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Conclusions and Looking Ahead

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CONCLUSIONS AND LOOKING AHEAD

4.0 Conclusions and Looking Ahead

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Five years is a short timeframe to detect and report changes in status and trends in environmental conditions. Many natural processes that affect status and trends occur in much longer time spans, and many restoration projects, especially large regional ones, take years to implement and even longer before results are measurable. Despite these limitations, we are pleased to present this report that describes ongoing improvement to the water quality and health of the habitats in the Bay. A few highlights of the past years include the restoration of Malibu Lagoon in 2013, following more than a decade of planning and construction (Section 2.2.2). Elsewhere in the Santa Monica Mountains, we have removed small dams and culverts in our streams, making miles of habitat available for steelhead trout and other wildlife to inhabit. Starting in 2013, we've spent 6,000 hours underwater to restore more than 30 acres of kelp forest off of Palos Verdes. New policies have also changed our land and sea; Santa Monica Bay National Estuary Program (SMBNEP) staff worked with hundreds of other stakeholders to establish a network of Marine Protected Areas throughout Southern California. On January 1, 2012, that network gave us a new way to protect Santa Monica Bay. There are MPAs off of Point Dume in Malibu and Point Vicente in Palos Verdes, where fish and invertebrates are protected from most types of fishing.

Improving water quality along our world-famous coast is a very high priority, and there is clear evidence that our beaches are cleaner, with less trash and bacterial contamination. This is largely due to the diversion of dry weather runoff, zero-trash TMDL implementation, and decreased rainfall. Much of this work is in response to the adoption and implementation of 14 Total Maximum Daily Loads (TMDLs), which limit pollutant loading and toxicity to surface waters in the Santa Monica Bay watershed (Section 1.2). Ongoing efforts to improve the water quality from sewage outfalls is resulting in less contamination on the Bay's soft-bottom habitat, improving the health of local fish and protecting public health.

The drought has brought due attention to water resource management. We see a new paradigm unfolding where water is considered a resource rather than a liability or a byproduct of our former single-use approach. To secure a sustainable water supply for Los Angeles and Southern California, water supply is diversifying to include stormwater, recycled wastewater, and gray water. This dynamic has encouraged new legislation, regulation, and funding, creating unprecedented coordination amongst the agencies that provide or treat our water. In essence, these projects, worth billions of dollars, will reduce pollution in our streams and creeks and reduce discharges and pollutants to the ocean. Meanwhile, these "captured and infiltrated" waters will increase our local drinking water supplies via recharge of our local aquifers. The SMBNEP continues to promote cutting-edge research, technologies, and projects to construct

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these water-saving, pollution-reducing projects. A greener Los Angeles that makes the most of its water supplies is clearly our future for a healthier and sustainable Los Angeles.

In addition to the drought, the localized effects of climate change will impact virtually every aspect of our Bay Restoration Plan, as well as every habitat in the Bay and on land. We expect a number of changes, namely hotter and drier periods, increased intensity of rain events, ocean acidification, and greater storm surge associated with bigger waves and sea level rise. Accordingly, we have received additional support from the U.S. Environmental Protection Agency to assess our entire plan to prioritize and alter our goals to ensure that our work addresses the stressors of climate change in Los Angeles. We are fortunate to have many partners to draw from at the federal and state levels, and for the research produced by our world-class colleges and universities. Specific examples of this work include the City of Los Angeles's AdaptLA vulnerability assessment, which is now expanded to include all coastal jurisdictions in LA County (<http://dornsife.usc.edu/uscseagrant/adaptla/>), and the City of Los Angeles' "One Water LA 2040" initiative (<http://lacitysan.org/irp/OneWater.htm>).

Our mission directs us to restore and enhance Santa Monica Bay through actions and partnerships that improve water quality, conserve and rehabilitate natural resources, and protect the Bay's benefits and values. To accomplish this mission, our work must be contextual and incorporate the stressors associated with pollution, drought, and climate change. Over the years, the SMBNEP has continually found ways to restore and protect habitats, often with great success, and those efforts will continue in the future. With the consideration of Los Angeles in 2000 and 2100, we are looking at our beaches as a place to hold back rising waters, while supporting wildlife and sequestering carbon. Los Angeles' iconic beaches are a great resource for us to rehabilitate and protect, and if we're successful, those beaches will protect us in turn, while allowing us to recreate and surf into the next century.

Our oceans are changing physically and chemically. Helping wildlife cope with these changes by providing large and stable habitats will be key to their survival. Accordingly, our work to restore coastal wetlands and reestablish seagrass meadows off our coast will be prominent actions that we will undertake to enhance flood protection and provide habitat for wildlife. While work to restore coastal habitats will continue and expand, there has also been, and will continue to be, more attention on preservation and restoration of inland habitats, especially more push for protection of natural ecosystems in the Santa Monica Mountains and other headwater areas of the Bay watershed (Section 4.1). Our rivers and streams in these areas in particular will need our assistance as they change in nature, becoming drier and conversely more prone to flooding. Finding a way to reconnect the flow of water and sediment from our mountains through our communities and to the coast may prove to be one of the region's largest challenges, a challenge that warrants a holistic, regional approach in water and sediment management (Section 4.2).

The changing watershed and ocean conditions, as well as management priorities, also pose new challenges to the scientific community. The vast scale and associated potential cost in addressing water quality issues will facilitate research and development of faster and more accurate pollution source identification tools, methods, and technology (Section 4.3). There will also be a

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new focus on determining the sources and impacts of nutrient loading, especially the role of nutrient loading as it relates to eutrophication, harmful algal blooms, and ocean acidification (Section 4.4, 4.5, & 4.6).

Finally, let's remember that all these works will be supported as they have been in the past by a diverse and dedicated partnership whose interrelated interests and obligations to the people and wildlife of Los Angeles have served our communities well. With the ongoing support of this partnership, the SMBNEP has great expectations for our future and for the continued improvement of the Bay and its people.