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New Approach to Address Silent Threats to Ocean Health on the West Coast
Ocean Acidification and Hypoxia Science Panel Explores Ocean Stressors at a Regional Scale

Oakland, CA -- State leaders and esteemed scientists have teamed up to create an unprecedented coalition spanning the West Coast to address a global threat--ocean acidification. The West Coast Ocean Acidification and Hypoxia Science Panel (the Panel), convened by Ocean Science Trust, includes bi-national, cross jurisdictional support from leadership spanning thousands of miles of coastline from California to British Columbia. In addition to this political partnership, Panel scientists are taking a comprehensive look at impacts, from large-scale oceanographic shifts to physiological changes to fish and other important marine species. The Panel is providing scientific guidance to state and federal decision makers, including water quality regulators and marine resource managers.

Given the scientific complexity, there is no easy answer to addressing ocean acidification. The coast-wide approach of the Panel creates an opportunity to provide scientific guidance that informs better management of entire ecosystems across state and national boundaries. Panelists Tessa Hill (UC Davis), Francis Chan (Oregon State University), and Richard Feely (NOAA/PMEL) are teaming up to combine multiple measurements of ocean chemistry from across the West Coast region, from ocean depths to rocky shores, in an effort to spot broad-scale patterns. “The West Coast is a special place to study these processes,” says Dr. Hill. “The oceanography of this region, with low pH and low oxygen waters being upwelled to the surface, makes it uniquely susceptible to future changes in pH and oxygen.”

Emerging scientific insights from the Panel reveal that ocean acidification cannot be considered in isolation; it should be managed together with other stressors including decreases in ocean oxygen levels (hypoxia) and increasing sea surface temperatures. This multi-stressor approach is part of a new push by California to lead thinking nationwide about ocean health and the future of coastal communities. “The challenges ocean acidification poses to marine ecosystems extend beyond shellfish; it has the potential to affect entire ecosystems. The West Coast is home to some of the most diverse and productive ecosystems on earth. We need to think about the whole picture,” says Cat Kuhlman, California’s Deputy Secretary for Ocean and Coastal Policy.

The Panel’s work highlights the need to bolster ecosystem resilience in the face of uncertainty, and is sparking a broader dialogue about how to incorporate ocean acidification and hypoxia into existing management and policy frameworks. “These issues really touch on the mandates of many state agencies. We are asking managers and regulators to look at where they are already bolstering ecosystem resilience, and strengthen those,” says Ms. Kuhlman.

Building resilience into ocean and coastal ecosystems to withstand future changes is a buffering approach that can buy time to evaluate and test solutions. There are opportunities for strategic action, and the West Coast is working towards finding a solution to these combined stressors at a regional scale. The existing network of marine protected areas in California, and the newly created reserves along Oregon’s coast provide ready-made ecosystem-based management tools. "Reserves provide a built-in buffer against ocean acidification and hypoxia. Rather than viewing

these threats as the achilles heel of reserves, we can instead think about how reserves can work to stave off impacts," says panelist Francis Chan, a marine hypoxia scientist of the Department of Zoology at Oregon State University.

Ocean Science Trust convened the West Coast Ocean Acidification and Hypoxia Panel, at the request of the Ocean Protection Council and in collaboration with Oregon's Institute for Natural Resources. "We're aggressively linking science to management and regulatory decisions. We are figuring out how to get really good at that in the face of a changing climate and multiple threats impacting ocean health," says Ms. Kuhlman.

Kuhlman, Hill, and Chan will host a session to discuss *Ocean Acidification and Hypoxia: Planning for Regional Action* on February 15, at the American Association for the Advancement of Science (AAAS) meeting in San Jose, California.

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About Ocean Science Trust: Ocean Science Trust is a team of natural and social scientists, policy experts, technologists and communications professionals working together for healthy, resilient and productive oceans in California. We believe that science is an important foundation of resource management and conservation decisions. We work across traditional boundaries between governments, scientists and citizens to build understanding and trust in science and empower participation in the decisions that are shaping the future of our oceans. For more information please visit us at www.oceansciencetrust.org on Twitter or Facebook, or call (510) 350-1892.