and funds received and managed by TBF. Projects and activities conducted by other entities identified in this Work Plan are funded by various sources secured by those entities.

The FY21 Work Plan and the CCMP serve USEPA's Goal 1: Core Mission – deliver real results to provide Americans with clean air, land, and water. USEPA's FY 2018-2022 Strategic Plan defines a course for the agency and is organized around three key goals, including: refocusing the USEPA back to its core mission, cooperative federalism, and

adhering to process and rule of law. This Work Plan includes activities that will contribute to the FY18-22 USEPA Strategic Plan goals as well as the Office of Water National Water Program Guidance (FY20-21). Specifically, SMBNEP contributes to the elements of the guidance that focus on meeting water quality standards within watersheds and addressing non-point source pollution.

II. WORK PLAN OVERVIEW

Work Plan Structure

Section II of the Work Plan provides a brief discussion of the structure of the Work Plan and a summary of SMBNEP program accomplishments and key projects or programs. Section III provides details on the individual actions, next steps, objectives, deliverables, and environmental outcomes (results) for each next step and contains the bulk of the information contained in this Work Plan. Many of these actions or next steps have detailed implementation, monitoring, or permitting plans associated with them and summarizing them would make this document an unmanageable size. For additional details on individual projects, refer to TBF's website. SMBNEP Annual Work Plans, semi-annual reports, and annual reports are also available on SMBRC's website. Section IV depicts the Work Plan budget and travel documentation. The Work Plan was developed from the 2018 CCMP Action Plan, workshops with the Governing Board, public input, and partner and staff input.

The scope of this Work Plan is broad and multifaceted. Significant efforts will be devoted to carry out water quality improvement and habitat restoration programs and projects this year, in support of many of the actions in the 2018 CCMP Action Plan. The structure of the Work Plan is intended to mimic the structure of the 2018 CCMP Action Plan to facilitate ease of translation of progress towards implementing the 44 identified actions in the CCMP Action Plan. There will also be focus and efforts in FY21 to implement programs that interconnect and integrate issues across traditional boundaries such as climate change and comprehensive monitoring, and efforts to improve public outreach and participation. As part of the stakeholder education and engagement category, there will be efforts to provide opportunities for public information exchange and in-depth discussion on issues important to the SMBNEP and of interest to stakeholders, such as at workshops and forums. Although not identified or linked to Actions contained in this Work Plan, specific topics for workshops or forums will be planned on an as-needed basis throughout the fiscal year.

Appendix A includes the completed projects table from FY20. Appendix B includes the Santa Monica Bay National Estuary Program entities staffing tables.

Work Plan Changes from FY20

The structural differences between the FY20 Work Plan and the FY21 Work Plan are relatively minor, as both documents cross-walk to the new structure of the 2018 CCMP Action Plan. Additionally, many of the priorities and actions remain similar to previous years. New next steps or projects that are part of this Work Plan are identified in the main tables with an asterisk. This structure and format of the Work Plan document (beginning in FY20) reflects the goals of SMBNEP to increase clarity, reporting efficiency, and readability and succinctness of the Work Plan. Furthermore, these efforts are intended to increase consistency between the 2018 CCMP Action Plan and Work Plans, and consistency with USEPA funding guidance. If an action identified in the Action Plan is not contained in this Work Plan, it still remains a priority of SMBNEP. It

may be that funding hasn't been identified for FY21, or that action may still be in development or in a planning stage. This does not preclude those next steps from being included in future Work Plans as part of the 5-year CCMP Action Plan. The FY21 Work Plan is the second implementation year of the 2018 CCMP Action Plan.

SMBNEP Program Accomplishments from Previous Year (2019)

This section contains a synthesis of programmatic or environmental success stories from the past year. This includes highlights from significant programs or projects and is categorically subdivided into 'wetlands, rivers, and streams', 'beaches, dunes, and bluffs', 'in the ocean', 'integrated coastal projects', 'climate change', and 'our communities'. For additional detail on project activities, visit TBF's website: www.santamonicabay.org.

Wetlands, Rivers, and Streams

Malibu Lagoon Post-Restoration Monitoring – This long-term comprehensive monitoring program evaluated the condition of the post-restoration Lagoon through biological, physical, and chemical surveys. In August 2019, the sixth and final Comprehensive Monitoring Report was completed and released, and the site was found to be meeting or exceeding all identified project goals and success criteria. Malibu Lagoon continued to have improved circulation, water quality, and overall condition. Public restoration events were held periodically to remove non-native, invasive vegetation.

Community-Based Restoration at Ballona Wetlands – This long-term project is restoring approximately three acres of heavily degraded habitats at the Ballona Wetlands Ecological Reserve through community-based restoration activities. In 2019, 95 volunteers removed invasive vegetation through eight community restoration events. Additionally, TBF produced a Year 3 Annual Report in August 2019. Year 3 results indicated a significant reduction in non-native vegetation cover in most areas as compared to the baseline, and an increase in native vegetation cover. Ongoing invasive vegetation removal, monitoring, and revegetation efforts will continue in 2020.

Evaluating Regional Wetland Monitoring Programs – This program worked towards increasing regional understanding of the condition of local coastal wetland systems and applying that knowledge towards standardizing wetland monitoring across the state of California. In 2019, this program continued work on data standardization, data consolidation and analyses, held program partnership meetings, and conducted outreach activities. Additionally, work continued updating the California Wetland Monitoring Manual. This program is conducted in partnership with California State University, Long Beach, Tijuana River National Estuarine Research Reserve, and Southern California Coastal Water Research Project.

Stone Canyon Creek Restoration – TBF, UCLA, and the UCLA Lab School have worked together, alongside thousands of volunteers, to help restore a portion of one of the few remaining unburied creeks in the area. Serving as a 'living classroom' for both UCLA and the Lab School, this project is being scientifically monitored by UCLA and TBF for vegetation and wildlife, as well as periodic community maintenance. In 2019, UCLA's

Environmental Sustainability Committee began developing stewardship planning for this site for the next several years, continued monitoring, and started planning for restoration events.

Beaches, Dunes, and Bluffs

LAX Dunes Restoration – In partnership with Los Angeles World Airports and Friends of the LAX Dunes, TBF conducted monthly volunteer restoration events at the LAX Dunes to remove invasive vegetation and teach the local community about the importance and resilience of coastal dune systems. Additionally, TBF coordinated biological monitoring activities and lead partners in larger-scale invasive plant removal efforts. In 2019, 766 volunteers completed over 2,000 hours and pulled over 850 bags of invasive, non-native vegetation. Additionally, the program had volunteer participants from nearly 200 unique zip codes, with many of them from disadvantaged communities. The third and final report for the Coastal Dune Community Stewardship Project was produced in March 2019. In August, TBF initiated a new three-year agreement with City of Los Angeles to conduct restoration activities and scientific monitoring in the northern 48-acre area and expand into the central 52-acre dune area.

Santa Monica Beach Restoration Pilot Project – This pilot project is restoring approximately three acres of sandy coastal habitat on the beach in the City of Santa Monica. The project is reestablishing native vegetation on the beach, while aiming to create a sustainable coastal strand and foredune habitat complex resilient to sea level rise and coastal erosion. In 2019, native dune vegetation and sand hummocks continued to establish, in some places up to a meter in height, ongoing monitoring informed climate change resiliency planning, outreach efforts continued to inform coastal planning, and a Year 3 Annual Report was produced in September.

Malibu Living Shoreline Project – This project, in partnership with the City of Malibu, Los Angeles County Department of Beaches and Harbors (LACDBH), and State Coastal Conservancy (SCC) aims to restore three acres of sandy beach and dune habitats at Zuma Beach and Point Dume Beach to improve coastal resiliency and increase the health of the beach systems through a living shoreline approach. In 2019, project partners continued planning, permitting, community outreach, and conducted baseline monitoring. Conceptual designs, artistic renderings, and restoration design was completed by Rios and Coastal Restoration Consultants. Interpretive sign designs will be finalized in early 2020.

Manhattan Beach Dune Restoration – This project aims to restore approximately three acres of foredune habitat in the City of Manhattan Beach to provide infrastructure protection and increase coastal resilience, while improving habitat quality through invasive plant removal and native plant establishment. In 2019, TBF continued partnership and concept development with LACDBH, City of Manhattan Beach, and USGS, presented to Manhattan Beach's City Council, and was awarded a grant from California State Coastal Conservancy to start work in early 2020.

Beach Characterization Studies – In partnership with Loyola Marymount University's Coastal Research Institute (CRI), this research project is conducting a site-suitability

analysis to determine potential areas for beach restoration, evaluating factors such as recreational use, physical, and biological characteristics, while contributing information to the Comprehensive Monitoring Program. In 2019, Dr. John Dorsey and several CRI internship students continued a pilot study along beaches in the Bay, initiated the site-suitability analysis, assessed beach vulnerability, and produced a research poster.

In the Ocean

Kelp Forest Restoration – This project was developed to reverse the loss of kelp forests off the Palos Verdes Peninsula. The restoration is achieved by systematically reducing the density of sea urchins on the ocean floor to a target of two per square meter. This approach allows for the regrowth of kelp and increases diversity. In 2019, five acres of kelp forest were restored, bringing the total for this project, started in 2013, to 51.9 acres in total. Commercial fishermen and TBF scientists restore and monitor these reefs, respectively, as they are transformed from urchin barrens to kelp forests.

Abalone Restoration – This project implements a multifaceted approach to research and method development to restore populations of abalone to Santa Monica Bay and adjacent coastal waters. In 2018 and 2019, construction phases for two abalone laboratories were completed at the Southern California Marine Institute (SCMI). In these laboratories, TBF advances research on captive and wild abalone care, spawning, and larval cultivation techniques. The focus of this work has been refined to support the recovery of the endangered white abalone. Over 1,600 white abalone were transported from Bodega Marine Lab to SCMI in August 2019, and they were the first animals of their species to be outplanted into the wild in November 2019.

Socio-Economic Research Related to Marine Spatial Planning – This aerial-survey based project maps the location, type, and activity of boats along the southern California coast from the U.S. Mexican Border to Point Conception. Started in 2008, this effort was intended to track boater responses to the establishment of the Marine Protected Area (MPA) network. Quarterly survey flights continue to assess compliance with MPA regulations and capture emerging trends in fishery or boating activity. In 2019, TBF biologists collected data from the planes donated by LightHawk volunteer pilots to continue this fishery independent data set. TBF received an award from LightHawk in appreciation for this longstanding partnership.

Oceanographic Shore Station – An array of sensors is affixed to the Santa Monica Pier measure the temperature, pressure, chlorophyll, and salinity of the ocean water. These data are available real-time on the Southern California Coastal Ocean Observing System website SCCOOS website. In 2019, TBF, Los Angeles Waterkeeper, and SCCOOS divers maintained this array with support from the City of Los Angeles, USEPA, and the City of Santa Monica Harbor Patrol. This shore station is one of four in southern California. Collectively these stations help describe changes in the nearshore ocean over time.

Integrated Coastal Projects

Los Angeles Living Shoreline Project (LA-LSP) – This innovative project, with a diversity of partners and supporters, aims to implement a multi-habitat approach to restore approximately 3.5 acres of beach and coastal bluff habitat while increasing coastal resilience in a disadvantaged community. This project also includes an experimental project to establish offshore eelgrass within a one-acre footprint. LA-LSP is being funded by the State Coastal Conservancy and Honda Marine Science Foundation. In 2019, partnerships and planning continued, baseline surveys were initiated in partnership with CRI, and surveys were conducted off Malibu and Catalina Island to identify potential eelgrass donor beds and inform permitting.

Microplastics Research – 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. In 2019, CRI continued refining a protocol to extract microplastics from sediments including infrared spectroscopy and continued a pilot study along Bay beaches. Ongoing partnership development with University of California Santa Barbara will continue to inform regional data gaps in the fate and transport conceptual model for microplastics in the nearshore environment and invertebrate community.

Climate Change

Climate Change Action Planning and CCMP Action Plan – Climate change, including climate stressors for the region such as sea level rise and drought, continue to be important drivers for planning and adaptive management actions. In 2018, SMBNEP released the Action Plan for the Comprehensive Conservation and Management Plan (CCMP), including actions related to climate change such as filling in important data gaps for our region, or prioritizing projects to increase resilience of our coastal areas such as beach and dune restorations. The seven goals and 44 actions it contains represent priorities for our region, established through many workshops and consensus building activities. In 2019, SMBNEP completed the Finance Plan, another component of the CCMP, and continued work on the Comprehensive Monitoring Program and an MOU to inform structure and governance.

Ocean Acidification – An array of instruments that measure pH, dissolved oxygen, and pCO_2 have been deployed off the Palos Verdes Peninsula since the second half of 2016 by the Sanitation District of Los Angeles County. The data collected by this project will improve our understanding of ocean acidification and hypoxia off our coast. In 2018 and 2019, data were collected at the second location at a depth of 60 meters and showed less variability as compared to the first deployment year in 15 meters. These data allowed good characterization of the frequency, magnitude, and duration of OAH events in the nearshore surface and offshore bottom layers.

Eelgrass Ocean Acidification Buffer – University of California Los Angeles' 2019 Senior Practicum class conducted research assessing the effects of offshore eelgrass on pH and dissolved oxygen. The focus of their study was to determine the strength of buffering, exhibited by the increase in pH (lowering acidification) in eelgrass in Santa Monica Bay. Their preliminary findings are being built upon by the 2020 Senior Practicum class to further this research.

Kelp Forest Hydrodynamics – This cooperative project is designed to inform how kelp forests influence current patterns, wave velocity, and sediment transport off the coast of the Palos Verdes Peninsula. Additional funding was awarded to California State University Northridge and University of California Davis from University of Southern California SeaGrant to continue this study on two more kelp forest sites. In 2019, two sites were established off Palos Verdes and instruments were deployed. Data collection was halted due to high activity in the site from commercial lobster vessels, and all instruments were removed from the sites. This study will resume in spring 2020.

Our Communities

Proposition 84 Grant Program – SMBRC was originally allocated $18 million in state funding for projects including coastal watershed contamination prevention and coastal and marine habitat restoration. Three projects were under construction in 2019. The Rancho Palos Verdes SMB Catch Basin Inserts Project retrofits and installs over 1,200 Connector Pipe Screen (CPS) units in existing catch basins in an approximately 14 sq. mile area across three cities in the Palos Verdes Peninsula Watershed draining to Santa Monica Bay. The Westwood Neighborhood Greenway Project by the City of Los Angeles will divert and capture dry-weather flow from a storm drain that captures runoff from 2,400 acres of drainage area into two parallel bioswales to improve water quality in the receiving waters (Sepulveda Channel, Ballona Estuary and Santa Monica Bay Beaches). The project is expected to capture 67,000 to 340,000 gallons per day of urban runoff, and the "first flush" of the storm from a 2,400-acre drainage area during storm events. The Ladera Park Water Quality Enhancement Project by the Los Angeles County Public Works will treat, store, and infiltrate the 85th percentile 24-hour storm volume of 5.1 acre-feet of stormwater runoff and all the non-stormwater runoff from a 110-acre tributary area through a combination of pre-treatment, retention, and infiltration facilities. One project, the Culver Boulevard Realignment and Stormwater Infiltration/Retention Regional Project by the City of Culver City, was in the planning, design, and engineering phase in 2019. The project will capture and treat all dry-weather flow and the 85th percentile, 24-hour design storm runoff from a drainage area of 800 acres and use a belowground infiltration/retention basin situated underneath the median within public right-of-way along Culver Boulevard.

Proposition 12 Grant Program – In December 2018, the Governing Board recommended 10 projects for Proposition 12 funding to the California State Coastal Conservancy. All ten projects were subsequently approved for funding by SCC in March 2019. Most of the 10 projects have initiated their grants with SCC, and several have begun implementation. The 10 projects are as follows: Rocky Reef Restoration on Palos Verdes Shelf, California Red-legged Frog (*Rana draytonii*) Reestablishment Project, Monteith Park and View Park Green Alley, Community-Based Restoration at Ballona Wetlands, Pure Water Project Las Virgenes-Triunfo, Beach Cities Multi-Benefit Green Streets Project, Paramount Ranch Stormflow and Sediment Reduction Project, Palos Verdes Peninsula Land Conservancy Abalone Cove Habitat Restoration, Carbon Canyon Acquisition Project, and Topanga Lagoon Restoration Planning.

Internship and Research Assistant Program – Through this program, TBF and CRI coordinate volunteers, students, and postgraduates in efforts to support implementation of the Comprehensive Monitoring Program and include research, habitat restoration, and scientific data collection efforts across many projects. In spring and early summer 2019, CRI expanded to include six Faculty Fellowships and 14 paid undergraduate internship students. An additional 21 undergraduates, three graduate students, and eight high school students participated in CRI research. Focal research directions included: intertidal microplastics research, beach characterization studies, modeling coastal climate stressors and adaptation strategies, native plant microbe interaction research, eelgrass and seafood genetics research, marine invertebrate physiology research, and habitat restoration and scientific monitoring. Each research direction aims to answer multiple research questions. Students created multiple presentations, posters, and other products as part of the research efforts.

Boater Education Program – This is a multi-faceted program designed to engage the Southern California boating community to reduce and eliminate boating-related ocean pollution. In 2019, the program continued to publish "The Changing Tide" statewide newsletters, annual tide books, and published the 5th edition of the popular Southern California Boater's Guide. Through the Honey Pot Day program, mobile sewage pumpouts are offered; in 2019, 110 boaters participated, and 2,160 gallons of sewage were properly disposed. The program also produced and distributed 3,150 Boater Kits and trained 89 Dockwalker volunteers. The Pumpout Nav app has been updated to include sewage dump stations and floating restrooms in addition to sewage pumpout stations. TBF and San Francisco Estuary Partnership, in partnership with California State Parks Division of Boating and Waterways, was awarded the 'Outstanding Service Award' for the Pumpout Nav app at the States Organization for Boating Access.

Clean Bay Certified Program – This program partners with watershed cities to certify restaurants that comply with stormwater permit requirements and additional pollution prevention practices. On 11 July 2019, TBF hosted a partners meeting and inspector training for all participating cities. The partners meeting provided a forum for collaboration and discussion of the program direction. The inspector training was provided to review the Clean Bay Certified Inspector Checklist, train new inspectors, refresh returning inspectors, and discuss potential checklist updates. Food service establishments were certified in 2019 using an updated rigorous inspection checklist.

ReThink Disposable LA – Clean Water Action / Clean Water Fund (CWA/CWF) program provides technical assistance to food service establishments for source reduction of single-use disposable items. In 2019, TBF received funding to implement this program at boating related food service establishments such as yacht clubs and marinas. Program implementation will occur in 2020.

Table-to-Farm Composting – To better address food waste and greenhouse gas emissions from landfills and transportation due to hauling waste, TBF is working with restaurants in Inglewood, Gardena, and Lawndale and Environmental Charter Schools (ECS) to close the food loop. In 2019, the program built a third compost bin at ECS Lawndale and recruited two additional restaurants to participate in the program. Since September 2017, 10,430 lbs of food waste have been diverted from landfills and composted in a three-bin system. Approximately 900 students have been engaged in the program and have learned about food waste, compost, and climate issues. To fully close the food loop, TBF and ECS Inglewood will be constructing five community gardens just off campus to grow fruits and vegetables for the community, utilizing the compost created with restaurant food waste. Funding for this has been obtained through the USEPA, and program implementation will occur in 2020.

III. SMBNEP PLANNED ACTIVITIES

This section outlines each of the FY21 Work Plan actions and next steps to be undertaken during this fiscal year in a large summary table. It also highlights whether the project is new or ongoing, objectives, a description/milestone summary, partners, outputs/deliverables, long-term environmental results or outcomes, and the connection to the CWA Core Programs. Outputs or deliverables can be thought of as an activity or effort and/or associated work product(s) that are produced or provided over a specific period of time; outcomes can be thought of as long-term environmental changes or benefits resulting from such activities/efforts. Additional information about each action can be found in the 2018 Action Plan along with an associated narrative.

Many of the FY21 actions are continued from previous efforts or projects. Next steps which are new for this fiscal year are identified with an asterisk in the table; all other projects or next steps should be assumed to be ongoing. Note that next steps or project activities that are part of the 2018 CCMP Action Plan, but are not identified as part of this current Work Plan are not included in the table. That does not preclude them from being part of partner activities or as part of future Work Plans. Completed tasks are often closely connected to ongoing, similar projects, and/or are part of a larger project. Completed tasks from the FY20 Work Plan are identified in Appendix A.

The following table summarizes the primary work activities planned for FY21. Additional information can be found on TBF or SMBRC's websites, the 2018 CCMP Action Plan, and as part of individual products for each project. There will be updates on each of the CCMP actions included in this Work Plan as part of the semi-annual reports for FY21. Some actions will have additional deliverables as well (identified in the table). In 2019, SMBNEP updated the Finance Plan, a component of the CCMP. As part of that revision, significant partner and stakeholder input was received. The table below reflects the updated partners listed for each of the actions and next steps.

Action #	CCMP Action	CCMP Next Step(s) / Project Activity Name	Lead Entity(ies)	Partner(s)	Objective(s)	Description / Milestone Summary	Outputs / Deliverables	Long-Term Environmental Result(s) / Outcome(s)	CWA Core
1	Acquire open space for preservation of habitat and ecological services	Bond funded acquisitions	SMMC, SCC, CNRA, Wildlife Conservation Board	SMBRC, MRCA, NPS, State Parks, MRT, Trust for Public Land, CDFW	To acquire and protect 91 acres of undeveloped land in Carbon Canyon to prevent development in a fire-prone area and expand recreational opportunities	Work with grantees to complete the Carbon Canyon acquisition project funded by Prop. 12	Update in NEPORT	Publicly acquire new open space as it becomes available throughout the watershed to promote connectivity, preserve habitat, and sustain ecological services	5, 6, 7
		Support partners in identification and prioritization of key acquisition or conservation easement properties	SMBRC	SMMC, MRCA, NPS, State Parks, RCDSMM, MRT, CDFW	To acquire and/or protect high priority properties that are at risk of development, or provide high diversity, include wildlife corridors, and/or provide socio-economic benefits	Meet with partners to develop list of high priority parcels for acquisition/protection and assist/support in identifying funding sources.	Update in NEPORT		

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2	Restore kelp forests in the Bay to improve the extent and condition of the habitat	Implement the rocky reef/kelp forest restoration project	TBF	NOAA, MSRP trustees, NMFS, Vantuna Research Group, Commercial Sea Urchin Harvesters, CDFW	To restore five acres of rocky reef kelp forest by reducing urchin density within barrens to the target 2 urchins per square meter to allow the reestablishment of giant kelp	Partner with fisherman to cull urchin densities within the urchin barrens in targeted locations	Annual Report (Kelp Project)	Restore 150 acres of kelp forest to improve habitat functions, local fisheries, and coastal resilience	6
		Biological response monitoring of restoration areas	TBF	VRG, CDFW	To track the response of the kelp forest community after restoration activities occur	Conduct pre-restoration monitoring of urchin barrens and post-restoration monitoring of resulting kelp forests; complete annual surveys of reference and restored sites; produce annual report	Annual Report (Kelp Project)		

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		* Conduct carbon sequestration assessment of kelp restoration project	TBF	CRI, other universities	To assess carbon sequestration potential of kelp forest restoration	Conduct a literature review, develop research priorities, identify potential partners	Update in semi-annual report		
3	Recover abalone populations in the Santa Monica Bay and region to support rare species and socioeconomic benefits to people	Establish abalone outplanting sites and conduct juvenile and larval outplanting	TBF	NOAA, NMFS, Cal Poly Pomona, SCMI, NFWF Bodega Marine Lab, SFSC, Paua Marine Research Group, CDFW	To reintroduce abalone and test effectiveness of outplanting methods	Conduct habitat suitability surveys for outplant sites; implement one red abalone outplant event and one white abalone outplant event in established restoration areas	Update in semi-annual report	Establish 2-3 minimally viable green and red abalone populations (i.e., at least 2,000 abalone per hectare) in the Bay; establish 1-2 viable white abalone populations (i.e., at 2,000 abalone per hectare) in the Bay	6
		Monitor abalone restoration and reference sites	TBF	NOAA, NMFS, Cal Poly Pomona, SCMI, NFWF	To conduct SCUBA-based surveys within outplant sites to assess the survivability of	Conduct surveys to collect re-encounter rates, growth data, and genetic samples	Annual Report (Abalone)		

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				Bodega Marine Lab, SFSC, Paua Marine Research Group, CDFW	outplanted abalone and suitability of the site for future outplanting efforts	of outplanted abalone			
		Captive spawn abalone	TBF	SCMI, NOAA, NMFS, Cal Poly Pomona, CDFW, Bodega Marine Lab	To research captive spawning and larval culturing techniques, and raise abalone in aquaculture facility for outplanting	Condition broodstock abalone and conduct four captive spawning events	Annual Report (Abalone)		
		Maintain aquaculture facility for abalone	TBF	SCMI, NOAA, NMFS, Cal Poly Pomona	To facilitate captive spawning and rearing of red, green, and white abalone in support of future restoration activities for	Complete the renovation of the abalone laboratory to house endangered white abalone and increase program wide capacity for	Update in semi-annual report		

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					outplanting in the wild	culturing and rearing white abalone larvae; conduct daily water quality testing and husbandry tasks			
4	Assess and restore seagrass habitats in the Santa Monica Bay and nearshore environments to benefit marine ecosystems and improve coastal resilience	Survey the extent and condition of seagrasses in the Bay using R2Deep2, side-scan sonar, and SCUBA divers to inform the Comprehensive Monitoring Program	TBF	SCC, CRI, VRG, others	To survey the extent and condition of seagrasses in the Bay using R2Deep2, side-scan sonar, and SCUBA divers to inform the CMP and restoration activities	Complete at least one ROV or SCUBA survey in the Malibu eelgrass beds to inform the extent (area) of the beds (patches) and inform condition using SAV TAC-recommended protocols	Update in semi-annual report	Restore 2-5 acres of seagrasses to the Bay to improve habitat functions and coastal resilience	6
		Develop restoration methods for eelgrass (*Zostera pacifica*) in the	TBF	SCC, CRI, NOAA, CDFW, others	To improve understanding and probability of success for offshore eelgrass restoration using	Continue scientific collaboration to develop restoration methods and produce an Implementation	Implementation and Monitoring Plan		

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		Santa Monica Bay			transplant methods	and Monitoring Plan associated with the Los Angeles Living Shoreline Project			
		Conduct pilot restoration project(s) of offshore eelgrass in the Bay	TBF	SCC, CRI, NOAA, CDFW, others	To conduct a pilot restoration project of offshore eelgrass in the Bay within a one-acre footprint	Use information gathered as part of other next steps in this action to finalize methods and inform the application for a Scientific Collecting Permit for eelgrass restoration	Acquire permits		
		Evaluate restoration potential of seagrasses in the Bay, harbor, wetlands, and nearshore environments	TBF	NOAA, CRI, UCLA	To improve understanding and probability of success for seagrass restoration projects	Support CRI in initiating a genetic population research study of eelgrass (*Z. pacifica* targeted) in the region using	Update in semi-annual report		

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						microsatellite genotyping			
5	Assess and implement offshore artificial reefs to benefit marine ecosystems and provide socioeconomic benefits to people	Implement rocky reef restoration project off Palos Verdes	VRG	SCMI, Vantuna Research Group, PV MSRP, NOAA, SCC, TBF, CDFW	To restore 69 acres of rocky reef habitat lost to landslides activity using high relief rocky modules that will resist future burial from sediment deposition	Complete the environmental review and obtain permits to implement the artificial rocky reef restoration project off Bunker Point funded by Prop. 12	Completed permits; update in semi-annual report	Implement artificial reef projects to achieve 69 new acres of rocky reef habitat of a similar condition as reference reef habitats	6
		Annual monitoring with the use of side scan sonar and SCUBA based surveys	VRG	Vantuna Research Group, PV MSRP, NOAA, TBF, CRI	To assess nearshore coastal marine habitats using side-scan sonar and SCUBA to inform data gaps in the CMP and future restoration projects	Support Vantuna in development of baseline monitoring plan to inform restoration activities	Update in semi-annual report		

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		* Preliminary work regarding the benefits of dynamic revetments and nearshore reefs	VRG	TBF, CRI, others	To preliminarily advance work towards understanding dynamic revetments and nearshore reefs, including feasibility of using recycled concrete for construction	Assemble related research and initiate assessment of this approach to coastal engineering	Update in semi-annual report		
6	Restore coastal strand and foredune habitat to beaches and sandy shores to improve coastal resilience	Continue long-term monitoring of the Santa Monica Beach Restoration Pilot Project	TBF	CRI, City of Santa Monica, State Parks, Audubon	To continue long-term monitoring to inform coastal resilience, ecosystem benefits, and adaptive management of the restoration area	Conduct physical and biological surveys at the frequency described in the Implementation and Monitoring Plan and produce an annual report	Annual Report (SaMo Pilot)	Restore 10 acres of coastal strand and dune habitat along Santa Monica Bay beaches to improve ecological function, increase coastal resilience, and provide habitat for rare species	6
		Conduct Phase 1 (outreach and planning) and Phase 2 (implementation) of the	TBF	City of Malibu, LACDBH, SCC, CRI, State Parks	To restore three acres of beach and dune habitat to improve coastal resilience and ecosystem benefits and	Continue partnership development, outreach, and baseline monitoring surveys;	Annual Report (MLSP)		

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		Malibu Living Shoreline Project			improve public engagement	complete permitting; contract with Los Angeles Conservation Corps to implement Malibu Living Shoreline Project; conduct post-restoration monitoring			
		Find funding for and implement another beach and bluff restoration project	TBF	City of LA, SCC, City of Manhattan Beach, City of Malibu, LACDBH, CDFW	To restore 3.5 acres of bluff, beach, and eelgrass habitat as part of a living shoreline pilot project (Los Angeles Living Shoreline Project); restore dune habitats in Manhattan Beach through iceplant removal and revegetation with native plants	Continue partnership development, permitting, baseline monitoring, and stakeholder coordination for LA Living Shoreline Project and Manhattan Beach Dune Restoration Project	Update in semi-annual report		

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		Support efforts to standardize sandy beach monitoring and a regional approach to restoration	TBF	Beach Ecology Coalition, CRI, SCC, others	To continue efforts to standardize sandy beach monitoring and data collection for southern California through stakeholder partnerships and CMP implementation	Participate in the Beach Ecology Coalition group, continue stakeholder and scientific communications, continue Healthy Beaches project in partnership with CRI, continue monitoring and data collection efforts	Update in semi-annual report		
7	Restore and maintain the entire LAX Dunes system to support native plants, wildlife, and rare species	Conduct community restoration events in the northern 48-acre dune area	TBF	LAWA, FOLD, SCC, CCC	To engage community through hands-on stewardship and habitat restoration through events held at the LAX Dunes	Recruit, train, and educate community volunteers to conduct non-native vegetation removal at LAX Dunes events	Annual Report (LAX Dunes)	Restore 48 acres of LAX Dune system to improve native dune functions and provide habitat for rare species;	N / A

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		Support LAWA in long-term maintenance and adaptive management of the 48-acre northern dune area	TBF	LAWA, LACC, RSABG, Psomas, CRC, IOEI, CDFW	To continue and strengthen partnership with LAWA to restore and maintain the LAX Dunes	Conduct restoration through non-native vegetation management, native plant programs, restoration training, and monitoring	Annual Report (LAX Dunes)	Maintain larger 300-acre Preserve to benefit rare species and dune plants and wildlife	
		Engage underserved students and volunteers and inland communities	TBF	LAWA, SCC, LACC	To recruit underserved students and volunteers, particularly from inland communities, to participate in hand-on stewardship and restoration at the LAX Dunes	Enhance volunteer program to increase recruitment of underserved students and volunteers from inland communities through amplified outreach, capacity building, and partner development	Annual Report (LAX Dunes)		

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		Initiate planning for areas within the adjacent dunes, including baseline monitoring	TBF	LAWA, LACC, RSABG, Psomas, CRC, IOEI, CRI, CDFW, USFWS, WCS	To conduct baseline monitoring and develop recommendations for habitat management	Implement monitoring protocols to develop baseline data and restoration recommendations for adjacent 52-acre dune area	Annual Report (LAX Dunes)		
8	Restore coastal bluff habitats in the Bay watershed to support ecosystem services	Use Beach Bluff Restoration Master Plan to explore bluff restoration and continue recovery of El Segundo Blue Butterfly	TBF	USFWS, CDFW, LAWA, City of LA, Friends of Ballona, PVPLC, others	To provide habitat and ecological benefits in support of the recovery and eventual delisting of the endangered El Segundo Blue Butterfly and to restore bluff habitats	Continue partnership and stakeholder coordination, data consolidation, and development of adaptive management recommendations and actions	Update in semi-annual report	Restore 5 acres of bluff habitats in the SMB watersheds to support ecosystem services	N/A
		Identify partners and funding to support bluff	TBF	PVPLC, State Parks, CDFW,	To establish project partners, project sites, and identify potential funding sources	Continue to identify and coordinate with project partners, agencies, and stakeholders to	Update in semi-annual report		

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		restoration projects		many others	in support of bluff restoration	prioritize project locations; identify and apply for potential funding sources for bluff restoration (see also Action 6)			
		Initiate restoration of one bluff restoration project	PVPLC	SCC, TBF, City of LA, LACDBH, USFWS	To restore 13 acres of rare coastal bluff habitat to support threatened and endangered wildlife and plant species, reduce coastal erosion, improve water infiltration, and enhance public access	Begin implementation of the Abalone Cove Habitat Restoration Project funded by Prop. 12 and led by PVPLC	Update in semi-annual report		
		* Initiate Pt. Dume stair replacement and bluff restoration project to	State Parks	TBD	To replace a deteriorated beach access staircase and restore bluff habitat at Point	Initiate the project led by State Parks	Update in semi-annual report		

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		benefit people and wildlife			Dume State Beach				
9	Implement Malibu Creek Ecosystem Restoration Project (Rindge Dam and other barrier removals) to support ecosystem restoration	Support lead agencies in efforts to complete the design and engineering plans for the Malibu Creek Ecosystem Restoration Project	State Parks, Army Corps	TBF, RCDSMM, CDFW, others	To develop design and engineering plans to remove Rindge Dam and additional barriers, to restore terrestrial and aquatic habitat connectivity and establish natural sediment transport regime	Meet with lead agencies (State Parks, Army Corps) to identify additional technical support and funding needs	Update in semi-annual report	Complete implementation of the Malibu Creek Ecosystem Restoration Project including the removal of barriers to improve stream and riparian habitats and to benefit the steelhead trout	5, 6, 7
10	Remove additional barriers to support fish migration and ecosystem services	Identify, prioritize, and acquire funding for barrier removal projects	RCDSMM, State Parks, NPS	CDFW, many	To engage with partner entities to identify potential opportunities for fish barrier removal	Opportunistically attend meetings and engage in conversations to advance project prioritization and funding	Update in semi- annual report	Remove fish barriers to support endangered steelhead trout habitat expansion, increase resilience related to climate change,	2, 5, 6

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								and provide ecosystem services	
11	Restore urban streams, including daylighting culverted streams, removing cement channels, and restoring riparian habitats	Identify additional urban streams for restoration and prioritize	State Parks, NPS	Municipalities, USC Sea Grant, others	To engage with partner entities to identify potential opportunities for urban stream restoration	Opportunistically attend meetings and engage in conversations to advance project prioritization and funding	Update in semi- annual report	Restore at least two priority stream areas as defined by guiding documents such as the Ballona Creek Greenway Plan	2, 4, 5, 6
12	Restore smaller coastal lagoons and other wetland types to increase wetland habitat area and condition throughout the watershed	Finalize restoration planning and permitting for Topanga Lagoon restoration project and initiate project	State Parks	SCC, RCDSMM, CalTrans, LACBH, CDFW	To create a restored habitat that integrates fish passage barrier removal, wetland habitat restoration, visitor services, and recreational opportunities at Topanga Lagoon	Continue working on restoration design alternatives, incorporating stakeholder and TAC input, and work towards CEQA permitting and documentation	Update in semi- annual report	Restore and increase wetland and transition habitat acreages for small lagoons such as Topanga Lagoon and other wetland systems to	2, 5, 6

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						funded by Prop. 12		improve ecological functions	
		* Complete land acquisition, feasibility analyses, and restoration design in coordination with bridge redevelopment for Trancas Lagoon	RCDSMM	CalTrans, Army Corps, CDFW	To restore habitats adjacent to Trancas Lagoon after CalTrans bridge expansion is completed	Participate when possible in a scientific advisory capacity on habitat restoration elements	Update in semi- annual report		
		Conduct comprehensive monitoring of small lagoons in northern Bay to inform CMP and seek funding to continue Malibu Lagoon monitoring	TBF	Moss Landing Marine Labs, SCCWRP, CRI, State Parks, RCDSMM	To conduct comprehensive monitoring of the northern Bay lagoons, inform the Comprehensive Monitoring Program (wetlands chapter), and acquire funding to continue long-term monitoring	Seek funding to continue surveys and conduct new surveys to inform CMP and wetland condition trends for our region; consolidate existing data for northern lagoon systems; collect	Update in semi- annual report		

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					and data collection at Malibu Lagoon	new data to fill identified gaps			
		* Assess restoration options and priorities for other wetland types (e.g. freshwater systems)	City of Redondo Beach, municipalities	SCC, CNRA, CDFW, LA County, others	To complete acquisition and planning to restore wetlands associated with the AES Power Plant redevelopment in Redondo Beach	Support restoration planning of the wetland habitat on former AES property in Redondo Beach by informing the SMBRC Governing Board and membership	Update in semi- annual report		
13	Restore Ballona Wetlands Ecological Reserve to enhance wetland habitats and benefits to people	Support the lead agencies by contributing technical information to the Final Environmental Impact Statement and Report and permitting	CDFW	CDFW, Army Corps, TBF, LACFCD, SCC	To support the lead agencies in completing permitting	Continue to provide technical support and communication with the lead agencies to restore Ballona Wetlands	Update in semi-annual report	Restore 577-acre Ballona Wetlands Ecological Reserve to improve wetland, transition, and upland habitats, functions, and services; Create public access trails and bike	2, 5, 6, 7
		Continue community	TBF	CDFW, Friends of	To restore four acres of degraded	Continue to conduct	Annual Report		

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		engagement and hand-restoration within the Reserve with FBW		Ballona Wetlands, Edith Reed and Associates, SCC	wetland and transition habitat at the Ballona Wetlands Ecological Reserve through community restoration	community restoration events and biological monitoring in accordance with permits (TBF and FBW); produce an annual report; expand restoration activities in accordance with stewardship project funded by Prop. 12 (includes two acres of wetland and adjacent transitional habitat)	(Community Restoration Project)	paths and encourage recreation and stewardship at the Ballona Wetlands Ecological Reserve	
		* Support lead agencies to identify and obtain restoration funding	CDFW	CDFW, Army Corps, TBF, LACFCD	To support lead agencies in finding funding to implement the Ballona Wetlands	Provide support to lead agencies to acquire funding to implement the project	Update in semi-annual report		

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					Restoration Project				
14	Implement wildlife crossings and other innovative projects for benefits to wildlife and people	Support lead agencies to find funding for Phase 2 of the Liberty Canyon Wildlife Crossing project	CalTrans, MRCA	RCDSMM, Assm. Bloom, SCC, SMMC, NWF, CDFW	To implement Phase 2 of the Liberty Canyon Wildlife Crossing Project (Final/ 100% Design) in support of wildlife movement and safety and enhanced habitats	Attend meetings and conduct other communications and outreach activities to support implementation of Phase 2	Update in semi-annual report	Complete construction and implementation of two major freeway wildlife crossing projects to benefit wildlife, genetic diversity, and people	N / A
		Support lead agencies in permitting and environmental review of Liberty Canyon Wildlife Crossing project	CalTrans, MRCA	RCDSMM, Assm. Bloom, SCC, SMMC, NWF, CDFW	To complete implementation of the Liberty Canyon Wildlife Crossing Project in support of wildlife movement and safety and enhanced habitats	Attend meetings and conduct other communications to support the implementation of the Liberty Canyon Wildlife Crossing project	Update in semi-annual report		
15	Implement projects that improve understanding	* Support Southern California Steelhead	RCDSMM	NPS, State Parks, USFWS,	To conduct the Southern California Steelhead Trout	Support efforts by the lead entity to find funding	Update in semi-annual report	Improved extent and condition of habitats for rare species	2, 5, 6

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	and/or enhance endangered and threatened species populations (e.g. habitat improvements for Western Snowy Plover, genetic banking)	Trout genetic banking study		CDFW, others	genetic banking study to inform population recovery	and implement this study		throughout the Bay and its watershed	
		Support restoration and monitoring activities to benefit California red legged frog populations	NPS	SCC, State Parks, RCDSMM, TBF, CDFW	To improve riparian and stream habitats to support populations of California red legged frog	Work with grantees to implement the California red legged frog reintroduction project funded by Prop. 12	Update in semi-annual report		
		Support projects within western snowy plover critical habitat	TBF	LACDBH, City of Santa Monica, City of LA, City of Malibu, USFWS, CDFW, Audubon	To provide habitat and ecological benefits in support of the threatened Western Snowy Plover and to restore critical habitat	Continue beach and dune restoration projects and continue to inform management actions in support of ecological benefits to the plovers	Update in semi-annual report		

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16	Support the implementation of activities and projects such as those in Enhanced Watershed Management Plans (EWMPs) and activities identified in the TMDL implementation schedule to help achieve TMDL goals for 303d listed waterbodies in the Bay and its watershed	Continue to support implementation of projects identified in EWMPs and WMPs	SMBRC	SWRCB, municipalities, LACFCD, CDFW	To allocate and oversee State Bond funding for implementation of projects identified in EWMPs and WMPs; support implementation of projects made available under Measure W	Continue to oversee implementation of capital projects for storm water pollution reduction through multi-benefit solutions (also see Action 17); inform and support the Storm Water Strategy efforts led by the SWRCB	Update in semi-annual report; project final reports	Assist in achieving constituent percentage load reduction targets for waterbodies in the Santa Monica Bay according to TMDL compliance timeline	1, 2, 4, 5, 6, 7
		Continue implementation of LA IRWMP	LACFCD	SMBRC, others	To facilitate and support coordination and allocation of IRWMP funding and implementation of projects identified in EWMPs and WMPs in the watershed	Continue to participate in activities of the Greater Los Angeles IRWRP Leadership Committee	Update in semi-annual report		

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		Facilitate other sources of State funding	SCC, State Waterboards	municipalities, LACFCD	To facilitate and support allocation of funding from other State bond measures such as Prop. 1 and 65 for implementation of projects identified in EWMPs and WMPs in the watershed	Outreach and support project applications by municipalities where appropriate, and keeping the SMBRC Governing Board and membership informed of progress made	Update in semi-annual report		
17	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	Complete rain garden metal fate study with CRI	TBF	CRI	To assess the fate of sequestered or retained heavy metals in the Culver City Rain Garden	Complete the Masters thesis and a publication for the rain garden metal fate study in partnership with CRI	Completed Thesis; completed manuscript	Assist in achieving constituent percentage load reduction targets for waterbodies in the Santa Monica Bay according to TMDL compliance timeline	2, 4, 5, 6, 7
		Complete additional LID projects throughout the watershed	Municipalities	City of LA, City of Torrance, LA County, other watershed cities, LA	To complete more LID projects throughout the watershed to improve flood protection and water quality, and	Continue to work with grantees to implement previously funded Prop. 84 projects: Culver Boulevard Realignment and	Update in semi-annual report		

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				County, NPS	provide additional benefits	Stormwater Infiltration/Retention Regional Project, Westwood Neighborhood Greenway Project, Santa Monica Bay Catch Basin Insert Project, and Ladera Park Water Quality Enhancement Project; work with grantees to implement three new Prop. 12 projects: Monteith Park Storm Water Capture, Beach Cities Green Streets, and Paramount Ranch Storm Flow and			

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						Sediment Reduction			
		* Seek funding and partnerships to conduct a cost-benefit analysis of LID projects	TBF	CRI, other universities	To continue to inform regional assessments of LID projects and water quality benefits	Seek funding and/or partnerships to conduct the analysis	Update in semi-annual report		
18	Support installation and monitoring of additional sewage and bilge pumpout facilities in Southern California harbors	Continue quarterly monitoring of public sewage pumpout stations	TBF	CDBW, marina operators	To assess the condition of public sewage pumpout and dump stations	Conduct regular monitoring of public sewage pumpout and dump stations in Southern California harbors	Annual Report	Meet 86-100% annual average usability percentage (based on analysis of equipment performance) for all publicly funded sewage pumpout stations throughout Southern California	4
		* Support installation of sewage pumpouts in Marina del Rey or King Harbor	TBF	CDBW, marina operators	To provide the boating community with additional pollution prevention resources	Conduct outreach regarding need for additional sewage pumpouts	Update in semi-annual report		

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		* Support installation of bilge pumpouts in Marina del Rey or King Harbor	TBF	marina operators	To support installation of bilge pumpouts	Continue outreach and develop interest and support for needed bilge pumpouts	Update in semi-annual report		
		* Support efforts of neighboring harbors in installation of bilge and sewage pumpouts in southern California	TBF	CDBW, marina operators	To provide the boating community with additional pollution prevention resources	Conduct outreach regarding need for additional pollution prevention resources	Update in semi-annual report		
19	Support minimization of biological impacts of water intake and discharge from coastal power generation and desalination facilities,	Educate and increase public support of the state-wide desalination requirements	SWRCB	LARWQCB	To support efforts by state regulatory agencies to achieve full implementation of the state-wide desalination requirements in the California Ocean Plan and	Monitor and inform SMBRC Governing Board, other stakeholders, and the general public on the implementation of the requirements in the California	Update in semi-annual report	Achieve no impacts from seawater intake of desalination facilities, including brine disposal, and ultimately no seawater intake	6, 7

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	including public engagement and education				Once-Through Cooling Policy including education on the benefit of increasing sources of local water supplies	Ocean Plan desalination and Once-through Cooling Policy for facilities along the Santa Monica Bay coastline			
20	Support elimination of non-point pollution from onsite wastewater treatment systems	* Complete sewer connections of residential properties to the centralized wastewater treatment facility in the Malibu Civic Center area	City of Malibu	LARWQCB	To improve water quality and reduce nutrient pollution through connecting residential properties to the centralized wastewater treatment facility	Monitor and inform SMBRC Governing Board, other stakeholders, and the general public on the progress made by the City and LARWQCB's efforts in completing the sewer connection	Update in semi-annual report	Achieve level of performance and water quality protection set by state policy for all OWDS in the Santa Monica Bay watershed	4, 5, 6, 7

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		Continue the coordinated OWTS identification, permitting, and inspection system between the LARWQCB and the cities and counties in the watershed	LARWQCB	Watershed municipalities	To continue to support efforts by the LARWQCB and cities and counties to achieve full implementation of the statewide policy for siting design, operation, and maintenance of OWTSs	Monitor and inform the SMBRC Governing Board membership, other stakeholders, and the general public on the progress made by the LARWQCB and cities and counties in implementation of the state-wide policy for siting design, operation, and maintenance of OWTSs	Update in semi-annual report		
21	Support policies that promote reuse, recycling, and advanced wastewater treatment to	Support recycled wastewater efforts by JWPCP of LACSD	LACSD, MWD	LACFCD, SMBRC	To support expansion of wastewater effluent recycling by JWPCP of LACSD	Monitor and inform the SMBRC Governing Board membership, other stakeholders,	Update in semi-annual report	Help reduce dependence of the Los Angeles region on imported water and lower the percentage of	4, 6, 7

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	reduce reliance on imported water sources					and the general public on the progress made by JWPCP LACSD in expansion of wastewater recycling		imported water use by water agencies; work towards meeting the State's goals for recycled water in the Recycled Water Policy	
		Hyperion Treatment Plant to implement pilot project for recycled water	LASAN	LACFCD, SMBRC	To support timely completion of Hyperion's pilot project	Monitor and inform the SMBRC Governing Board membership, other stakeholders, and the general public on the implementation progress of Hyperion's water recycling pilot project	Update in semi-annual report		

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		Support recycled wastewater efforts by Tapia Water Reclamation Facility and others through expansion of distribution system and regional partnerships	LVMWD, SCCWRP, UCLA, City of Santa Monica	LACFCD, US Bureau of Reclamation, LV-Triunfo JPA, SMBRC, many	To support expansion of recycled wastewater distribution and reuse	Implement the indirect potable water reuse demonstration project for reservoir augmentation, i.e., the Las Virgenes-Triunfo Pure Water Project, funded by Prop. 12; Initiate construction of the Santa Monica Advanced Water Treatment Facility	Update in semi-annual report		
22	Support policies and implement projects that divert landfill waste and encourage composting to improve water	Support continuation of Table to Farm compost hubs	Schools	TBF, Social Justice Learning Institute, Restaurants, LA Compost, LA Food	To reduce food waste being sent to landfills, compost food waste, and apply compost to urban gardens to grow food	Apply for funding to continue program and support existing compost hubs and program partners	Update in semi-annual report	Establish 10 local community-based compost hubs and divert food waste from 20 food service establishments; distribute	4, 6

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	quality and lower greenhouse gas emissions			Waste Group				compost among community support agriculture, gardens, and restoration projects	
24	Support the inclusion of coastal resilience through natural means and softscape measures into local coastal plan updates	Attend stakeholder meetings for local cities LCP development / updates / implementation	Municipalities	LACDBH, TBF, Heal the Bay	To continue involvement in stakeholder meetings for local cities LCP development and implementation	Attend and participate in stakeholder meetings, workshops, and conversations related to LCPs and promote the inclusion of natural living shoreline measures as a coastal resilience strategy	Update in semi-annual report	Inclusion of climate change adaptation measures in at least half of the 12 local coastal jurisdictions general plans (or equivalent) amendments	7
		Opportunistically assist cities in the development of sea level rise	Municipalities	USGS, TBF, CDFW	To identify and partner with cities to develop sea level rise vulnerability studies to	Partner with cities in the development of sea level rise vulnerability studies and	Update in semi-annual report		

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		vulnerability studies			strategically recommend coastal resilience strategies	recommend natural living shoreline measures be included as adaptation strategies			
		Use data collected from beach restoration “soft-scape” projects to inform and assist LCP development	TBF	LACDBH, municipalities	To provide science-based data to inform LCP development and support beach restoration	Use data from regional beach restoration projects as case studies to inform adaptation solutions and future natural living shoreline projects; implement the CRI site-suitability study	Update in semi-annual report		
25	Support best management practices, increased public access, and improved public facilities for beaches	Support implementation of identified actions within plans such as the LACDBH Sea Level Rise	LACDBH, Municipalities	SCC, City of Los Angeles, City of Manhattan Beach, State	To implement adaptation projects that will improve coastal resilience	Develop and begin implementation of coastal adaptation projects that address sea level rise and	Update in semi-annual report	Improve access to the coast and enhance coastal experiences through linking and expanding the California Coastal Trail;	N / A

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	and other public trail systems to support both enhanced natural resources values and benefits to people	Vulnerability Assessment		Parks, TBF		planning efforts within climate action plans		develop and build partnerships that support the implementation of natural infrastructure throughout the Bay watersheds	
		Continue to advise BMPs for beaches that promote habitat condition improvements and support for unique species	LACDBH	LACDBH, Pepperdine, Beach Ecology Coalition, beach managers, Audubon, TBF, CRI, USFWS, CDFW, Heal the Bay	To build upon and continue partnerships with groups and agencies to benefit beach habitat conditions	Continue partnerships and active participation with groups and agencies such as LACDBH, Audubon Society, Pepperdine, Beach Ecology Coalition, State Parks, and USFWS to implement and provide recommendations for best management practices along beaches	Update in semi-annual report		

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26	Participate in research, education, outreach, and policy on invasive species removal and control	Conduct New Zealand Mudsnail surveys	SMBRC	TBF	To track the spread of NZMS in the Santa Monica Mountains and develop management recommendations for control	Conduct NZMS survey in Santa Monica Mountains and submit report	Biennial Report (2020)	Reduce impact of invasive species in critical habitats throughout the Bay and its watershed as measured by the Comprehensive Monitoring Program	5, 6, 7
27	Produce educational resources and materials and conduct outreach to improve best management practices for Southern California boaters (e.g. fuel, sewage, and hazardous waste	Produce educational materials	TBF	CCC, CDBW, SFEP	To produce educational materials to increase awareness of boating best management practices to boaters	Produce and distribute Changing Tide newsletters, tide calendar, boater kits, and composting marine toilet video	Newsletters, tide calendar, video	Increase understanding and adoption of sustainable boating habits to reduce boating related pollutants entering waterways (e.g. boat sewage, used oil, antifreeze, bilge water, batteries, copper, trash,	4
		Conduct outreach	TBF	CCC, CDBW	To conduct outreach to increase awareness of boating best management	Conduct direct outreach to boating community at events,	Update in semi-annual report		

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	management)				practices to boaters	presentations, and trainings		and aquatic invasive species)	
		Manage Pumpout Nav app	SFEP	CDBW, TBF	Increase proper disposal of boater sewage	Contribute to and support app development and maintenance	Update in semi-annual report		
		Research public engagement metrics and specific engagement tools on reduction of pollutants to waterways	TBF	CCC, CDBW, CRI	To optimize public engagement resources to increase impact of pollutant reduction strategies to waterways	Compile a literature review	Update in semi-annual report		
		* Find funding and implement fuel spill prevention tools and outreach	TBF	Fuel docks, marina operators, CCC, CDBW	To reduce fuel and oil pollution from the boating community	Distribute fuel bibs and oil absorbent pillows to boaters	Update in semi-annual report		

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		* Support and develop marine debris reduction and cleanup efforts	TBF	CCC, CDFW, marina operators	To reduce fishing line marine debris from the angling community	Develop and distribute fishing line recycling containers	Final Report		
28	Support efforts of disadvantaged communities to achieve healthy habitats, implement green infrastructure, and reduce pollution	Utilize the Ballona Creek Greenway Plan to identify parcels in disadvantaged communities for implementation	Baldwin Hills Conserv.	City of Culver City, City of LA	To identify opportunities for the creation of parks, parklets, and green corridors	Review and assess the readiness of the Ballona Creek Greenway Plan; participate in stakeholder meetings	Update in semi-annual report	Help disadvantaged communities to achieve healthy habitats through restoration and pollution reduction projects	4, 6, 7
		* Support IRWMP and similar programs to preferentially invest in disadvantaged communities	SMBRC, LACDPW	LA County, other watershed cities	Support green infrastructure projects for IRWMP and Measure W funding in disadvantaged communities	Support and facilitate efforts to identify and develop green infrastructure projects for IRWMP and Measure W funding in disadvantaged communities	Update in semi-annual report		

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						through participation and communications			
29	Reduce health risks of swimming in contaminated waters and consuming contaminated seafoods through more comprehensive source control and, advanced monitoring and public notification	Continue implementation and improvement of beach water quality monitoring and reporting system	SWRCB	LARWQCB, LAC-DPH, Heal the Bay	To support Heal the Bay's efforts to standardize beach water quality monitoring and effectively disseminate the information to the public	Continue to update and maintain Heal the Bay's NowCast system, River Report Card, and interactive website	Update in semi-annual report	Inform agency enforcement plans and long-term adaptive management of MPAs; achieve no elevated health risks associated with swimming and seafood consumption through source control, monitoring, and public notification	4, 6
		Maintain and enhance the existing seafood contamination education and enforcement program	EPA Superfund	FCEC partners, Heal the Bay, US EPA	Support and facilitate the continuation and enhancement of the existing seafood contamination education and enforcement program	Continue to participate in the Fish Contamination Education Collaborative	Update in semi-annual report		

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30	Conduct community engagement, education, and inform policies related to water conservation and reuse to reduce water demand and reliance on imported sources	Link water conservation with outreach events and social media	TBF, others	LADWP, MWD, municipalities, TreePeople, LAUSD, Heal the Bay, many	Opportunistically incorporate water conservation topics during outreach events and on social media	Engage and educate the community and volunteers about local water conservation issues and solutions during restoration events, outreach events, and TBF social media postings	Update in semi-annual report	Help reduce dependence of the Los Angeles region on imported water and lower the percentage of imported water use by water agencies	6
		Educate, engage communities, and provide resources that promote the importance of native plants	TBF, others	LADWP, MWD, municipalities, TreePeople, LAUSD, many	Promote the use of drought tolerant native plants	Educate community and volunteers on the importance of using drought tolerant native plants in habitat restoration and residential landscaping	Update in semi-annual report		

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		Support efforts by water agencies to promote water conservation and reuse including dissemination of materials	LADWP, City of Santa Monica	LADWP, MWD, municipalities, TreePeople, LAUSD, many	Promote current information on water conservation and reuse efforts developed by water agencies	Share current water conservation and reuse incentives and goals developed by water agencies to promote the use of these programs and to educate the public	Update in semi-annual report		
		Develop funding to support the expansion of best management practices to incorporate other business sectors	TBF, municipalities	businesses, TreePeople, LAUSD	To reduce pollution from businesses through implementation of best management practices	Apply for funding to support the expansion of best management practices to incorporate other business sectors	Update in semi-annual report		
32	Reduce marine debris by supporting bans on single-use items, conducting	Find funding for and continue ReThink Disposable LA	TBF	Clean Water Action/ Clean Water Fund,	To contribute to source reduction of single-use disposable items	Implement ReThink Disposable at boating facility	Update in semi-annual report	Implement ban on single use disposable plastics in Los Angeles County and 100% of	4

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	outreach, and participating in trash reduction programs			commercial businesses	from food service establishments	food service establishments		cities throughout watershed; engage 30 food service establishments as ReThink Disposable participants	
		Support municipality bans of polystyrene, non-recyclable plastics, and single use items	City of Santa Monica, LA County Chief Sustainability Office, LACDPW, other municipalities	TBF, Surfrider Foundation, Heal the Bay, 5 Gyres, Algalita, OPC, NOAA, USEPA, other stakeholders	To contribute to source reduction of polystyrene, non-recyclable plastics, and single use items	Participate in Reusable LA Coalition and submit letters of support to city councils for proposed bans; support efforts of Surfrider in ban establishment	Summary Table		
33	Monitor microplastics (including microfibers) and other marine debris in the Bay and coastal	Complete the development of a microplastics in sediment extraction and analysis method	CRI, SCCWRP	TBF, SWRCB	To complete the development of a microplastics in sediment extraction and analysis method	Complete and publicly release the protocol as a report or manuscript in a scientific journal	Final Method Report or manuscript	Use microplastics data analyses and identified trends to inform source reduction management	4

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	environments to inform management actions	Publish a manuscript on the results of the Bay studies	CRI	TBF	To assist in characterizing microplastics in the Bay and nearshore environment and disseminate results	Continue data collection, analyses, and evaluation to inform a future manuscript	Update in semi-annual report	strategies in the Bay	
		Conduct additional studies to inform the transport, accumulation, and fate of microplastics in our marine and nearshore environments	CRI, SCCWRP	TBF	To continue to collect data to inform the regional fate and transport model of microplastics in the nearshore marine environment	Continue pilot study for data collection, analyses, and evaluation regarding microplastics fate and transport	Update in semi-annual report		
34	Improve understanding of emerging contaminants through monitoring and research to	Improve analytical methodology and standardize monitoring of more	SCCWRP	SWRCB, LARWQCB, Physicians for Social Responsibility, Water	To update and implement State-wide recommendations for monitoring of emerging contaminants in	Support State Water Board's effort to make new recommendations for monitoring	Update in semi-annual report	Reduce impacts of emerging contaminants on key habitats in the Bay and its watersheds	4

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	inform source control and reduce loading (e.g. fire retardants), especially in the context of climate change	emerging contaminants		Foundation	aquatic ecosystems	CECs in aquatic ecosystems			
35	Monitor and inform management actions for Harmful Algal Blooms (HABs)	Continue to support research and monitoring efforts for HABs, especially in context of climate change and CMP implementation	SCCWRP, UCLA, UCSC, SCCOOS	CRI, JPL/NASA, SCCOOS	To support research and monitoring efforts that fill data gaps in our region for HAB occurrences, frequencies, causes, and impacts, especially in the context of climate change	Explore emerging technologies like remote sensing and DNA technology to better understand and fill data gaps related to HABs	Update in semi-annual report	Reduce prevalence of HABs in the Bay and its waterbodies as measured by the Comprehensive Monitoring Program	4, 5, 6, 7
		Conduct monthly maintenance of SCCOOS shore station at Santa Monica Pier	SCCOOS	LA Waterkeeper	To collect data on oceanographic conditions in the nearshore environment and potentially inform long-term	Support monthly maintenance of the Santa Monica Pier Shore Station	Real time data available on SCCOOS website		

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		and seek support for additional sensors			changes related to environmental factors, including climate change				
		* Improve public outreach and education on HABs	NGOs, coastal municipalities, others	CDFW, many	To improve public understanding of harmful algal blooms, causes, and impacts	Present results of fire / HAB study and CRI study to interested groups	Update in semi-annual report		
36	Monitor chemical, physical, and biological characteristics in the Bay to inform climate change impacts such as ocean acidification	Implement the Kelp Forest Hydrodynamic Study	UC Davis	TBF, CSU Northridge, UCLA IoES	To assess sediment transport, alteration of advective currents, and wave attenuation within kelp forests	Establish one new study site, conduct kelp density surveys, and assist with instrument maintenance and data download	Update in semi-annual report	Development and implementation of adaptation strategy addressing impacts of ocean acidification in the Bay	6, 7
		Support OA sensor array maintenance, calibration, and data downloads in	LACSD	SMBRC, LARWQCB, SCCWRP, TBF	To continue using high-frequency, high-resolution OA sensors to characterize OAH conditions in	Redeploy the OA sensors in collaboration with LACSD wire-walker mooring special	Update in semi-annual report		

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		accordance with SOP			Santa Monica Bay	study to accurately collect real-time data at high-resolution, both temporally and vertically through the water column, and characterize OAH levels and variability in the upper 100m of the water column			
		Support inclusion of climate change impacts into CMP, especially through new models and data	TBF	TAC, CRI, CDFW, many others	To include climate change into the Comprehensive Monitoring Program including new models and data	Complete and release the final Comprehensive Monitoring Program including subsections on climate change for each major habitat in the Bay and its watershed; Continue work towards writing	Final CMP		

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						State of the Bay Report with TAC			
		Convene technical advisors to prioritize actions based on information from CMP	SMBRC, TAC, universities, others	TAC	To prioritize monitoring and data collection needs based on the revised CMP for major habitats in the Bay and implement the prioritized monitoring protocols	Once revised CMP is released, prioritize data gaps by major habitat with support of scientific advisors, acquire funding, and implement monitoring protocols	Update in semi-annual report		
37	Increase understanding of deep water habitats such as submarine canyons, deep reefs, and outfall pipes	Conduct ROV surveys to collect physical, chemical, and visual data	TBF, CRI	TAC	To use the ROV to conduct underwater surveys to supplement monitoring	Develop ROV use protocols, explore sensor integration, and deploy the ROV to collect physical, chemical, and visual data	Final Protocol(s)	Enhance functions and conditions of deep marine environments (e.g. deep reefs) in the Bay	6

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		Identify and apply emerging technology and techniques to better characterize Bay habitats, including recommendations	TBF, many	TAC, USC Sea Grant, SCMI, CRI, Blue Robotics, City of LA EMD, LACSD, CRI, Marauder Robotics, CDFW	To utilize cutting edge advancements in remote sensing, and remote platforms to better characterize the condition of the Bay's habitats	Contribute to the development and deployment of next gen data collection platforms to assess health of the Bay's habitats	Update in semi-annual report		
38	Monitor and improve understanding of rocky intertidal habitats to inform restoration actions	Support study recommendations and outreach efforts for improved protection	UCLA	CRI, MARINe	To improve understanding of rocky intertidal habitats to fill CMP data gaps and inform restoration activities	Continue to support Point Fermin rocky intertidal study; explore marine invertebrate physiological response to climate stressors	Update in semi-annual report	Implementation of the Comprehensive Monitoring Program to achieve a better understanding of the extent and condition of habitats in the Santa Monica Bay and its watershed	6

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39	Monitor and inform effective management of Marine Protected Areas, Fishery Management Plans, and local fisheries for recreational and commercially important species	Support MDRA in their implementation of the youth and veteran fishing program	MDRA	TBF	To provide disadvantaged youth and veterans the opportunity to experience nature, boating, and fishing and encourage sustainable lifestyles	Support MDRA by soliciting volunteers for boat trips as needed	Update in semi-annual report	Inform agency enforcement plans and long-term adaptive management of MPAs, assist with fishery related public health advisories	6
		Support MDRA in the completion of a halibut FMP	CDFW	OREHP HSWRI, MDRA	To provide technical and outreach support to MDRA in participating and tracking the development of a halibut FMP by CDFW and promotion of sustainable fisheries	Support MDRA in their efforts by reviewing project documents, providing technical support, attending meetings, and tracking progress	Update in semi-annual report		

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		Continue opportunistic aerial surveys to track boating and vessel activity	Lighthawk	TBF	To continue to track ocean vessels and fishing trends within the South Coast MPA Network	Conduct quarterly aerial surveys of the coast from Point Conception to the Mexican Border recording boat type, location, and activity (if funded or donated by LightHawk)	Update in semi-annual report		
		Conduct MPA Watch to monitor and inform use of MPAs in the Bay	LA Water-keeper, Heal the Bay	LA MPA Collabor-ative	To implement a community-science based program to monitor activities in MPAs and encourage appropriate enforcement and regulation activities	Train MPA Watch volunteers, conduct shore-based surveys, share data with local enforcement agencies, and conduct outreach to the public and interested stakeholders	Update in semi-annual report		

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40	Research and inform best management and pollution reduction practices to address non-point source pollution and facilitate reduction	Identify partners and identify funding sources for long-term monitoring efforts for LID and water conservation efforts	City of Santa Monica, many	LA County, municipalities, LACDPW, Our Water LA Coalition	To implement the SMB Comprehensive Monitoring Program	Work with SWRCB to develop and execute grant(s) to implement appropriate tasks in the CMP	Update in semi-annual report	Assist in achieving constituent percentage load reduction targets for waterbodies in the Santa Monica Bay according to TMDL compliance timeline	4
		Implement monitoring programs for long-term monitoring and to inform effectiveness of LID/BMP implementation projects	many	TAC, CRI, municipalities, LACDPW, Our Water LA Coalition	To fill data gaps and inform LID/BMP effectiveness in reducing non-point source pollution, especially nutrient pollution	Continue ongoing TAC conversations and review of Prop. monitoring plans; opportunistically explore ways to conduct additional monitoring of stormwater implementation projects	Update in semi-annual report		

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42	Inform strategies to reduce greenhouse gas emissions and increase carbon sequestration in support of existing state actions and policies	* Research landfill diversion's reduction on greenhouse gas emissions and carbon sequestration due to compost application	TBF, many	many	To conduct research on landfill diversion to obtain quantifiable GHG reduction metrics	Collaborate with partners and CRI to conduct research	Update in semi-annual reports	Implement and support carbon sequestration/cycle monitoring, research, and quantification as part of projects to inform or prioritize efforts	N/A
		Conduct research to establish rate of carbon sequestration associated with key habitats in the Santa Monica Bay and its watershed	SCCWRP, UCI, UCLA, TBF	SCC, local cities, CRI, others	To conduct research to identify processes and metrics to further understand rates of carbon sequestration within key habitats in Santa Monica Bay and its watershed	Collaborate with partners and leverage beach and eelgrass restoration projects to conduct research that contributes towards understanding carbon sequestration processes and rates	Update in semi-annual reports		

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43	Implement the County-wide Safe Clean Water Program to support stormwater pollution control projects (if approved by voters in 2018)	Participate in advisory board and support implementation of projects from the new funding mechanism	SMBRC	LA County, municipalities	To improve stormwater management in urban areas and reduce stormwater pollution through attainment of water quality objectives, increased stormwater retention, increased service to disadvantaged communities, and coordination of efforts across the County	Support the efforts of municipalities and organizations to utilize funds made available under Measure W for stormwater improvement and LID projects that provide nature-based and multi-benefit solutions throughout the watershed	Update in semi-annual report	Assist in achieving constituent percentage load reduction targets for waterbodies in the Santa Monica Bay according to TMDL compliance timeline	4, 6, 7
44	Support the development and implementation of a comprehensive regional sediment management	* Convene meetings to initiate program development and identify opportunities	TBF, others	LACDPW, Army Corps, CCC, municipalities	To facilitate communications and inform opportunities to advance sediment management in Los Angeles County	Develop meeting schedule(s) and agenda(s) to further constructive communications	Update in semi-annual report	Complete and implement a comprehensive regional sediment management plan to restore natural functions where	6, 7

Action #	CCMP Action	CCMP Next Step(s) / Project Activity Name	Lead Entity(ies)	Partner(s)	Objective(s)	Description / Milestone Summary	Outputs / Deliverables	Long-Term Environmental Result(s) / Outcome(s)	CWA Core
	plan for restoring natural hydrological functions of river systems and mitigating impacts from climate change	Develop plans and/or update existing plans to promote sediment transport and deposition along the coast based on hydro-dynamic modeling and analyses	TBF, others	USGS, CRI, USC Sea Grant, State Parks, CCC, SCC, CDFW	To protect public and private infrastructure and ecosystem services by increasing the Los Angeles County coastline's resilience to sea level rise and coastal flooding	Gather and conduct a review of applicable studies and plans to identify opportunities and strategies to actuate regional sediment management	Update in semi-annual report	possible and mitigate impacts of climate change	
		* Build capacity and conduct pilot projects to inform future actions and advance program development/ design	TBF, others	USGS, CRI, USC Sea Grant, State Parks, CCC, SCC, CDFW	To utilize pilot level projects to test assumptions and develop preferred methods for sediment transport and/or placement	Initiate planning for pilot projects	Update in semi-annual report		

** in the CCMP Next Step column = new project for FY21 Work Plan.*

***CWA Core** – Clean Water Act Core Elements are as follows per the USEPA: (1) establishing water quality standards, (2) identifying polluted waters and developing plans to restore them (total maximum daily loads), (3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permits), (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program, and (7) protecting Large Aquatic Ecosystems*

IV. ESTIMATED FY21 BUDGET

This section contains the budget estimated and projected for FY21. It is important to emphasize that SMBNEP's budget and Work Plan are fluid. With only the USEPA annual allocation as a consistent income source, SMBNEP must constantly work to develop new projects and find new funds and staff that support the SMBNEP are continuously working with possible new funding partners and applying for new awards. New projects are always in development and staffing allocations of time and budget shift frequently to meet new obligations as additional funds are secured. The Work Plan was brought before the Governing Board in April 2020 and may be adjusted when full funding is determined to reflect SMBNEP's actual work during October 2020 to September 2021. Any such adjustments to USEPA NEP funding will be documented in an amendment to the budget and Work Plan, approved by USEPA.

Estimated Funding Authorization Summary Table, 320 plus Match:

FY21 Funding Authorization Estimate (October 1, 2020 – September 30, 2021)	
EPA 320 FY21 Base Funding Plus Estimated Supplemental *	662,500
SMBRC – Match	240,000
The Bay Foundation – Match	362,500
Loyola Marymount University – Match	60,000
Estimated Funding Total	**1,325,000**

Descriptions of Action Categories in estimated operating budget:

- **Direct Management Actions**: to support implementation of CCMP Actions #1-18, including, but not limited to restoration of kelp forests, dunes, wetlands, and other habitats. These actions also provide support for native species such as abalone, rare species, and others.
- **Governance and Policy**: to support implementation of CCMP Actions #19-25, including, but not limited to efforts to improve water treatment facilities, adopt policies, inform management actions, and support best management practices.
- **Stakeholder Education and Engagement:** to support implementation of CCMP Actions #26-32, including, but not limited to reducing marine debris, conducting community engagement and education priorities, informing and reducing health risks to people, and implementing programs such as the Boater Education Program.
- **Research and Monitoring:** to support implementation of CCMP Actions #33-42, including, but not limited to researching and informing management actions, emerging contaminants, climate change impacts, and implementing the Comprehensive Monitoring Program.
- **SMBNEP Support / CCMP Tracking:** to support the development and implementation of CCMP, through CCMP progress tracking, SMBNEP reporting, and development of SMBNEP products.

Summary Table of Estimated 320 Funds by Action Categories:

Work Plan Action Categories	Estimated Funds *
Direct Management Actions	177,800
Governance and Policy	25,900
Stakeholder Education and Engagement	73,900
Research and Monitoring	224,700
SMBNEP Support / CCMP Tracking	160,200
TOTAL *	**662,500**

* Note that the FY21 320 budget funds are estimated by action category.

Estimated Operating Budget for FY21 and Estimated Matching Funds:

Estimated Operating Budget		
Salaries (Staff time allocations):	**EPA 320**	**Match**
Direct Management Actions	78,700	217,500
Governance and Policy	15,100	0
Stakeholder Education and Engagement	36,500	45,000
Research and Monitoring	75,600	0
SMBNEP Support / CCMP Tracking	83,500	190,000
Fringe Benefits and Taxes @ 30% (estimate)	86,800	0
Total Salaries and Benefits:	**376,300**	**452,500**

Travel:	**EPA 320**	**Match**
Annual NEP Tech Transfer Conference (location TBD)	3,000	0
Annual ANEP/EPA Meeting in Washington DC	3,000	0
Staff & Stakeholder Travel Expenses: year-round State and Local Travel (includes airfares, mileage, ridesharing, parking, etc.)	5,000	0
Total Travel:	**11,000**	**0**

Equipment:	EPA 320	Match
N/A	0	0
Total Equipment:	**0**	**0**

Supplies:	EPA 320	Match
Marine Supplies (SCUBA gear replacements)	1,000	0
Small Equipment (replacement of laptops, desktops, cameras,	3,000	0
Program Materials (field and lab materials, gloves, shovels, etc.)	4,000	0
Office Supplies (printer ink, paper, flash drives, etc.)	3,000	0
Total Supplies:	**11,000**	**0**

Other:	EPA 320	Match
Marine Facilities & Maintenance (boat maintenance, berth, storage, gear and equipment service, others)	12,600	0
Marine Safety (tank inspections, annual gear service, AAUS, etc)	7,500	0
Marine Boat R/V Daily Rate	2,200	0
Sensors Recalibration Service, Maintenance, & Upgrades	8,000	0
CRI Programs (funding to advance work on intertidal microplastics research; beach characterization study; modeling coastal climate stressors and adaptation strategies; native plant microbe interaction research; eelgrass and seafood genetics research; marine invertebrate physiology; habitat restoration and monitoring; general internships; and filling CMP data gaps)	70,000	0
Conferences & Meetings (includes fees, refreshments, etc., for year-round conferences and meetings with stakeholders, TAC, GB, WAC)	5,000	0
IT/Web/Software (IT and website services & software such as server, ArcGIS, Adobe,	7,387	0

Other:	EPA 320	Match
Microsoft office, Airtable, etc.)		
Printing & Design (printing and design for reporting, etc.)	2,000	0
Communications (telephone and cell phone costs)	4,000	0
Loyola Marymount University (office space, laboratory space, meeting rooms, faculty and staff support)	0	60,000
SMBRC (administrative services, space, and other support)	0	50,000
Total Other:	**118,687**	**110,000**

Contracts / Studies:	EPA 320	Match
Communications Specialist (media relations services)	15,100	0
Kelp Restoration Harvesters	9,000	0
SMBNEP Marketing & Branding	15,000	0
Living shoreline management	5,000	0
Coastal project monitoring	5,000	0
Website Upgrade	10,000	0
Other Contracts (Match only)	0	70,000
Total Contracts / Studies:	**59,100**	**70,000**

Indirect @ 15%:	EPA 320	Match
Total Indirect @ 15%:	**86,413**	**0**

Volunteer Labor	EPA 320	Match
Volunteer Labor (Match)	0	30,000
TOTAL BUDGET	**662,500**	**662,500**

Travel Documentation

With respect to participation in federal NEP activities, staff supporting the SMBNEP will continue to attend two annual meetings each year and may also be involved in planning the meeting activities and/or lead technical workshops during the meetings. In addition, staff will attend regional NEP meetings, workshops and special NEP-related conferences and training and workshops when feasible. Staff may identify opportunities to make presentations at conferences and workshops to provide educational and technical assistance and share "lessons learned" with other NEPs and watershed-based organizations throughout the nation.

The FY20 travel summary table provides a summary of events and travel from the last fiscal year through March 2020. The FY21 table provides an estimate of travel for the next fiscal year.

FY20 Travel Summary Table through March 2020:

FY20 Travel Summary				
Date	**Event/Trip Purpose**	**Location**	**Staff**	**Cost**
Oct 2019	Annual NEP Tech Transfer Conference / Information sharing and technology transfer among NEPs and partners	Dewey Beach, DE	Tom Ford	$1,365.17
Mar 2020	ANEP / EPA National Conference. Conference for NEPs, EPA, and partners.	Washington, D.C.	Cancelled	$0
TOTAL	**----**	**----**	**----**	**$1,365.17**

FY21 Estimated Travel Summary Table:

FY21 Anticipated Travel				
Date	**Event/Trip Purpose**	**Location**	**Staff**	**Estimated Cost**
Oct – Dec 2020	NEP Tech Transfer Conference / Information sharing and technology transfer among NEPs and partners.	TBD	Tom Ford, TBD	$ 3,000
Feb - Mar 2021	ANEP/EPA National Conference / Conference for NEPs, EPA, and partners.	Washington, D.C.	Tom Ford, TBD	$ 3,000

FY21 Anticipated Travel				
Date	**Event/Trip Purpose**	**Location**	**Staff**	**Estimated Cost**
All Year, multiple dates	Staff & Stakeholder Meetings and conferences travel / Information sharing and technology transfer among NEPs, partners, and stakeholders.	Various CA Locations	All staff	$ 5,000
TOTAL	**----**	**----**	**----**	**$11,000**

Appendix A. Table of Completed Projects in FY20

Project Name	Objective	Brief Project Description	Lead	Partners	Major Accomplishments	Key Deliverables	Long-Term Environmental Result(s) / Outcome(s)	CWA Core *
CA Vessel Waste Disposal Plan	To assess the existing sewage management infrastructure and need for additional sewage management resources in Southern California harbors for vessels	Use assessments and monitoring data to inform an update to the CA Vessel Waste Disposal Plan document	TBF	CDBW, SFEP	Developed a five-year planning document for the installation of sewage disposal facilities.	Final plan document	Effectively direct future funding investments for installation and maintenance of sewage disposal facilities (pumpouts, dump stations, floating restrooms) to areas where boaters most need these services.	4

CWA Core *– Clean Water Act Core Elements are as follows per the USEPA: (1) establishing water quality standards, (2) identifying polluted waters and developing plans to restore them (total maximum daily loads), (3) permitting discharges of pollutants from point sources (National Pollutant Discharge Elimination System permits), (4) addressing diffuse, nonpoint sources of pollution, (5) protecting wetlands, (6) protecting coastal waters through the National Estuary Program, and (7) protecting Large Aquatic Ecosystems*

Appendix B. Santa Monica Bay National Estuary Program Entities Staffing

SMBNEP works as a collaborative partnership staffed by The Bay Foundation (TBF) and Santa Monica Bay Restoration Commission (SMBRC) to implement the 2018 CCMP Action Plan via Annual Work Plan implementation. Both TBF staff and SMBRC staff contribute to the implementation of the Annual Work Plan and CCMP by carrying out their respective tasks and actions. The following section describes the entity affiliation(s) and key responsibilities of each staff member.

The Bay Foundation staff as of 1 April 2020:

Title	Name	Key Responsibilities
Executive Director	Tom Ford	SMBNEP management and coordination, direct, supervise and coordinate CCMP and work plan implementation; strategic development of programs, partnerships, and projects; oversight and direction of TBF staff; execution of contracts, policies and management practices of TBF; oversee TBF audits; represent SMBNEP; oversee program evaluations; develop, inform, and implement programs of the Coastal Research Institute
Administrative Director	Marcelo Villagomez	Oversee TBF's finances and resources; Inform, direct, and implement best practices and policies for TBF human and financial resource management including; administrative oversight, human resources, accounting, budgeting, invoicing, purchasing, grant management, audits; update and maintain administrative policies, guidelines, payroll, operating procedures and manuals, conduct financial planning
Science Director	Karina Johnston	Develop and direct programs contributing to research, monitoring, and ecological restoration activities; supervise, recruit, and train staff, students, interns, and volunteers; lead authorship of technical and scientific documents, and publications; develop and implement partnerships, collaborations, and outreach strategies to facilitate CCMP / CMP implementation; apply for grants; CRI programmatic management
Director of Marine Operations, Executive Assistant	Heather Burdick	Develop and direct operations including research, monitoring, and ecological restoration for marine program activities; direct fieldwork, labwork, report and technical document writing, outreach, and related tasks; supervise staff, interns, and volunteers; develop and coordinate partnerships; apply for grants; support CRI; serve as the Executive Assistant to the ED
Watershed Programs Project Manager	Chris Enyart	Coordinate research and monitoring activities, including fieldwork, labwork, data collection, data analyses and quality control/assurance; recruit and supervise interns, students and/or volunteers; authorship of technical documents, grant applications, and publications; support CRI

Title	Name	Key Responsibilities
Watershed Programs Technician	Nick Pilaud	Conduct research and monitoring activities, including fieldwork, labwork, data collection, quality control/assurance, and data analyses; recruit and supervise interns, students and/or volunteers; support the Watershed Programs Project Manager in authorship of technical documents, grant applications, and publications; support CRI
Watershed Programs Technician	Karina Alvarez	Conduct research and monitoring activities, including fieldwork, labwork, data collection, quality control/assurance, and data analyses; recruit and supervise interns, students and/or volunteers; support the Watershed Programs Project Manager in authorship of technical documents, grant applications, and publications; support CRI
Marine Programs Project Manager	Ben Grime	Coordinate research and monitoring activities, including fieldwork, labwork, data collection, quality control/assurance, and data analyses; recruit and supervise interns, students and/or volunteers; support the Director of Marine Operations in authorship of technical documents, grant applications, and publications; support CRI
Marine Programs Coordinator	Rilee Sanders	Coordinate research and monitoring activities, including fieldwork, labwork, data collection, quality control/assurance, and data analyses; recruit and supervise interns, students and/or volunteers; support the Director of Marine Operations in authorship of technical documents, grant applications, and publications; support CRI
Community Engagement Program Manager	Victoria Gambale	Contribute to program development and planning; manage grants; plan and develop stakeholder meetings, trainings, workshops, field work, and outreach emphasis on pollution reduction related to restaurants and boating; research, develop, distribute, and present education and outreach materials; apply for grants; support the Administrative Director in needed tasks
Community Engagement Coordinator	Georgia Tunoli	Coordinate Clean Bay Certified Restaurant Program; coordinate quarterly vessel sewage pumpout monitoring activities for Southern California harbors; implement mobile pumpout programs; assist the Community Engagement Program Manager
Community Engagement Coordinator	TBD	Coordinate and support efforts to implement the Boater Education Program; coordinate development of education and outreach materials; assist the Community Engagement Program Manager; support Administrative Director in needed tasks

Santa Monica Bay Restoration Commission staff as of 1 April 2020:

Title	Name	Key Responsibilities
Chief Administrative Director	Guangyu Wang	Prepare materials for and execute the meetings of the Governing Board (GB), the Executive Committee (EC), the Technical Advisory Committee (TAC), and the Watershed Advisory Council (WAC); interact with State, Federal, Local and other funding authorities to ensure compliance with regulatory and funding requirements; perform administrative functions associated with SMBRC; oversee grant management for State bond-funded projects; collaborate on SMBNEP work plan development, reporting requirements, and products
Environmental Scientist	Caitlin Gray	Conduct grant oversight and management for State bond-funded projects; coordinate with partner agencies in developing and implementing restoration programs and monitoring efforts in support of the CCMP; compile and provide information to stakeholders and the general public on various SMBRC projects; support the Chief Administrative Director in executing Commission meetings