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Working Group Releases Report Evaluating the Use of Nature-based Strategies to Combat Ocean Acidification

SACRAMENTO—After months of research and deliberation, a working group convened by the California Ocean Protection Council and California Ocean Science Trust today released a report analyzing seagrass and kelp as an ocean acidification management tool in California. The report, which synthesizes data and results from ongoing research and monitoring, provides guidance on next steps for the state as it considers future nature-based actions to reduce the negative impacts of ocean acidification in California and beyond.

Ocean acidification, the decrease in pH that results as more carbon dioxide is absorbed into seawater, has serious implications for shell-building organisms (like oysters) and fish behavior, and has the potential to substantially alter marine food webs and fisheries along the U.S. West Coast. As part of ongoing efforts the state of California is pursuing to reduce the negative impacts of ocean acidification, a working group of the California Ocean Protection Council Science Advisory Team studied the role seagrass and kelp can serve in helping California adapt to climate change.

“The goal is to gain a better understanding of how and if these underwater plants might protect coastal species that are vulnerable to ocean acidification,” said Dr. Karina Nielsen, Co-Chair of the working group and director of the Estuary and Ocean Science Center at San Francisco State University. “The habitats that seagrass and kelp create can increase seawater pH, and may provide relief for some species. We are continuing to learn more about when and where we are likely to see the largest benefits.”

The new science report was prompted by recent legislation in California, Senate Bill 1363 (Monning, 2016), that calls for scientific and evidence-based approaches to protect and restore seagrass and kelp as a critical strategy in enhancing the state’s ability to withstand ocean acidification. This effort and other recent investments by the Ocean Protection Council, in partnership with Ocean Science Trust, take strides toward establishing California's Ocean Acidification and Hypoxia Reduction Program.

“California is taking the lead in supporting innovative research and monitoring to ensure we are making decisions about these important coastal resources informed by the best available science,” said Executive Director of the Ocean Protection Council Deborah Halberstadt. “This report helps provide a scientific foundation that investing in the protection and restoration of these habitats is a win-win strategy for the health of our coast and ocean. Improved

management of aquatic vegetation may also be a key natural solution in our larger climate change adaptation and mitigation strategy."

A key finding scientists highlighted is that protecting and restoring seagrass meadows and kelp forests is a "no-regrets" coastal management strategy, meaning that aside from potential carbon benefits, they provide a range of valuable ecosystem functions including protection of coastal zones from sea level rise and erosion. Robust and healthy habitats like these support functional, resilient ecosystems, and provide important refuges in the face of ocean acidification and other stressors. These habitats provide many benefits to a variety of marine life including shell-forming species known to be sensitive to ocean acidification, such as oysters, mussels and urchins, or that are commercially valuable, such as crabs, herring, rockfishes, and abalone.

Other findings of the report include:

- Ocean acidification amelioration by seagrass and kelp is likely to be more prominent during spring to summer months when these habitats are more productive and day length is longer.
- Even small pH amelioration by seagrass and kelp could result in relatively significant effects for a variety of species, especially their vulnerable early life stages.
- California should continue to identify and control existing threats that contribute to habitat loss, as well as continue small-scale restoration efforts across the state.

The science report will be presented on February 6 in Sacramento at a hearing of the Assembly Select Committee on Coastal Protection and Access to Natural Resources**.** In addition to the report's findings, the hearing will include presentations from researchers at The Nature Conservancy, University of California, Davis, and California State University, Northridge highlighting specific actions being taken locally and key next steps for California.

For information on the legislative hearing please visit:
http://coastalprotection.assembly.ca.gov/hearings

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About the California Ocean Protection Council:
The Ocean Protection Council is a state agency whose mission is to ensure that California maintains healthy, resilient, and productive ocean and coastal ecosystems for the benefit of current and future generations. The Council was created pursuant to the California Ocean Protection Act, which was signed into law in 2004 by Governor Arnold Schwarzenegger. For more information, visit www.opc.ca.gov.

About California Ocean Science Trust:
California Ocean Science Trust (OST) is a non-profit organization whose mission is to advance a constructive role for science in decision-making by promoting collaboration and mutual understanding among scientists, citizens, managers, and policymakers working toward sustained, healthy, and productive coastal and ocean ecosystems. A unique asset to the State of California, OST was established under the California Ocean Resources Stewardship Act (CORSA) of 2000. For more information, visit www.oceansciencetrust.org.

About the Working Group:
The experts who synthesized the latest science as a Working Group of the Ocean Protection Council's Science Advisory Team, convened by the California Ocean Science Trust, are: Karina J. Nielsen, San Francisco State University; John J. Stachowicz, University of California, Davis;

Katharyn Boyer, San Francisco State University; Matthew Bracken, University of California, Irvine; Francis Chan, Oregon State University; Francisco Chavez, Monterey Bay Aquarium Research Institute; Kevin Hovel, San Diego State University; Kerry Nickols, California State University, Northridge; Jennifer Ruesink, University of Washington; and Joe Tyburczy, California Sea Grant Extension. For more about the working group, visit http://bit.ly/2n5LRnx.

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