



August 22, 2014

The Honorable John Laird, Chair and Council Members  
California Ocean Protection Council  
1330 Broadway, 13th Floor  
Oakland, CA 94612-2530

**VIA ELECTRONIC MAIL:** [COPCpublic@resources.ca.gov](mailto:COPCpublic@resources.ca.gov) and [adoherty@resources.ca.gov](mailto:adoherty@resources.ca.gov)

**Re: SUPPORT Resolution on Safeguarding California Plan Implementation**

Dear Chair Laird and Council Members:

On behalf of California Coastkeeper Alliance (CCKA), which represents twelve California Waterkeeper groups spanning the California Coast from the Oregon border to San Diego, we strongly support the California Ocean Protection Council (OPC) Resolution on the Implementation of the Safeguarding California Plan for Reducing Climate Risks.

Climate change impacts to the coast and ocean—sea level rise, temperature change, extreme weather events, and ocean acidification—present a host of unprecedented challenges to California’s ecosystems, economy, and communities. Each of these issues alone represents a serious and extraordinary threat, and together, will require unprecedented levels of coordination, planning, and resources to direct California to a path of sustainability and resiliency in the face of climate change. Accordingly, OPC’s role in implementing the ocean and coastal aspects of the Safeguarding California Plan is critical. We commend OPC for incorporating a strong list of recommendations and guiding principles in the Resolution to provide direction for decision-makers to assess and reduce their climate risk.

We respectfully submit ask OPC to strengthen the Resolution by highlighting the importance of nature-based adaptation strategies that increase an ecosystem’s natural resilience to climate change in the recommendations and guiding principles. A resilient ecosystem is measured by “the capacity of a system to absorb ... perturbations and changes that attain it, and so persist without a qualitative change in the system’s structure.”<sup>1</sup> Coastal ecosystems can survive erosion, storm surges, and rising sea levels by migrating inland, or growing vertically or laterally.<sup>2</sup> The 2009 Climate Adaptation Strategy states that California “should pursue activities that can increase natural resiliency, such as restoring tidal wetlands, living shoreline, and related habitats; managing sediment for marsh accretion and natural flood protection; and maintaining upland buffer areas around tidal wetlands.”<sup>3</sup>

<sup>1</sup> See generally Crawford Stanley Holling, *Resilience and Stability of Ecological Systems*, 4 ANN. REV. ECOLOGY & SYSTEMATICS 1 (1973); Needles, L. A., Lester, S. E., Ambrose, R., Andren, A., Beyeler, M., Connor, M. S., & Wendt, D. E. (2013). Managing Bay and Estuarine Ecosystems for Multiple Services. *Estuaries and Coasts*, 1-14.

<sup>2</sup> Sorell E. Negro, *Built Seawalls: A Protected Investment or Subordinate to the Public Trust?* 18 OCEAN & COASTAL L.J. 89, 93 (2012).

<sup>3</sup> See California Natural Resources Agency, *2009 California Climate Adaptation Strategy: A Report to the Governor of the State of California in Response to Executive Order S-13-2006*, 1, 68 (2009), available at [http://resources.ca.gov/climate\\_adaptation/docs/Statewide\\_Adaptation\\_Strategy.pdf](http://resources.ca.gov/climate_adaptation/docs/Statewide_Adaptation_Strategy.pdf), at 74 (recommendations

Coastal marshes and wetlands provide protections from sea level rise and storm surges,<sup>4</sup> while restored oyster reefs have been found to prevent coastal erosion<sup>5</sup> and sequester carbon.<sup>6</sup> For example, California recently began testing the use of “living shorelines” to stabilize and buffer coastal ecosystems,<sup>7</sup> a technique used by U.S. National Oceanic and Atmospheric Administration (NOAA) for more than two decades on the East Coast and in areas of the Gulf Coast.

Conversely, sea walls and other structures can destroy the beaches, wetlands, and natural areas that drew people to build on the shoreline in the first place.<sup>8</sup> Instead of moving inland as the rising sea erodes the shoreline, coastal barriers cause wetlands and beaches to become trapped between the seawalls and the rising water until eventually the ecosystems are destroyed. Sea walls also interrupt the sediment transport process that occurs from eroding bluffs and cliffs. With upstream dams capturing river sediment, and coastal armoring structures preventing natural erosion processes, sediment supply to beaches is significantly reduced.<sup>9</sup> Coastal armoring has resulted in the disappearance of many beaches along California’s coastline, which impacts a wide array of coastal flora and fauna.<sup>10</sup>

The OPC 2011 Sea Level Rise Resolution recognized that one of the core principles driving agency decision-making with respect to coastal climate adaptation is to “protect, restore, and enhance ocean and coastal ecosystems.” Accordingly, we urge OPC to call out ecosystem-based adaptation strategies and habitat protection as a guiding principle, and in its recommendations to the ocean sector. Recognizing ecosystem-based adaptation strategies and natural habitat protection and restoration in the Resolution’s recommendations and guiding principles will ensure that the Resolution best aligns with OPC’s mission and mandate to protect the coast and ocean.

We are happy to work with staff to suggest language for the Resolution’s recommendations and guiding principles to highlight nature-based ecosystem strategies, and look forward to continued work with OPC towards the goal of a resilient ocean and coast.

Sincerely,



Sara Aminzadeh, Executive Director

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include preservation of natural areas that contain critical habitat for tidal wetland restoration, habitat migration, or buffer zones).

<sup>4</sup> Costanza, R., Pérez-Maqueo, O., Martinez, M. L., Sutton, P., Anderson, S. J., & Mulder, K. (2008). The value of coastal wetlands for hurricane protection. *AMBIO: A Journal of the Human Environment*, 37(4), 241-248.

<sup>5</sup> Grabowski, J. H., & Peterson, C. H. (2007). Restoring oyster reefs to recover ecosystem services. *Theoretical ecology series*, 4, 281-298.

<sup>6</sup> Brevik, E. C., & Homburg, J. A. (2004). A 5000 year record of carbon sequestration from a coastal lagoon and wetland complex, Southern California, USA. *Catena*, 57(3), 221-232.

<sup>7</sup> In 2012, the San Francisco Bay Living Shorelines Project began testing oyster and restoration projects and assessing impacts on wildlife, wave action, and shoreline erosion at two sites in San Francisco Bay. See State Coastal Conservancy, *San Francisco Bay Living Shorelines Project*, available at [http://www.sfbaylivingshorelines.org/sf\\_shorelines\\_about.html](http://www.sfbaylivingshorelines.org/sf_shorelines_about.html) (last visited July 31, 2014).

<sup>8</sup> California Department of Boating and Waterways, *The Economic Costs of Sea-Level Rise to California Beach Communities* (2011) at 72, available at <http://www.dbw.ca.gov/PDF/Reports/CalifSeaLevelRise.pdf>

<sup>9</sup> Michael Slagel & Gary Griggs, *Cumulative Loss of Sand to the California Coast by Dam Impoundment* (2006), available at [http://www.dbw.ca.gov/csmw/PDF/Slagel&Griggs\\_CA\\_Dam\\_Manuscript.pdf](http://www.dbw.ca.gov/csmw/PDF/Slagel&Griggs_CA_Dam_Manuscript.pdf). (“As much as 50 percent of the sand originally delivered to the coast in Southern California, 31 percent in Central and 5 percent in Northern California has been lost, the great majority of this impounded behind dams in reservoirs.”)

<sup>10</sup> Jennifer E. Dugan et al., *Ecological Effects of Coastal Armoring on Sandy Beaches*, 29 *MARINE ECOLOGY* 160–70 (2008) (noting that armored beaches had significantly fewer and smaller intertidal macro-invertebrates, three times fewer shorebirds, and four to seven times fewer gulls and other birds than unarmored beaches).