

**SANTA MONICA BAY NATIONAL ESTUARY PROGRAM**

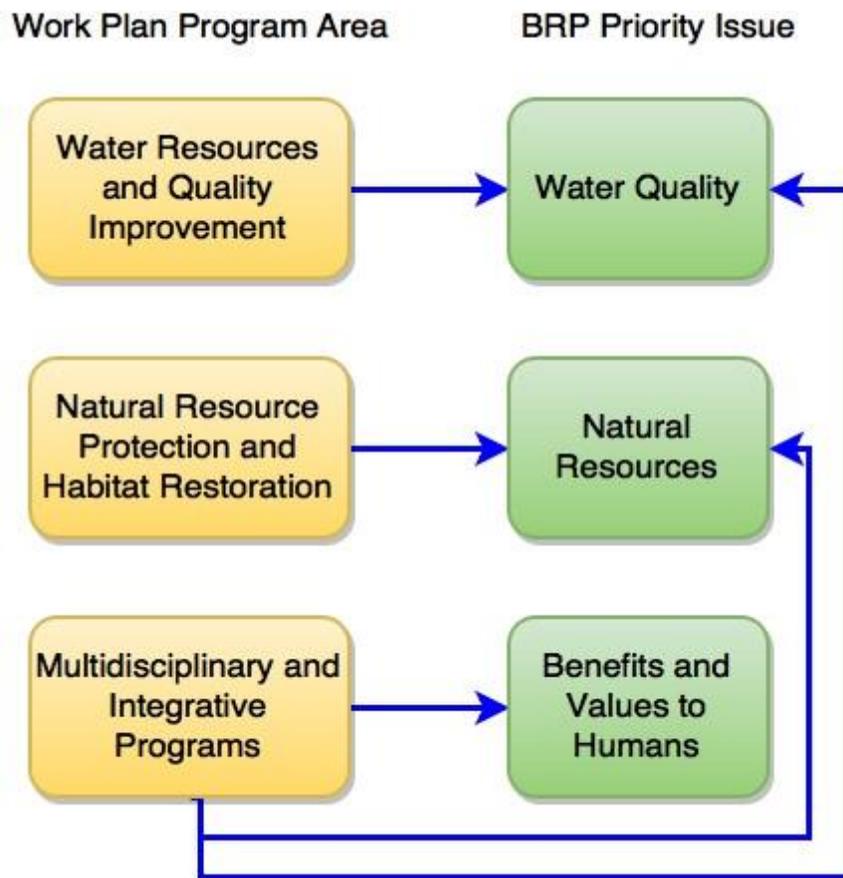
**Semi-Annual Report**  
1 October 2017 – 31 March 2018

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 October through 31 March 2018, the first 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 Resources and Habitat Protection	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
	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		
<i>1.1a Implement storm water pollution control BMP funded through Prop. 84 bond and other grant programs; BRP 1.1</i>				
Oversee pollution control BMPs funded through Prop. 84 bond grants	SMBRC	Lead	Ongoing	Executed one Prop 84 grant agreement, Rancho Palos Verdes SMB Catch Basin Inserts; currently developing three grant agreements; implementation for all projects between: December 2018 – 2021; construction completed on two projects: University Park Rain Gardens and Milton Green Street
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
<i>1.1b Promote and participate in integrated watershed-wide water quality improvement planning and implementation; BRP 1.5, 4.6</i>				
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; no meetings during this reporting period, but progress was monitored through conversations with stakeholders (e.g. environmental community and LA County staff at IRWMP Leadership Group meetings)

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
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

**Summary Narratives**

**Prop. 84 Project Update:** Construction was completed on two projects during this reporting period: University Park Neighborhood Rain Gardens and Milton Green Street Project. Summaries of progress on each project are included below.

**University Park Neighborhood Rain Gardens:** The City of Los Angeles installed 35 rain gardens in the University Park area adjacent to the University of Southern California, in the Ballona Creek watershed. The rain gardens capture, treat, and infiltrate runoff from residential and commercial streets. The rain gardens are planted with native shrubs and grasses and are expected to capture the first ¾-inch of rainfall from approximately 200 acres. The rain gardens will remove trash, metals, bacteria, nutrients, and sediments from dry- and wet-weather runoff the before those pollutants reach Ballona Creek. Major construction was completed in late 2017. The project is now in the post-construction monitoring phase. Results and the final report are still being compiled at the time of this draft report; the final report will likely be completed in June 2018.

**Milton Green Street Project:** The Mountains Recreation and Conservation Authority converted a portion of Milton Street in Los Angeles into an active green street. Using Vegetated Stormwater Curb Extensions (VSCEs) on both sides of the street, the VSCEs are designed to capture, treat, and infiltrate the wet and dry weather runoff from the street and from an adjacent park. They will remove trash, metals, bacteria, organics, oil, and grease from the water before those pollutants reach Ballona Creek. This will reduce pollutant loads to Ballona Creek and thus improve the habitat potential and water quality in the Ballona Creek and Santa Monica Bay. The system is designed to treat all dry weather flow and runoff from every ¾-inch 24-hour storm event. The project is now in the post-construction monitoring phase. Results and the final report are still being compiled at the time of this draft report; the final report will likely be completed in July 2018.

## 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		
<i>1.2a Implement green infrastructure and LID projects; BRP 2.1</i>				
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 – two graduate students are researching for pollutant fate through partnerships with CSULA and LMU’s CRI (see task below)
Facilitation of storm water monitoring and monitoring of LID effectiveness	SMBRC, TBF	Facilitate	Ongoing	Continued partnership with LMU to analyze water and pollutant retention data from two seasons of storms: results being analyzed for graduate thesis (May 2018); continued projects with CSULA and LMU’s CRI to analyze pollutant fate in soils (thesis: May 2018) and plants (thesis: May 2019) at CCRG; continued project with LMU graduate student to analyze long-term Fecal Indicator Bacteria trends in SM Bay (thesis: May 2018)
<i>1.2b Implement the Boater Education Program; BRP 2.4</i>				
Conduct pumpout monitoring	TBF	Lead	Ongoing	Completed quarterly monitoring of 70 Southern California pumpouts using Pumpout Nav mobile app; finalized quarterly monitoring reports; created <a href="#">bilingual instruction stickers</a> for sewage pumpout units (Spanish/English)
Implement Honey Pot Live	TBF	Lead	Ongoing	Completed <a href="#">2017 Honey Pot Live Final Report</a> ; 2018 Honey Pot Live program will be implemented June to August 2018 in Long Beach, LA, Marina del Rey, and King Harbor; revised HoneyPotDay.org will launch in Spring

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Attend and promote community engagement events	TBF	Lead	Ongoing	Published <a href="#">Changing Tide</a> Winter newsletter; attended four engagement events (Santa Barbara Harbor and Seafood Festival and Santa Monica Windjammers Yacht Club's youth sailing club meeting, United States Coast Guard Auxiliary District Training Conference, Marina del Rey Marina Manager meeting); developed short instructional video about boat y-valves (first draft due March 31 <sup>st</sup> )
Coordinate Dockwalker Volunteer Program	TBF	Lead	Ongoing	2017 statewide results: 200 individuals trained to be certified Dockwalkers; 4,943 Boater Kit questionnaires / program evaluations collected, 6,500 Boater Kits distributed, <a href="#">"Hall of Fame" Dockwalkers</a> selected; planned four 2018 Dockwalker trainings to take place March-May in Marina del Rey, Newport Harbor, and San Diego; press release for Spring 2018 trainings published
Conduct copper TMDL outreach	TBF	Support	Ongoing	Held kickoff meeting with partners on 20 December 2017
Pilot Dye Tablet Program	TBF	Lead	Ongoing	Presented to Marina del Rey Marina Manager Meeting; participation secured from Wayfarer's Marina and Essex Marina (March); created <a href="#">program flyer</a> ; final participation numbers TBD
<i>1.2c Implement the Clean Bay Restaurant Certification Program; BRP 2.2, 2.5, and 14.2</i>				
Implementation of the Clean Bay Certified program	SMBRC, TBF	Lead	Ongoing	Continued monthly program meetings; continued semi-monthly online promotion; presented at the City of Rolling Hills Estates City Council meeting; developed Clean Bay Certified toolkits (toolkits

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				contain: one faucet aerator, ReThink Disposable flier, Clean Bay Certified Handbook, and two educational posters: "Fats, Oils, and Grease" and "Water Savings")
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	Enlisted one new business (Feel Good Salsa); hired "Seeds of Change" fellow from Social Justice Learning Institute to manage food waste; diverted 1,500 lbs of food waste; acquired new grant from SoCalGas Environmental Champions Fund; began planning new compost hub at Environmental Charter Middle School, Gardena
Single Use Disposable Products Reduction Initiative	TBF	Lead	Ongoing	Finalized contract with Clean Water Fund; attended kick off and classroom training; created co-branded flyer; participated in four days of field training; approached 17 businesses, signed up three businesses (Jackson's Market, Conservatory Coffee, SCOOPS Chinatown)

## 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		
<i>2.1a Promote marine ecosystem protection; BRP 4.2, 4.3, 4.4, 11.4</i>				
Implement ocean vessel aerial monitoring project	TBF	Lead	Ongoing	Two survey flights completed; scientific journal manuscript in review
Participate in LA MPA Collaborative	TBF	Participate	Ongoing	Attended quarterly meetings and a statewide ROV workshop in January 2018; OPC small grants proposal was funded October 2017 to support MPA outreach and education
Promote sustainable fishery management	TBF	Promote	Ongoing	No activity in this reporting period
Expand acoustic telemetry network	TBF	Participate	Ongoing	Initial deployment in May 2017; data were downloaded and sensors redeployed bimonthly; receivers detected 10 tags in this period (see summary below)
Remotely Operated Vehicle (ROV) surveys	TBF	Lead	Ongoing	Pilot training conducted at Port of Hueneme's pool facility in December 2017
Support MDR Youth Fishing Program	TBF	Support	Ongoing	Intern was chosen (Doshi) to join the Youth Fishing Program; he made presentations to children aboard the vessel about environmental issues including marine debris and seafood consumption
<i>2.1b Support stream protection and policies; BRP 4.1</i>				

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 have been created and a manuscript is in final review for publication 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.

A grant from the Resource Legacy Fund was awarded to LightHawk and TBF received a sub-award to support aerial surveys and outreach through June 2018. 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 July, TBF staff attended a quarterly meeting with the LA MPA Collaborative group and a statewide MPA Collaborative Conference held at UC Irvine. The work group was organized by the MPA Collaborative Network and the Ocean Protection Council to discuss best practices for ROV deployment and operation. During this reporting period, the LA Collaborative was awarded funding 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 and inform the SMBNEP of the movements, positions and permanence of great white sharks and giant black sea bass. 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 five shovelnose guitarfish initially tagged off La Jolla, two giant sea bass tagged off Catalina Island, and three juvenile white sharks with two tagged in southern California and one tagged off central Baja California.

## 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		
<i>2.2a Facilitate restoration of priority wetlands; BRP 7.1, 7.2, 7.5-7.8</i>				
Implement Ballona Reserve community stewardship and invasive species removal project	TBF	Lead	Ongoing	Continued ongoing maintenance during Year 2 of implementation in the existing project footprint; hosted three restoration events with invasive, non-native species such as <i>Euphorbia terracina</i> removed; continued ongoing scientific monitoring in accordance with CCC permit and Monitoring and Implementation Plan; applied for funding to continue project
Assist CDFW with the Draft EIS/R review for the Ballona Reserve	TBF	Participate	Complete	Provided technical assistance to CDFW's Project Management Team and DEIS/R consultants (project leads: CDFW, Army Corps); task completed during this semi-annual reporting period
Conduct public outreach about Ballona Reserve	TBF	Participate	Ongoing	TBF continued presentations and efforts to increase awareness of the release of the Draft EIS/R and to encourage public participation and comments; forwarded announcements from the lead agencies to increase awareness of the DEIS/R to public (project leads: CDFW, Army Corps)  As part of a separate effort, TBF conducted ongoing outreach to request participation in the iceplant removal events (e.g. TBF events webpage, social media promotion)
Conduct Malibu Lagoon post-restoration maintenance and monitoring	SMBRA, TBF	Lead	Ongoing	Maintenance and volunteer events occurred once monthly; completed Year 5 monitoring (biological, physical, and chemical); began data analysis and report drafting for Year 5 report; explored opportunities to continue

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				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 collaborations (such as the California Wetland Monitoring Workgroup); submitted semi-annual report in October; began semi-annual report for April; began vegetation analyses
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 DPR, LA County, and RCDSMM
<i>2.2b Facilitate stream restoration and fish barrier removal; BRP 7.3, 7.4</i>				
Conduct Stone Canyon Creek maintenance	TBF	Lead	Ongoing	Conducted monthly volunteer restoration events; partnership with UCLA to incorporate site into restoration ecology course in development
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	No activity in this reporting period
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

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Support completion of Draft Malibu Creek Ecosystem Restoration Feasibility Study	SMBRC, TBF	Facilitate	Complete	Draft Feasibility Study is <a href="#">available online</a>
Support restoration of lower Topanga Creek	SMBRC, TBF	Participate	Ongoing	Opportunistic communications are ongoing (Project partners: DPR, RCDSMM, CADFW)
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 between August and December 2017; Resources Agency TAC recommended 39 projects for funding, including 13 in Los Angeles County; attended two Urban Greening Round 2 Technical Workshops in February and March; opportunistic communications and funding searches are ongoing.

## Summary Narratives

**Malibu Lagoon:** In August 2017, TBF published the [Malibu Lagoon Restoration and Enhancement Project Comprehensive Monitoring Report \(Year 4\)](#), available online. This comprehensive report included comparative evaluations of pre- and post-restoration data. As noted in the report, the Year 4 data suggest that the project is currently meeting or exceeding required success criteria, and there has been a consistent increase in vegetation cover over time and a substantial increase in CRAM score (wetland condition assessment) over time. The water quality, circulation, and dissolved oxygen have all also improved, post-restoration. The fish and bird communities are doing well, and the lagoon appears to be highly functional based on the monitoring metrics and identified success criteria. Additionally, TBF completed the fifth year of site-wide monitoring at the Malibu Lagoon Restoration and Enhancement project, including the full suite of required post-restoration monitoring parameters such as water quality and circulation, sediment quality, vegetation, algae, birds, fish, benthic invertebrates, and photo point surveys. The 5-Year Monitoring Report will be publically available in summer 2018. TBF continues to explore opportunities to collect additional data subsequent to the 5-year monitoring period. Monitoring is likely to continue through the end of 2018 and possibly the beginning of 2019.

**Stone Canyon Creek:** TBF continued hosting monthly volunteer events focused on removing invasive vegetation from the creek site. Additionally, TBF is working with UCLA professors and students to develop stewardship of the site through the university and to incorporate the restoration planning into an ecology course for the spring quarter. The engagement with UCLA professors and students continues to provide opportunities that benefit both students and the Stone Canyon Creek restoration site.

## 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		
<i>2.3a Restore coastal dune and bluff habitats; BRP 8.1</i>				
Conduct monthly volunteer restoration events at LAX Dunes	TBF	Lead	Ongoing	Conducted monthly restoration events (6) funded by SCC and LAWA; completed quarterly summary reports
Conduct dune restoration partnership with LAWA (48-acre northern area of the LAX Dunes)	TBF	Lead	Ongoing	Initiated agreement between TBF and LAWA; submitted annual Work Plan (Nov 2017); initiated ecological and physical monitoring (Jan-Mar); submitted Invoices #1 and 2; submitted First Quarter Progress Report (28 Feb 2018)
Coordinate Coastal Clean-up Day at LAX Dunes	TBF	Lead	Ongoing	No activities during this time period
<i>2.3b Protect and restore sandy beach habitats; BRP 8.2</i>				
Implement the Santa Monica beach restoration pilot project	TBF	Lead	Ongoing	Continued ongoing scientific monitoring and site maintenance / trash pickups; continued to monitor wintering Western Snowy Plovers; partnered with UCSB for benthic invertebrate and vegetation surveys
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 (presentation given on 9 January 2018) and local beach management groups through Audubon for plover and least tern surveys; coordinated SaMo site monitoring with UCSB scientists

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Conduct the “Healthy Beaches” project	TBF	Co-Lead	Ongoing	Began developing summer research projects with LMU faculty as part of CRI and to fill data gaps in Comprehensive Monitoring Program (see CMP task); faculty fellow recruitment through CRI for beach characterization study
Explore new beach restoration opportunities in the Bay	TBF	Lead	Ongoing	Acquired new funding from SCC / Prop 1 to conduct dune restoration project at Zuma Beach and Point Dume Beach; finalized contract requirements and initiated project in January 2018

### Summary Narratives

**LAX Dunes Restoration:** Work continues through the State Coastal Conservancy’s Explore the Coast Grant that is being used for the Coastal Dune Community Stewardship Project, an educational and hands-on restoration program at the LAX Dunes and supported by LAWA. During this time period, six events were held in which 201 volunteers collected and removed 119 lbs of weedy invasive vegetation including Russian thistle, iceplant, and long-beaked filaree from the site. Two additional events were scheduled, but had to be cancelled due to rain. Additionally, during this time period, the agreement between LAWA and TBF was finalized for the northern 48-acre restoration area of the LAX Dunes in November 2017. A Work Plan was finalized in November 2017, and monitoring commenced in January 2018, including vegetation transect surveys and mapping, topographic surveys, and targeted non-native invasive vegetation surveys.

**Santa Monica Beach Restoration Pilot Project:** This Pilot Project, conducted in partnership with the City of Santa Monica, is restoring three acres of sandy coastal habitats on the beaches of Santa Monica to bring back a healthy, diverse coastal plant and wildlife community. The project is evaluating increased protection for our coastal infrastructure and residences from sea level rise and erosion, while also providing a vital refuge for invertebrates, birds, and rare coastal vegetation species.

The Pilot Project had a successful first year of implementation, culminating in the publication of the [Year 1 Annual Report](#) which highlighted some of the projects’ successes and learning opportunities. The project installed sand fencing, restricted grooming in an approximately 3-acre area, allowed vegetation to grow and sand hummocks to form along fence lines, positively engaged the public, created new partnerships and outreach connections, provided comprehensive science-based monitoring data to inform soft-scape beach restoration solutions, and began bringing back a rare coastal habitat type to the Los Angeles region. Scientific monitoring in the first 15 months since project implementation in December 2016 show benefits to plants and wildlife, including the Western Snowy Plover, which overwintered on site. Site checks and scientific monitoring are ongoing, in accordance with a CDP permit from the California Coastal Commission and the Monitoring and Implementation Plan.

## 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		
<i>2.4a Promote protection of rocky intertidal habitats; BRP 9.2</i>				
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
<i>2.4b Restore and enhance rocky reef habitat; BRP 9.1</i>				
Implement the rocky reef / kelp forest restoration project	TBF	Lead	Ongoing	2.1 acres restored October 2017 to March 2018; 43.5 acres restored for the total project to date; average urchin density reduced from 17.8 urchins/m <sup>2</sup> to 1.4 urchins/m <sup>2</sup> ; several public presentations given; Year 4 annual report produced
<i>2.4c Reintroduce and restore abalone; BRP 9.3</i>				
Maintain abalone laboratory	TBF	Lead	Ongoing	TBF and SCMI staff monitor and maintain the lab daily; Construction plans for lab expansion are underway to increase rearing capacity
Restore green abalone	TBF	Lead	Ongoing	Quarterly monitoring of outplanting location continued; conducted tissue sampling for genetic analysis; 154 green abalone observed within site; two deck spawning events
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 the spring
Restore white abalone	TBF	Lead	Ongoing	Funding received from NOAA NMFS to expand aquaculture facility and support spawning and outplanting experiments with red abalone as a proxy for white abalone; conducted one red

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
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				abalone spawning experiment; collected 10 wild red abalone broodstock; NFMS ESA Section 10(a)(1)(A) Permit application submitted; CDFW red abalone stocking permit application in review; presented overview of program to NOAA Headquarters in March 2018

## 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 October 1, 2017 through March 31, 2018, 2.1 acres of reef have been cleared of excess urchins. The average urchin density has been reduced from 17.8/m<sup>2</sup> to 1.4/m<sup>2</sup> across the total 43.5 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 exceeding twenty-five feet and creating a canopy at the surface of the ocean. Presentations of the progress of this ongoing project were made at the Western Society of Naturalists, Loyola Marymount University Environmental Science Department, and USC Environmental Studies scientific diving class. An abstract has been submitted to speak at the upcoming annual meeting of the Society of Environmental Toxicology and Chemistry and is awaiting approval.

Weather conditions continued to be favorable for the fall and first half of winter allowing monitoring and restoration teams to dive more consistently. Additional restoration blocks will be identified, pre-monitored, and cleared during the next period. On 24 October 2017, purple urchin gonads were dissected and compared among restoration, barren, and kelp reference sites. Monitoring results within restoration sites indicate a 250% increase in kelp canopy, 168% increase in red sea urchin gonad weight, increased algal and invertebrate diversity, and increased density of kelp bass.

**Restore Green Abalone:** Quarterly non-invasive monitoring surveys continued at the green abalone outplanting site. During the survey in February, 25 of the 154 observed green abalone had tentacles removed for genetic analysis to determine parentage, e.g. to distinguish between naturally occurring and outplanted abalone at this restoration site. In October 2017, 13 wild green abalone were collected off Catalina Island and brought into captivity to support method development for spawning green abalone. Two deck spawning trials of green abalone at Catalina Island were conducted on 2 and 30 October. None of the abalone spawned during these spawning trials. Kelp at the collection site has previously been mostly absent due to the warmer sea surface temperatures over the last two years. Cooler waters have returned, and kelp is currently established at the site. Abalone collected appear to be healthier and have higher gonad indices scores which will hopefully result in more successful spawning attempts in summer 2018. The refinement of these methods will support efforts by TBF, NOAA, NMFS, and CDFW to produce large numbers of green abalone to restore them to the rocky reef systems of southern California.

**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 designed and will be constructed in the coming months. This second room allows TBF to double its capacity to hold abalone and will provide the staging center for future white abalone recovery efforts. 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. One captive red abalone spawning event was conducted in the lab on 22 November, and had successful fertilization of the 173,000 eggs produced. Larvae from the September and November spawns are being reared in the larval troughs. Monthly spawning of captive abalone has been temporarily halted until the completion of the lab expansion. A broodstock collection permit was acquired to collect 30 additional wild red abalone for spawning and restoration experiments. CDFW is reviewing TBF's stocking permit application for approval of red abalone outplant trials. NFMS ESA Section 10(a)(1)(A) Permit application was submitted in March 2018 to allow housing of white abalone in the laboratory. Approval for both permits is expected in April 2018. TBF staff presented an overview of the abalone program at NOAA Headquarters in Silver Springs, MD. NOAA staff in attendance included Office of Habitat Conservation Director, Office of Protected Resources Director and the Acting Deputy Director of International Fisheries and Aquaculture.

### 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		
<i>3.1a Conduct climate change vulnerability assessment and policy improvements; BRP 4.5</i>				
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; two Governing Board workshops and two Watershed Advisory Council workshops were conducted
Participate in AdaptLA project	SMBRC, TBF	Participate	Ongoing	Continued communications about disseminating CoSMoS modeling results and applications to SLR planning in Los Angeles; website: <a href="http://dornsife.usc.edu/uscseagrant/adaptla/">http://dornsife.usc.edu/uscseagrant/adaptla/</a> ; see panel note in task below
Promote "softscape" measures for adapting to climate change impacts	SMBRC, TBF	Promote	Ongoing	Continued conversations with beach managers and agencies; TBF presented at a Sea Level Rise planning panel for the City of Santa Monica as part of their Local Coastal Plan update on 15 March 2018 to the public and the City of Santa Monica
<i>3.1b Conduct research on local impacts of climate change; BRP 4.5 and ALL</i>				
Implement kelp forest hydrodynamics study	TBF	Participate	Ongoing	Continued quarterly kelp surveys, checks/download; targeted completion date: May 2018

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
Study impacts of kelp forests on ocean acidification in Santa Monica Bay	TBF	Support	Ongoing	UCLA's IoES 2017 Senior Practicum group presented preliminary results in June 2017. The IoES class of 2018 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 2018. A grant from USC SeaGrant was awarded to UC Davis and CSU Northridge to continue this study over the next 3 years.
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. Pre-study site monitoring is currently in progress and will continue throughout the duration of oceanographic sensor sampling period. Bathymetry, substrate type, and rugosity data have been collected for the entire study area. Initial kelp presence surveys have been completed, and further presence surveys will continue throughout the sensor sampling period to quantify changes in kelp forest densities throughout the study.

Pressure sensors are being used to measure changes in wave height to explore the effects of kelp on wave attenuation, including three SeaBird26 Seagauge Wave and Tide Recorders (SBE26) and Open Wave Height Loggers (OWHLs). Three Acoustic Doppler Current Profilers (ADCPs) to measure water current velocities have been deployed, downloaded, and redeployed. Temperature loggers were also deployed alongside the ADCPs to measure vertical stratification of the water column, which plays a key role in nutrient supply and circulation within a kelp forest, and they will continue to collect data throughout the duration of the survey. 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		
<i>3.2a Create and manage communications; BRP – ALL</i>				
Conduct press and media communications	SMBRC, TBF	Lead	Ongoing	Released <a href="#">four press releases</a> , 19 media items published; responded to media questions as asked
Publish newsletters and SMBNEP outreach materials	SMBRC, TBF	Lead	Ongoing	Released two quarterly <a href="#">Baywire newsletters</a> ; one serving as the 2017 SMBNEP Annual Report
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	Western Society of Naturalists, ANEP Annual Meeting,
<i>3.2b Coordinate the internship and volunteer program; BRP Goals 6, 7, 8, 9</i>				
Implement the internship and volunteer program	TBF	Lead	Ongoing	Continued coordination meetings and ongoing student recruitment through partnerships, online opportunities, and via TBF's website; conducted at least four volunteer events monthly; announced Summer Internship Program 2018 and evaluated 43 applications for 10 student internship positions – see details below
<i>3.2c Participate in and provide technical support to stakeholder groups; BRP – ALL</i>				
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	Participated in, and provided input on EPA's institutional control activities at the Fish Contamination Education collaborative meeting held by

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				EPA Superfund program on 18 January 2018
<i>3.2d Oversee the Public Involvement and Education (PIE) mini-grants program; BRP – ALL</i>				
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 12 media pieces delivered, including print and online articles. There were additional media published beyond the 12 that included re-postings of press releases (1), and simple listings of events in larger newsletters (5) and on TV (1).

**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 in early January as the 2017 SMBNEP Annual Report and the second one posted at the end of March on both the SMBRC and TBF websites.

**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 (1,013 followers), Facebook (2,822 Likes), Twitter (1,084 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 this period, over 1,000 volunteers removed hundreds of bags of non-native and invasive vegetation. 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 often come from local universities and high schools such as LMU, California State University Los Angeles, 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 officially launched the Coastal Research Institute (CRI) on 9 November 2017. CRI's expertise will support ongoing efforts to restore and enhance the Santa Monica Bay and local coastal waters. The institute contributes to better understanding of global urban coastal resource management through the

execution of projects that stem from TBF's work as part of SMBNEP. The launch included a keynote address from Alexis Strauss, acting regional administrator of the EPA's Pacific Southwest region, followed by a panel that also included co-Directors of CRI, Tom Ford and Dr. James Landry. A reception and student poster session followed, highlighting work of current CRI students.

In March, TBF and CRI announced the request for undergraduate student applicants for the 2018 CRI Summer Internship Program. Ten paid internships and 2-3 faculty fellowships will be awarded competitively to LMU students and faculty to advance projects and research related to the Bay Restoration Plan and the Comprehensive Monitoring Program. This research allows for undergraduates 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. Forty-three (43) complete applications were received from students across 10 majors and two colleges within LMU. Evaluation of the applications is ongoing by the hiring committee at the time of writing of this report.

### 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		
<i>3.3a Seek and increase funding for BRP implementation; BRP – ALL</i>				
Seek grant funding for implementation of specific BRP objectives and milestones	SMBRA, TBF	Lead	Ongoing	During this reporting period, new grants were awarded, including: Coastal Conservancy funding for the Malibu Living Shoreline Project, funding from the City of Los Angeles – LA World Airports for dune restoration, discretionary funds from Sheila Kuehl’s office to support the SaMo Pilot Project, SoCalGas Environmental Champions Grant, Clean Vessel Outreach and Education Grant, USC Seagrant for the Kelp Forest Hydrodynamics Project, and an extension and fund increase for the PV MSRP funds for the Kelp Restoration Project
Conduct BRP revision process	SMBRA, SMBRC, TBF	Lead	Ongoing	Two Governing Board workshops and two Watershed Advisory Plan workshops were conducted; two TAC meetings were held to revise the BRP structure and provide input on the CMP development; initial BRP goals were drafted by the TAC; ongoing conversations continue with EPA and other NEPs for CCMP revision process and discussion
<i>3.3b Support comprehensive monitoring of Bay health; BRP 4.7, 10.1 and ALL</i>				
Update CMP and develop implementation mechanisms	SMBRC, TBF	Lead	Ongoing	Discussed categorization and addition of Bay habitats to the monitoring framework at the 28 November 2017 TAC meeting: reached consensus on keeping the existing seven habitats and restructuring the indicator categories to include climate change vulnerability; additional indicator category suggestions

Task Description	Engaged SMBNEP Entities		Status	Semi-Annual Report Update
	Entities	Role		
				were incorporated; further discussion at the 28 February 2018 TAC meeting of the consolidation and consistency of indicators under the restructured indicator framework; developed guidance to habitat-specific workgroups to further define indicators; began planning for habitat-specific workgroup calls
Design and implement pilot deep reef survey	SMBRC, TBF	Participate	Ongoing	Study of the feasibility of ichthyoplankton meta-barcoding for routine monitoring by partner agencies (LACSD, City of LA) is ongoing
Assess offshore eelgrass beds in Santa Monica Bay	TBF	Lead	Ongoing	ROV workshop in January 2018; pilot training in December 2017; submitted grant pre proposal to CA Sea Grant February 2018
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		
<i>3.3c Support organizational management; BRP – ALL</i>				
Track BRP implementation progress through semi-annual reporting	SMBRC, TBF	Lead	Ongoing	Produced and submitted the semi-annual report for the April 2017 – September 2018 period
Track BRP implementation progress through annual GPRA reporting	SMBRC, TBF	Lead	Ongoing	Tracking leverage funding and habitat acreages continued
Support SMBRC GB meetings	SMBRC	Lead	Ongoing	Meets bi-monthly: held meetings on 19 October and 14 December of 2017, and 15 February 2018
Support SMBRC EC meetings	SMBRC	Lead	Ongoing	Meets bi-monthly except for January 2018: held meetings on 16 November 2017 and 15 March 2018
Support SMBRC TAC meetings	SMBRC	Lead	Ongoing	Meets quarterly and as needed: held a meeting on 28 November 2017 and 28 February 2018
Support SMBRC WAC meetings	SMBRC	Lead	Ongoing	Held meetings/BRP revision workshops on 8 November 2017 and 17 January 2018
Support SMBRA board meetings	SMBRA	Lead	Ongoing	Meets quarterly or as needed: no meeting held during this report time period
Support TBF board meetings	TBF	Lead	Ongoing	Meets annually or as needed: held meetings on 9 November 2017 and 11 February 2018
Conduct general management and reporting activities	SMBRC, SMBRA, TBF	Lead	Ongoing	Drafted FY19 Work Plan and submitted to SMBRC's GB for review on 15 February 2018; edits to draft Work Plan are ongoing and the semi-final will be submitted for approval at the April GB meeting