SANTA MONICA BAY NATIONAL ESTUARY PROGRAM

Semi-Annual Report

1 April – 30 September 2018

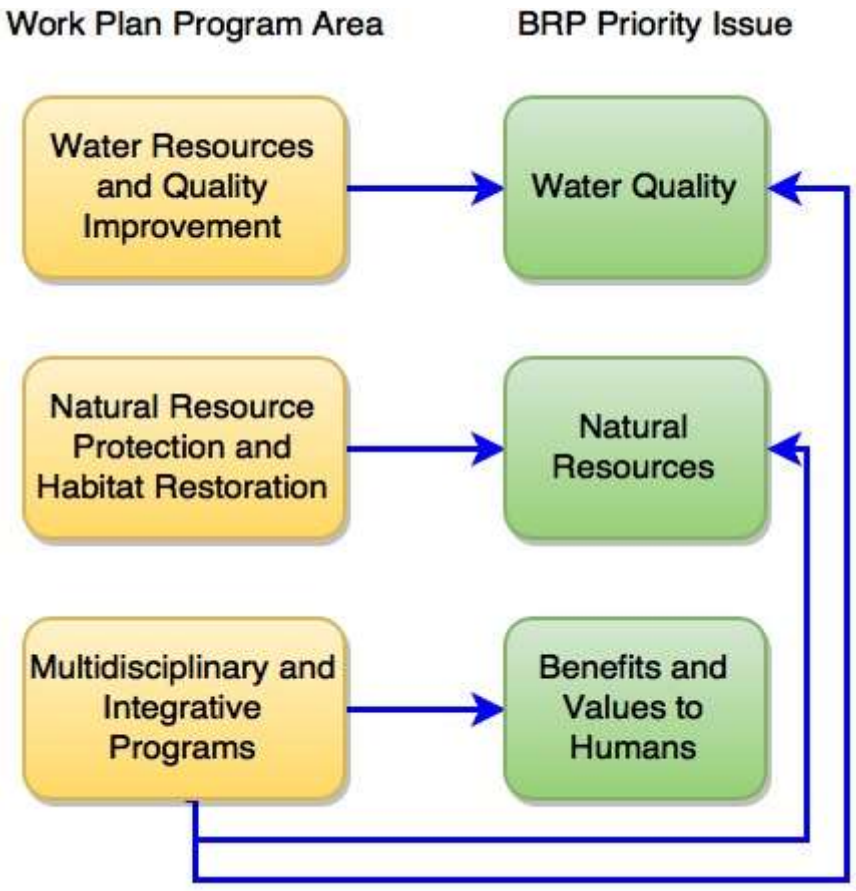
Report Date: 30 October 2018

Prepared for the United States Environmental Protection Agency

Semi-Annual Report Overview and Structure

This semi-annual report outlines and provides an update for each of the FY18 Work Plan tasks for the time period 1 April through 30 September 2018, the second and final semi-annual reporting period for FY18. Many of the FY18 tasks continue past efforts. Each table summarizes the current status and a synthesis of updates for each task. For some tasks requiring more description or discussion, an extended narrative follows the table for that task.

The scope of this semi-annual report is broad and structured into three overarching Program Areas to match the structure of the FY18 Work Plan. The Program Area identified as Water Resources and Quality Improvement relates specifically to the BRP Priority Issue: Water Quality; the Program Area identified as Natural Resource Protection and Habitat Restoration relates specifically to the BRP Priority Issue: Natural Resources. There has also been more focus and efforts in FY18 on implementing programs that interconnect and integrate issues across traditional boundaries such as climate change and comprehensive monitoring. These interdisciplinary issues that cover a broad range of topics are categorized into the Work Plan Program Area: Multidisciplinary and Integrative Programs. The diagram below illustrates the connection between SMBNEP's FY18 Work Plan and BRP 2013 Priority Issues.



Each of the three Work Plan Program Areas (semi-annual reporting Program Areas) are further categorized into broad Goals and can be identified as 1.1, 1.2, etc. The table below illustrates each of the three Work Plan Program Areas and the nine Goals identified as priorities for FY18.

Work Plan Program Area	Work Plan Goal
1. Water Resources and Quality Improvement	1.1 Support regional water quality improvement planning and policies
	1.2 Improve water quality through pollution control and prevention
2. Natural Resource Protection and Habitat Restoration	2.1 Support natural resource protection policies and programs
	2.2 Restore wetlands and streams
	2.3 Restore coastal bluffs, dunes, and sandy beaches
	2.4 Restore intertidal and subtidal habitats
3. Multidisciplinary and Integrative Programs	3.1 Promote climate change vulnerability assessment and adaptation
	3.2 Conduct public outreach and increase collaborations
	3.3 Support planning, monitoring, and organizational management

The Work Plan Goals are further divided into Objectives (at the level of 1.1a, 1.1b, etc.). Each of these Objectives contain a series of tasks identified within a table that will take strides towards reaching the Objective. This semi-annual report provides an update on each of the FY18 Work Plan tasks for all Objectives. The FY18 Work Plan Goals and Objectives are both cross-referenced within this document to the associated BRP Goal or Objective. For additional details at the goal or objective level, refer to the final FY18 Work Plan. Additionally, some tasks are of a larger scope or have had significant achievements within this reporting period, and as such have a more detailed narrative summary after the table of tasks in each section.

1. Water Resources and Quality Improvement

Tasks and activities in this section of the semi-annual report are intended to advance the goals, objectives, and milestones that address water quality-related issues, as laid out in Priority Issue 1, Water Quality, of the BRP. For narrative details on each Objective and task, refer to the final FY18 Work Plan.

1.1 Support regional water quality improvement planning and policies

This FY18 Work Plan objective is tied to BRP Goal 1: Improve water quality through enhancement of current regulatory framework and collaborative, integrated watershed wide planning and implementation, and Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.1a Implement storm water pollution control BMP funded through Prop. 84 bond and other grant programs; BRP 1.1				
Oversee pollution control BMPs funded through Prop. 84 bond grants	SMBRC	Lead	Ongoing	Rancho Palos Verdes SMB Catch Basin Inserts project under construction; development of three other grant agreements continued; implementation for all projects between: December 2018 – 2021; in collaboration with SCC, SMBRC staff developed and released an RFP for the remaining Prop. 12 funding; SMBRC and SCC conducted site visits and preliminary evaluations of the Prop. 12 grant applications; TAC reviewed monitoring plans for two Prop. 84 projects
Support funding (e.g. Prop. 1) for WMP and EWMP projects	SMBRC, TBF	Support	Ongoing	Continued dialogue with state agencies; participated on Environmental Enhancement and Mitigation and Urban Greening TAC which included numerous meetings, workshops, and multiple statewide site visits
1.1b Promote and participate in integrated watershed-wide water quality improvement planning and implementation; BRP 1.5, 4.6				
Support efforts to increase funding for water resiliency	SMBRC, TBF	Support	Ongoing	Continued to monitor the progress of the LA County Drought Resiliency Work Plan and funding mechanism report through IRWMP Leadership Group meetings; proposed funding mechanism for

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				the Safe Clean Water Program was placed by the LA County Board of Supervisors on the November ballot for voter approval
Storm Water Strategy	SMBRC	Participate	Ongoing	No updates during this reporting period
Participate in IRWMP leadership group and provide technical support	SMBRC	Participate	Ongoing	Continued to attend Leadership Committee meetings and sub-regional group meetings as open space representative on the Leadership Committee
Participate in sub-region Steering Committees	SMBRC	Participate	Ongoing	No updates during this reporting period

1.2 Improve water quality through pollution control and prevention

This FY18 Work Plan objective is tied to BRP Goal 2: Improve water quality through pollution prevention and source control.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
1.2a Implement green infrastructure and LID projects; BRP 2.1				
Seek new partnership and funding opportunities for new rain garden and other LID projects	TBF	Lead	Ongoing	Sought additional funding and partnerships for Culver City Rain Garden (CCRG) monitoring
Facilitation of storm water monitoring and monitoring of LID effectiveness	SMBRC, TBF	Facilitate	Ongoing	Three Master's theses were completed in this reporting period (J. Burkhard, LMU; D. Yousavich, CSULA; and C. Enyart, LMU); three manuscripts were initiated to publish the results in scientific journals (see details in narrative below); one graduate student continues work researching pollutant fate via uptake by plants
1.2b Implement the Boater Education Program; BRP 2.4				
Conduct pumpout monitoring	TBF	Lead	Ongoing	Completed quarterly monitoring of 69 Southern California pumpouts using Pumpout Nav mobile app; finalized quarterly monitoring reports; finalized 2017 annual Pumpout Report; began to research and locate additional pumpout locations
Implement Honey Pot Live	TBF	Lead	Ongoing	Implemented Honey Pot Live from June to August 2018 in Long Beach, Los Angeles, Marina del Rey, and King Harbor; completed 2018 Honey Pot Live Final Report; presented on program at annual State Organizations for Boating Access conference
Attend and promote community engagement events	TBF	Lead	Ongoing	Published Changing Tide Spring and Summer newsletters; attended three engagement events (Marina del Rey Marina Fest, Port of LA Clean Boating Expo, California Yacht Marina Cabrillo tenant appreciation BBQ); finalized, released, and promoted instructional video about

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				boat y-valves; produced 2019 tide calendars
Coordinate Dockwalker Volunteer Program	TBF	Lead	Ongoing	Implemented three Dockwalker trainings (San Diego, Newport Beach, San Pedro); trained 51 individuals as Dockwalkers; distributed 3,420 boater kits;
Conduct copper TMDL outreach	TBF	Support	Cancelled	Copper TMDL outreach was contracted to TBF by LA County Beaches and Harbors as part of a 319h grant they received from the State Water Quality Control Board to implement a boat lift project. Due to the inability to find a boat lift manufacturer that can meet the terms of the grant agreement, the project was cancelled.
Pilot Dye Tablet Program	TBF	Lead	Ongoing	Distributed 33 individually packaged tablets to each of the three participating marinas: Wayfarer's Marina, Essex Marina, and Marina del Rey Marina
1.2c Implement the Clean Bay Restaurant Certification Program; BRP 2.2, 2.5, and 14.2				
Implementation of the Clean Bay Certified program	SMBRC, TBF	Lead	Ongoing	Continued monthly program meetings; continued semi-monthly online promotion
Support restaurant inspections by Cities	TBF	Support	Ongoing	Continued coordination of efforts and program components for the eleven participating cities
Community Composting and Community Supported Agriculture Outreach	TBF	Lead	Ongoing	Built new compost hub at Environmental Charter Middle School, Gardena; approached 15 businesses in Gardena; diverted 7,500 lbs of food waste to-date from landfills to Environmental Charter Middle School, Inglewood; participated in LA Food Waste Rescue and Prevention Working Group

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Single Use Disposable Products Reduction Initiative	TBF	Lead	Ongoing	Finalized audit process at two food service establishments: The Conservatory and Scoops Chinatown; continued disposable reduction and baseline audits with three food service establishments: Palette Food and Juice, Samosa House El Segundo, and Gus' Tacos; completed RFP process and selected videographer for two testimonial videos; participated in Santa Monica Disposable Food Service Ware meetings and supported more restrictive service ware ordinance which passed in August

Summary Narratives

Stormwater Monitoring and LID Effectiveness: During this reporting period, three Master's theses were completed analyzing the effectiveness of LID implementation. Jamie Burkhard (LMU) completed her study in May, "Water Infiltration and pollutant retention efficiencies in the Ballona Creek Rain Garden" and found that the garden's infiltration rates ranged from 73% to 100% (with 100% for many of the smaller storms <1 in). Results for pollutant loading and retention indicated that the average percent retentions were in the 80-90% range for all pollutants, with an average of 90% for all nine pollutants sampled. Additionally, David Yousavich (CSULA) completed his study in May: "Heavy metal sequestration in bioretention soil in a rain garden in Culver City, CA." This study analyzed soil fractions in CCRG soil to elucidate mechanisms occurring in heavy metal sequestration. Results suggested that the majority of heavy metals (83% of As, 55% of Cr, 81% of Cu, 86% of Ni, 65% of Pb, and 64% of Zn) in the rain garden soils were sequestered in the reducible fraction of soil (amorphous and mineral oxide associated) and that stormwater intrusion increased the reducible fraction sequestration. Results of both studies suggest rain gardens can be used successfully in urban areas to promote infiltration, capture pollutants, and prevent polluted stormwater from reaching impaired waterbodies.

A third Master's student, Chris Enyart (LMU), completed his study in July: "A 30 Year Assessment of Fecal Indicator Bacteria (Escherichia coli and Enterococci) Along the Shoreline of Santa Monica Bay, California." The goal of this study was to assemble 30 years of monitoring data (1988-2017) for *E. coli* and enterococci to assess trends along the entire shoreline of Santa Monica Bay. Resulting trends for both *E. coli* and enterococci included the following: 1) concentrations peaked around 2005 when many stations shifted to sampling points where runoff mixed directly with surf zone water; 2) after 2005, concentrations fell, especially at beaches where low-flow diversions (LFDs) were implemented; 3) concentrations were extremely variable during the 2016-17 wet season; 4) the north and central areas of the Bay, had greater concentrations relative to the south area; and 5) dry weather concentrations were steadily low, whereas wet weather displayed a higher degree of variability. Implementation of LFDs and other best management practices to restrict polluted runoff from flowing into the surf zones of the Bay's beaches most likely improved water quality throughout the Bay. All three studies are currently being turned into manuscripts for publication in scientific journals.

2. *Natural Resource Protection and Habitat Restoration*

Tasks and activities in this section of the Annual Work Plan are intended to advance the goals, objectives, and milestones that address natural resources-related issues, as laid out in Priority Issue 2, Natural Resources, of the BRP. The BRP addresses the natural resources-related issues first by supporting better information gathering and implementation of more effective protection policies, regulations, and management programs (Goal 4), and by laying out specific steps and projects needed for protection and restoration for each of the major habitats in the Bay (Goals 7–10). For narrative details on each Objective and task, refer to the final FY18 Work Plan.

2.1 Support natural resource protection policies and programs

This FY18 Work Plan objective is tied to BRP Goal 4: Create/support policies and programs to protect natural resources and Goal 13: Increase public access to beaches and open space.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.1a Promote marine ecosystem protection; BRP 4.2, 4.3, 4.4, 11.4				
Implement ocean vessel aerial monitoring project	TBF	Lead	Ongoing	Two survey flights completed; scientific journal manuscript published in Ocean and Coastal Management
Participate in LA MPA Collaborative	TBF	Participate	Ongoing	Participated in quarterly meetings/calls and an ROV demo workshop in April 2018
Promote sustainable fishery management	TBF	Promote	Ongoing	No activity in this reporting period
Expand acoustic telemetry network	TBF	Participate	Ongoing	Receivers were last downloaded in September 2018; data are downloaded and redeployed bimonthly; receivers detected 16 tags from April to September 2018 (see summary below)
Remotely Operated Vehicle (ROV) surveys	TBF	Lead	Ongoing	Open ocean deployment and piloting occurred in April and July 2018
Support MDR Youth Fishing Program	TBF	Support	Ongoing	Continued to support the Youth Fishing program and offer assistance on 'as needed' basis; intern (Doshi) continued to make presentations to children aboard the vessel about environmental issues
2.1b Support stream protection and policies; BRP 4.1				

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Promote creation and adoption of stream protection ordinances	TBF	Promote	Ongoing	Opportunistically participated in conversations with other groups to facilitate progress such as Heal the Bay and Surfrider

Summary Narratives

Ocean Vessel Aerial Monitoring: Since 2010, TBF has partnered with LightHawk to collect data on recreational and commercial vessel distribution and activity relative to the South Coast Marine Protected Areas (MPA) network. This work includes data from 2008 through 2018 collected via aerial surveys to understand changes in the use of different habitats by fishermen as a result of MPA implementation. Distribution models of these data were created and published in the scientific journal Ocean and Coastal Management. TBF and Dr. Amanda Zellmer at Occidental College have contributed to this manuscript. This project informs decision makers, enforcement officials, resource managers and other stakeholders regarding types, distribution and activities of vessels in Southern California coastal waters. TBF expects to continue quarterly surveys through 2018 to collect data and describe any emerging trends in the distribution, action, or type of vessels operating along the mainland coast of southern California.

MPA Collaborative: TBF continued to update and advance the goals of the Los Angeles County MPA Collaborative, concentrating on communication strategies and outreach for the general public. In May, TBF staff attended a quarterly meeting with the LA MPA Collaborative group and has participated in planning of a community event, Honor the Ocean, which will be held on October 20, 2018 at Zuma Beach in Malibu, CA. This event will highlight the importance of MPAs and ocean conservation. During this reporting period, the LA Collaborative has been developing teacher training kits and organizing events funded through the Ocean Protection Council's small grants program to support the Collaborative' s outreach and education efforts in Los Angeles County.

Acoustic Telemetry Network: Four acoustic receivers were purchased by TBF to improve the coverage of the Southern California Acoustic Telemetry Network. Currently there are eight receivers deployed in the Santa Monica Bay to inform SMBNEP of the movements, positions and permanence of great white sharks, giant sea bass, and other fish species. Both species are ecologically significant, protected by state and federal regulations and inadvertently or purposefully targeted by fishermen. Data generated by this expansion of the network will improve protection and understanding for these species.

The receivers were acquired in the late fall of 2016 and three receivers were first deployed in May 2017 to Malibu Pier, Point Dume, and Zuma Beach. The receivers were downloaded bi-monthly, cleaned, and redeployed to their moorings. During this reporting period, the receivers detected four shovelnose guitarfish initially tagged off La Jolla, one giant sea bass tagged off Catalina Island, six juvenile white sharks tagged in southern California or central Baja California, and five unidentified tags. One juvenile white shark was detected in the SMB for nearly a month, spending more than two weeks off the Manhattan Pier.

2.2 Restore wetlands and streams

This FY18 Work Plan objective is tied to BRP Goal 7: Restore wetlands, streams, and riparian zones.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.2a Facilitate restoration of priority wetlands; BRP 7.1, 7.2, 7.5-7.8				
Implement Ballona Reserve community stewardship and invasive species removal project	TBF	Lead	Ongoing	Released the Year 2 Annual Report; continued ongoing maintenance of the restoration area; began strategic expansion of restoration area within permitted 3-acre limit; hosted seven restoration events removing invasive, non-native species; continued ongoing scientific monitoring and maintenance in accordance with CCC permit and Monitoring and Implementation Plan; began new grant funded by NFWF; applied for additional funding to continue project
Assist CDFW with the Draft EIS/R review for the Ballona Reserve	TBF	Participate	Complete	Task completed during last semi-annual reporting period
Conduct public outreach about Ballona Reserve	TBF	Participate	Ongoing	TBF conducted ongoing outreach to request participation in iceplant removal and restoration events (e.g. TBF events webpage, social media promotion, National Estuaries Week, etc.)
Conduct Malibu Lagoon post-restoration maintenance and monitoring	SMBRA, TBF	Lead	Ongoing	Maintenance and volunteer events occurred once monthly; completed Year 5 Monitoring Report (biological, physical, and chemical parameters) and posted on TBF's website; began continuation of monitoring efforts into subsequent monitoring year
Implement Level 3 regional wetland monitoring program	TBF	Lead	Ongoing	Partnership meetings held; coordinated expert teams for data analysis on invertebrates, water quality, vegetation, and fish; ongoing communications with Bight '18 scientists and other regional and state-wide

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				collaborations (such as the California Wetland Monitoring Workgroup); drafted next semi-annual report; initiated framework development for data consolidation
Facilitate restoration of other coastal lagoons in northern Santa Monica Bay	TBF	Facilitate	Ongoing	Opportunistically participated in conversations with other groups and lead agencies such as State Parks and RCDSMM
2.2b Facilitate stream restoration and fish barrier removal; BRP 7.3, 7.4				
Conduct Stone Canyon Creek maintenance	TBF	Lead	Ongoing	Conducted six monthly volunteer restoration events in which 80 volunteers contributed 242 hours; continued partnership with UCLA to incorporate site into restoration ecology course in development; conducted California Rapid Assessment Method (CRAM) survey and instructed 60 UCLA students in its field application
Conduct mudsnail surveys in the Northern Bay watershed	SMBRC, TBF	Lead	Ongoing	No activity in this reporting period
Facilitate projects to control crayfish and other invasive species in Santa Monica Mountains watersheds	SMBRC, TBF	Participate	Ongoing	No activity in this reporting period
Support reintroduction of red-legged frogs in the Santa Monica Mountains	SMBRC, TBF	Support	Ongoing	Reintroductions continued in two streams in spring and wild populations were documented breeding at both sites in late spring; ongoing conversations with USFWS continue
Complete Arroyo Sequit fish barrier removal project	TBF	Participate	Ongoing	Project completed, and final report will be available upon final approval by State Water Resources Control Board
Support completion of Draft Malibu Creek Ecosystem Restoration Feasibility Study	SMBRC, TBF	Facilitate	Complete	Task completed during last semi-annual reporting period

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Support restoration of lower Topanga Creek	SMBRC, TBF	Participate	Ongoing	Prop. 12 grant proposal for Topanga restoration design was submitted by State Parks and is undergoing evaluation by SCC and SMBRC staff
Seek funding and promote stream restoration and fish barrier removal projects	SMBRC, TBF	Promote	Ongoing	Attended multiple, state-wide site visits for Urban Greening Program; Resources Agency TAC recommended 39 projects for funding, including 13 in Los Angeles County; opportunistic communications and funding searches are ongoing

2.3 Restore coastal bluffs, dunes, and sandy beaches

This FY18 Work Plan objective is tied to BRP Goal 8: Restore coastal bluffs, dunes, and sandy beaches.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.3a Restore coastal dune and bluff habitats; BRP 8.1				
Conduct monthly volunteer restoration events at LAX Dunes	TBF	Lead	Ongoing	Conducted 15 restoration events funded by SCC and LAWA, including the fourth annual Coastal Cleanup Day (see below)
Conduct dune restoration partnership with LAWA (48-acre northern area of the LAX Dunes)	TBF	Lead	Ongoing	Completed third quarter summary report and invoices for SCC ETC and LAWA grants; conducted ecological monitoring, including vegetation mapping, transects, bird surveys, and topographic data; completed the five-year monitoring report for the Coastal Dunes Improvement Project for the Coastal Commission and submitted to LAWA – the site is meeting the defined success criteria; coordinated two weeks of restoration with Los Angeles Conservation Corps; coordinated site visits for Rancho Santa Ana Botanic Gardens and Psomas for plant and El Segundo Blue Butterfly surveys, respectively
Coordinate Coastal Clean-up Day at LAX Dunes	TBF	Lead	Ongoing	On 15 September 2018, 53 volunteers completed 212 hours of volunteer work focused on removing 6,485 pounds (3.24 tons) of iceplant and mustard
2.3b Protect and restore sandy beach habitats; BRP 8.2				
Implement the Santa Monica beach restoration pilot project	TBF	Lead	Ongoing	Completed and released Year 2 Monitoring Report in August; continued ongoing scientific monitoring and site maintenance / trash pickups; partnered with UCSB for benthic invertebrate and vegetation surveys; vegetation cover increasing and dune formation up to 1 m in some areas along fence line

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Facilitate standardized sandy beach monitoring	SMBRC, TBF	Facilitate	Ongoing	Opportunistically searched for funding; ongoing communications through regional stakeholder groups such as the Beach Ecology Coalition and local beach management groups through Audubon for plover and least tern surveys; coordinated SaMo site monitoring with UCSB scientists
Conduct the "Healthy Beaches" project	TBF	Co-Lead	Ongoing	Completed summer research projects with LMU faculty as part of CRI and began filling data gaps in Comprehensive Monitoring Program (see CMP task); two faculty fellows through CRI participated in this program: one conducted a beach characterization study, especially focused on mechanically groomed versus ungroomed systems; the second focused on a literature review of physiological benefits of natural spaces to humans
Explore new beach restoration opportunities in the Bay	TBF	Lead	Ongoing	Continued outreach and partnership development / permit exploration for Malibu Living Shoreline Project (Pt. Dume and Westward Beaches); created website for MLSP; performed site visit and partnership meeting; presented to Manhattan Beach City Council Sustainability Task Force in September to explore partnership with City/County re: a beach/dune restoration project in MB

2.4 Restore rocky intertidal and subtidal habitats

This FY18 Work Plan objective is tied to BRP Goal 9: Restore rocky intertidal and subtidal habitats.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
2.4a Promote protection of rocky intertidal habitats; BRP 9.2				
Promote protection of rocky intertidal habitats	TBF	Promote	Ongoing	Continued ongoing communications with collaborators; continued indicator development for this habitat as part of SMBNEP's Comprehensive Monitoring Program
2.4b Restore and enhance rocky reef habitat; BRP 9.1				
Implement the rocky reef / kelp forest restoration project	TBF	Lead	Ongoing	3.0 acres restored April 2018 – September 2018; 46.7 acres restored for the total project to date; average urchin density reduced from 18.5 urchins/m^2 to 1.4 urchins/m^2; several public presentations given; draft annual report completed
2.4c Reintroduce and restore abalone; BRP 9.3				
Maintain abalone laboratory	TBF	Lead	Ongoing	TBF and SCMI staff monitor and maintain the lab daily; Construction of a second lab is underway to increase rearing capacity
Restore green abalone	TBF	Lead	Ongoing	Quarterly monitoring of outplanting location continued; conducted tissue sampling for genetic analysis; approximately 150 green abalone observed within site; one deck spawning event
Conduct abalone aquaculture resilience research	TBF	Participate	Ongoing	35 wild green abalone broodstock are currently housed in the laboratory and are being conditioned for spawning trials in spring 2019
Restore white abalone	TBF	Lead	Ongoing	Funding received from NOAA NMFS to expand aquaculture facility; conducted one red abalone spawning experiment; collected 30 wild red abalone broodstock; NFMS ESA Section 10(a)(1)(A) Permit application approved; CDFW red abalone stocking permit approved

Summary Narratives

Palos Verdes Kelp Forest Restoration Project: Teams of restoration divers (SCUBA) have been clearing the ocean floor of over-populous sea urchins, thereby reducing herbivory and allowing for the natural recruitment and development of the giant kelp community. During the reporting period of 1 April 2018 through 30 September 2018, 3.0 acres of reef have been cleared of excess urchins. The average urchin density has been reduced from 18.5/m^2 to 1.4/m^2 across the total 46.7 acres restored since the beginning of the project in July 2013. Early results from this work are already apparent, with the development of a variety of macroalgae occurring on the reefs in all sites as well as increases in fish species richness and biomass. In some locales, giant kelp (*Macrocystis pyrifera*) has reached impressive lengths creating a canopy at the surface of the ocean. Aerial monitoring conducted by the Central Region Kelp Survey Consortium described a 250% increase in kelp canopy within restored sites.

Restore Green Abalone: Quarterly non-invasive monitoring surveys continued at the green abalone outplanting site. Approximately 150 green abalone have been found at the site for the past year, which is a density of 1.5/m^2. Each survey between 20 to 25 green abalone are sampled for genetic analysis to determine parentage, e.g. to distinguish between naturally occurring and outplanted abalone at this restoration site. Future monitoring of the green abalone outplant site may be reduced to annually or biannually. One deck spawning trials of green abalone at Catalina Island was conducted on 18 May. None of the abalone spawned during this spawning trial. It is unclear why the green abalone are not spawning at the site, since water conditions and food have been available for the past year and a half. Deck spawning of green abalone has been halted at this time and it is undetermined if these efforts will continue.

Restore White Abalone: Red abalone are used as a proxy for white abalone for restoration technique development. This is in response to the species' shared range, depth, bottom type, food preference, and the endangered status of the white abalone. To increase the infrastructure and develop methods for white abalone recovery, TBF completed the construction of the Abalone Laboratory at the Southern California Marine Institute in June 2016. A second laboratory is currently being constructed and will be completed in mid-November. This second room allows TBF to double its capacity to hold abalone and will provide the staging center for future white abalone recovery efforts. Once completed the original lab will be remodeled to hold white abalone in this lab space. The second room will house both the green and red abalone, and larval grow out troughs. These spaces serve as a wet lab and hatchery for abalone rearing, experimentation, and long-term housing of broodstock. The facility is a registered aquaculturist and has been certified as "sabellid free" by CDFW for the second year. Two captive red abalone spawning events were conducted in the lab on 20 April and 14 August. The 20 April spawn was successful with 496,000 eggs produced. Unfortunately, the sperm quality was poor, resulting in a very low fertilization rate. Monthly spawning of captive abalone has been temporally put on hold until the completion of the lab expansion. On 10 July and 21 September, a total of 30 wild red abalone broodstock were collected and brought to the lab. CDFW approved TBF's stocking permit application for red abalone outplant trials on 17 April. NFMS ESA Section 10(a)(1)(A) Permit application was approved on 25 May to allow housing of white abalone in the laboratory.

3. *Multidisciplinary and Integrative Programs*

Due to their multidisciplinary and integrative nature, Objectives and tasks in this section of the semi-annual report are tied to and provide essential support for implementation of all goals, objectives, and milestones of the BRP including information gathering and dissemination, fund raising, and organizational management. For narrative details on each Objective and task, refer to the final FY18 Work Plan.

3.1 Promote climate change adaptation

This FY18 Work Plan objective is tied to BRP Goal 4: Create and support policies and programs to protect natural resources.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.1a Conduct climate change vulnerability assessment and policy improvements; BRP 4.5				
Conduct climate action planning for BRP revision	SMBRC, TBF	Lead	Ongoing	Based on TAC recommendation, vulnerability to climate change was incorporated into the habitat assessment indicator framework during the ongoing update of the Bay Comprehensive Monitoring Program; multiple Governing Board and Watershed Advisory Council workshops were conducted for the CCMP revision process along with several open public comment periods; draft Action Plan was produced and submitted for written comments and public input
Participate in AdaptLA project	SMBRC, TBF	Participate	Ongoing	Continued communications about disseminating CoSMoS modeling results and applications to SLR planning in Los Angeles; website: http://dornsife.usc.edu/uscseagrant/adaptla/; see also task below
Promote "softscape" measures for adapting to climate change impacts	SMBRC, TBF	Promote	Ongoing	Continued conversations with beach managers and agencies; TBF presented to the Manhattan Beach City Council Sustainability Task force to explore the possibility of conducting a future beach/dune restoration project; in July participated in the “Strengthening Coasts for a Resilient Future” conference at UC Irvine; participated in the “Coastlines and People”

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				conference and workshop as invited participant funded by NSF
3.1b Conduct research on local impacts of climate change; BRP 4.5 and ALL				
Implement kelp forest hydrodynamics study	TBF	Participate	Ongoing	Continued quarterly kelp surveys, checks/download; final project report was submitted to SCC in May 2018
Study impacts of kelp forests on ocean acidification in Santa Monica Bay	TBF	Support	Ongoing	UCLA's IoES 2018 Senior Practicum group presented preliminary results in June 2018; IoES class of 2019 Senior Practicum is building on this work by comparing the impact of kelp and eelgrass on ocean acidification in the Bay; they will present their findings in June 2019; funding was awarded by USC SeaGrant to UC Davis and CSU Northridge to continue this study over the next two years; site selection surveys for this work will be conducted in fall 2018
Monitor ocean acidification	SMBRC, TBF	Participate	Ongoing	Sensors were redeployed at a new, deeper location on PV shelf in early January 2018 after annual maintenance and calibration; data collection is ongoing

Summary Narratives

Kelp Forest Hydrodynamic Study: This research project is conducted in partnership with UC Davis Bodega Marine Lab, and new partner California State University Northridge. The project continues to inform how kelp forests influence current patterns, wave velocity, and sediment transport off the coast of the Palos Verdes Peninsula. Bathymetry, substrate type, and rugosity data have been collected for one study area. Initial kelp presence surveys have been completed, and further presence surveys were completed throughout the sensor sampling period to quantify changes in kelp forest densities throughout the study. A project report has been submitted to the State Coastal Conservancy in May 2018 and further analysis of the data are being performed by researchers at UC Davis. USC SeaGrant funding has been awarded to continue this effort in two additional restoration sites over the next two years.

3.2 Conduct public outreach and increase collaborations

This FY18 Work Plan objective is tied to all the BRP Goals through one or more elements of communication as part of outreach efforts. Specifically, Goals 2, 6, and 14 are directly facilitated by various communication strategies.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.2a Create and manage communications; BRP – ALL				
Conduct press and media communications	SMBRC, TBF	Lead	Ongoing	Released four press releases, 41 media items published; responded to media questions as asked
Publish newsletters and SMBNEP outreach materials	SMBRC, TBF	Lead	Ongoing	Released two quarterly Baywire newsletters
Maintain websites	SMBRC, TBF	Lead	Ongoing	Updated TBF website quarterly; updated SMBRC website as needed
Promote social media communications	SMBRC, TBF	Lead	Ongoing	Semi-weekly posts on FB, Twitter and Instagram
Attend conferences	TBF	Participate	Ongoing	Conferences that TBF participated in included: Southern California Academy of Sciences Annual Meeting in May; MPA Technology Workshop; Strengthening Coasts for a Resilient Future (UCI); Coastlines and People (NSF); State Organizations for Boating Access in Duluth, MN; additionally, TBF began coordination and planning to lead and participate in multiple sessions and field excursions at the Restore America's Estuaries conference in Long Beach in December 2018
3.2b Coordinate the internship and volunteer program; BRP Goals 6, 7, 8, 9				
Implement the internship and volunteer program	TBF	Lead	Ongoing	Volunteer program had over 6,000 hours contributed in FY18 by over 1,600 individuals at events; continued coordination meetings and ongoing student recruitment through partnerships, online opportunities, and via TBF's website; conducted at least four volunteer events monthly; CRI had 24 interns participating in monitoring, research, and

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				restoration in summer 2018; CRI had three faculty fellowships awarded and research projects initiated; 7 students are continuing research for course credit in the Fall 2018 semester
3.2c Participate in and provide technical support to stakeholder groups; BRP – ALL				
Participate in stakeholder groups involved in BRP implementation	SMBRC, TBF	Participate	Ongoing	Ongoing throughout the work plan time period; see other tasks
Participate in PV Shelf and FCEC risk communication activities	SMBRC	Participate	Ongoing	Scoping meeting of the technical exchange group for the focused feasibility study is scheduled for 1 November 2018
3.2d Oversee the Public Involvement and Education (PIE) mini-grants program; BRP – ALL				
Raise funding from local sponsors and initiate a new round of PIE program	TBF	Lead	Pending	No funding opportunities emerged during this reporting period

Summary Narratives

Press and Media Communications: SMBRC and TBF continue efforts to reach out and generate local, regional, and national media coverage in various forms. Four TBF press releases were written and distributed, with 15 media pieces delivered, including print and online articles. There were additional media published beyond the 15 that included re-postings of press releases (4), and simple listings of events in larger newsletters (15) and reference to TBF programs or announcements (7).

SMBNEP Annual Report and Baywire: Press releases and individual pitches to reporters were ongoing during this reporting period. The electronic Baywire newsletter was published and distributed at the end of March (Quarter 1) and in early July (Quarter 2) on both the SMBRC and TBF websites summarizing activities during those quarters, respectively.

Social Media and Website: Social media continues to be one form of generating local, regional, and national outreach and engagement, highlighting projects, field work, earned media, volunteer opportunities, and related campaigns (i.e. ANEP) using educational videos, project-related images, and articles. Social media for TBF includes Instagram (1,098 followers), Facebook (2,945 Likes), Twitter (1,105 followers), YouTube, and Flickr. The website offers information and connectivity through home page updates, Twitter feed, and updates to events, project pages, reports and publications, and includes a regularly updated Media Center.

Internship Program: The internship/volunteer program continued to provide educational and hands-on opportunities for students and the community. During FY18, over 1,600 volunteers contributing over 6,000 hours removed hundreds and hundreds of bags of non-native and invasive vegetation. In one event alone at the LAX Dunes focused on iceplant removal, volunteers removed over three tons of

iceplant. Internship and volunteer opportunities included: Ballona Community Iceplant Removal Project, Santa Monica Beach Restoration Pilot Project, Culver City Rain Garden, LAX Dunes Preserve, Malibu Lagoon Restoration and Enhancement Project, Stone Canyon Creek Restoration, other restoration events, and various LMU Seaver College of Science and Engineering projects. Student interns and volunteers came from local universities and high schools such as LMU, CSULA, UCLA, USC, UCSB, Santa Monica College, Marymount High School, Culver City High School, El Segundo High School, Santa Monica High School, and St. Anastasia School. Groups included Boy Scout Troops and popular Meetup.com members. At least four events were coordinated monthly.

Additionally, TBF and LMU's Frank R. Seaver College of Science and Engineering at Loyola Marymount University continued to expand the programs of LMU's Coastal Research Institute (CRI). CRI's expertise supports ongoing efforts to restore and enhance the Santa Monica Bay and local coastal waters. CRI contributes to better understanding of global urban coastal resource management through the execution of projects that stem from TBF's work. Over the course of summer 2018, ten paid internships and three faculty fellowships were competitively awarded to LMU students and faculty to advance projects and research related to the Bay Restoration Plan and the Comprehensive Monitoring Program.

The three faculty fellow research projects were led by Dr. John Dorsey, "Characterizing Santa Monica Bay's Sandy Beach Habitats," Dr. James Landry, "Method Development and Analysis of Microplastics found on Santa Monica Beaches," and Dr. Cristina Tirado, "Human Health Benefits of Coastal Restoration Initiatives." All three support objectives of SMBNEP's Comprehensive Monitoring Program. An additional 14 students, including six from Marymount High School, completed internships over the summer. This research allows for undergraduates and other students to gain real world experience while conducting applied science with TBF staff and LMU faculty, and the research supports ongoing efforts to monitor and inform adaptive management actions for Bay projects. Seven students are continuing their research through the school year to receive course credit from LMU.

3.3 Support planning, monitoring, and organizational management

This FY18 Work Plan objective is tied to all BRP Goals.

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3a Seek and increase funding for BRP implementation; BRP – ALL				
Seek grant funding for implementation of specific BRP objectives and milestones	SMBRA, TBF	Lead	Ongoing	During this reporting period, new grants were awarded, including: National Fish and Wildlife Foundation grant for restoration activities and funding from Sheila Kuehl's office; an extension and fund increase from NOAA NMFS for the current Abalone Restoration, and a 4 year proposal accepted by NOAA NMFS for the Southern California White Abalone Restoration Project (Year 1 funding has been guaranteed - start date Jan 1, 2019); Additional grants were applied for and are awaiting a final decision, such as the So Cal Gas Environmental Champions Grant, grants from the Coastal Conservancy, and several foundations
Conduct BRP revision process	SMBRA, SMBRC, TBF	Lead	Ongoing	During this time period, significant progress was made on the CCMP revision and a draft Action Plan was produced that synthesized input from the GB, WAC, EC, and TAC; additional efforts to compile information for the ongoing CCMP revision process continued; during the August GB meeting, a final workshop was held to discuss the draft Action Plan, followed by a written comment period; edits were incorporated and a redline and clean draft final Action Plan were produced
3.3b Support comprehensive monitoring of Bay health; BRP 4.7, 10.1 and ALL				

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Update CMP and develop implementation mechanisms	SMBRC, TBF	Lead	Ongoing	TAC meeting was held at the end of September to provide further input on the CMP development and CCMP revision process as well as presentations and revisions of two Prop 84 projects; habitat subgroup meetings will be held in November
Design and implement pilot deep reef survey	SMBRC, TBF	Participate	Ongoing	No activity during this reporting period
Assess offshore eelgrass beds in Santa Monica Bay	TBF	Lead	Ongoing	SCUBA based surveys of eelgrass beds off Malibu conducted on 14 April, 13 July, and 2 Aug, temperature and light loggers were deployed and sediment samples were collected from potential donor beds and future transplant sites
State of the Bay Report development	SMBRC, TBF	Lead	Ongoing	State of the Bay Report development is on hold while the CMP revision is being undertaken; CMP revision will inform the SotB Report development through the new indicators and monitoring plans

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
3.3c Support organizational management; BRP – ALL				
Track BRP implementation progress through semi-annual reporting	SMBRC, TBF	Lead	Ongoing	Produced and submitted the semi-annual report for the October 2017 – March 2018 period
Track BRP implementation progress through annual GPRA reporting	SMBRC, TBF	Lead	Ongoing	Tracking leverage funding and habitat acreages continued; annual GPRA report was completed and submitted
Support SMBRC GB meetings	SMBRC	Lead	Ongoing	Met bi-monthly: held meetings in April, June, and August of 2018
Support SMBRC EC meetings	SMBRC	Lead	Ongoing	Met bi-monthly: held meetings in May, July, and Sept of 2018
Support SMBRC TAC meetings	SMBRC	Lead	Ongoing	Met on 30 May and 26 Sept of 2018
Support SMBRC WAC meetings	SMBRC	Lead	Ongoing	Held a meeting/CCMP revision workshop on 21 June 2018
Support SMBRA board meetings	SMBRA	Lead	Ongoing	Held a board meeting on 21 June 2018
Support TBF board meetings	TBF	Lead	Ongoing	Held meetings on 2 May and 31 July 2018
Conduct general management and reporting activities	SMBRC, SMBRA, TBF	Lead	Ongoing	Submitted the GRPA report in September; continued work on the CCMP revision process focused on the draft Action Plan

EPA Questions and SMBNEP Responses
re: Semi-Annual Report (10-30-2018)

1.1: Rancho Palos Verdes SMB Catch Basin Inserts project under construction; development of three other grant agreements continued; implementation for all projects between: December 2018 – 2021; in collaboration with SCC, SMBRC staff developed and released an RFP for the remaining Prop. 12 funding; SMBRC and SCC conducted site visits and preliminary evaluations of the Prop. 12 grant applications; TAC reviewed monitoring plans for two Prop. 84 projects

EPA - Can you clarify what this means? "; implementation for all projects between: December 2018 – 2021"

SMBNEP – All projects will be in construction phase or monitoring phase no later than late 2021

EPA - Can you summarize the TAC's feedback on the two monitoring plans?

SMBNEP – *City of LA Westwood* – Important to measure flow. Can't measure load reductions without flow – also load data from one grab sample are likely to not be accurate. Should focus on storms that produce outflow. Add multiple sample grabs per event. Consider adding additional monitoring events – data from two storms are not enough to really understand function. Make use of data obtained from previous (similar) projects to inform this monitoring plan. Make sure that data can be collected in such a way as to be aggregated with input to CEDEN. Consider possibility of using CRI students to support additional monitoring.

County of LA Ladera Park – TAC did not have specific comments on County plan but focused on the larger issue of standardization of monitoring for Clean Beach projects. Standards that would be a better fit for the consolidation and analyses of larger data sets. Right now the study questions are small based on the project-level scale. Significant inputs would be the similar framework, but most importantly – accurate and complete metadata and outputs (data) that can be consolidated/combined.
All projects should submit data to publicly accessible database(s).

1.2a: Sought additional funding and partnerships for Culver City Rain Garden (CCRG) monitoring

EPA - Were you successful?

SMBNEP – This monitoring program is summarized in "Stormwater Monitoring and LID Effectiveness" because there is overlap between the two tasks. We did have significant in-kind support contributed by CSULA and CRI in the form of faculty and graduate student time as well as the analytical chemistry support for the metals analyses. One graduate student will continue the research into metal extraction by plants in CCRG. No new funding was obtained, but partnerships were expanded.

Task 1.2 B Conduct copper TMDL outreach- canceled

EPA - Did this issue come up with other similar projects? It would be good to hear what happened so we can better share lessons learned.

SMBNEP – No, this is the first cancellation to our knowledge. TBF was a subcontractor for the educational outreach component of a grant awarded to LA County. The County went out to bid multiple times for a boat lift manufacturer to meet the terms of the grant agreement, but they were unable to

find one and requested to terminate the agreement (and therefore terminate the subcontract with TBF for outreach). The County is discussing the possibility of purchasing a boat lift on their own to test.

Stormwater Monitoring and LID Effectiveness: "This study analyzed soil fractions in CCRG soil to elucidate mechanisms occurring in heavy metal sequestration. Results suggested that the majority of heavy metals (83% of As, 55% of Cr, 81% of Cu, 86% of Ni, 65% of Pb, and 64% of Zn) in the rain garden soils were sequestered in the reducible fraction of soil (amorphous and mineral oxide associated) and that stormwater intrusion increased the reducible fraction sequestration."
EPA - Can you explain what this means?

SMBNEP – The final thesis contained lot of analytical chemistry and metal partitioning geochemical mechanisms, but the final data used were primarily from a limited pilot study. Those preliminary results suggested that the top layers of soil contained most of the heavy metals, but even in the highest concentrations measured, they were still below regulatory thresholds. Thus, no soil remediation (treatment or removal) is needed at this time.

2.2b Seek funding and promote stream restoration and fish barrier removal projects- Attended multiple, state-wide site visits for Urban Greening Program; Resources Agency TAC recommended 39 projects for funding, including 13 in Los Angeles County; opportunistic communications and funding searches are ongoing
EPA - Of the 13 and projects in LA, how many are in the NEP project area?

SMBNEP – Four

During this reporting period, new grants were awarded, including: National Fish and Wildlife Foundation grant for restoration activities and funding from Sheila Kuehl's office; an extension and fund increase from NOAA NMFS for the current Abalone Restoration, and a 4 year proposal accepted by NOAA NMFS for the Southern California White Abalone Restoration Project (Year 1 funding has been guaranteed - start date Jan 1, 2019);
EPA - That's great news.

SMBNEP – No response required.

Assess offshore eelgrass beds in Santa Monica Bay
EPA - Is there anything you can add about probability of success based on what you found in the field, or is it too early to say anything definitive?

SMBNEP – The data are still preliminary at this point and some of the samples are still being analyzed, so it's too early to make definitive condition assessments. But we did confirm the location and distribution of several eelgrass beds in the northern Santa Monica Bay area that had previously been mapped using remote sensing and side-scan sonar.

Abalone lab
EPA - Are both NOAA and EPA funds being used to build/buy equipment for the new lab?

SMBNEP – Yes.