REGIONAL VULNERABILITY ASSESSMENT

Ocean Acidification in the Pacific Northwest

Main Goals: Assess the vulnerability of shellfish growers, consumers and other stakeholders in the Pacific Northwest to ocean acidification (OA) using a multidisciplinary approach. We will identify characterize associated costs of adapting to OA, assess potential constraints on adaptation that stakeholders may confront, and identify long-term adaptation pathways that are likeliest to succeed.

Background: OA is occurring with greater intensity in the Pacific Northwest than anywhere else in the world, disrupting the development of shellfish species and posing a threat to regional ecosystems. This trend is expected to be costly for a regional industry valued at $280 million annually that supports thousands of jobs in hatchery, grower, processor, distributor, and vendor firms. Many indigenous peoples in the Pacific Northwest also place unique economic and cultural value on shellfish production. The region may be interpreted as a harbinger of things to come for other coastlines, and a potential laboratory for adaptation strategies.

Project Summary: Researchers and OA stakeholders at Oregon State University and the Pacific Shellfish Institute have partnered with NOAA to identify pathways for OA adaptation. The team will:

- Develop interactive mapping tools to enable public understanding of current and future OA exposure;
- Build models of shellfish aquaculture firms facing OA risk that account for both biology and microeconomics;
- Identify technological, institutional, legislative, financial and cultural barriers to OA adaptation;
- Identify feasible long-term pathways to OA adaptation;
- Evaluate the value of those pathways; and
- Develop behavioral models to predict the likelihood of users adopting feasible OA adaptation pathways.

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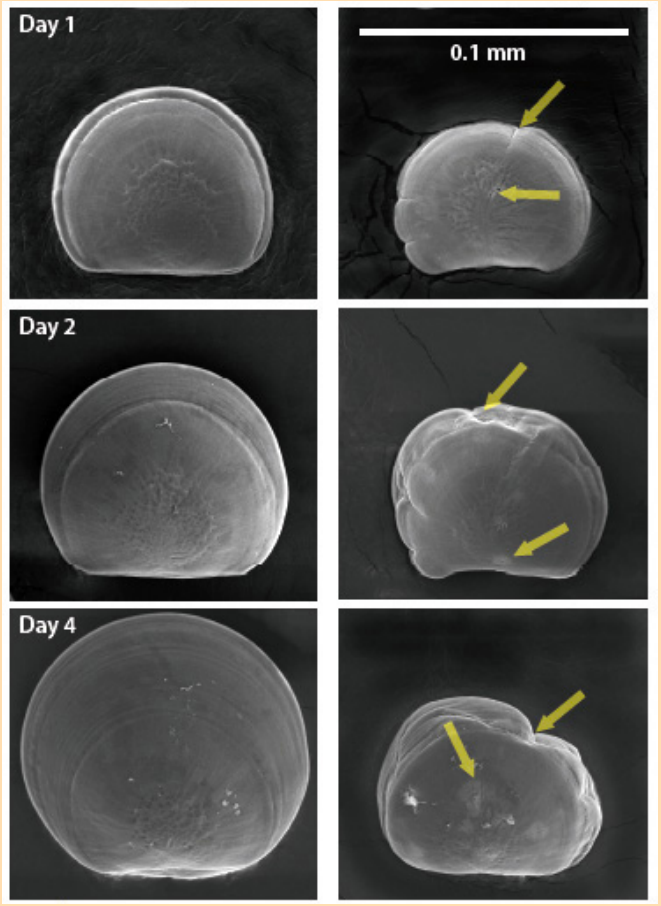
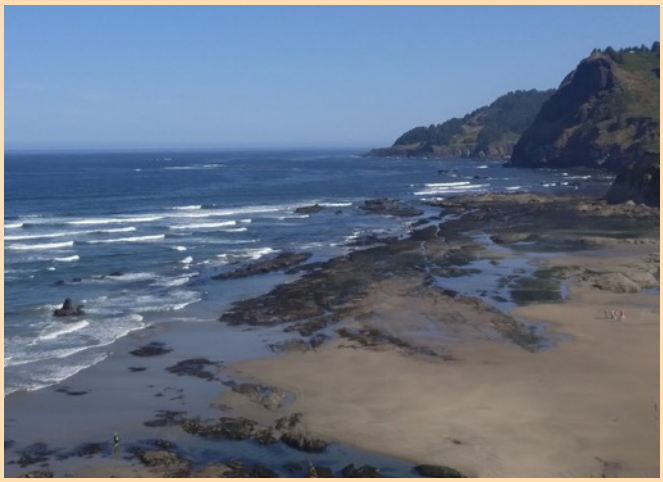


Damage to oyster larvae from acidified water (right) compared to healthy larvae (left). Micrograph: OSU.



The rocky intertidal bays of the Pacific Northwest are at the global frontlines of ocean acidification. Photo: Brian Katz

PACIFIC SHELLFISH INSTITUTE

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION U.S. DEPARTMENT OF COMMERCE

Oregon State University