



Addressing Ocean Acidification & Hypoxia on the West Coast

A coast-wide collaboration providing decision-makers with scientific guidance on changing ocean chemistry

A Shared Challenge on the West Coast

Ocean acidification and hypoxia (OAH), often coupled due to biological and oceanographic processes, have the potential for profound impacts to marine environments. California, Washington, Oregon and British Columbia governments, tribes, first nations, and fishermen are expressing concerns about the threats to marine resources and the livelihoods that depend on them. These issues present shared challenges across the region, and managing for resilient ocean and coastal communities requires cooperation across academic, political, and jurisdictional boundaries.

Pacific Coast Collaborative is Building Political Momentum

Regional efforts of the **PACIFIC COAST COLLABORATIVE** are advancing the issue along the West Coast by establishing partnerships among tribes, the federal government, industry, and the non-governmental community. The Pacific Coast Collaborative brings together West Coast leaders as a common front for cooperative action on challenges facing Pacific North America.

This coast-wide partnership identified ocean acidification as a key challenge for the West Coast in a 2013 letter to the President and the B.C. Prime Minister, and asked for targeted action at all levels of government. The Pacific Coast Collaborative has continued to identify acidification and hypoxia as priority ocean health issues and is calling for greater regional and cross-border efforts to address these critical issues with enhanced federal support.

Opportunity for a Coast-Wide Collaboration

A compelling catalyst for meeting this challenge is the West Coast Ocean Acidification and Hypoxia Science Panel (the Panel), an unprecedented interdisciplinary collaboration of 20 esteemed scientists. Convened by the Ocean Science Trust in 2013 at the request of the California Ocean Protection Council, then broadened through intergovernmental agreement, the Panel links the governments of California, Oregon, Washington and British Columbia to address these issues at a coast-wide scale.

With the guidance of state leadership groups, the Panel is...



Laying a scientific foundation



Tailoring information to decision-makers



Putting together building blocks for an ecosystem-based approach



Informing policy and management at multiple levels of government



Decision-Makers are Responding

The Pacific Coast Collaborative is advancing the conversation in decision-making venues based on findings emerging from the Panel. These messages are already galvanizing discussion about ways to readjust management and policy approaches through a changing ocean chemistry lens:

- **CONSIDER ACIDIFICATION IN THE CONTEXT OF OTHER CHANGING OCEAN CONDITIONS.**

To confront the potential impacts on individual species to complex ecosystems, ocean acidification must be considered in the context of multiple stressors, such as dissolved oxygen and temperature.

- **STRENGTHEN CROSS-JURISDICTIONAL PARTNERSHIPS THROUGH REGIONAL APPROACHES.**

Efforts on the West Coast are a resource for other regions as ocean acidification and hypoxia continue to emerge as national issues. Effective action requires improved collaboration to coordinate regional efforts and engage federal partners.

- **MANAGE FOR A RESILIENT AND HEALTHY OCEAN.**

There is a cost to inaction. While these issues are complex, there are things we can do now. Building resilience into ocean and coastal ecosystems is a buffering approach that can buy time to evaluate options, test solutions, and adaptively manage.

- **IMPLEMENT ECOSYSTEM-BASED MONITORING TO CONNECT TO “THINGS WE CARE ABOUT”**

Monitoring of ecosystem impacts connects OAH to the things we care about including impacts to fisheries, water quality, local economies, and other ecosystem services. Monitoring ecosystem impacts also allows for more effective management decisions and mitigation strategies.



PANEL PRODUCTS

CATALYZING ACTION AT MULTIPLE LEVELS OF GOVERNMENT

The Panel is producing several resources that can inform next steps in state and federal policy, and decision-making.

- **MONITORING TO INFORM DECISIONS**
A framework to track changing ocean chemistry in service of multiple management mandates.
- **WEST COAST RESEARCH PRIORITIES**
A guide that maps research needs to key decision points.

Two visionary products have already been released:

- **TODAY'S NEED FOR A COAST-WIDE APPROACH**
Highlighting the opportunity to consider complete west coast ecosystems.
- **ENVISIONING A FUTURE SCIENCE LANDSCAPE**
A vision for improving our ability to understand and manage changing ocean chemistry.

Additional resources are under development organized around key themes.



Ecosystems

Building resilience in the face of changing ocean chemistry



Physiology

Multi-stressor effects on marine species



Oceanography

Drivers of ocean chemistry change

The Panel continues its work through 2015. Products are available at westcoastOAH.org