

# 2016



Santa Monica Bay National Estuary Program Annual Report



**The Santa Monica Bay National Estuary Program (SMBNEP)** is one of 28 similar programs established under Section 320 of the 1987 Clean Water Act and administered by the U.S. EPA. The SMBNEP's comprehensive plan of action for protecting and restoring Santa Monica Bay, known as the **Bay Restoration Plan (BRP)**, was approved by the State of California and the U.S. EPA in 1995 and updated in 2008 and 2013. The BRP includes goals, objectives, and milestones that guide SMBNEP's programs and projects in three priority areas: water quality, natural resources, and benefits and values to humans. The BRP also identifies the responsible lead and partner entities, and the roles of the SMBNEP in supporting, promoting, and implementing Bay restoration work.

Actions identified in the BRP have significantly improved the environmental quality of the Bay since the establishment of the SMBNEP, but full recovery of the Bay is far from certain. Steady and long-term efforts along with consistent funding are necessary to ensure that we achieve the BRP's goal of a healthy and restored Santa Monica Bay.

The **SMBNEP** is comprised of a partnership of the following entities:

### Santa Monica Bay Restoration Commission

The Santa Monica Bay Restoration Commission (SMBRC) is a non-regulatory, locally-based state entity established by an act of the California Legislature in 2002. The SMBRC is charged with overseeing and promoting the Bay Restoration Plan by securing and leveraging funding to put solutions into action, building public-private partnerships, promoting cutting-edge research and technology, facilitating stakeholder-driven consensus processes, and raising public awareness.

The SMBRC brings together local, state, and federal agencies, environmental groups, businesses, scientists, and members of the public on its 36-member Governing Board. The SMBRC is also supported by a Technical Advisory Committee, and a broad stakeholder body, the Watershed Advisory Council. ([www.smbrc.ca.gov](http://www.smbrc.ca.gov))

### Santa Monica Bay Restoration Authority

The Santa Monica Bay Restoration Authority (SMBRA) was created by a joint exercise of powers agreement between the SMBRC and the Los Angeles County Flood Control District and operates as a local public agency within the Santa Monica Bay Watershed and the jurisdictional boundaries of the SMBRC and the District. The purpose of the SMBRA is to broaden funding opportunities for projects within the Santa Monica Bay Watershed, and it provides an efficient method by which state agencies can fund important programs of the SMBNEP.

### The Bay Foundation

The Bay Foundation (TBF)—also known as the Santa Monica Bay Restoration Foundation (SMBRF)—is an independent, non-profit 501(c)(3) organization founded in 1990 and serves as the fiscal partner for the SMBNEP, annually receiving important grants and donations. TBF provides administrative, management and program services to the NEP. The purpose of the Foundation is to contribute to the restoration and enhancement of Santa Monica Bay and other coastal waters and to complement the work of the SMBRC through the BRP, with a focus on obtaining and expending funds not otherwise available to the SMBRC. ([www.santamonicabay.org](http://www.santamonicabay.org))



Rocky intertidal mussel beds, Palos Verdes Peninsula.



The Bay Foundation and The Ocean School collaborated on a Remote Operated Vehicle (ROV) summer workshop for kids. In 2017, TBF's ROV will venture into Santa Monica Bay.

Welcome,

This 2016 annual report captures the work performed by the numerous people and organizations that contribute to the restoration and preservation of Santa Monica Bay. On the following pages you'll find that these partners, the boards and committees, and the staff of The Bay Foundation and Santa Monica Bay Restoration Commission have accomplished a great deal towards our mission. The impact of our collective work, over the past years, can be seen up and down the coast of Los Angeles County. This tight local focus, on coastal Los Angeles, has been a major component of our success.

That stated, the future of our coast and its communities will not be defined solely by how local environmental issues are addressed. Thus, to continue this success, we need to consider our coast and mission in a global context.

With support from the U.S. EPA, we were enabled to take action and expand our planning to evaluate the impacts of climate change here in LA. This allows us to address sea level rise, continued drought, warmer water and an acidifying ocean. We made significant progress towards this goal in 2016 culminating in the publication of the SMBNEP Climate Change Vulnerability Assessment (CCVA) (<http://www.santamonicabay.org/explore/climate-change/>), and with the establishment of the Santa Monica Beach Restoration Pilot Project.

The completion of the CCVA represents the first phase of a multi-year effort. Over the next two years we will reconsider the entire Bay Restoration Plan through the combined lens of, local environmental preservation and restoration, and climate change. To get this done we will continue, and advance, our efforts to study, restore, monitor, analyze, assess, and engage with the diverse and expansive communities that support our work.

Thank you for your interest in the Santa Monica Bay National Estuary Program. I hope you enjoy our 2016 annual report. We'd love to see you at one of our many events in 2017, find us online at [www.santamonicabay.org](http://www.santamonicabay.org) and [www.smbrc.ca.gov](http://www.smbrc.ca.gov).

Sincerely,

Tom Ford

## Wetlands • Rivers • 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 2016, a three-year comprehensive monitoring report was completed and released in May, and the fourth year of monitoring was conducted. The Lagoon continues to have improved circulation, water quality, and overall condition. Ongoing. (SMBRA, TBF)

**Community-Based Restoration at Ballona Wetlands** – This project will restore approximately three acres of heavily degraded wetland habitats at the Ballona Wetlands Ecological Reserve through invasive iceplant removal. In 2016, volunteers and members of the community removed over 15 tons of iceplant through hand-pulling and covering with black tarps. (See p. 6 for expanded information.) Ongoing. (TBF)

**Ballona Wetlands Restoration Project EIR/EIS** – This multi-year program informs a draft of the joint Environmental Impact Report / Environmental Impact Statement (EIR/EIS) led by the California Dept. of Fish and Wildlife and the US Army Corps of Engineers. Technical reviews were provided to the project management team, with an estimated release of the Draft EIR/EIS documents in mid-2017. Ongoing. (TBF)

**Ballona Wetlands Ecological Reserve Monitoring** – This comprehensive, multi-year monitoring program evaluated the condition of the pre-restoration wetlands and adjacent habitats through biological, physical, and chemical surveys to inform the restoration process and collect baseline data. This program also provided ongoing support and technical evaluations to the Draft EIR/EIS documents. Ongoing. (TBF)

**Evaluating Regional Wetland Monitoring Programs** – This program is working towards increasing our regional understanding of the health of our coastal wetland systems, and applying that knowledge towards standardizing wetland monitoring across the state of California. In 2016, this program began a literature review and the development of a site-intensive data translator. Ongoing. (SMBRA, TBF)

**Arroyo Sequit Creek Restoration** – This Proposition 50 grant-funded project has opened up 4.5 miles of Arroyo Sequit Creek to improve habitat for the endangered southern steelhead trout. Deconstruction and removal of two Arizona crossings and construction of the new upper bridge to restore hydrology and natural sediment movement were completed in 2015, and construction of the new lower bridge was completed in December 2016. Ongoing. (See p. 6 for expanded information.) (SMBRC, TBF)

**Rindge Dam Removal Study** – This assessment will inform the feasibility of restoring and enhancing the Malibu Creek ecosystem through the removal of Rindge Dam in partnership with California Dept. of Parks and Recreation, US Army Corps of Engineers, and other agencies. A Technical Advisory Committee meeting was held in Sept. 2016, with updates from the US Army Corps. Ongoing. (SMBRC, TBF)

**Stone Canyon Creek Restoration** – This community stream habitat restoration and education program along a Ballona Creek tributary is conducted in partnership with UCLA and adjacent elementary UCLA Lab School. In 2016, 15 community events were held, with more than 600 volunteers. Ongoing. (TBF)



Malibu Lagoon consistently shows increases in native post-restoration fish communities, total number of birds, and CRAM scores (overall condition).

**Las Virgenes Creek Crayfish Removal** – This restoration project works to control invasive red swamp crayfish in the Malibu Creek watershed to improve habitat for native aquatic species in partnership with Mountains Restoration Trust. Ongoing. (SMBRC, TBF)

**New Zealand Mudsnail Survey** – This annual survey of invasive New Zealand mudsnails identifies the species in streams throughout the Santa Monica Mountains. Surveys were conducted at 62 sites in 2016, and a report summarizing the findings is in development. Ongoing. (SMBRC, TBF)

## Beaches • Dunes • Bluffs

**Santa Monica Beach Restoration Pilot Project** – This pilot project is restoring approximately three acres of sandy coastal habitats to the beach in the City of Santa Monica. The project will reestablish native vegetation to the beach in an effort to create a sustainable coastal strand and foredune habitat complex resilient to sea level rise. In 2016, the MOU with the City of Santa Monica was finalized, a permit from the California Coastal Commission was obtained, and the project was officially launched in early December when fences were installed at the selected location and seeding began. Ongoing. (TBF)

**Healthy Beaches** – In partnership with Loyola Marymount University, this research project is conducting a site-suitability analysis to determine potential areas of beach restoration, evaluating factors such as recreational use and physical characteristics. The study will also take into consideration future sea level rise scenarios and increases in coastal storm impacts. Ongoing. (TBF)

**LAX Dunes Restoration Project** – This program, in partnership with Los Angeles World Airports and the Friends of LAX Dunes, conducts monthly volunteer restoration events at the LAX Dunes to remove invasive vegetation and teach the local community about the importance and resilience of coastal dune systems. In 2016, 12 community events were held and over 465 bags of invasive weeds were removed. Ongoing. (SMBRA, TBF)

**Coastal Cleanup Day** – TBF coordinates an international Coastal Cleanup Day (CCD) volunteer event. In 2016, TBF coordinated CCD at the LAX Dunes, in partnership with the Friends of LAX Dunes and Los Angeles World Airports. Over 130 volunteers contributed nearly 400 hours and



Coastal Cleanup Day 2016 volunteers removing over 3,500 lbs. of invasive vegetation.

removed over 3,500 lbs. of invasive vegetation as part of a long-term habitat restoration project for the LAX Dunes. Completed. (TBF)

## The Ocean

**Kelp Forest Restoration** – This project aims to restore up to 150 acres of giant kelp forests to create a more resilient ecosystem and sustainable coastal economy. The project utilizes commercial urchin fishermen to transform urchin barrens back to kelp forests. An additional 5 acres of kelp



Wild green abalone (*Haliotis fulgens*) observed off Palos Verdes Peninsula.

have been restored this year for a total of 39 acres since the project began in 2013. Early results from this work include the development of a variety of macroalgae occurring on the reefs in all sites, as well as increases in fish species richness and biomass. Future efforts will provide a more accurate understanding of the strength and persistence of the ecosystem responses to this work in the coming years. Ongoing. (TBF)

**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. Three survey flights were completed and a distribution model was developed in collaboration with Occidental College in 2016. Ongoing. (TBF)

**MPA Outreach** – TBF participates in the L.A. MPA Collaborative, comprised of NGOs and stakeholders throughout Southern California. The collaboration develops and disseminates information about the status and management of the Marine Protected Area network in the region. Ongoing. (TBF)

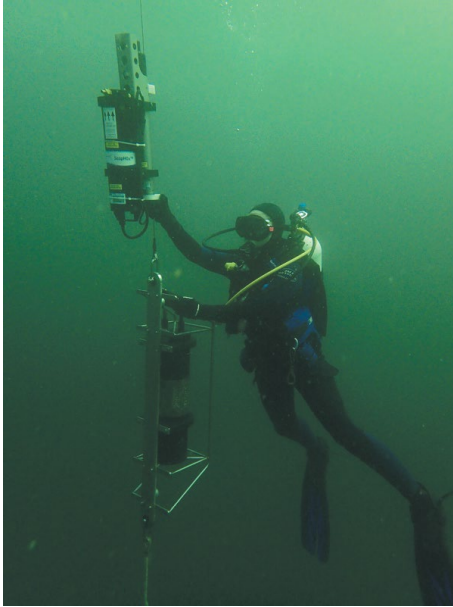
**Abalone Restoration Project** – A multifaceted approach to research, and method development to restore populations of abalone to Santa Monica Bay and adjacent coastal waters. In the spring of 2016, monitoring of outplanted green abalone showed an increase in the number and density of green abalone in the outplant area. In late spring, the abalone laboratory was completed at the Southern California Marine Institute. The laboratory now serves as a center for research and conditioning of abalone to advance the recovery of these ecologically and economically important species. Ongoing. (See p. 5 for expanded information.) (TBF)

**Palos Verdes Shelf Fish Contamination Education Collaborative** – A collaborative group that aims to educate local fishermen and consumers about the health risks of contaminated seafood, in partnership with the U.S. EPA, local agencies, and community based organizations. Ongoing. (SMBRC, TBF)

## Our Communities

**Proposition 84 Grant Program** – The SMBRC was originally allocated \$18 million in state funding for projects that implement the Bay Restoration Plan, including coastal watershed contamination prevention and coastal and marine habitat restoration. New project proposals were reviewed by the Santa Monica Bay Clean Beach Task Force, with five projects totalling \$9 million recommended for funding and approved by SMBRC's Governing Board. On-going projects include: City of Los Angeles University Park Rain Gardens, Milton Park Green Street Storm Water BMPs, and County of Los Angeles Oxford Basin Enhancement. Ongoing. (See p. 7 for expanded information.) (SMBRC)

**Clean Bay Certified Program** – This program partners with watershed cities to certify restaurants that comply with stormwater permit requirements and the Program’s additional pollution prevention practices. Two new cities, City of Palos Verdes Estates and Rolling Hills Estates, signed on in 2016, bringing the participating cities to eleven. Other program highlights include a letter of support from the Los Angeles Regional Water Quality Control Board,



Diver connects SeapHOx sensor to PCO2 in November.  
(Credit: Sanitation Districts of Los Angeles County)

Inspection Handbook and inspector training, and a new window decal and logo. Ongoing. (See p. 5 for expanded information.) (TBF)

**Boater Education Program** – A multi-faceted program designed to inform and assist boaters in reducing or eliminating pollution emanating from their boats. In 2016, the program continued to publish “The Changing Tide” statewide quarterly newsletters, annual tide book and boating amenities pocketbook, and the Pumpout Report Card. The program also produced and distributed 7,000 Boater Kits through staff and volunteer Dockwalkers, trained 70 Dockwalker volunteers, hosted Honey Pot Day mobile pumpout and oil absorbent exchanges, conducted pumpout

station maintenance monitoring, and engaged in multiple outreach and education events throughout southern California. Ongoing. (SMBRA, TBF)

**Rainwater Harvesting** – This project installed four residential rain gardens in 2015 and a final report was completed in June 2016. The project calculated potable water conservation for each property that ranged from 70-94%, with additional significant stormwater capture and pollutant reduction. Completed. (TBF)

**Water Quality Monitoring** – In partnership with Loyola Marymount University, this project evaluates stormwater runoff and pollutant reductions at the Culver City Rain Garden. In 2016, the project continued the second year of stormwater sampling and conducted analyses on the first year of data; significant stormwater capture and pollutant reductions were calculated. Ongoing. (TBF)

**Water and Energy Conservation** – This project works with middle schools to conduct outreach and education on water, energy, and natural gas conservation. The project was initiated in 2016 and

includes communications with schools and the development of educational tools such as infographics and story-maps. Ongoing. (TBF)

**Internship Program** – This program, in partnership with Loyola Marymount University, coordinates student and postgraduate research and volunteer efforts through multiple restoration and scientific data collection projects. Ongoing. (TBF)

**Ballona Wetlands Outreach** – A program that includes a wide variety of outreach activities including farmers markets, nature tours, bird walks, science-in-action activities, educational trainings, newsletters, social media, and more. Ongoing. (TBF)

**Integrated Regional Water Management Plan** – The SMBRC participates in the Greater Los Angeles County Integrated Regional Water Management Planning Process. Ongoing. (SMBRC)

## Climate Change

**Climate Change Vulnerability Assessment** – Phase 1 of this two-stage project evaluated how climate change will affect the goals and objectives of the Bay Restoration Plan (BRP). An expert panel informed this project which, identified over 450 risks across 14 goals and 59 objectives in the BRP. The final report, including data visualizations, identifies strengths and weaknesses of existing objectives to manage and adapt to the impacts of climate change. Completed. (See p. 7 for expanded information.) (SMBRC, TBF)

**Climate Change Adaptation** – In partnership with USC Sea Grant, Los Angeles Regional Collaborative for Climate Action and Sustainability, and Heal the Bay, this program assists coastal jurisdictions in developing strategies to adapt to climate change impacts, including sea level rise and increased storm activity. Initial 100-year coastal sea level rise and storm modeling results were completed and released on-line by USGS, and webinars were conducted to disseminate the modeling results. Ongoing. (SMBRC, TBF)

**Ocean Acidification Sensors in Santa Monica Bay** – An array of instruments that measure pH, dissolved oxygen, and pCO<sub>2</sub> were deployed off the Palos Verdes Peninsula in the second half of 2016, by the Sanitation District of Los Angeles County. The data collected by this project will help us understand how ocean acidification and hypoxia are manifesting off our coast. This project is funded by the U.S.EPA and will contribute to regional efforts along California and the West Coast in the coming years. Ongoing (SMBRC, TBF)

**Kelp Forest Hydrodynamics Study** – A collaboration between TBF, UC Davis, Cal State Monterey Bay and UCLA. In 2016, instruments were deployed off the Palos Verdes Peninsula to measure currents, waves, temperature and sediment transport. These instruments used in conjunction with kelp restoration work and water sampling will inform how the physical and chemical aspects of the ocean change due to the presence-absence of kelp. This research will advance our understanding of how kelp forests affect the ocean and neighboring coastline. The instruments and sampling will continue in 2017. Ongoing. (TBF)

## A New Start for Abalone in Los Angeles

Abalone used to be so prolific they were literally stacked on top of one another. First Nations, fishermen, divers and beachcombers could easily fill a boat or a bag of these gorgeous and tasty snails. Over-harvest and disease have resulted in dramatic declines in populations of the six species of abalone that inhabit the kelp forests and rocky reefs of southern California. Two of these species are federally endangered.

TBF has worked with a broad coalition of federal and state agencies, public aquaria, and academic researchers since 2011 to develop techniques and build capacity to help the abalone. The ultimate goals are the recovery of these ecologically and economically important species and saving two of these species from extinction. TBF has joined this effort by conducting research and in 2016, completing the construction of the Abalone Laboratory at the Southern California Marine Institute on Terminal Island. The Ab Lab, for short, is now our abalone center of operations. Here abalone are fed, conditioned and spawned to generate the millions of larvae it will take to



TBF researcher hand-feeding kelp to a red abalone at the new Ab Lab.

bring these animals back. The offspring produced will likewise be fed and cared for until they are ready to go into the ocean. Research and method development are also taking place at the Ab Lab with researchers and industry throughout the state contributing to our groundbreaking work. Use TBF's website to keep up to date on our progress to restore abalone to Santa Monica Bay, <http://www.santamonicabay.org/explore/in-the-ocean/abalone-restoration/>.

**Project Partners:** National Oceanic and Atmospheric Administration, National Marine Fisheries Service, National Fish and Wildlife Foundation, California Department of Fish and Wildlife, Southern California Marine Institute, UC Davis Bodega Marine Lab, California Polytechnic University Pomona, The Cultured Abalone, Cabrillo Marine Aquarium

## A Clean Environment is Always in Good Taste

The Clean Bay Certified Restaurant Program focuses on best management practices for Los Angeles' 30,000 restaurants, bars, and eateries. The average food service facility, according to the Green Restaurant Association, uses 300,000 gallons of water and generates 100,000 pounds of trash, annually. How restaurants manage their waste streams and operations can clearly have a big impact on our local environment and good practices that keep our beaches safe and clean. Clean Bay Certified works from city to city throughout coastal Los Angeles in concert with the Regional Water Quality Control Board, to prevent fats, oil, grease, and trash from contaminating our neighborhoods and water. TBF and Clean Bay Certified Cities require 100% compliance with a 45-point inspection checklist and annual inspections to maintain their certification.

In 2016, Palos Verdes Estates and Rolling Hills Estates joined the Clean Bay Certified family of cities which includes: Culver City, Hermosa Beach, Inglewood, Malibu, Manhattan Beach, Rancho Palos Verdes, Redondo



Conservatory Coffee in Culver City is Clean Bay Certified.

Beach, Santa Monica, and Torrance. When dining Clean Bay Certified, you are at an establishment that, amongst other commitments, washes floor mats indoors, maintains a litter free establishment, has a full-scale recycling program, and doesn't use polystyrene takeout containers. Additional optional criteria include: sustainable seafood programs, local food purchasing policies, food scrap composting, bike racks for employees, and providing oil and grease for biodiesel.

Please visit <http://www.santamonicabay.org/explore/our-communities/clean-bay-restaurants/> for lists and maps for your next cup of coffee or meal. Keep an eye out for the certification proudly displayed at establishments that are Clean Bay Certified.

**Program Partners:** City of Culver City, Hermosa Beach, Inglewood, Malibu, Manhattan Beach, Palos Verdes Estates, Rancho Palos Verdes, Redondo Beach, Rolling Hills Estates, Santa Monica, Torrance, Regional Water Quality Control Board

## Un-paving the Way for Trout

Years of effort by TBF, California Department of Parks and Recreation, and the California Conservation Corps culminated in the placement of a second bridge spanning Arroyo Sequit Creek in Leo Carrillo State Park in late fall 2016. Since 2014 these project partners have opened up 4.5 miles of Arroyo Sequit Creek for the passage of the endangered steelhead trout. In 2014, a check dam, above the campground, was deconstructed and removed.

In 2015, two large Arizona crossings were similarly deconstructed and removed. To enhance the value of these efforts, the stream channel and its banks were contoured to promote natural hydrology and the establishment of native vegetation.



Bridge spanning Arroyo Sequit Creek, completed December 2016, makes sharing the road easier, allows for fish passage, and reduces pollutant loading. (Credit: Ecomalibu.org)

Though the trout came first, the project was also designed to benefit the people working and recreating in Leo Carrillo State Park. In the past, park visitors, lifeguards, RVs and pedestrians had to share the narrow crossing. The new bridge is wider than the old crossing, making it easier and safer for pedestrians and vehicles to share the road. In addition, driving over the bridges rather than through the creek reduces pollutant loading from the direct vehicle contact. Increasing passage of steelhead trout and other species in the creeks of the Santa Monica Mountains is a big goal for the SMBNEP. Opening up Arroyo Sequit Creek is a major accomplishment in un-paving the way for trout. (To see video of installation, please visit <https://www.youtube.com/watch?v=v14r48gcjyU>)

**Project Partners:** TBF, California Department of Parks and Recreation, Santa Monica Bay Restoration Commission, California Conservation Corps, and Resource Conservation District of the Santa Monica Mountains

## Invasive Iceplant Removed through Community Restoration

In 2016, TBF implemented a community restoration project to remove invasive iceplant from the Ballona Wetlands Ecological Reserve (Reserve). The goal of this important interim stewardship project is to improve the ecological condition within the Reserve and study the effects of the removal efforts to help native plants and animals. Iceplant is a creeping, mat-forming group of species that forms dense monocultures, steals water from native species, alters soil chemistry, reduces biodiversity, and provides little-to-no habitat value for native species.



Palisades Charter High School students remove iceplant, learn about Reserve.

With help from community and student volunteers who devoted over 500 hours to this effort, TBF removed 0.88 acres of iceplant from September to December 2016. Over 15 tons of iceplant (more than 200 cubic yards) were removed from the restoration area. In addition to participating in restoration efforts, volunteers were provided an educational introduction to the Reserve. The introduction focused on the regional landscape, cultural values, and the importance of wetland habitats to wildlife, plants and people in the face of climate change. The combination of hands-on restoration efforts and educational elements are intended to foster an attitude of stewardship and increase environmental awareness within the local community.

With some rain this winter, the native plants should start to rebound. TBF will continue to monitor the restored area to track project success over time, and hopes to expand the restoration efforts to encompass 3 acres in 2017.

**Project Partners:** California Department of Fish and Wildlife, Friends of Ballona Wetlands, E. Read and Associates



## Prop. 84 Funds Recommended for Projects Spanning the Bay Watershed

On Oct. 20, the SMBRC recommended that the State Water Resources Control Board (SWRCB) fund five projects spanning the Santa Monica Bay Watershed. In total \$9,000,000 may be allocated to these important projects that reduce pollution, reduce potable water use, and create natural habitat. The locations of the projects run from Calabasas to the north (affecting Malibu Creek), to areas in Ladera Heights, West LA and Culver City (affecting Ballona Creek), and to Rancho Palos Verdes to the south.

The selection of these projects was an 11-month process that included an initial Request for Proposals (released Nov. 2015), expert review by SMBRC staff and the Clean Beaches Santa Monica Bay Task Force, and consideration by the Santa Monica Bay Restoration Commission Governing Board. This recommendation of Prop 84 funds is intended to assist responsible agencies in achieving compliance with the Total Maximum Daily Loads (TMDL) for waterbodies in the Bay watersheds and the associated requirements of the new Los Angeles County Municipal Separate Storm Sewer System Permit (MS4 Permit).

The recommended projects are:

- Culver Boulevard Realignment and Stormwater Infiltration/Retention Regional Project (Project Applicant: City of Culver City)
- Westwood Neighborhood Greenway Project (Project Applicant: City of Los Angeles, Bureau of Sanitation)
- Ladera Park Water Quality Enhancement Project (Project Applicant: County of Los Angeles, Department of Public Works)
- Gates Canyon Park Project (Project Applicant: County of Los Angeles, Department of Public Works)
- Santa Monica Bay Catch Basin Insert Project (Project Applicant: City of Rancho Palos Verdes)

For more details on the five projects, please visit. [http://www.smbrc.ca.gov/about\\_us/agendas/2016oct/item\\_3b.pdf](http://www.smbrc.ca.gov/about_us/agendas/2016oct/item_3b.pdf).

## Road to BRP 2019: Climate Change Vulnerability Assessment, Phase 1

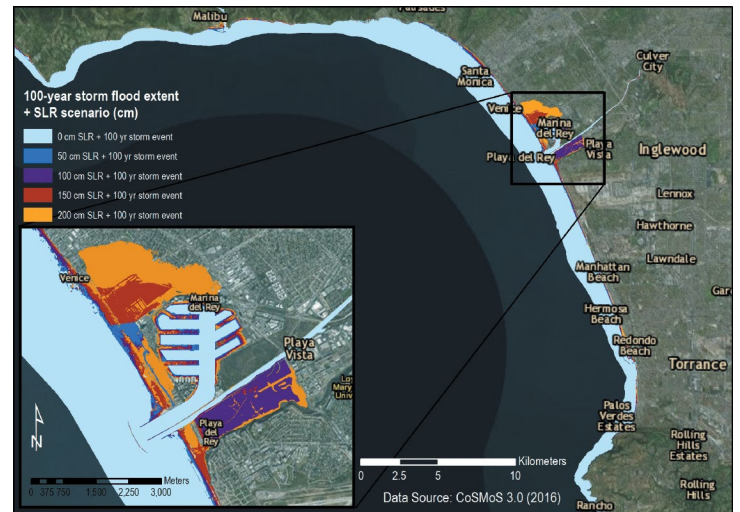
Earlier this year, TBF with support from the SMBRC, was awarded an EPA grant to conduct a broad, risk-based Climate Change Vulnerability Assessment (CCVA) of the 59 objectives in the SMBNEP Bay Restoration Plan (BRP). The CCVA identified 474 risks associated with six different climate change stressors: warmer temperatures, warmer water, sea level rise, increased drought, increased storminess and ocean acidification across the 59 objectives. Additionally, the CCVA considers the natural adaptability or impact that management strategies may have in decreasing the intensity of climate change impacts to a given objective.

For example, objectives relating to land acquisition or education and outreach tended to have more opportunities identified and fewer overall risks, while those relating to coastal habitats that are vulnerable to many climate change stressors had significantly more. In many cases there was agreement that data gaps exist and that efforts need to be made to populate

and later analyze long term regional datasets to more accurately identify the strength, timing, and magnitude of the aforementioned climate change stressors.

Hopefully this assessment is useful to SMBNEP partners and others in our area in their climate change adaptation planning efforts. The CCVA is a living product that can have new models, additional risks, and vulnerability revisions altered over time as new information becomes available. Lastly, the SMBNEP would like to thank the U.S. EPA, and the experts who provided invaluable input to the report.

**Project Partners:** SMBRC's Technical Advisory Committee, Southern California Coastal Water Research Project, National Aeronautics and Space Administration – Jet Propulsion Laboratory, Loyola Marymount University, Pepperdine University, University of Southern California Sea Grant, United States Geological Survey, Los Angeles County Sanitation, University of California Los Angeles, United States Environmental Protection Agency, Occidental College, Los Angeles Regional Water Quality Control



100-year storm flood extent and SLR scenarios for Santa Monica Bay region.  
(Data Source: CoSMoS 3.0 2016)

## Funding Sources for The Santa Monica Bay National Estuary Program

### The Bay Foundation:

Federal Grants and Contracts, \$1,262,496

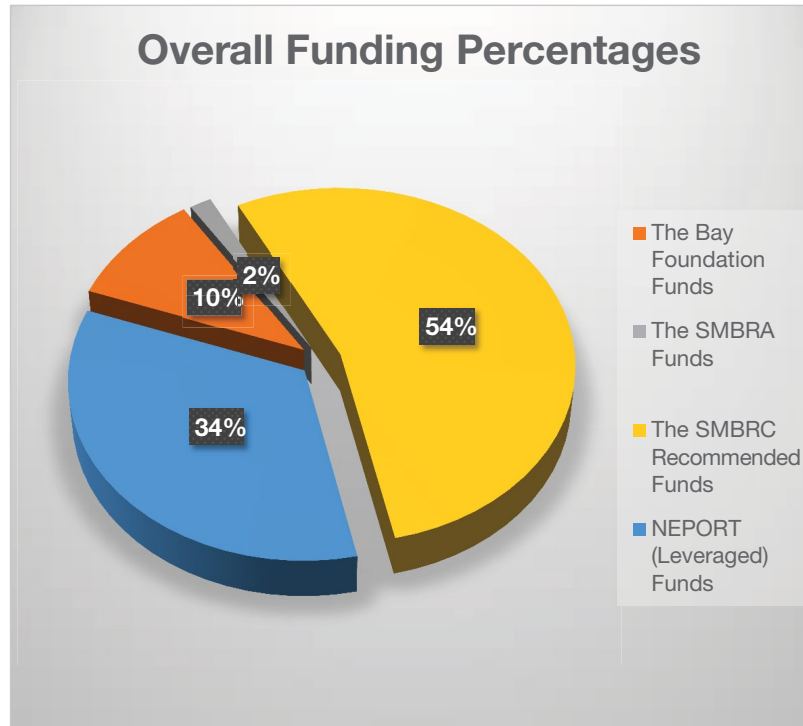
Non-Federal Grants and Contracts, \$221,138

Other Sources, \$232,199

### SMBRA:

Federal Grants and Contracts, \$17,747

Non-Federal Grants and Contracts, \$248,641



### SMBRC Recommended Bond Funds:

Prop 84, \$9,000,000

Prop 50, \$0

### OTHER Funds:

Leveraged Non-Federal, State, local, and private, \$5,655,961

The financial summary on this report was not prepared by a CPA. The numbers provided here are intended to provide a general overview of the resources of the Santa Monica Bay National Estuary Program and may not meet GAAP standards.

## COMMISSION GOVERNING BOARD

### Executive Committee

<b>Enrique C. Zaldivar</b>	Chair of the Governing Board, City of Los Angeles Dept. of Public Works, Bureau of Sanitation
<b>Francine Diamond</b>	California Regional Water Quality Control Board, Los Angeles
<b>Gloria Gray At-Large</b>	Member, West Basin Municipal Water District
<b>Sheila Kuehl</b>	Supervisor LA County Board of Supervisors, 3rd District
<b>Bruce Reznik</b>	Public Member (Environmental/Public Interest), Los Angeles Waterkeeper
<b>Sarah Sikich</b>	Public Member (Environmental/Public Interest), Heal the Bay
<b>Sam Schuchat</b>	(for Ann Notthoff) California State Coastal Conservancy

<b>Ben Allen</b>	State Senator, 26th District
<b>Steve Bay</b>	Technical Advisory Committee, Chair
<b>Richard Bloom</b>	State Assembly Member, 50th District
<b>Charlton H. Bonham</b>	Director, California Dept. of Fish & Wildlife
<b>Mike Bonin</b>	Councilmember, Los Angeles City Council, District 11
<b>Autumn Burke</b>	State Assembly Member, 62nd District
<b>Charles Caspary</b>	Las Virgenes Municipal Water District
<b>Bryant Chesney</b>	NOAA-NMFS Southwest Division
<b>Joe Edmiston</b>	Santa Monica Mountains Conservancy
<b>Mark Pestrella</b>	LA County Department of Public Works
<b>Eric Garcetti</b>	Mayor, City of Los Angeles
<b>Robert Godfrey</b>	At-Large Member, Marina Del Rey Anglers
<b>Grace Hyde</b>	LA County Sanitation Districts
<b>Anthony Jackson</b>	Director, California Dept. of Parks & Recreation
<b>Gary Jones</b>	LA County Department of Beaches & Harbors
<b>John Laird</b>	Secretary, Natural Resources Agency
<b>Kevin McKeown</b>	Westside Cities (City of Santa Monica)
<b>Molly Martin</b>	US EPA Region IX
<b>Daniel Murphy</b>	LA County Fire Department, Lifeguard Division
<b>Laurie Newman</b>	President, The Bay Foundation
<b>Fran Pavley</b>	State Senator, 27th District
<b>John Rea</b>	South Bay Cities (Palos Verdes Estates)
<b>Matt Rodriguez</b>	Secretary, California Environmental Protection Agency
<b>Vacant</b>	Malibu Watershed Cities (City of Malibu)
<b>Rod Spackman</b>	Public Member (Business/Economic Interest), Chevron
<b>Clark Stevens</b>	At-Large Member BWC (SM Mountains Resource Conservation District)
<b>Roberto Uranga</b>	California Coastal Commission

## SANTA MONICA BAY RESTORATION AUTHORITY BOARD

<b>Vacant</b>	Chair of the SMBRA Board, Malibu Watershed Cities (City of Malibu)
<b>Mark Pestrella</b>	LA County Department of Public Works
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All photos are courtesy of TBF, unless otherwise noted.



**Santa Monica Bay National Estuary Program** P.O. Box 13336, Los Angeles, CA 90013 888-301-2527

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