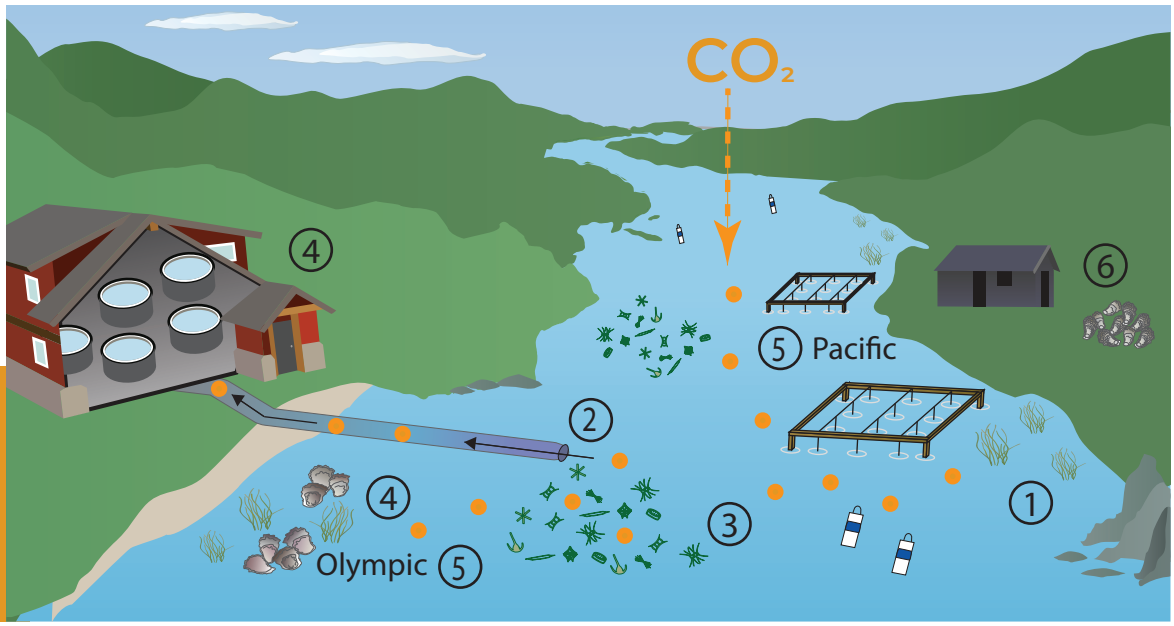
The Oregon Coordinating Council on Ocean Acidification and Hypoxia

OAH Species Spotlight: Pacific & Olympic Oysters

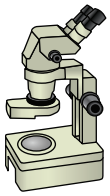
Pacific oysters (cultured) and Olympic oysters (native) provide important economic and ecological opportunities throughout coastal Oregon.



What is at risk?

1 Habitat Effects

Eelgrass, an important habitat for Pacific and Olympic oysters, may have the ability to short term buffer the effects of OA through photosynthesis (absorbing CO_2).



2 Hatchery Effects

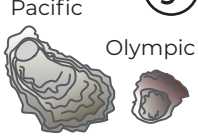
Pumped seawater used in hatcheries now must be chemically modified to reduce the affects of OA on larval Pacific Oysters growth.

3 Foodweb Effects

Species shifts in phytoplakton may occur with changing ocean conditions.

4 Direct Effects

Larval growth and shell formation (from calcium carbonate) in both Pacific and Olympic oysters are lowered by OA.



5 Cumulative Effects

Small changes in pH make a large differance in growth conditions, which could affect both the cultured Pacific and native Olympic oyters throughout their life cycles.

6 Economic Effects

With declining larval suppies, Pacific oyster farmers may experience declines in production

Selected Literature

Groner, M., et al. "Oysters and eelgrass: potential partners in a high pCO 2 ocean." Ecology (2018).

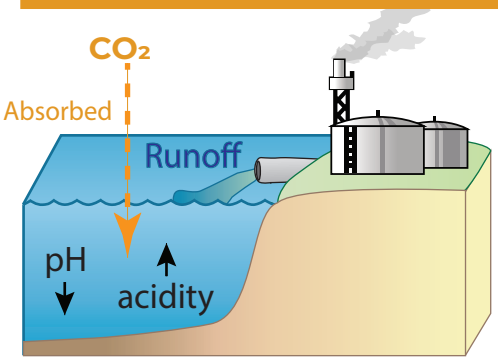
Price, L. "Oysters from Tide to Table in the Pacific Northwest." Coastal Heritage and Cultural Resilience. Springer, Cham, 2018. 113-134.

Waldbusser, George G., et al. "Slow shell building, a possible trait for resistance to the effects of acute ocean acidification." Limnology and Oceanography 61.6 (2016): 1969-1983.

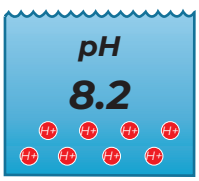
Barton, A., et al. "Impacts of coastal acidification on the Pacific Northwest shellfish industry and adaptation strategies implemented in response." Oceanography 28.2 (2015): 146-159.

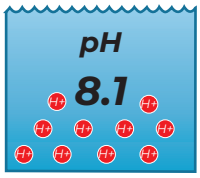
Lemasson, A., et al. "Linking the biological impacts of ocean acidification on oysters to changes in ecosystem services: a review." Journal of Experimental Marine Biology and Ecology 492 (2017): 49-62.

What is Ocean Acidification (OA)?

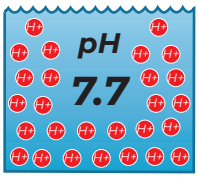


Atmospheric CO2 has increased almost 40% since pre-industrialization. When CO_2 is absorbed by seawater from the atmosphere, chemical reactions occur that lower seawater pH (making it more acidic), while changing the saturation states of biologically important calcium carbonate minerals (ions needed for shell formation and for chemical signaling in some marine organisms).

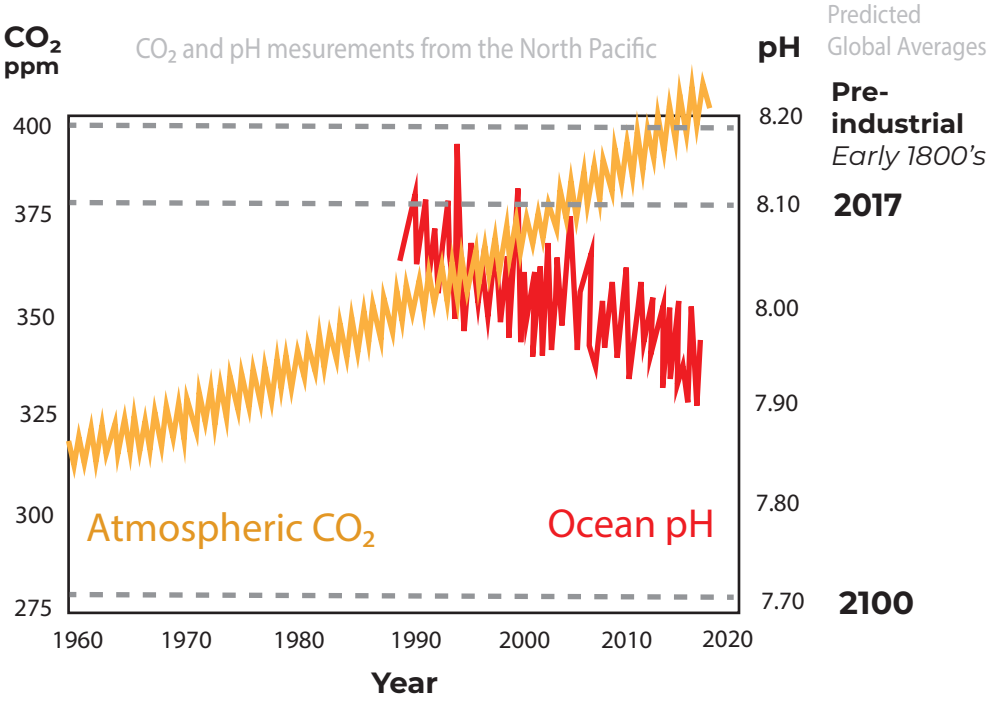




***26%** Increase in acidity (H+)*



***216%** Increase in acidity (H+)*



Solutions are needed to help Oregon's wild fisheries and marine resources withstand the projected changes in OA

OAH will not stop on its own, and actions must be taken by regional and national governments, communities, and scientists now in order to address the growing problems. Through coordination and collaboration, such as through Oregon OAH Action Plan, Oregon will be able to adapt and mitigate the effects of OAH.

To learn more about OAH in Oregon and ways to engage, please visit the Council's website or the following videos:

oregonocean.info/index.php/ocean-acidification

Oregon OAH
Video PART 1
youtube.com/watch?v=7h08ok3hFSs

Oregon OAH
Video PART 2
youtube.com/watch?v=2KLT9vFVOmc