

2018 SMBNEP ANNUAL REPORT

Wetlands, Rivers, and Streams



Malibu Lagoon Post-Restoration Monitoring – This long-term comprehensive monitoring program evaluates the condition of the post-restoration Lagoon through biological, physical, and chemical surveys. In July 2018, a five-year [Comprehensive Monitoring Report](#) was released, and a subset of surveys continued into late 2018 contributing to a prescribed final year of monitoring. The Lagoon continues to have improved circulation, water quality, and overall condition. Public restoration events are held monthly to remove non-native, invasive vegetation.

Community-Based Restoration at Ballona Wetlands – This long-term project is restoring approximately three acres of heavily degraded habitats at the Ballona Wetlands Ecological Reserve through community-based restoration. In 2018, 95 volunteers removed invasive vegetation through 14 community restoration events. Additionally, TBF produced a [Year 2 Annual Report](#) in July. Year 2 results indicated a significant reduction in non-native vegetation cover in most areas as compared to the baseline, and an increase in native vegetation cover. Ongoing invasive vegetation removal, monitoring, and revegetation efforts continue in 2019.

Evaluating Regional Wetland Monitoring Programs – This program is working towards increasing regional understanding of the condition of local coastal wetland systems and applying that knowledge towards standardizing wetland monitoring across the state of California. In 2018, this program continued work on data standardization, data consolidation and analyses, held program partnership meetings, and conducted outreach activities. This program is conducted in partnership with California State University, Long Beach, Tijuana River National Estuarine Research Reserve, and Southern California Coastal Water Research Project.



Restore America's Estuaries National Summit – This conference explored cutting-edge issues in coastal restoration and management and was comprised of field sessions, presentations, and events. In December 2018, TBF joined thousands of coastal habitat scientists and managers at the [Restore America's Estuaries Summit](#) in Long Beach to highlight monitoring results and restoration efforts by TBF across various projects; including beaches and dunes, wetlands, and kelp forests. TBF led field sessions, presentations, panels, and coordinated sessions. The SMBNEP

was joined sister estuary programs from across the country to learn from each other and support collaborative opportunities.

Liberty Canyon Wildlife Crossing —TBF managed this project for the Santa Monica Mountains Resources Conservation District which was designed to attract and assist wildlife in crossing under the 101 freeway. Fencing, native plants, boulders and other features were installed to enhance an underpass of the freeway adjacent to Liberty Canyon Road. Wildlife were using the underpass shortly following its completion though it would require years for the vegetation planted at the site to mature. Unfortunately, the site was intensely impacted by the wildfire in November 2018 and efforts are being made to acquire funds to rebuild the site.

Beaches, Dunes, and Bluffs

Santa Monica Beach Restoration Pilot Project – This pilot project is restoring approximately three acres of sandy coastal habitat on the beach in the City of Santa Monica. The project is reestablishing native vegetation on the beach aiming to create a sustainable coastal strand and foredune habitat complex resilient to sea level rise. In 2018, native dune vegetation and sand hummocks continued to establish, ongoing monitoring informed climate change resiliency planning, and a [Year 2 Annual Report](#) was produced in August.



Malibu Living Shoreline Project – This project, in partnership with the City of Malibu, Los Angeles County Department of Beaches and Harbors (LACDBH), and State Coastal Conservancy (SCC) aims to restore three acres of sandy beach and dune habitats at Zuma Beach and Point Dume Beach to improve coastal resiliency and increase the health of the beach systems through a living shoreline approach. In 2018, project partners continued planning and permitting discussions, initiated community outreach, and conducted baseline monitoring.

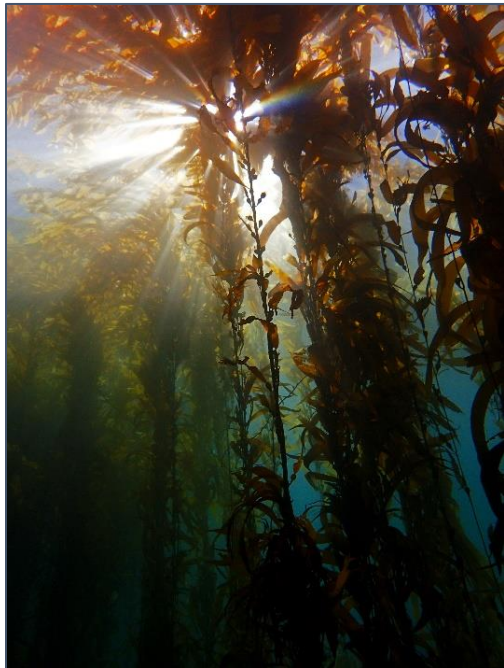
Los Angeles Living Shoreline Project – This innovative project, in partnership with LACDBH, State Parks, and SCC, aims to implement a multi-habitat approach to restore approximately 3.5 acres of beach and coastal bluff habitat. This project at Dockweiler Beach supports disadvantaged community and adds to SMBNEP’s efforts to improve coastal resilience along the coast of Los Angeles County. This project also incorporates the experimental establishment of offshore eelgrass within a one-acre footprint. In 2018, TBF applied for and received funding, initiated partnership development, and advanced stakeholder engagement.

Manhattan Beach Dune Restoration – This project aims to restore approximately 3.5 acres of foredune habitat in the City of Manhattan Beach to provide infrastructure protection and increase coastal resilience, while improving habitat quality through invasive plant removal and native plant establishment. In 2018, TBF began partnership and concept development with

LACDBH, City of Manhattan Beach, and USGS, and initiated conversations with the Manhattan Beach City Council and Sustainability Task Force.

Healthy Beaches Research – In partnership with [Loyola Marymount University's Coastal Research Institute \(CRI\)](#), this research project is conducting a site-suitability analysis to determine potential areas for beach restoration, evaluating factors such as recreational use, physical, and biological characteristics, while contributing information to the Comprehensive Monitoring Program. In 2018, Dr. John Dorsey and two internship students completed a pilot study and final report for three beach locations in the Bay, and Dr. Cristina Tirado and one internship student completed a literature review on human health benefits of green (and blue) spaces and restored habitats.

In the Ocean



Kelp Forest Restoration – This project aims to restore up to 150 acres of giant kelp forest. Commercial fishermen and TBF scientists restore and monitor these reefs, respectively, as they are transformed from urchin barrens to kelp forests. In 2018, an additional 3.9 acres of kelp forest have been restored for a total of 46.9 acres since the project began in 2013.

Abalone Laboratory – In 2018, TBF completed construction of the second abalone laboratory to continue researching wild and captive spawning techniques, methods for raising abalone in aquarium facilities, and outplanting abalone back into the wild to rebuild natural populations. Renovations began on the existing facility and will be completed in February 2019. The newly renovated TBF abalone laboratory will act as a Southern California hub for white abalone research and restoration activities and enable us to support the recovery of these endangered marine snails in the wild.

MPA Outreach – TBF participates 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. In October 2018, TBF participated in “Honor the Ocean”, a celebration of Santa Monica Bay’s MPAs. The event featured traditional Chumash blessings and elder storytelling, educational booths, and interactive activities on Zuma Beach for the public to enjoy.

Socio-economic Research Related to Marine Spatial Planning – This aerial-survey based project maps the location, type, and activity of boats along the southern California coast from the U.S. Mexican Border to Point Conception, tracking boater responses to the establishment of the Marine Protected Area network. Aerial survey data collected by TBF over the last 10 years in coordination with Lighthawk was published in Ocean and Coastal Management. Dr. Amanda Zellmer of Occidental College authored the paper using pre- and post-MPA fishing

trends observed during these surveys along with historical landing data and bathymetry maps to produce distribution models. These models can be used to inform monitoring of fishing activities within MPAs and how to effectively apply limited enforcement resources.

Oceanographic Shore Station – TBF, in partnership with Southern California Coastal Ocean Observing System, Scripps Institution of Oceanography, Los Angeles Waterkeeper, US Environmental Protection Agency, and City of Los Angeles Bureau of Sanitation, assembled funding to reestablish and conduct periodic maintenance of a sensor array anchored to the Santa Monica Pier. This station is one of four in southern California collecting real-time data on temperature, pressure, chlorophyll, and salinity. The data are accessible to the general public and decision makers via the [SCCOOS website](#).

Climate Change

Ocean Acidification – An array of instruments that measure pH, dissolved oxygen, and pCO₂ have been deployed off the Palos Verdes Peninsula since the second half of 2016 by the Sanitation District of Los Angeles County. The data collected by this project will improve our understanding of ocean acidification and hypoxia off our coast. In 2018, data were collected at the second location at a depth of 60 m and showed less variability as compared to the first deployment year in 15 m. These data allowed good characterization of the frequency, magnitude, and duration of OAH events in the nearshore surface and offshore bottom layers, and further investigation in the causes of variability using highly complex, coupled physical-biogeochemical modeling.



Kelp and Eelgrass Ocean Acidification Buffer – University of California Los Angeles' [2018 Senior Practicum](#) class conducted research assessing the strength of kelp and seagrass in mitigating ocean acidification. The focus of their study was to determine the strength of buffering, exhibited by the increase in pH (lowering acidification) in eelgrass and kelp beds in Santa Monica Bay. Their preliminary findings are being built upon by the 2019 Senior Practicum class to further this research.

Kelp Forest Hydrodynamics – This cooperative project is designed to inform how kelp forests influence current patterns, wave velocity, and sediment transport off the coast of the Palos Verdes Peninsula. In 2018, data collection was completed in a kelp restoration site off Palos Verdes and a preliminary results report was published. Additional funding was awarded to California State University, Northridge and University of California, Davis from University of Southern California SeaGrant to continue this study on two more kelp forest sites. This work will resume in winter 2019.

Post-Fire Recovery and Monitoring – The Woolsey Fire started on 8 November 2018, burning almost 100,000 acres of land and destroying over 1,500 structures in Los Angeles and Ventura Counties, including large areas of SMBNEP’s northern watersheds. A large portion of the burn area was determined to be moderate soil burn severity, increasing the potential for runoff, debris flows, and other potential hazards. TBF is participating in a post-fire collaborative stakeholder group to consolidate and prioritize monitoring efforts as well as communicating with agencies and municipalities to coordinate recovery efforts.

Our Communities



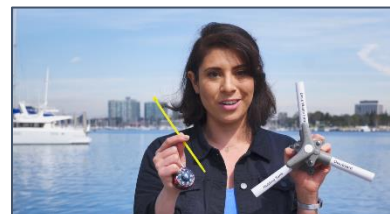
Internship and Research Assistant

Program – Through this program, TBF and CRI coordinate volunteers, students, and postgraduates in research, habitat restoration, and scientific data collection efforts across many projects. The program also supports the implementation of the Comprehensive Monitoring Program. In 2018, 10 paid and 14 unpaid CRI interns conducted research on a broad array of ecological, physical, and chemical parameters to inform TBF’s programs and projects. Additionally, three Loyola Marymount University CRI Faculty

Fellows led research projects related to beach characterization, microplastics, and human health benefits from green spaces.

Proposition 84 Grant Program – SMBRC was originally allocated \$18 million in state funding for projects including coastal watershed contamination prevention and coastal and marine habitat restoration. Two projects were completed in 2018, Milton Green Street and University Park Neighborhood Rain Gardens. The Mountains Recreation and Conservation Authority’s Milton Green Street project installed 14 Vegetated Stormwater Curb Extensions (VSCEs) adjacent to Ballona Creek. The VSCEs capture, treat, and infiltrate all dry- and a portion of the wet-weather runoff from 4.37-acres of densely developed area. The City of LA completed the University Park Neighborhood Rain Gardens project which installed 35 rain gardens on public parkways along nine streets. The project captures, treats, and infiltrates all dry- and a portion of the wet-weather runoff from a 209-acre drainage in the Ballona Creek watershed. Both projects improve water quality, reduce impermeable surfaces, provide local wildlife habitat, and valuable green space in urban areas.

Boater Education Program – This is a multi-faceted program designed to engage the Southern California boating community to reduce and eliminate boating-related ocean pollution. In 2018, the program continued to publish “[The Changing Tide](#)” statewide newsletters, annual tide pocketbook, and the [Pumpout Nav](#) app for pumpout station monitoring and public engagement. The program also produced and distributed 8,500 Boater Kits and trained 71 Dockwalker volunteers. In 2018, the program also produced and released an informational [video](#) on proper practices to best manage and reduce sewage spills from vessels.



Clean Bay Certified Program – This program partners with watershed cities to certify restaurants that comply with stormwater permit requirements and additional pollution prevention practices. This year the program distributed 150 toolkits to restaurants. Toolkits included a faucet aerator for water savings, educational posters on best management practices, and information about Clean Bay Certified and Rethink Disposable LA. 120 food service establishments were certified in 2018 using an updated, more rigorous inspection checklist.

Table-to-Farm Composting – To better address food waste and greenhouse gas emissions from landfills and transportation due to hauling waste, TBF is working with restaurants in Inglewood and Gardena and Environmental Charter Middle Schools (ECMS) to close the food loop. In 2018, the program built a second compost bin at ECMS Gardena. Since September 2017, 5,276 lbs of food waste has been diverted from landfills and composted, in a four-bin system. 720 students have been engaged in the program and have learned about food waste, compost, and climate issues.



Water Quality Monitoring – This project is conducted in partnership with CRI to fill important water quality data gaps for our region while contributing data in support of the Comprehensive Monitoring Program. In 2018, three master's theses were completed analyzing the effectiveness of LID implementation. The first two projects found that the garden retained between 73-100% of all stormwater, with 80-90% reduction in pollutants. Most of the pollutants were retained in the top layers of soil, but below regulatory trigger thresholds. The third project assembled 30 years of fecal indicator bacteria along Bay beaches and found decreasing trends over time for most sites.

Microplastics Research – Plastic is the most prevalent type of marine debris found in our oceans, and microplastics are considered an emerging constituent of concern due to their ubiquitous presence in the environment, danger to marine life when ingested, and potential to bioaccumulate chemicals up the food web. In 2018, CRI developed and refined a protocol to extract microplastics from sediments and conducted a pilot study along Bay beaches. Ongoing partnership development with University of California Santa Barbara will continue to inform regional data gaps in the fate and transport conceptual model for microplastics in the nearshore environment and invertebrate community.