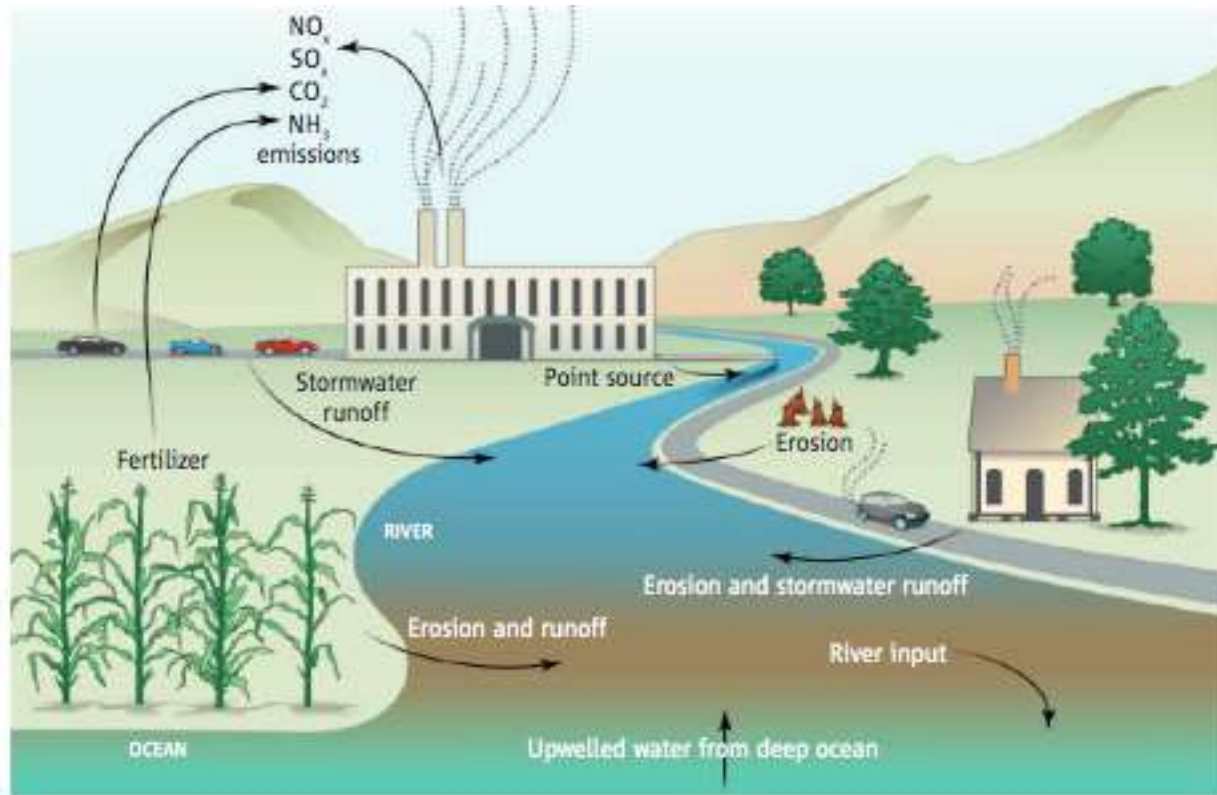


Ocean Acidification and Hypoxia in the Columbia River Estuary:



And the role of Oregon's Ocean Acidification and Hypoxia Council



Charlotte R. Whitefield Oregon Department of Fish and Wildlife

Caren Braby Oregon Department of Fish and Wildlife

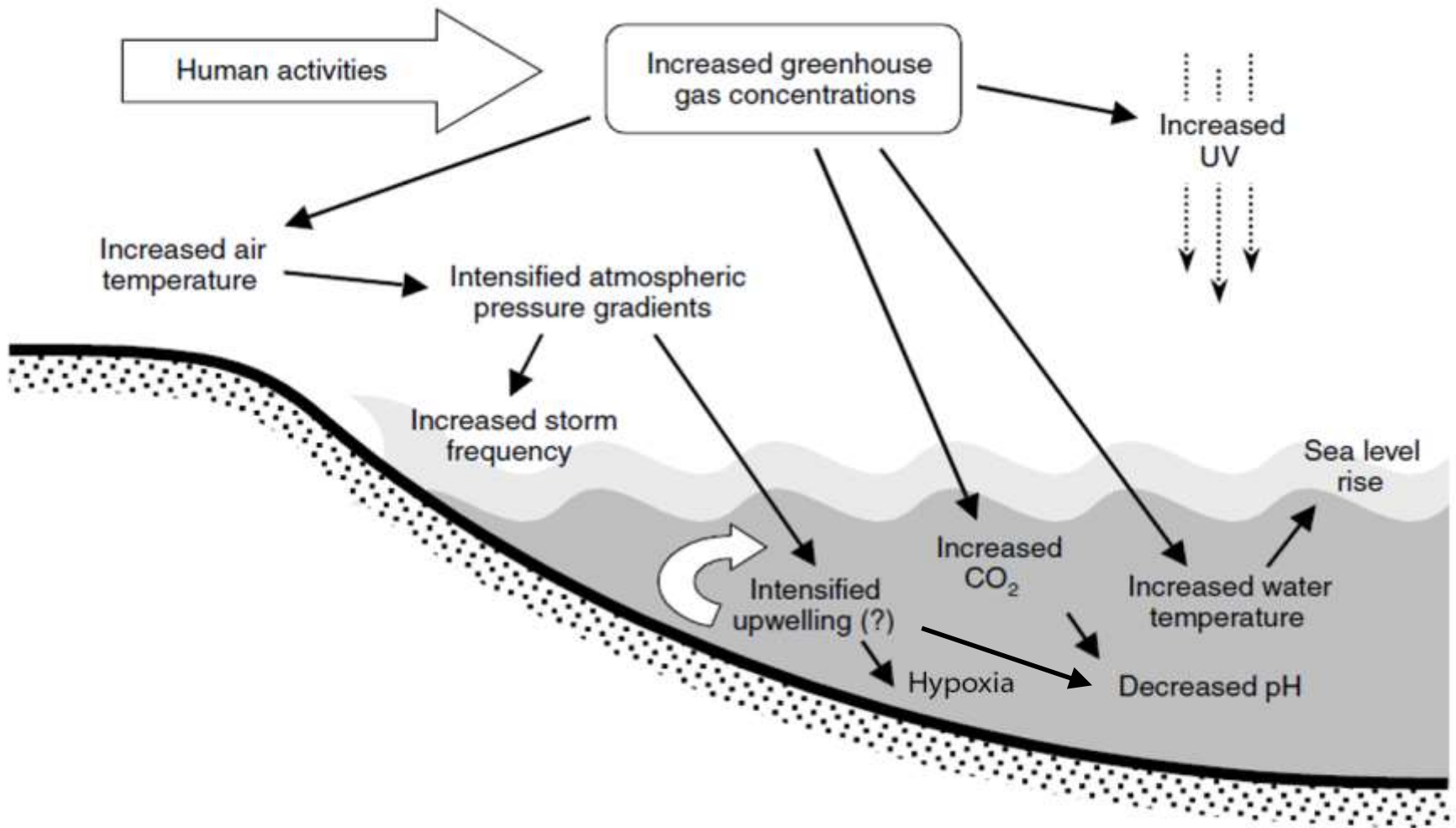
Jack A Barth Oregon State University



Oregon State
University

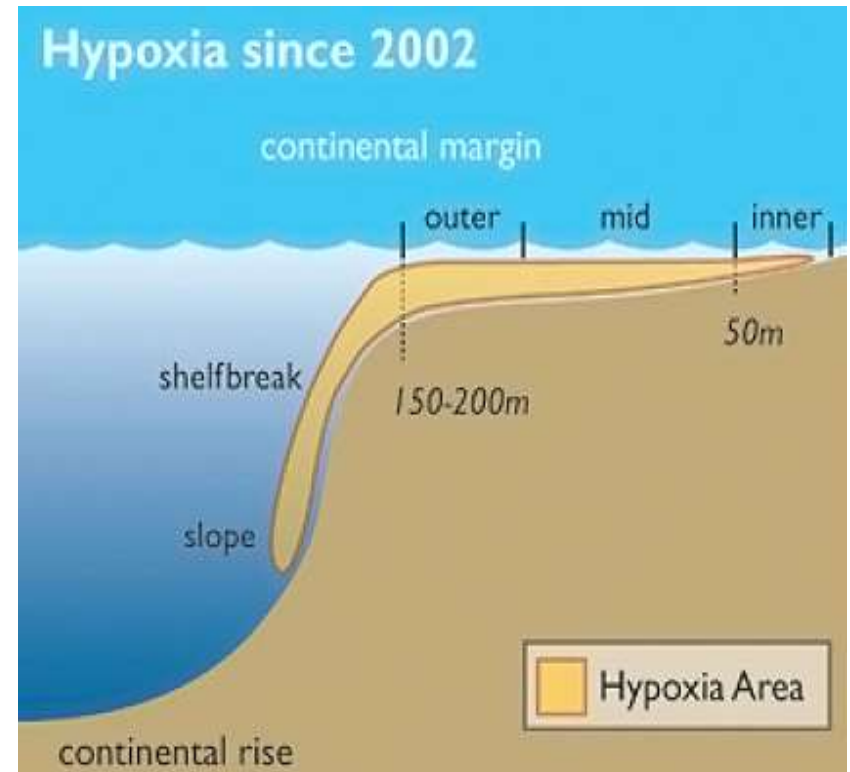
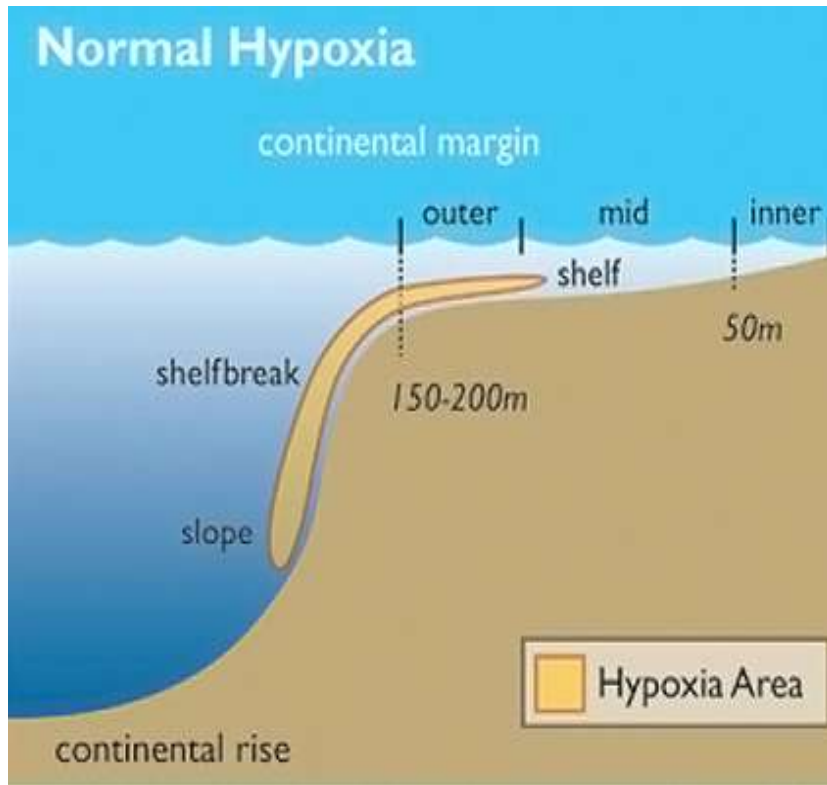
Abiotic Forcing Factors

Land-Sea Interactions



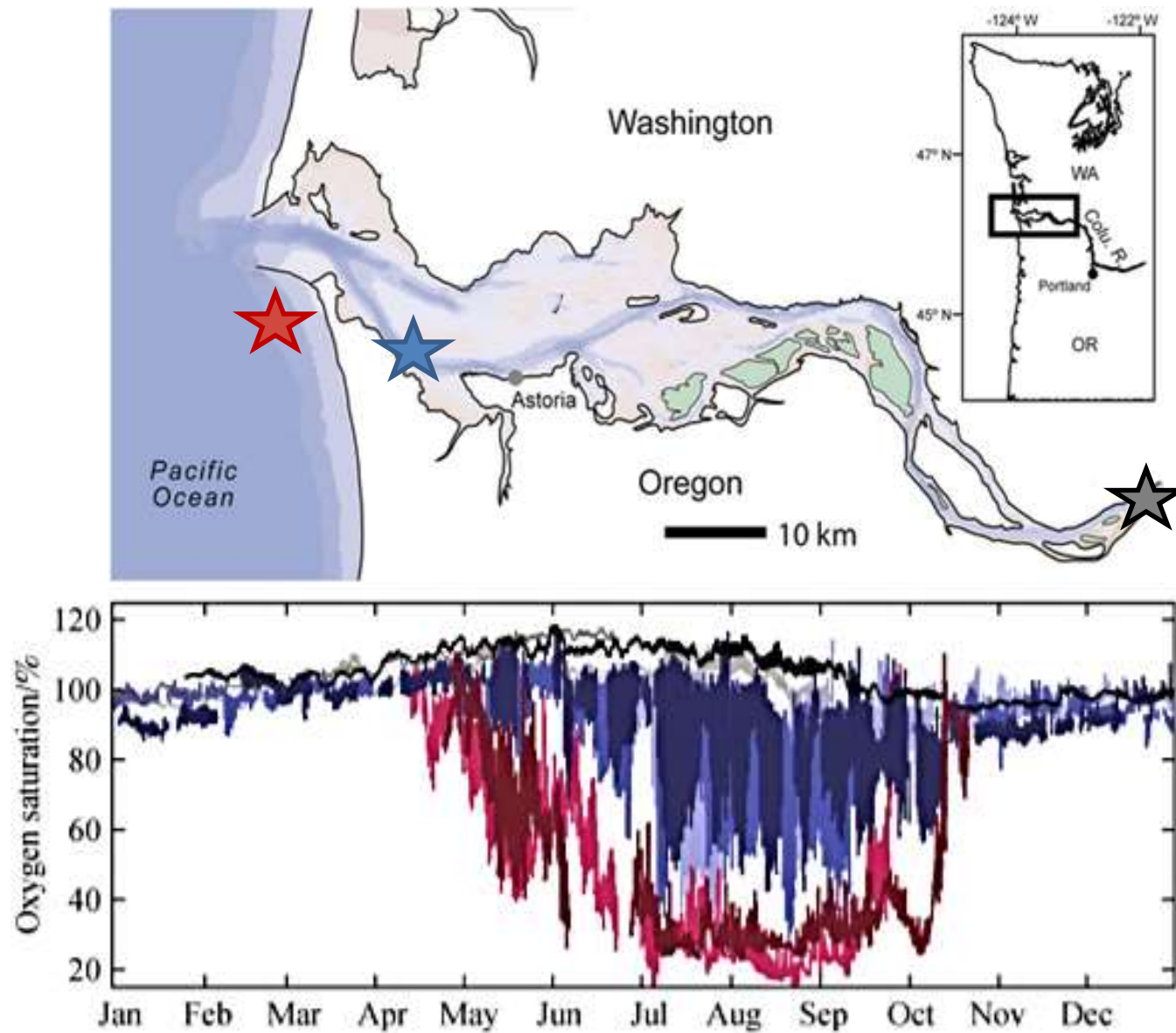
Hypoxia

Coastal Upwelling Systems

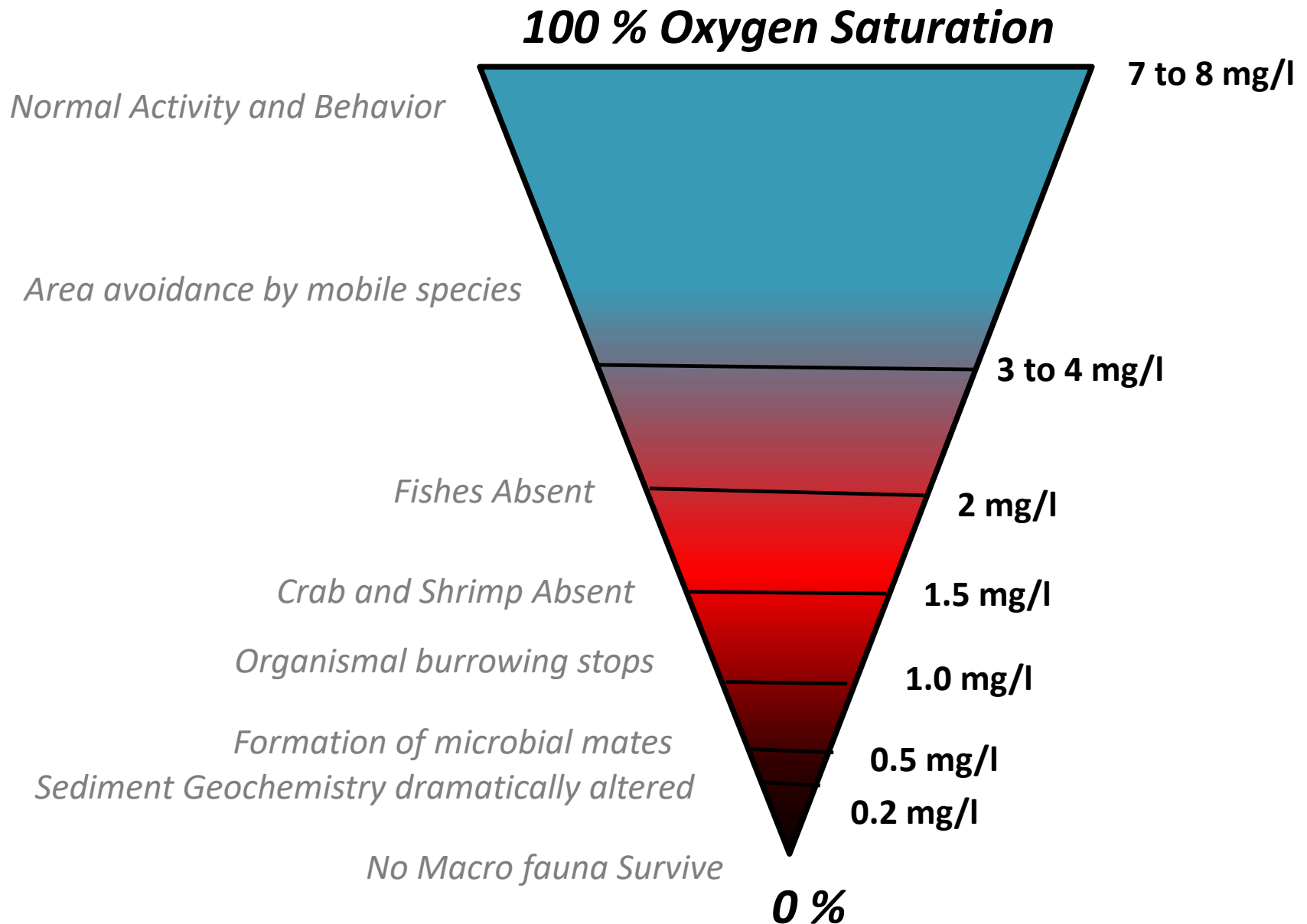


Pacific Coastal Zone

Hypoxia



Hypoxia: Biological Implications

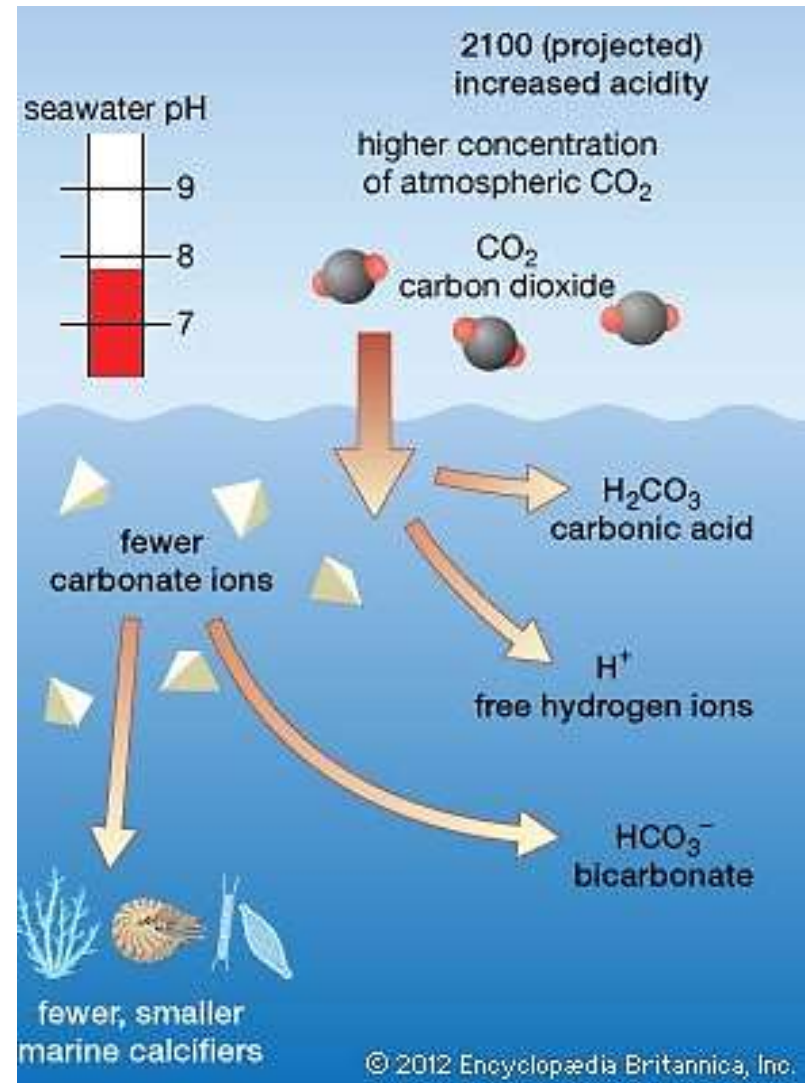
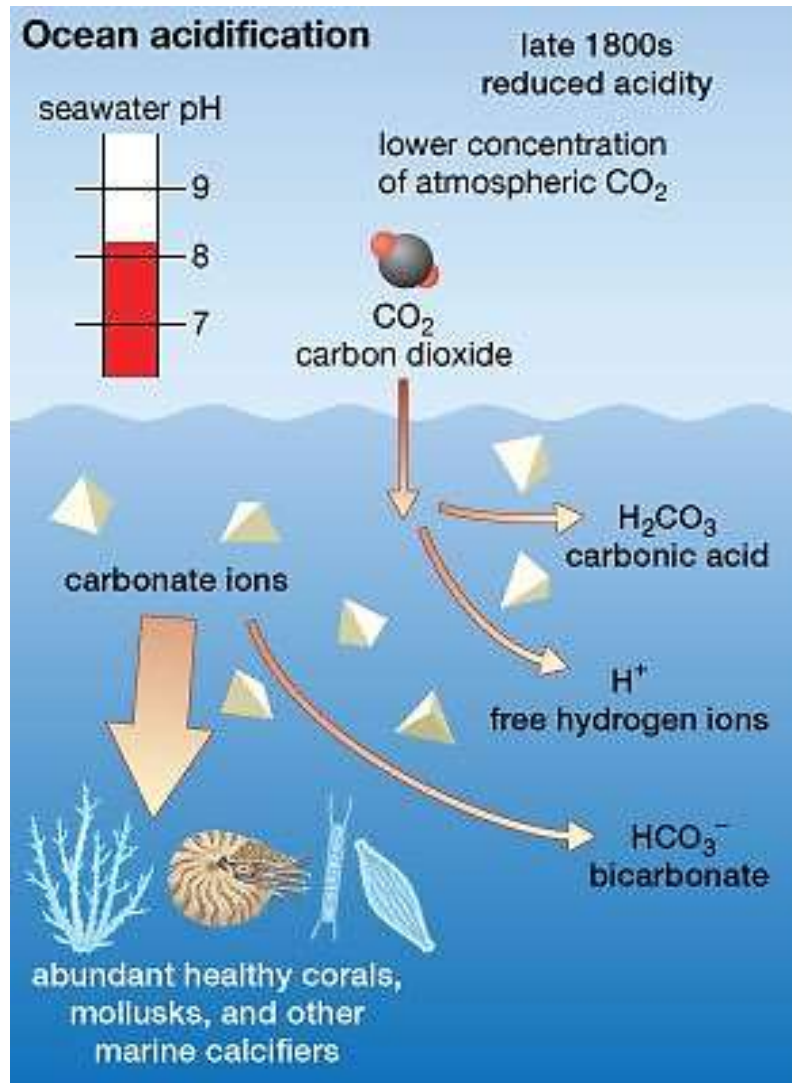


Hypoxia: Biological Implications

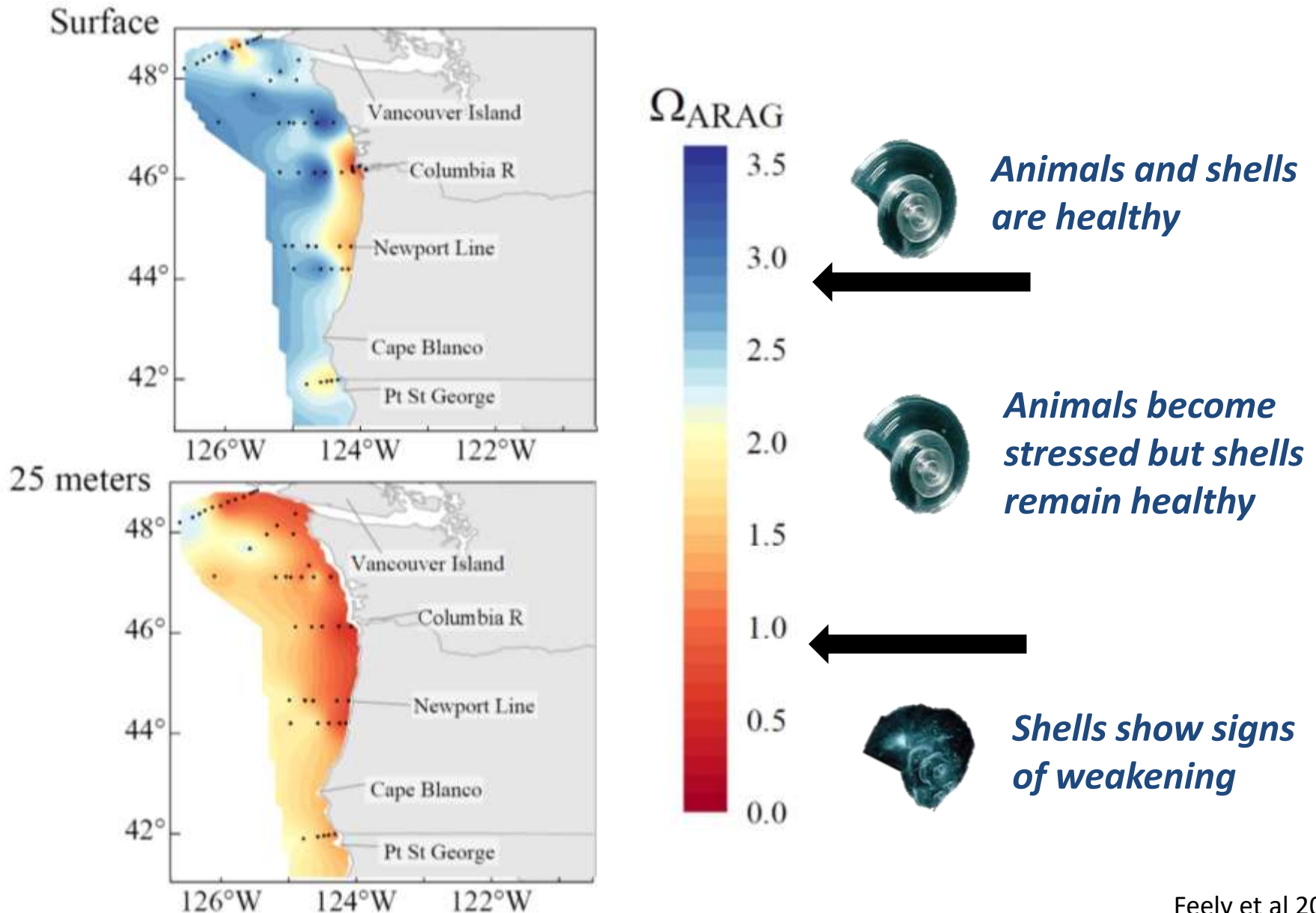


ODFW reasearchers caught an oceanic phenomenon on camera, called hypoxia.

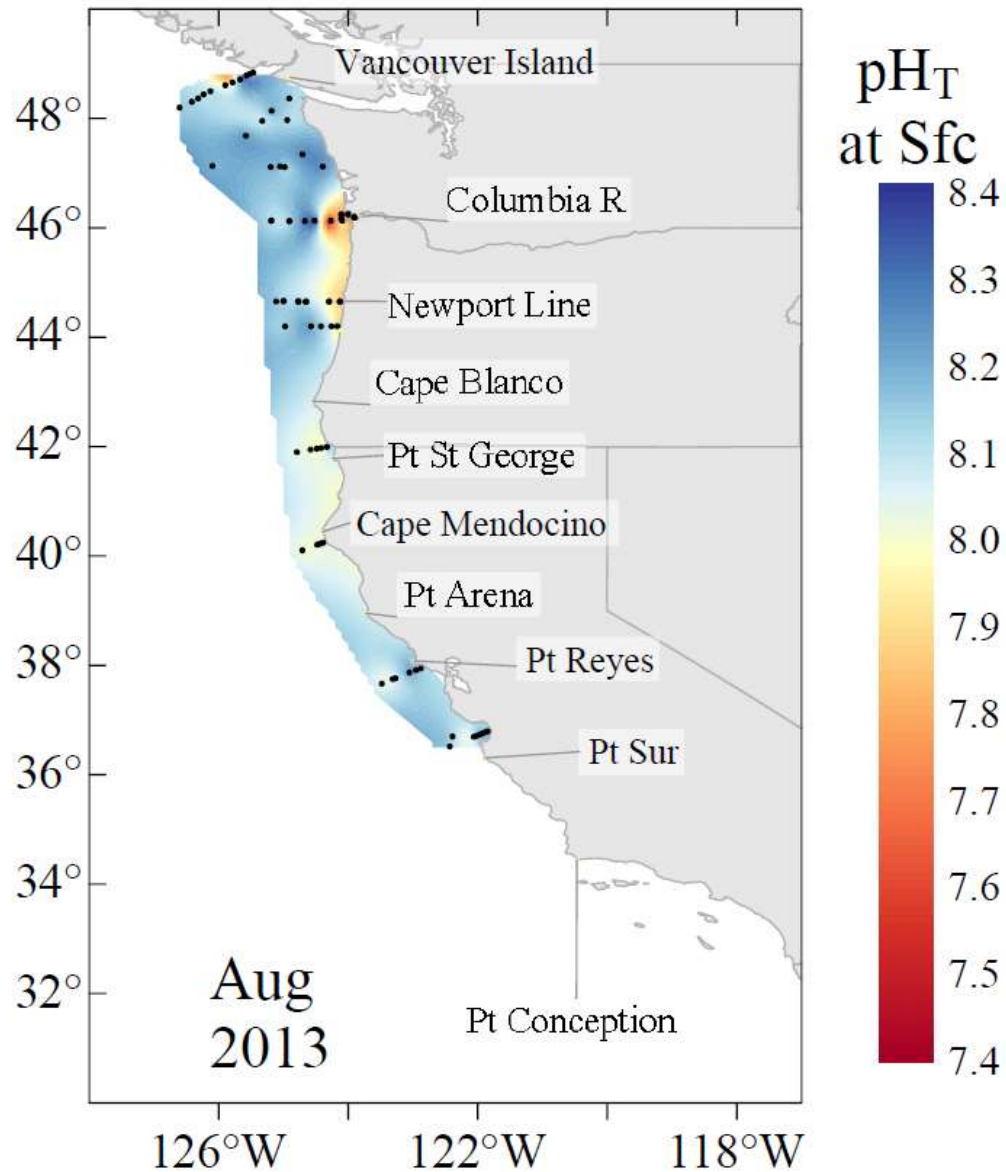
Ocean Acidification



Ocean Acidification



Ocean Acidification



Physiological Responses

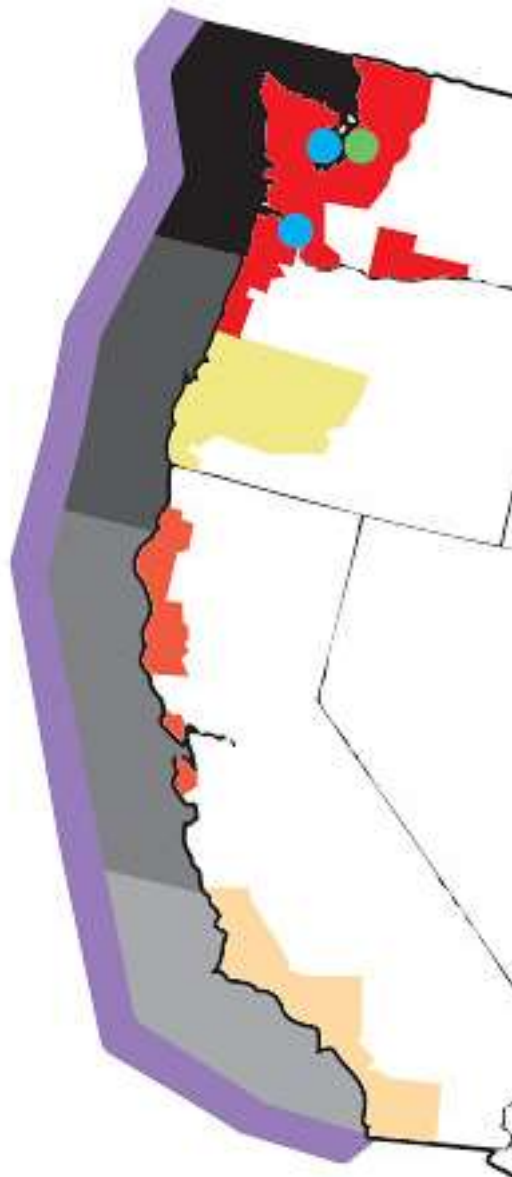
Respiration

Growth

Gene Expression

Reproduction

Ocean Acidification



Date Water Unfavorable To Shellfish

- 2006 - 2030
- 2031 - 2050
- 2051 - 2070
- 2071 - 2099
- 2099 +

Economic Sensitivity Score

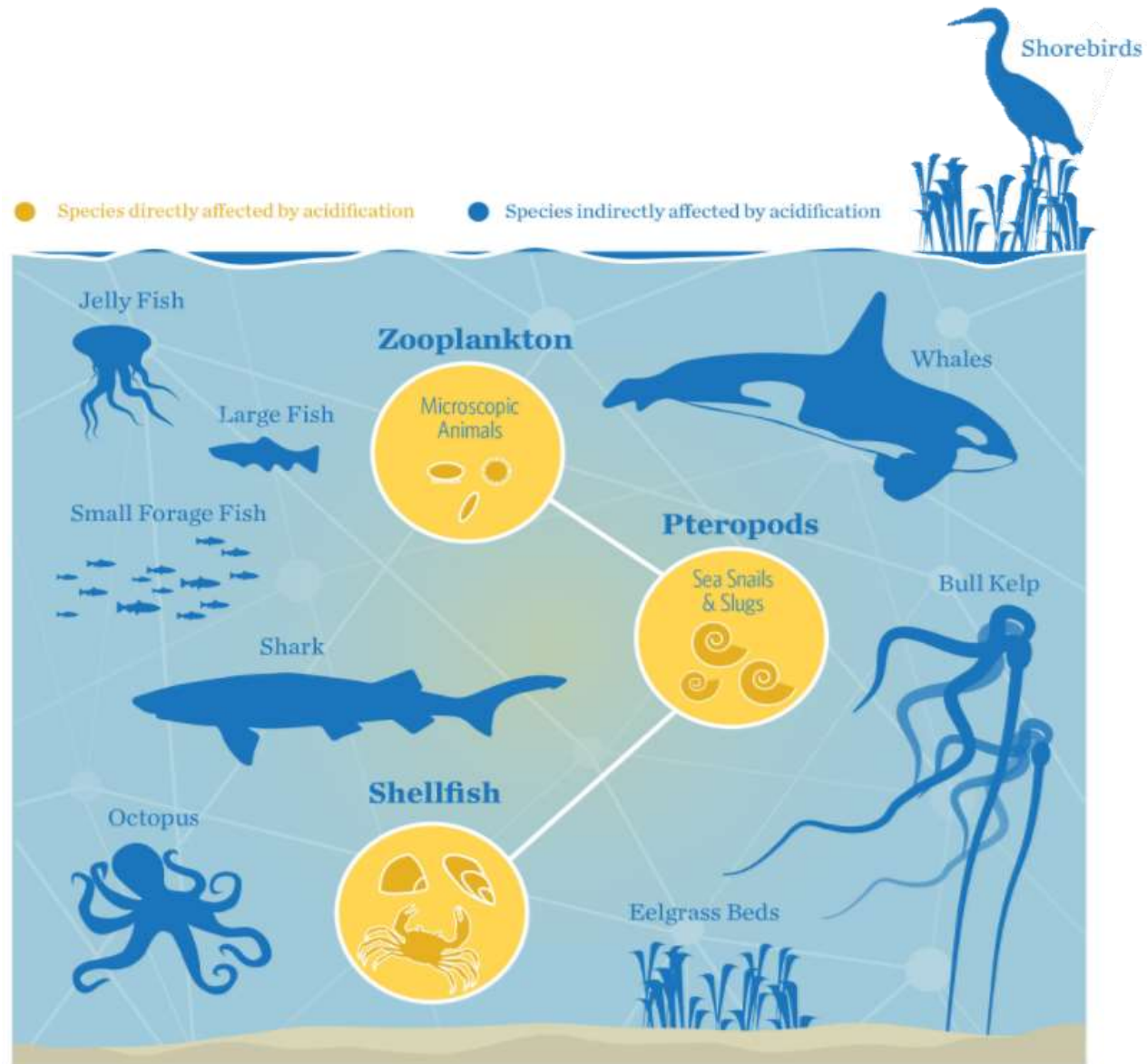
- High
- Medium High
- Medium
- Medium Low
- Low

Other Factors

- Algae Blooms
- River Inputs
- Upwelling

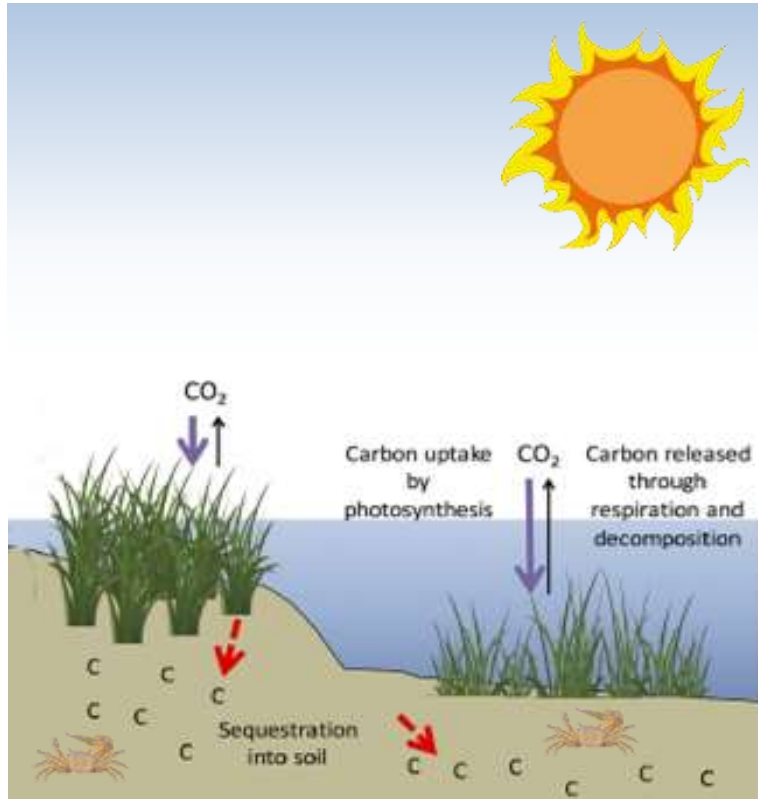


Ocean Acidification: Food Web Impacts

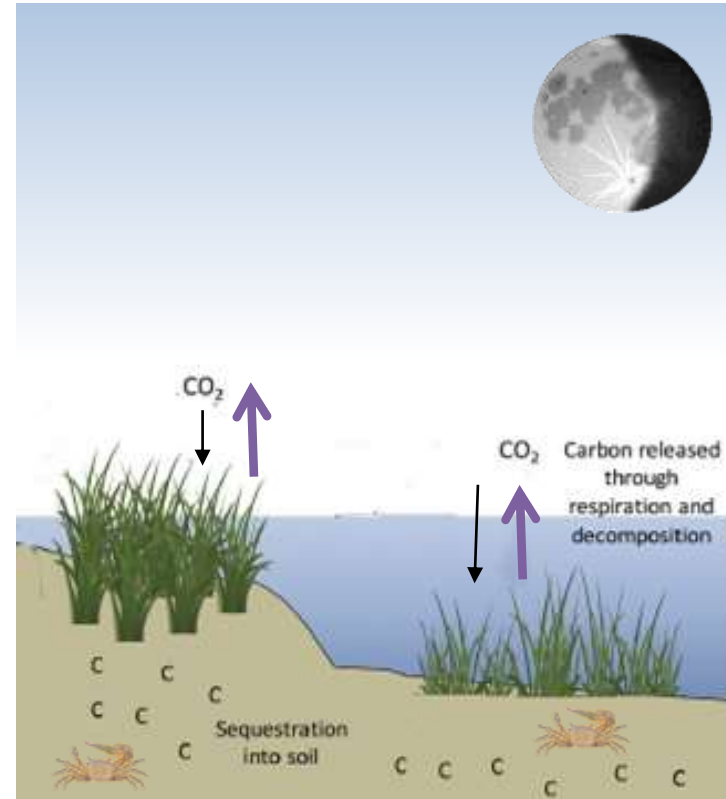


Ocean Acidification: Food Web

Sea Grass – Primary Production



Day



Night

Ocean Acidification: Food Web

Shellfish



Ocean Acidification: Food Web

Finfish



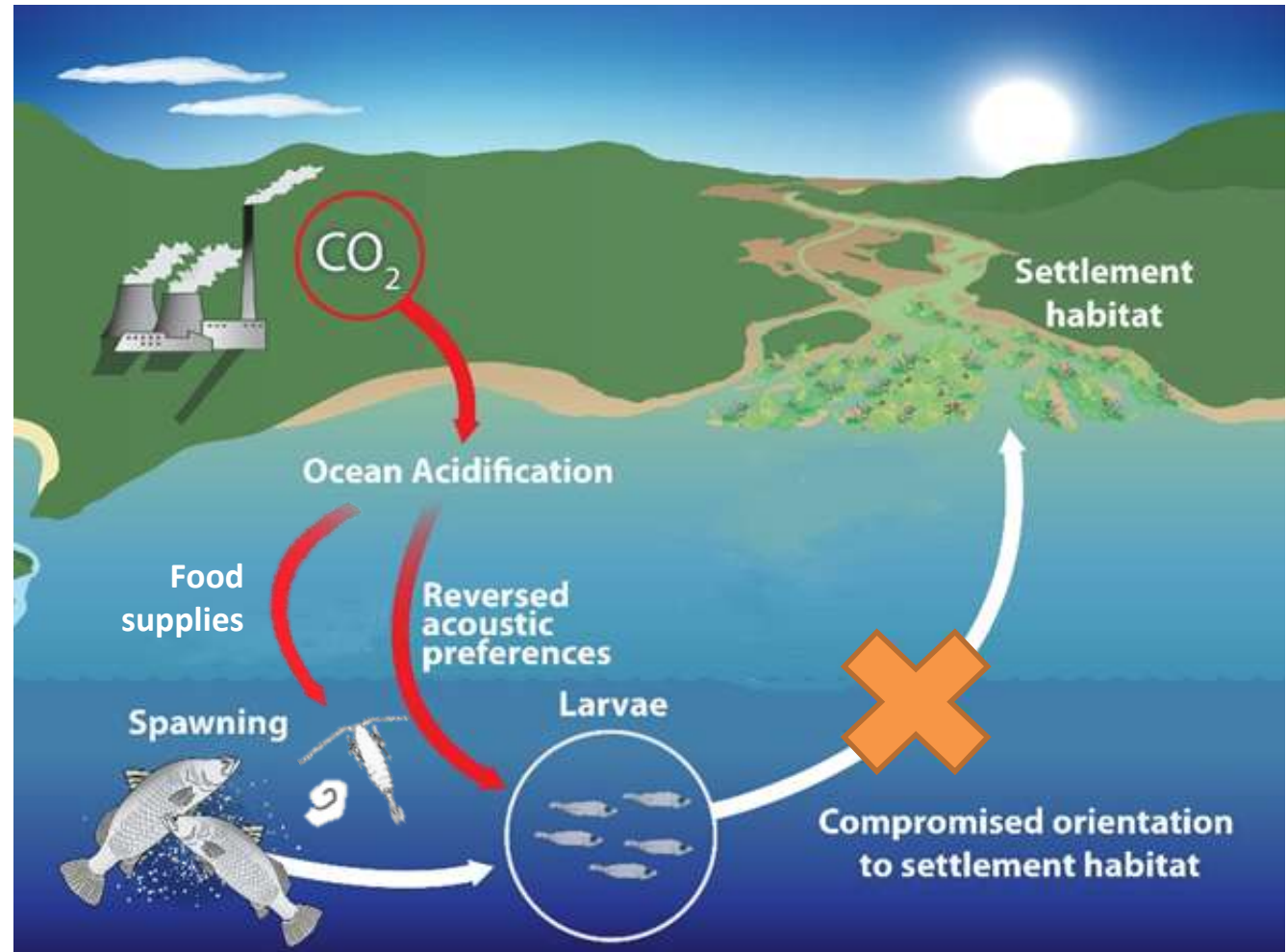
Eulachon



Coho salmon



Steelhead Trout



Ocean Acidification: Food Web

Marine Mammals

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Fate of Pacific Northwest orcas tied to having enough Columbia River salmon

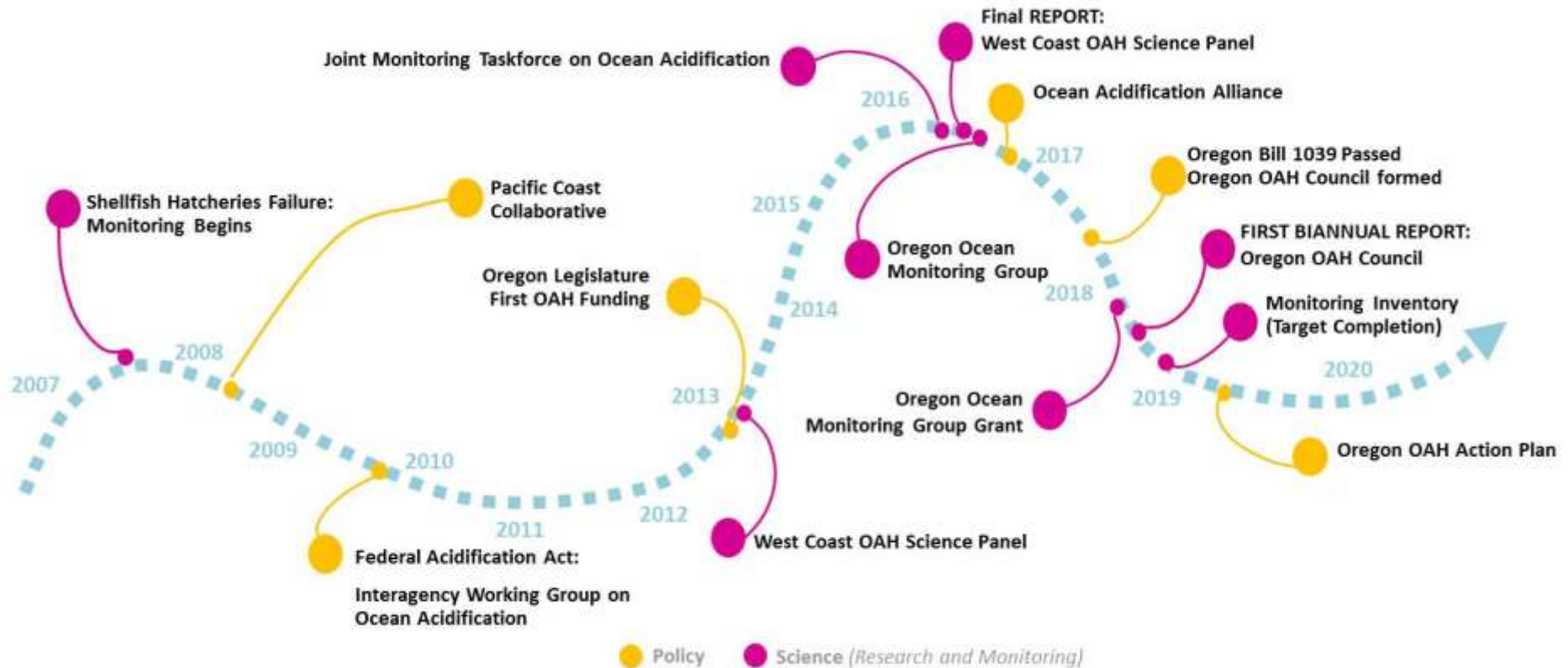


BY ROCKY BARKER AND BRITTANY PETERSON
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bpeterson@mcclatchy.com

July 09, 2017 08:44 P.M.
Updated December 28, 2017 05:02 P.M.



Oregon Ocean Acidification and Hypoxia Initiatives



Regional - Pacific Coast Collaborative



- Convening the West Coast OAH Science Panel
- Creating the OA Alliance
- Creating the Joint OAH Monitoring Taskforce with the Interagency working group on OA



Regional - West Coast OAH Science Panel



- Advancing OAH Understanding
- Developing adaption and management recommendations



Oregon OAH Monitoring Group

Collaboration network
for OAH
monitoring programs



Oregon Senate Bill 1039

First Council Meeting January 2018



Oregon Senate Bill 1039

The Council Goals:



Use Science to inform state OAH policy



Identify Actions and initiatives to address
OAH vulnerabilities



Advise on OAH strategies

Oregon Senate Bill 1039

Working Groups:



Reduce causes of OAH

**OAH Adaptation and
Resiliency**



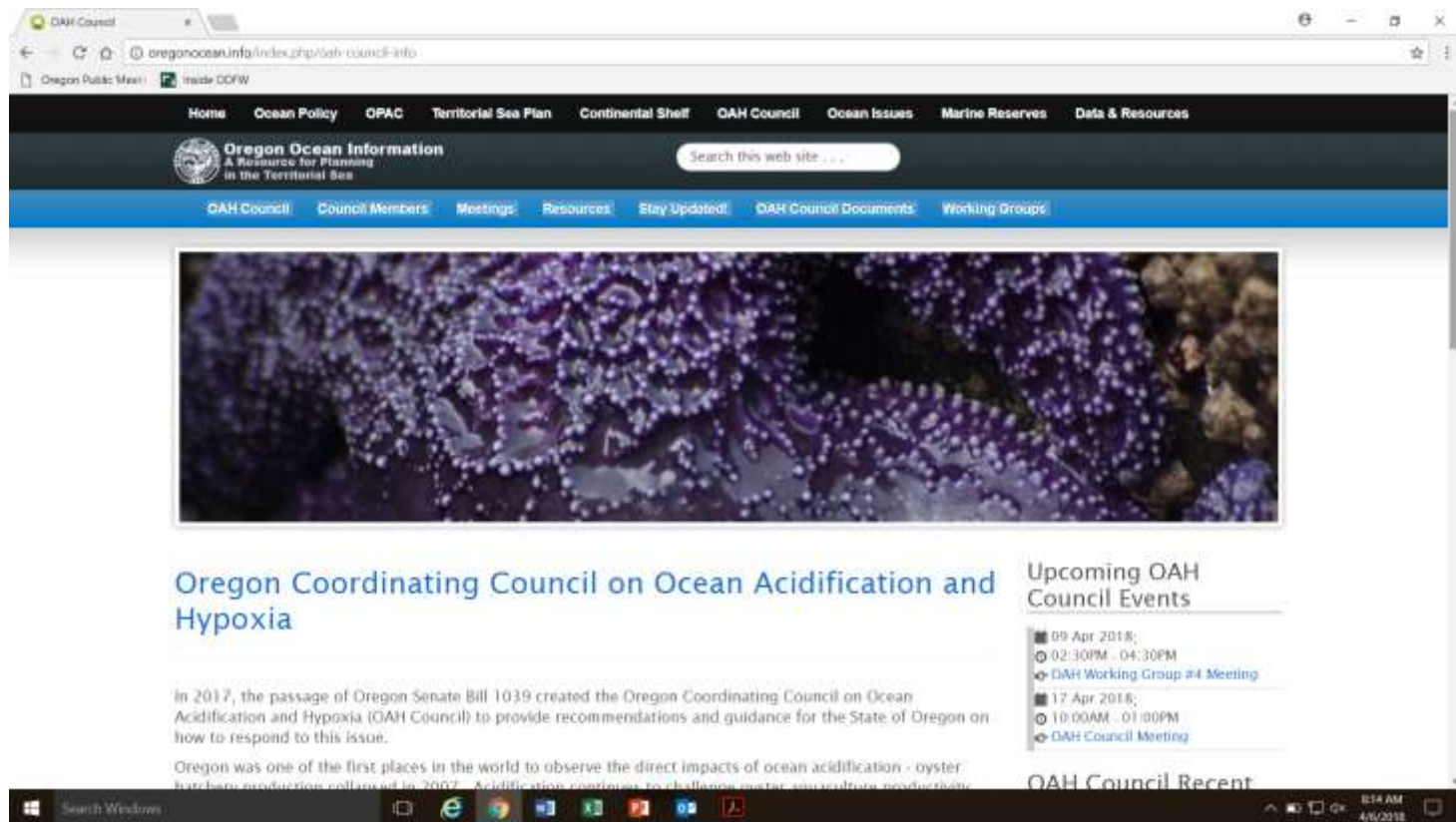
Data Gaps in OAH

**Education and
Outreach**

Oregon Senate Bill 1039

Ocean Acidification and Hypoxia Council Meeting Held Remotely

April 17th 10:00am – 1:00pm



OregonOceanInfo.org

Questions

*Comments or Questions? Please contact
Council Co-Chairs*

Caren.E.Braby@state.or.us or Jack.Barth@oregonstate.edu

Council staff

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