Appendix A
2019 Program Evaluation: SMBNEP Summary of Key Elements

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Prepared by the Santa Monica Bay National Estuary Program for submittal to the US Environmental Protection Agency

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Appendix A

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This Appendix A summarizes key elements of SMBNEP's activities during the five-year Program Evaluation (PE) reporting period, from 1 July 2013 – 30 June 2018. The full SMBNEP PE Narrative Report encapsulating and condensing the work of the last five years is 75 pages, with over 1,500 supporting final product deliverables (across 42 project categories). Therefore, SMBNEP determined that an Executive Summary in the framework of the EPA PE guidance may serve to assist in the evaluation process. This supplemental document summarizes example projects and programs categorized into the following key elements of the NEP Program Evaluation: Habitat, Water Quality, Living Resources, Healthy Communities, Trainings, and Direct Assistance. Many of SMBNEP's programs and projects are intended to provide multiple benefits and support several of the elements. That stated, SMBNEP staff attempted to attribute specific projects or programs within the primary element to which it most aligned. For example, the Boater Education Program supports both healthy communities and water quality. However, as much of its tasks are related to community engagement, this is the principle element for which it is categorized in this document. The 'training' and 'direct assistance' elements are intended to provide additional details for specific examples, and are often inherently complementary to projects identified in other elements.

It should be noted that for a comprehensive evaluation of the categories, it may be necessary to peruse the full report and the recommended attachments associated with each key goal or performance measure. This Appendix is an effort to pull key elements and highlight major projects. After an introductory paragraph, each subsection below is summarized via bullets.

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Habitat

Habitat acquisition and native habitat restoration are key objectives of SMBNEP. During this review period, SMBNEP implemented numerous projects related to the "Habitat" element of the USEPA guidance. Habitat restorations included subtidal rocky reefs (kelp forests), wetlands, dunes, beaches, riparian corridors, fish barrier removals, and non-native invasive weed maintenance. During this period, ***SMBNEP acquired 1,722 acres into the public domain for the purposes of restoration or protection and restored an additional 149 acres.*** Of the restored areas, approximately 13 acres were fish barrier removals, and 69 acres were invasive non-native removal, with additional smaller categories. Evaluated a separate way, restoration activities in the form of rehabilitation encompassed 77.5 acres, with 50.3 acres classified as re-establishment. Lists of many outputs and outcomes for this element specific to the PE reporting period can be found in each of the summaries for Goal's #4-10 and 12 in the full report.

Several of the major outputs and short-term outcomes for the PE time period are highlighted below specifically from Goal's #5, and 7-9 as they relate to habitat acreages and projects:

- Acquired over 1,700 acres of land through ownership transfer to agencies or municipalities for the purpose of habitat conservation and / or restoration.
- Conducted ongoing invasive plant removal efforts and biological monitoring at the Ballona Wetlands Ecological Reserve within a 3-acre area.
- Maintained the 12-acre restoration project at Malibu Lagoon as an ecologically functioning native wetland and adjacent habitat system in accordance with permit requirements, including invasive species removal and habitat condition assessments.
- Removed three fish barriers, including one check dam and two Arizona stream crossings at Arroyo Sequit Creek and constructed two new bridges.
- Restored 3 acres of ecologically functioning coastal strand and dune habitat along Santa Monica Bay beaches to increase coastal resilience, evaluate soft-scape adaptation, and provide habitat for wildlife.
- Continued efforts to restore and maintain the 6-acre Coastal Dunes Improvement Project and larger 48-acre northern dune area at the LAX Dunes to improve native dune functions and provide habitat for rare species.
- Provided coastal access and stewardship opportunities at dune and beach habitats for underserved communities and youth through monthly community restoration events.
- Provided technical assistance to lead agencies (CDFW and Army Corps) for the development of the Draft Environmental Impact Statement and Report for the Ballona Wetlands Restoration Project, a 577-acre wetland and adjacent habitat restoration.
- Restored 46.9 acres of kelp forest to improve habitat functions, local fisheries, and coastal resilience, including increased kelp, invertebrate, and overall fish diversity and biomass in restoration areas; 168% increase in red urchin gonad (uni) weight in restored sites.

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Water Quality

Major programs for control of point and nonpoint sources of pollution in the Santa Monica Bay watersheds include the Ocean Plan, Basin Plan, TMDLs, listing of impaired water bodies [303(d) listing], National Pollutant Discharge Elimination System (NPDES), coastal cooling water intake and discharge requirement [316(d) requirement], waste discharge requirement (WDR), watershed management plans (WMPs), enhanced watershed management plans (EWMPs), and others. The ultimate attainment of water quality standards must rely on the joint efforts of the regulators and the regulated communities through collaborative, integrated watershed-wide planning and implementation activities. Actions for this goal during the review period primarily consisted of implementing bond-funded multi-benefit projects aimed at reducing pollutant loading from stormwater into Bay waterbodies, implementing bans on single-use disposable products and other policy measures, and implementing community engagement programs aimed at reducing non-point source pollutant discharges.

Several of the major outputs and short-term outcomes for the PE time period are highlighted below:

- Completed construction of Inglewood Catch Basin Inserts, Milton Green Street, University Park Rain Gardens (Prop. 84), and Culver City City-wide BMP Treatment Train Projects (Prop. 50) to reduce pollutant loading to Ballona Creek and its tributaries.
- Completed construction of Torrance Stormwater Basins Enhancement, Manhattan Beach Greenbelt Low Flow Infiltration, and Oxford Retention Basin Enhancement Projects (Prop. 84) to reduce pollutant loading to Santa Monica Bay.
- Completed construction of the Calabasas Catch Basin Insert Project (Prop. 84) to reduce trash and sediment pollution in the Malibu Creek watershed.
- Annual reduction in trash loading to Ballona Creek of 72 cubic yards through implementation of the Inglewood Catch Basin Insert Project.
- Annual reduction 2.4 kg of oil and grease, 400 gm of metals, and bacteria and trash reduction in Ballona Creek through the implementation of the Milton Green Street Project.
- Annual reduction of .65 pounds of metals, along with bacteria and trash reduction in tributary to Ballona Creek through implementation of University Park Rain Garden Project.
- Annual reduction of trash loading by 68,930 pounds, 10 pounds of metals (copper, lead, zinc), and reductions in bacterial pathogens through implementation of the Culver City City-wide BMP Treatment Train Project
- 50% reduction in Bacterial TMDL exceedances and 100% reduction in trash at shoreline monitoring station through implementation of the Torrance Stormwater Basin Enhancement Project.
- 92% reduction in bacterial loading, and a 100% reduction in wet-weather Bacterial TMDL exceedances at shoreline monitoring station through implementation of the Manhattan Beach Greenbelt Low Flow Infiltration Project.
- Dissolved oxygen level greater than 5 mg/L, less than 10% algal cover, and reduction of bacteria, toxicity, and nutrient levels to less than baseline through implementation of the Oxford Retention Basin Enhancement Project.
- Adopted and began implementation of Santa Monica Bay marine debris TMDL.

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- Refined and completed methods for microplastics extraction and identification from sandy sediments in partnership with CRI.

Living Resources

Southern California is part of a hotspot of biodiversity along the California coastline. The varied ecosystems within the Santa Monica Bay and its watershed provide habitats for more than five thousand species of plants, fish, birds, mammals, and other wildlife. The Bay's terrestrial and aquatic habitats include riparian woodlands and streams, coastal sage scrub, oak woodlands, coastal sand dunes, salt and brackish marshes, lagoons, and mudflats. Marine habitats include soft and hard bottom, pelagic ocean, sandy and rocky intertidal, and kelp and seagrass beds. While this element (i.e., "Living Resources") is not necessarily independent of the element "Habitats", highlights specific to it are focused separately on key efforts undertaken by SMBNEP to provide benefits for native endemic species, especially those which are rare, threatened, or endangered.

Several of the major outputs and short-term outcomes for the PE time period are highlighted below:

- Constructed two abalone research laboratories at SCMI; spawned and reared red abalone larvae and juveniles to improve techniques and increased success of these efforts. The Ab Lab will subsequently be used to benefit endangered white abalone.
- Implemented the Arroyo Sequit Creek fish barrier removal and restoration project to benefit the endangered Southern California Steelhead Trout
- TBF's restored beach habitat in Santa Monica became the first area in almost 70 years to support a Western Snowy Plover nest in either Los Angeles or Orange Counties in 2017. Efforts to support Snowy Plovers expanded in subsequent years by SMBNEP and their partners.
- Partnered with MRT to conduct the invasive crayfish removal project in the Santa Monica Mountains (Las Virgenes subwatershed of the Malibu Creek watershed) to support ecosystem health and to benefit native aquatic species such as the California Red Legged Frog.
- Supported partners in efforts to reintroduce California Red Legged Frog populations in the Santa Monica Mountains.

Healthy Communities

One of SMBNEP's priorities is benefits and values to humans, including healthy communities. SMBNEP works to achieve this priority using a variety of methods to engage, inform, and inspire stewardship in the community. TBF had several outreach projects that aim to engage the community to achieve behavior change during this review period, including the Boater Education Program, Clean Bay Certification Program, Table to Farm composting project, water and energy conservation education projects, volunteer restoration event projects, and others. Additionally, SMBNEP shares innovations and lessons learned at regional and national meetings, conferences, and via other accessible sources both online and print. The examples included below are meant to highlight the diversity of programs and projects that support healthy communities, but similar to other sections in this document is in no way an exhaustive list.

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Several of the major outputs and short-term outcomes for the PE time period are highlighted below:

- SMBNEP's newly released CCMP Action Plan includes specific actions related to climate change such as filling in important data gaps for our region, or prioritizing projects to increase resilience of our coastal areas such as beach and dune restorations. SMBNEP increased understanding in the extent of climate change impacts and improved community support for climate change adaptation planning.
- Increased adoption of sustainable boating habits and understanding of the impact of boating on aquatic environments to decrease boating related pollutants entering the waterways (e.g., boat sewage, used oil, copper, trash, aquatic invasive species, and household hazardous waste like antifreeze and batteries) as measured by collected Clean Boating Pledges (3,500 annually)
- Increased organics management (e.g., food waste) by 3,841 pounds through restaurants participating in the Table to Farm program.
- Coordinated certification of 350 Clean Bay establishments with city staff and managed online certification lists.
- Implemented the "Healthy Beaches" project in partnership with CRI, by beginning to conduct a site-suitability analysis to determine potential areas for beach restoration, evaluating factors such as recreational use, physical, and biological characteristics, while contributing information to the Comprehensive Monitoring Program. This study also includes a literature review on human health benefits of green (and blue) spaces and restored habitats.
- Through the implementation of TBF and CRI's Internship and Volunteer Program, thousands of community members were engaged in a variety of habitat restoration and education programs.
- Eliminated the use of almost 250,000 disposable single use food packaging items from waste stream by restaurants certified by the ReThink Disposable program and saved each establishment an average of $2,000 annually.
- SMBNEP partners passed local ordinances and ultimately state legislation restricting the use of plastic bags, straws, and other polystyrene products.
- TBF participated in the LA Marine Protected Area (MPA) Collaborative, an association to coordinate with other NGOs and stakeholders throughout southern California to share vital information about the status and management of the MPA network in the region.
- Aerial survey data collected by TBF over the last 10 years in coordination with LightHawk was by published in Ocean and Coastal Management. This aerial-survey based project maps the location, type, and activity of boats along the southern California coast from the U.S. Mexican Border to Point Conception, tracking boater responses to the establishment of the Marine Protected Area network.
- Contributed to development of new tools to support access to Santa Monica Bay beaches, identification of pathogens, and faster response mechanisms (e.g., Heal the Bay's Beach Report Card and water quality monitoring by local municipalities).
- Conducted outreach and education on invasive species through community restoration events, LADWP education projects, and other outreach opportunities. These events also increased public access to restricted coastal sites such as the LAX Dunes and Ballona Wetlands.
- Improved seafood advisories and risk communication messaging.

- Partnered with SCCOOS to bring the Santa Monica Pier water quality station back online and its associated live data stream to the public (including a chlorophyll sensor that acts as a proxy for HAB detection).
- Partnered with MWD to install and monitor four demonstration residential rain gardens that replaced traditional lawns.

Trainings

SMBNEP staff are frequently engaged in trainings aimed at benefiting professional development for agency staff, volunteers, students, faculty, teachers, and members of the public. Some of the training highlights for this review period included Dockwalker trainings led by the Boater Education Program, Clean Bay Certification trainings led by the outreach team, and teacher trainings for subjects such as water and energy conservation and climate change. Additionally, trainings led by The Bay Foundation (TBF) through their partnership with Loyola Marymount University's Coastal Research Institute occur for students and faculty in everything from conducting restoration activities, improving coastal resiliency, adaptive management, sustainability, field ecology, and many more types of scientific research and monitoring techniques. Trainings for students and young professionals occurs across all habitat types from sandy shores to wetlands to rocky subtidal habitats. Additionally, though not listed below, TBF also participated in workshops and public panels, webinars, and other events to inform the public, professionals, and students about climate change impacts and solutions.

Several of the trainings are highlighted below with additional details:

- Dockwalker trainings provide professionals with the tools and resources they need to educate the boating public and reduce pollution. Dockwalker trainings are open to the public and participant affiliates commonly include U.S. Coast Guard Auxiliary, U.S. Power Squadron, marina operators and managers, yacht clubs, city officials, yacht brokers, and marine businesses such as hull cleaners, fuel dock operators and more. During this Program Evaluation period, in Southern California, 343 individuals were certified as Dockwalkers and distributed over 15,000 boater kits.
- In 2015, the Clean Bay Certified program began meeting with and training program participants. Trainings included review, discussion, and direction regarding the inspector checklist criteria. The trainings also provided an opportunity for program participants to network, strategize, and problem solve. Program participants that attended include program managers, city inspectors, and consultants. During this Program Evaluation period, three trainings were conducted for 55 attendees.
- Beginning in 2012 and continuing through the duration of this PE reporting period, TBF assisted partner agencies and NGOs through facilitating trainings for California Rapid Assessment Method (CRAM) practitioners. CRAM is a cost-effective and scientifically defensible standardized rapid assessment protocol method for monitoring the conditions of wetlands throughout California (USEPA Level 2 wetland rapid assessment monitoring method). It is designed for assessing ambient conditions or wetland restoration projects within watersheds, regions, and the State. TBF trained students, university professors, and other partners such as the Friends of Ballona Wetlands in how to implement CRAM surveys.

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- Level 3 is the 'intensive site assessment' level of wetland monitoring and assessment and uses intensive, research-driven, biological or physical on-site assessments of wetland resources. TBF and their partners developed a "California Estuarine Wetland Monitoring Manual" as part of this program, and trained students, teachers, and professionals in wetland monitoring methods from physical and topographic to biological surveys such as four types of vegetation cover assessments and several methods for surveying invertebrate abundances.
- Through the program, "*Educating the Future: Innovative Resource Conservation Strategies*", TBF developed and conducted a series of tasks aimed to promote water and energy conservation as well as information about climate change within Los Angeles Unified School District (LAUSD) middle-schools through training students and teachers. Teaching products developed for this project included a high-quality educational video, three infographics, two story maps, and an activity packet for classroom or home use.
- During this reporting period, TBF implemented a rainwater harvesting project for residents in the SMBNEP study area. Rainwater harvesting is the process of intercepting rainwater from a roof, lawn, or other surface and utilizing it for beneficial purposes. The project conducted twelve rain garden installation and demonstration workshops, including direct outreach and trainings to local residents and interested members of the public. Additional public products developed for training purposes included a "How to" video and guide.
- Throughout this reporting period, TBF's marine scientists trained commercial sea urchin fishermen in specific methods to implement the systematic removal of purple sea urchins from impacted rocky reefs to reestablish giant kelp forests. These efforts were in direct support of economic services to commercial fisheries. TBF also trained fishermen, students and volunteers to dissect red and purple sea urchins to extract the gonads (*uni*). The data from these dissections were used to characterize an aspect of secondary production in giant kelp forests off the Palos Verdes Peninsula.

Direct Assistance

SMBNEP staff provided direct assistance to local municipalities addressing many issues related to specific environmental problems (e.g., climate stressors, habitat restorations, water quality improvements) throughout the reporting period. This assistance was in the form of collaborations, supporting products or outreach materials, participating on regional or state networks or stakeholder groups, producing and making tools available for the public, and others. Many specific examples include collaborating with local cities and Los Angeles County to implement innovative, multi-benefit coastal restoration projects that increase coastal resiliency (e.g., Santa Monica Beach Restoration Pilot Project, Malibu Living Shoreline Project, others in development).

Several specific examples of direct assistance are highlighted below with additional details:

- TBF and SMBRC assisted and collaborated with local cities (e.g., Cities of Malibu, Manhattan Beach, Santa Monica, Los Angeles) and Los Angeles County to incorporate sea level rise models and adaptation strategies into planning documents, like sea level rise vulnerability assessments and local coastal plans. Specific examples include support and assistance provided to the City of Santa Monica for their Local Coastal Plan: Land Use Plan update (LUP adopted 2018). TBF

provided data and information in support of 'soft-scape' strategies to reduce the impacts of sea level rise such as restored beaches and dune systems. Additionally, the City of Santa Monica's "Climate Action and Adaptation Plan" included kelp forest restoration as a viable strategy for local carbon sequestration.

- TBF helped municipalities implement restaurant inspections for stormwater regulation compliance (part of municipal separate storm sewer systems, or MS4, permits) by coordinating efforts regionally and providing technical training to inspectors.
- SMBRC continued to provide support and assistance to the implementation of the Integrated Regional Water Management Plan (IRWMP) for Los Angeles County. The IRWMP combines individual agencies' efforts to meet multiple water resource needs including water supply, water quality, habitat protection and flood control and provides a framework for evaluating projects for funding. SMBRC staff served as an elected member representing open space on the IRWMP Leadership Committee. In that capacity, staff continued to facilitate the incorporation of open space and habitat restoration as important benefits of IRWMP recommended projects. Staff also participated in Sub-watershed (South Bay and Malibu) Steering Committees to help develop and review multi-benefit projects eligible for IRWMP funding.
- SMBRC and TBF staff supported USC Sea Grant in developing and implementing the AdaptLA project, which aided coastal municipalities along Santa Monica Bay in climate adaptation strategies. The project produced a broader assessment of impacts on coastal infrastructures and habitats and helped coastal municipalities to develop specific adaptation strategies.
- As part of the State Water Resources Control Board Clean Beach Task Force, SMBRC assisted the State and municipal grant applicants/recipients in development of rapid monitoring indicators and implementing storm water pollution reduction projects along Santa Monica Bay beaches. Staff actively engaged in setting research, monitoring, and project priorities, and assisted grant applicants (municipalities) in project design or redesign to meet funding criteria and cost-effectiveness objective. An example of is the technical assistance provided to the City of Santa Monica for its Pier drain dry- and wet-wet weather runoff storage and treatment project.
- Through serving on the Technical Advisory Committee member for California Resource Agency programs, SMBRC contributed to development and implementation of Urban Greening, Urban Streams, River Parkways, and Environmental Enhancement and Mitigation projects by municipalities. Provided technical assistance to local municipal grant applicants at California Resources Agency workshops for State Urban Greening, River Parkways bond grants.
- SMBRC helped facilitate parkland management agencies (National Park Service) to address the issues of storm water runoff from parks facilities such as parking lots. Assisted these agencies in identifying and evaluating develop and implement retrofits LIDs in various parkland locations and secured bond funding for implementation.
- TBF worked with municipalities and partners such as Surfrider to help draft and support ordinances that ban single-use disposable plastics.
- SMBNEP provided a platform for applied research to investigate local environmental issues and potential solutions through their partnership with LMU's Coastal Research Institute.
- TBF supported the lead agencies for the Ballona Wetlands Restoration Project, California Department of Fish and Wildlife and US Army Corps, by providing technical information and scientific data in their development of a Draft Environmental Impact Statement and Report.

- TBF provided regional expertise on coastal habitat restoration and monitoring protocols to many agencies and municipalities, including through serving on state-wide stakeholder groups such as the California Wetland Monitoring Workgroup (part of the California Water Quality Monitoring Council).
- Results and methods of TBF's Palos Verdes Kelp Restoration Project were used to inform "Ocean Restoration Methods: Scientific Guidance for Once Through Cooling Mitigation Program" produced jointly by the California Ocean Protection Council Science Advisory Team and the California Ocean Science Trust. In this guidance, community enhancement of kelp forests through urchin removal is listed as a method for ecosystem restoration intended to mitigate for the impacts of Once Through Cooling technology to the State's Marine Protected Areas.
- Results of abalone restoration and research efforts conducted by TBF have provided valuable information to NOAA NMFS advancing their recovery plans for the endangered white abalone.