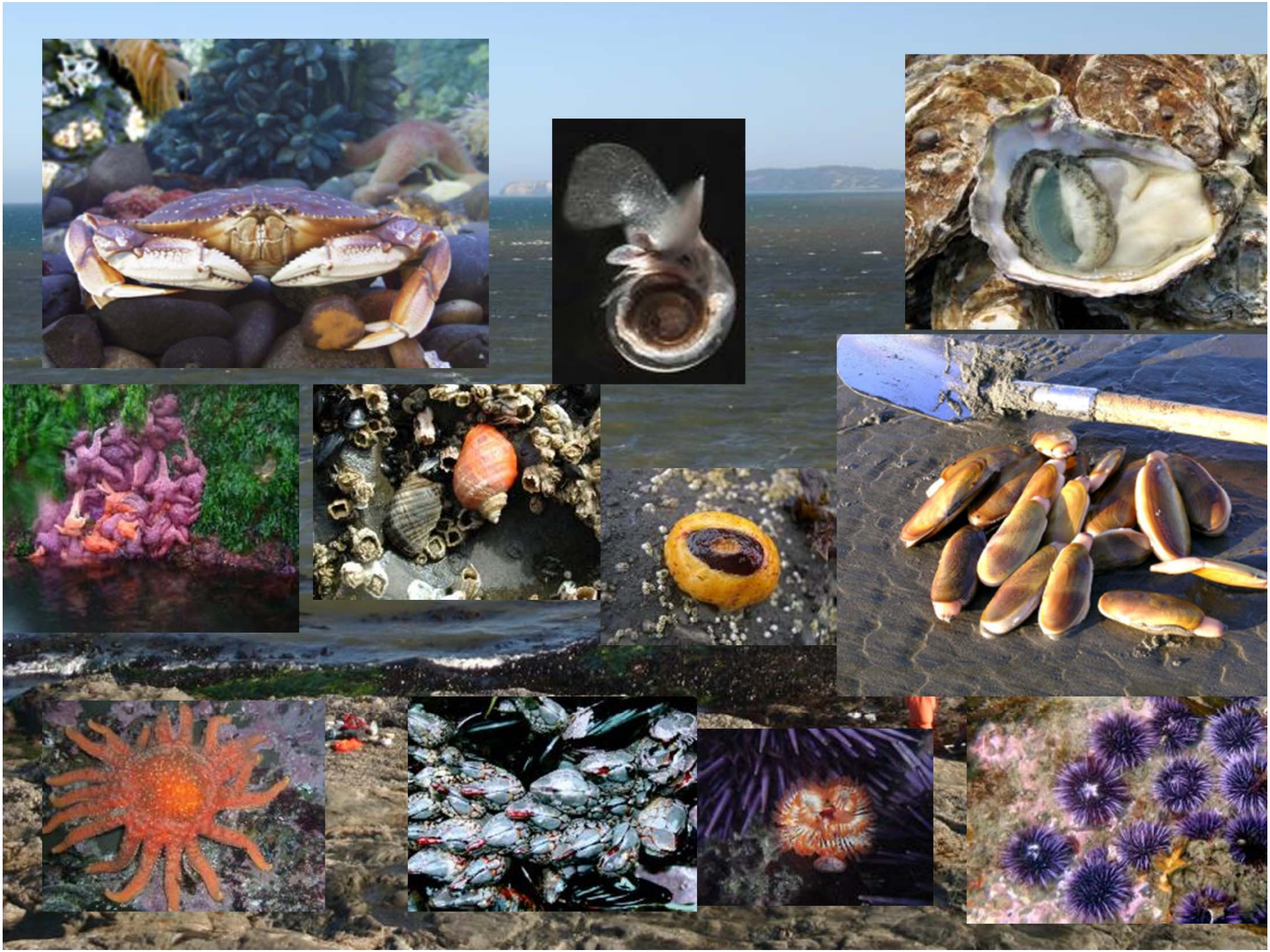
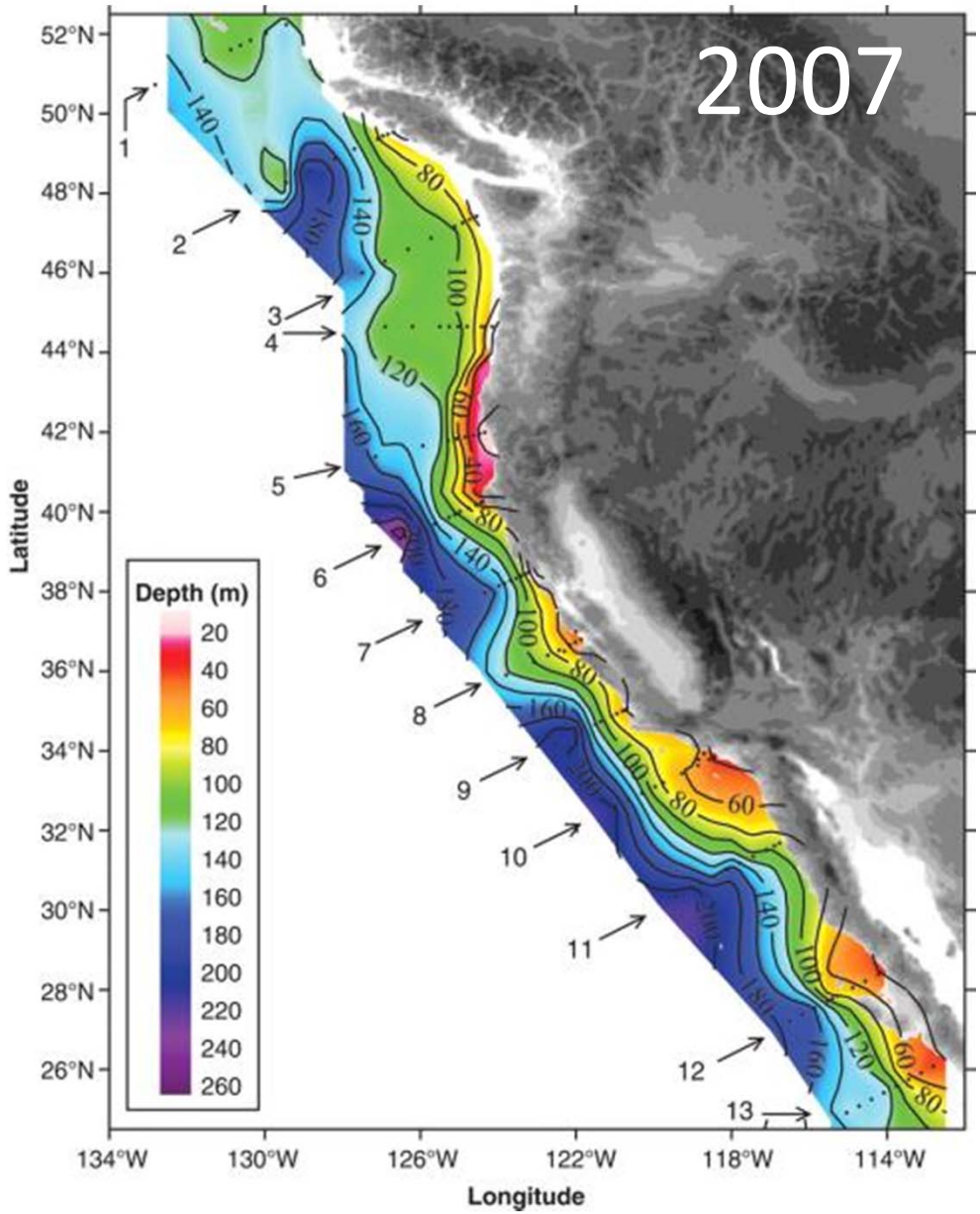


What about Oregon’s coastal ocean?

Evidence for Upwelling of Corrosive "Acidified" Water onto the Continental Shelf

Richard A. Feely,[1*] Christopher L. Sabine,[1] J. Martin Hernandez-Ayon,[2] Debby Ianson,[3] Burke Hales[4]



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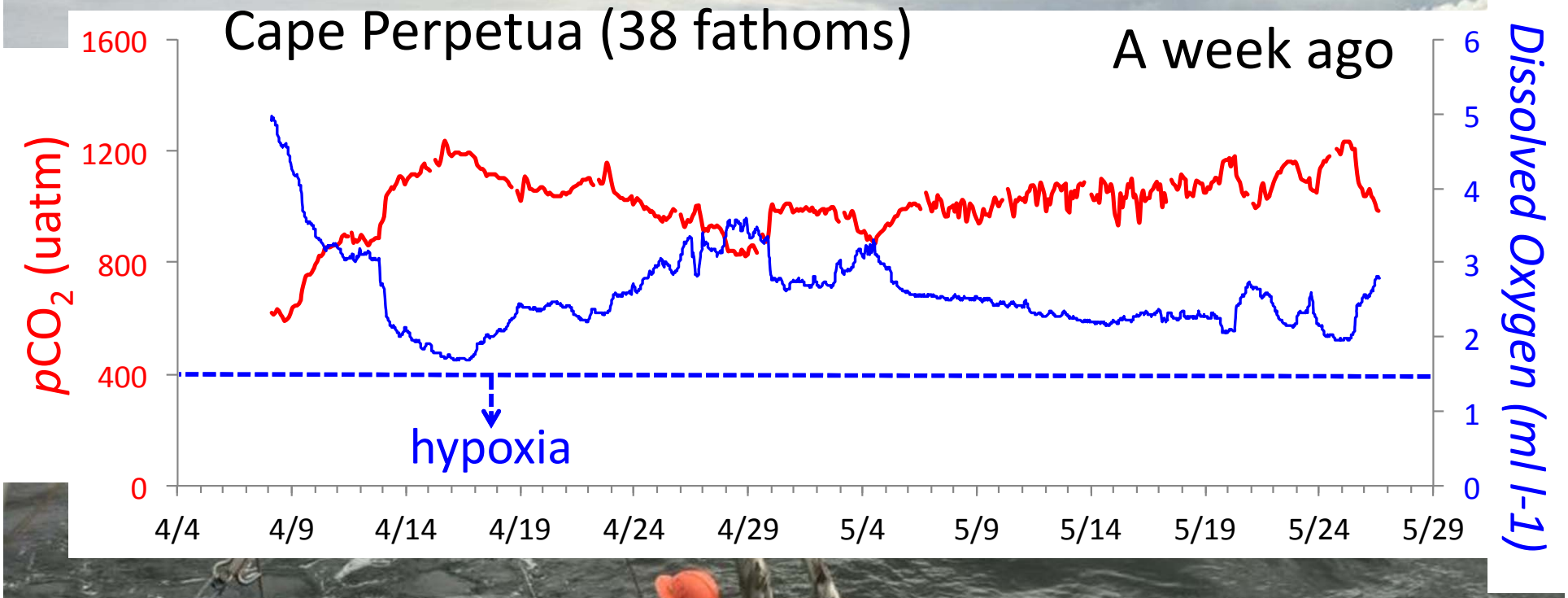
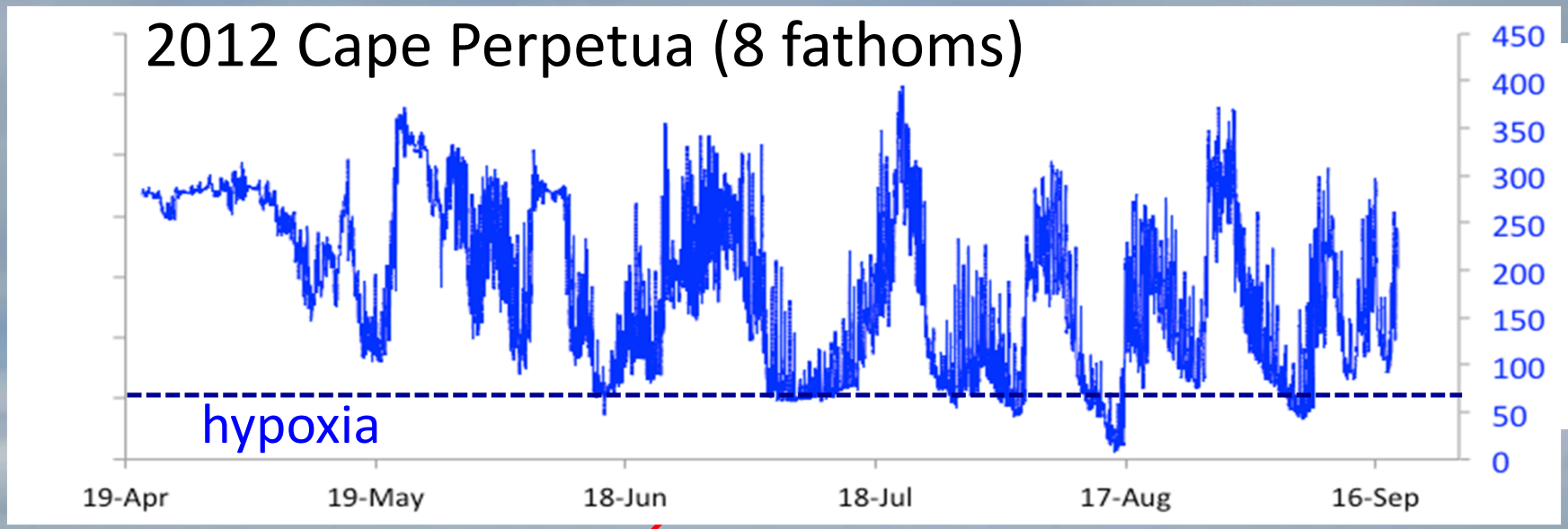
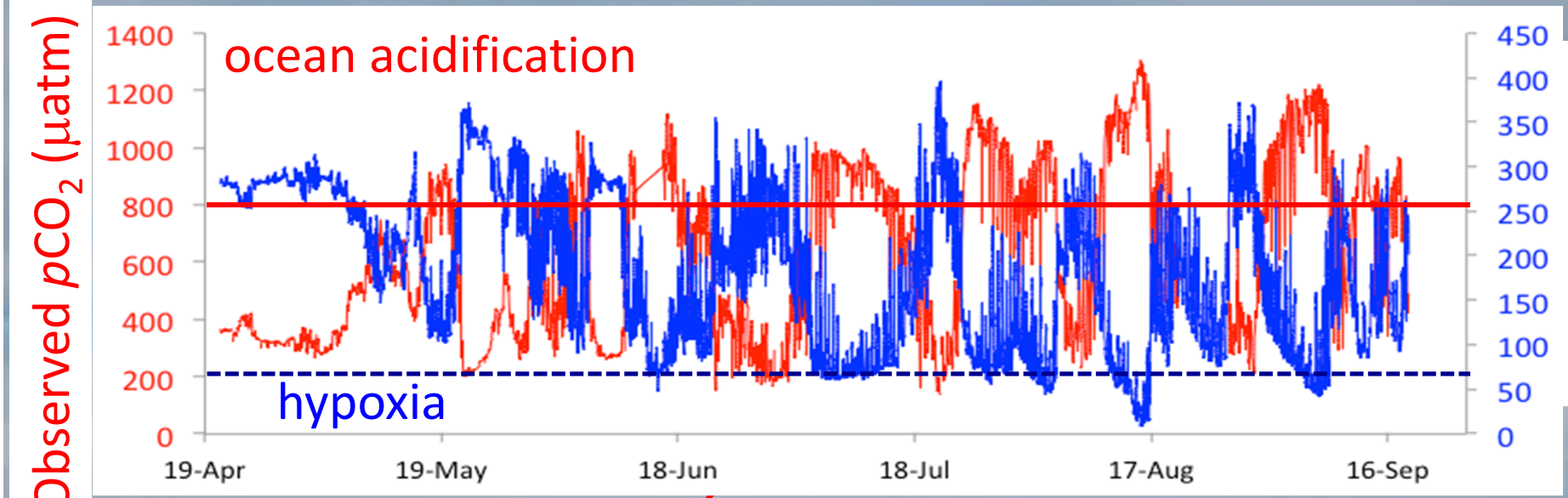
What about Oregon's coastal oceans?

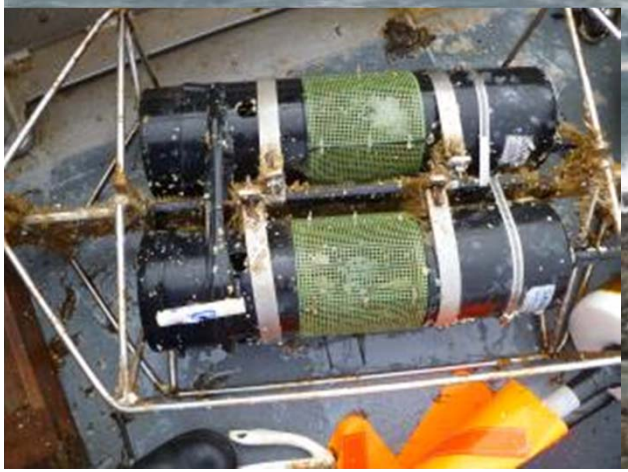


A view from the Cape Perpetua Reserve

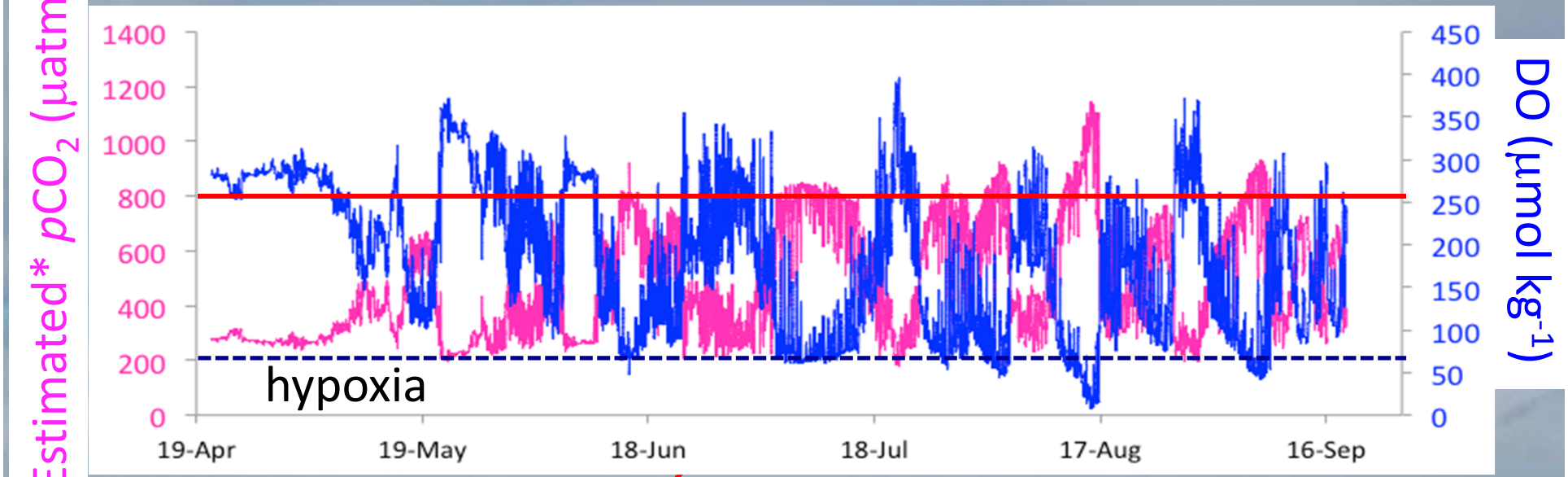


Hi CO_2, low oxygen future, today



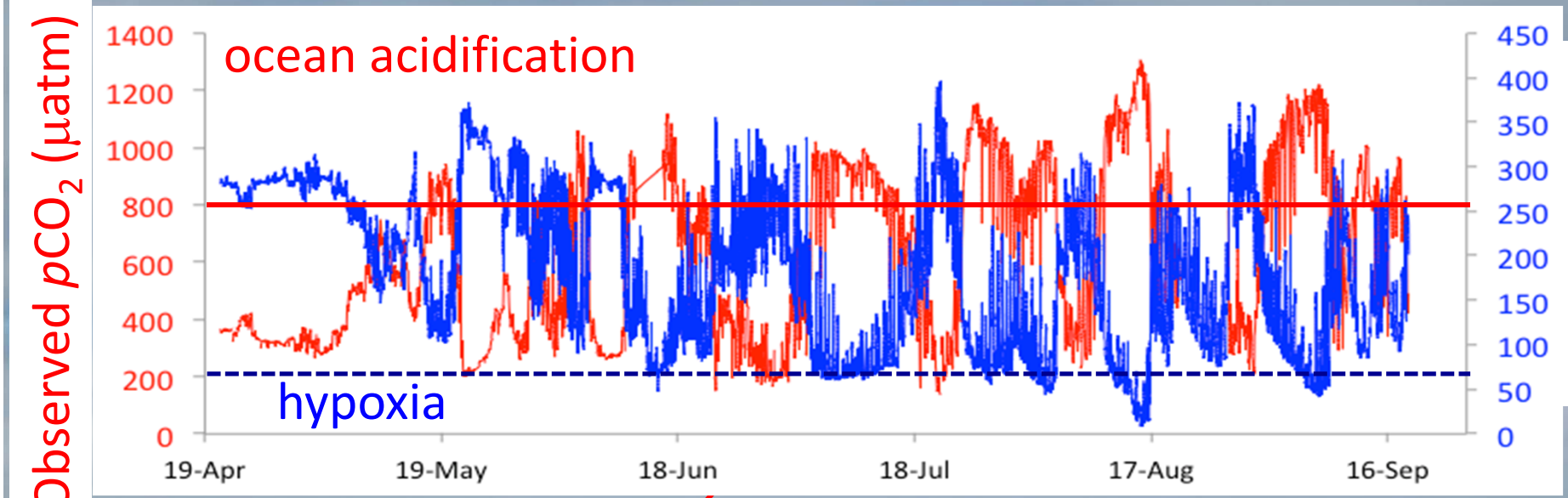


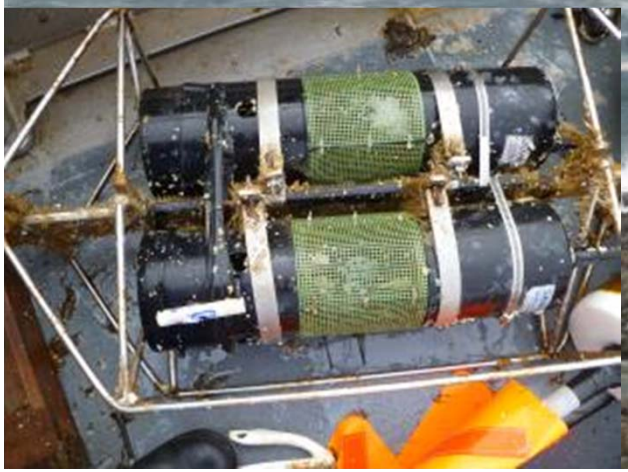
Is this natural or is this OA?



* What we <u>should</u> see if we start with a 280ppm CO_2 atmosphere

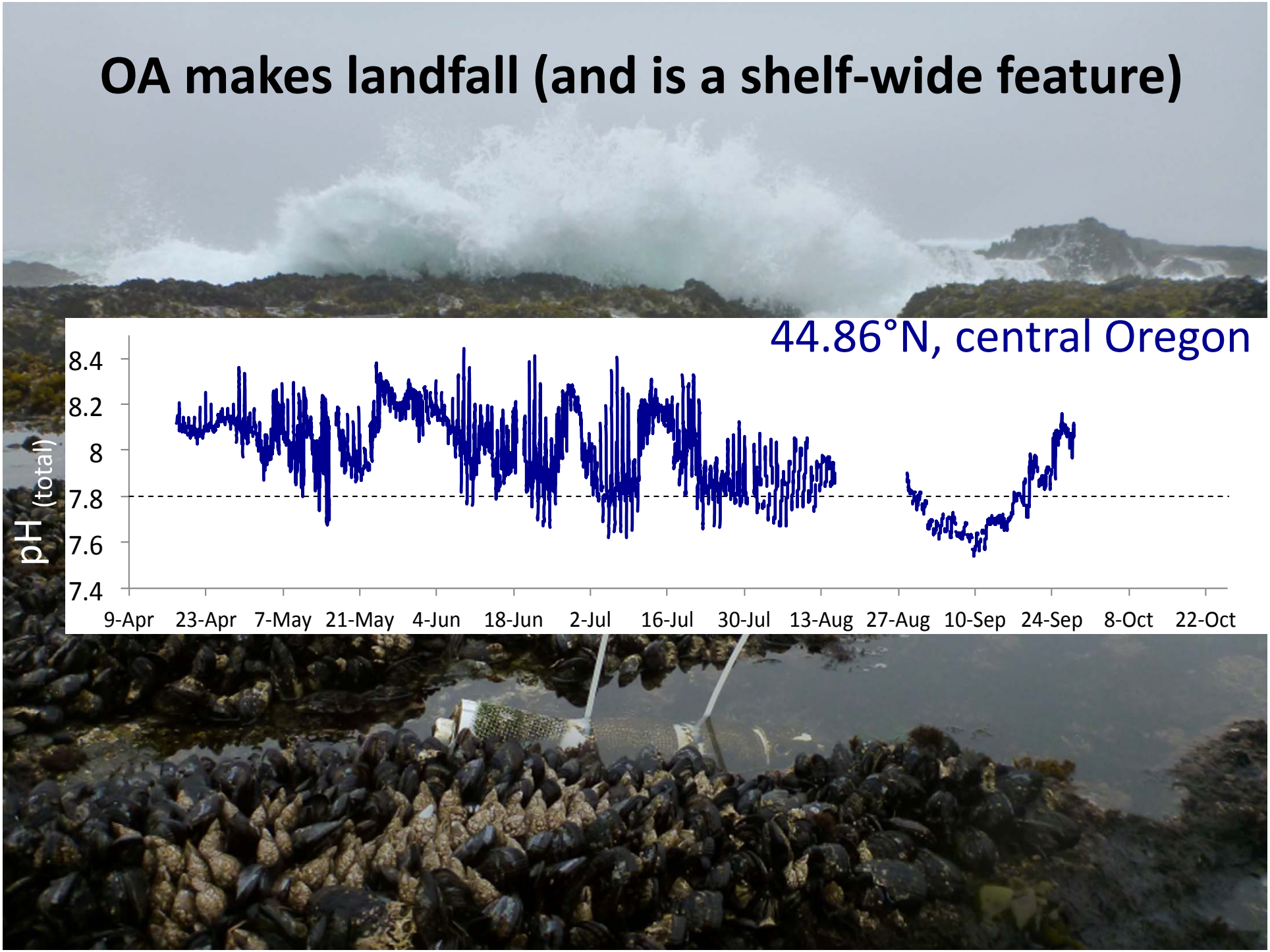
Hi CO_2, low oxygen future, today



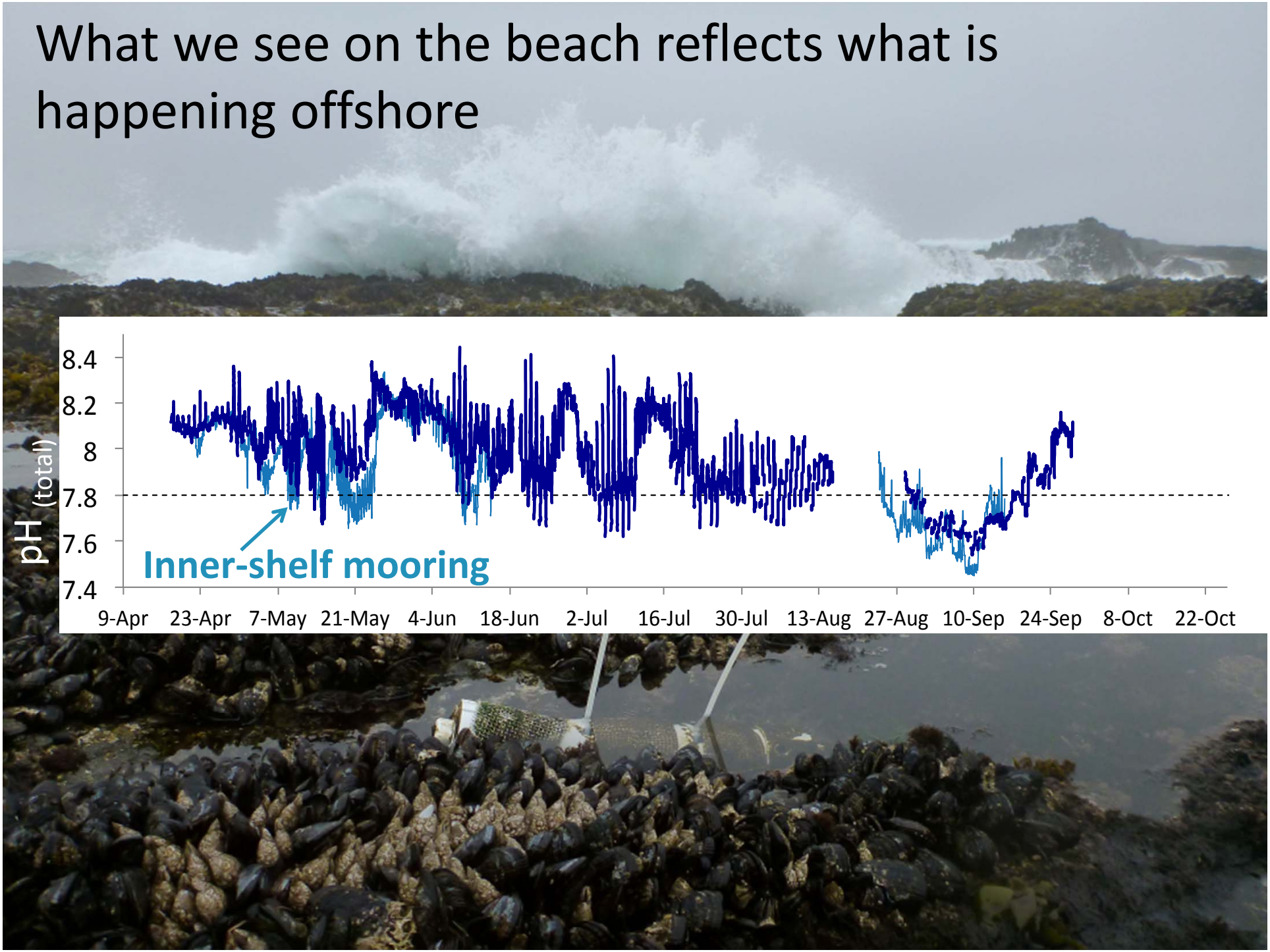


How close to shore?

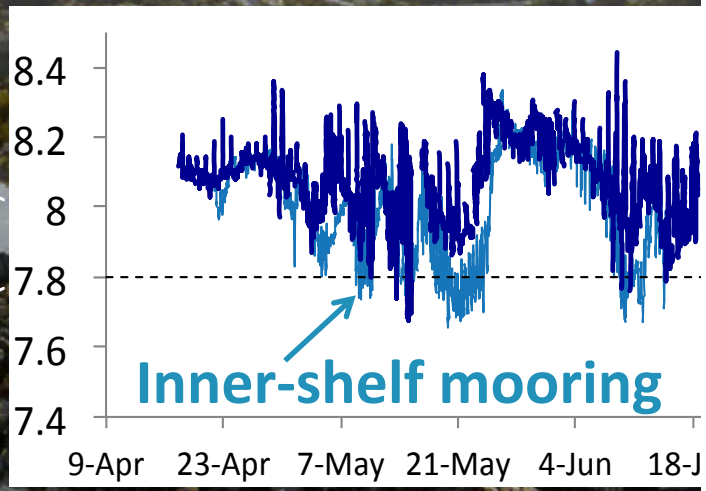
OA makes landfall (and is a shelf-wide feature)

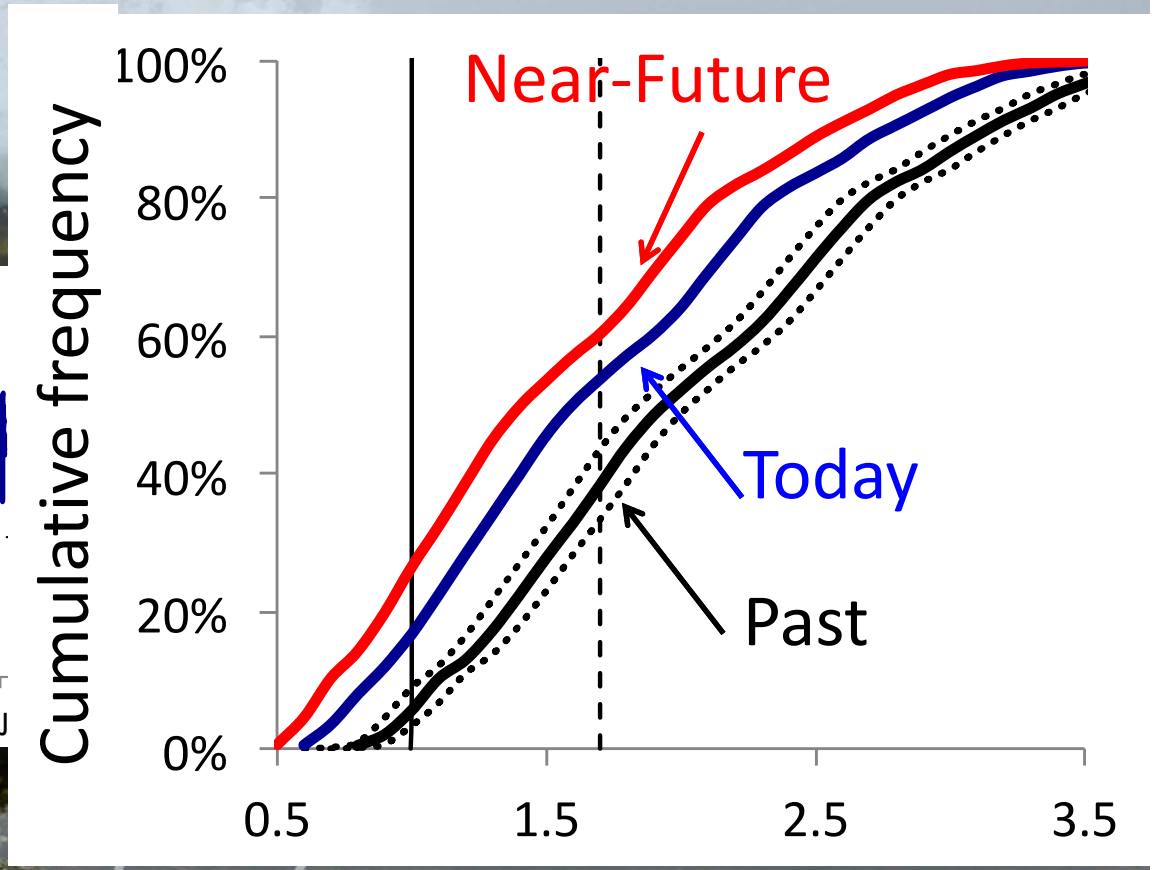


What we see on the beach reflects what is happening offshore

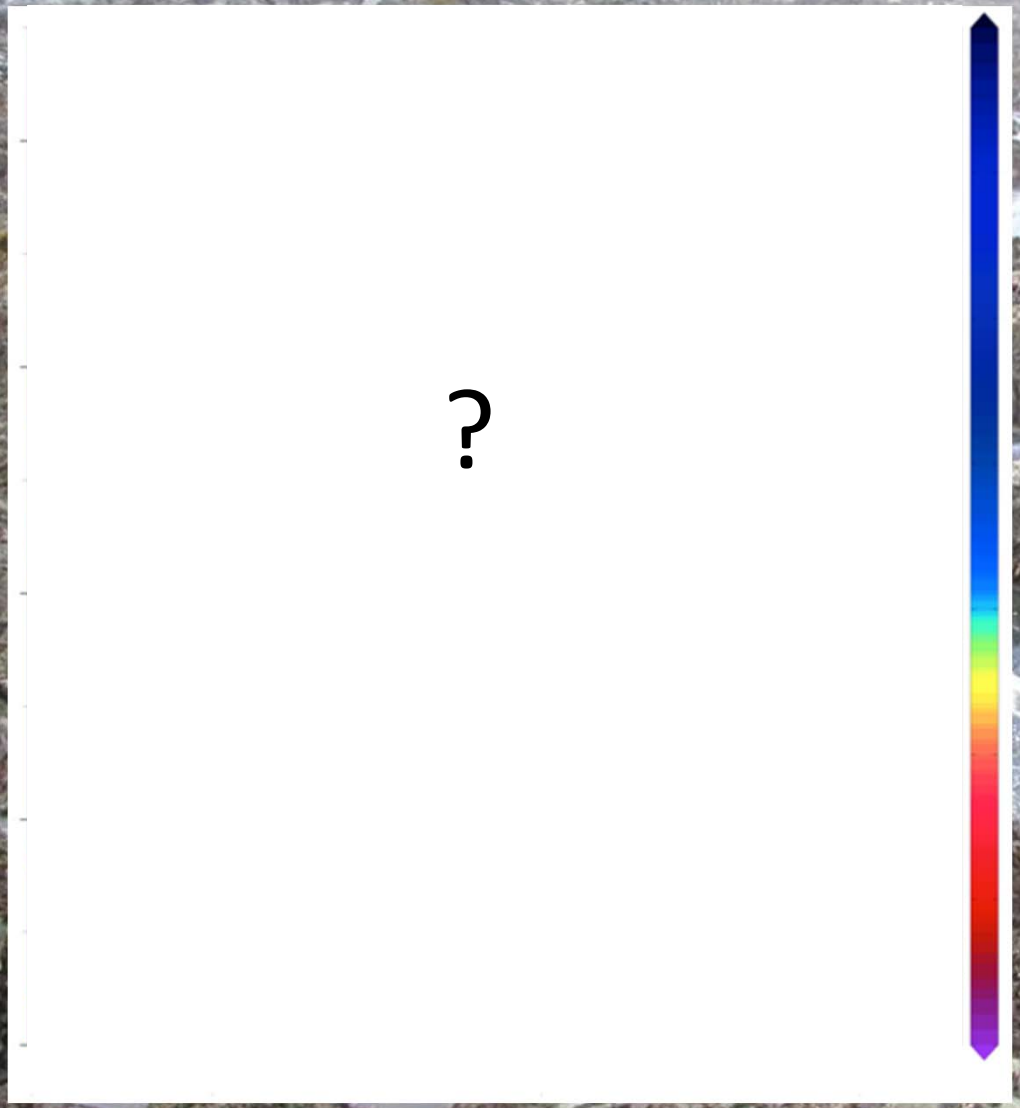


Is what we see natural?





What does the rest of the coast look like?



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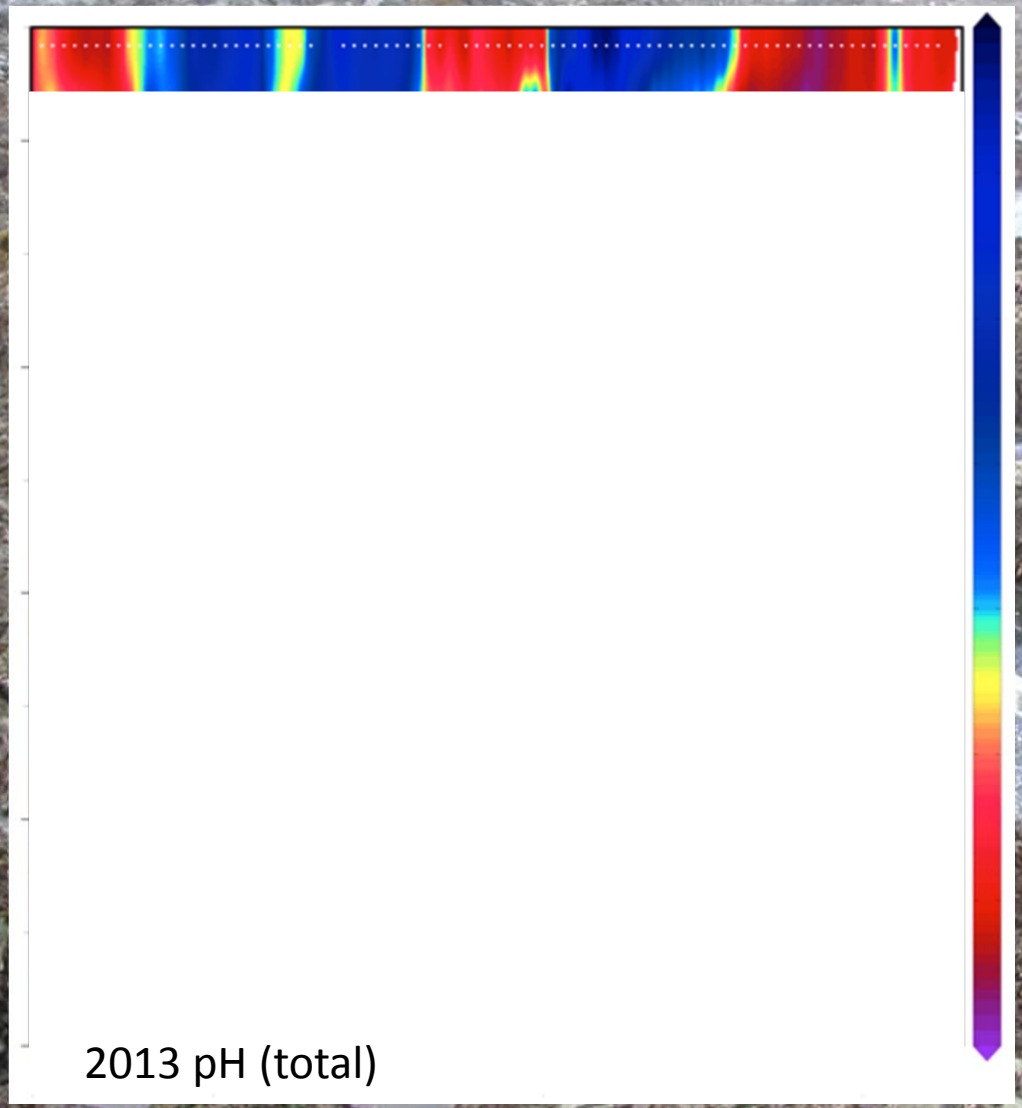

Cape Foulweather

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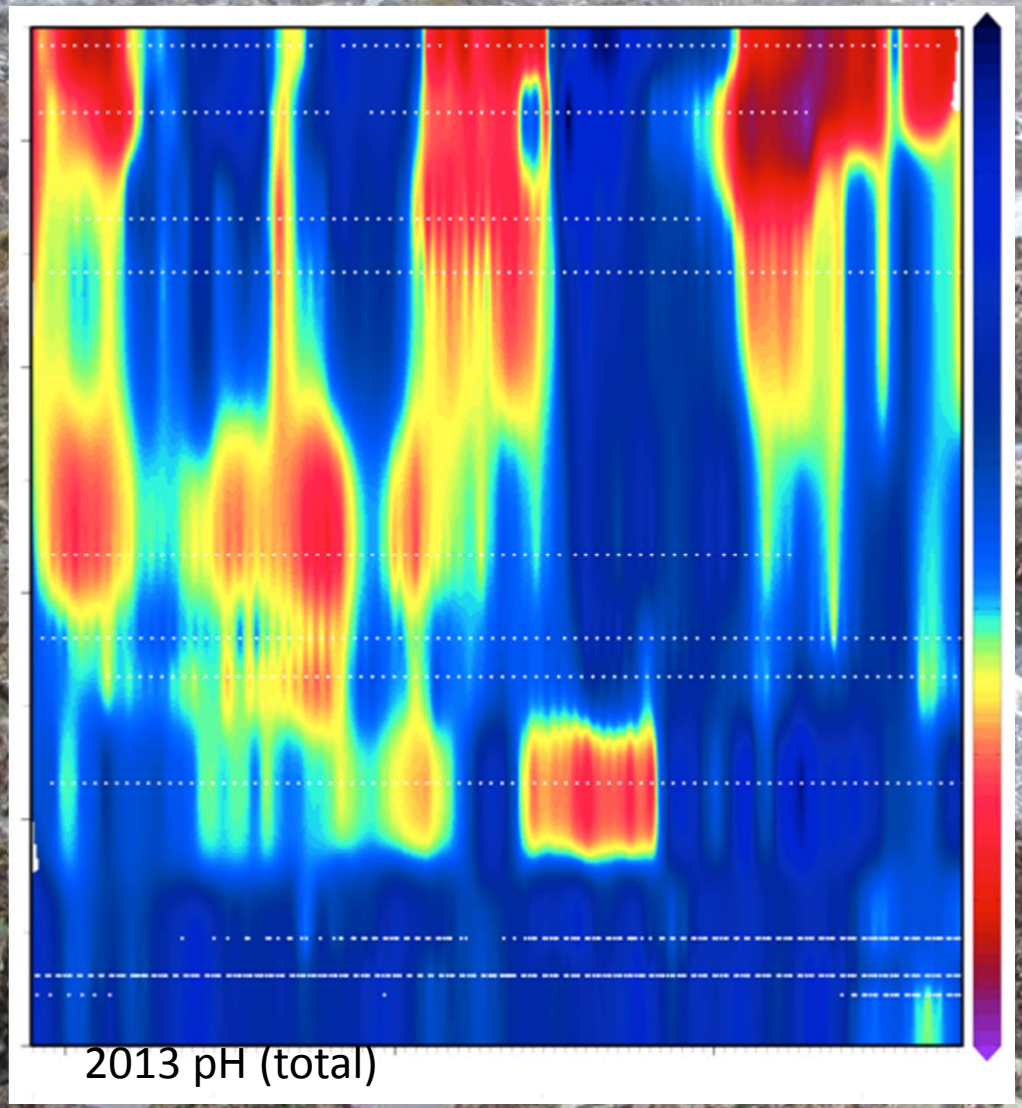


Cape Foulweather

Cape Perpetua

Cape Arago

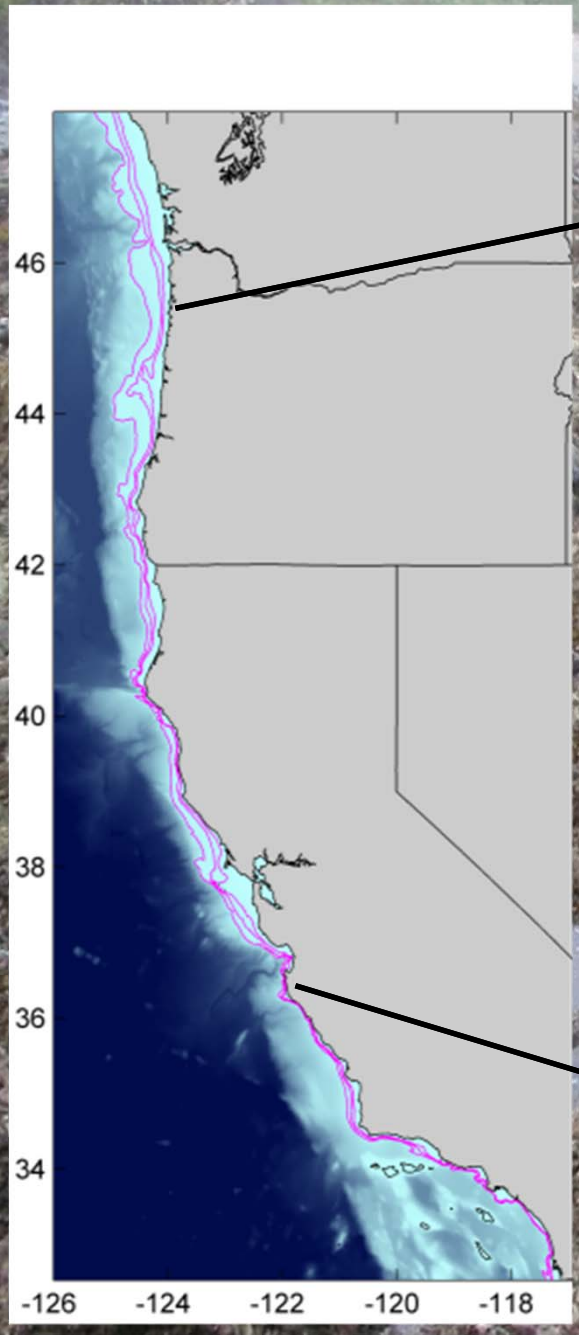
Cape Blanco

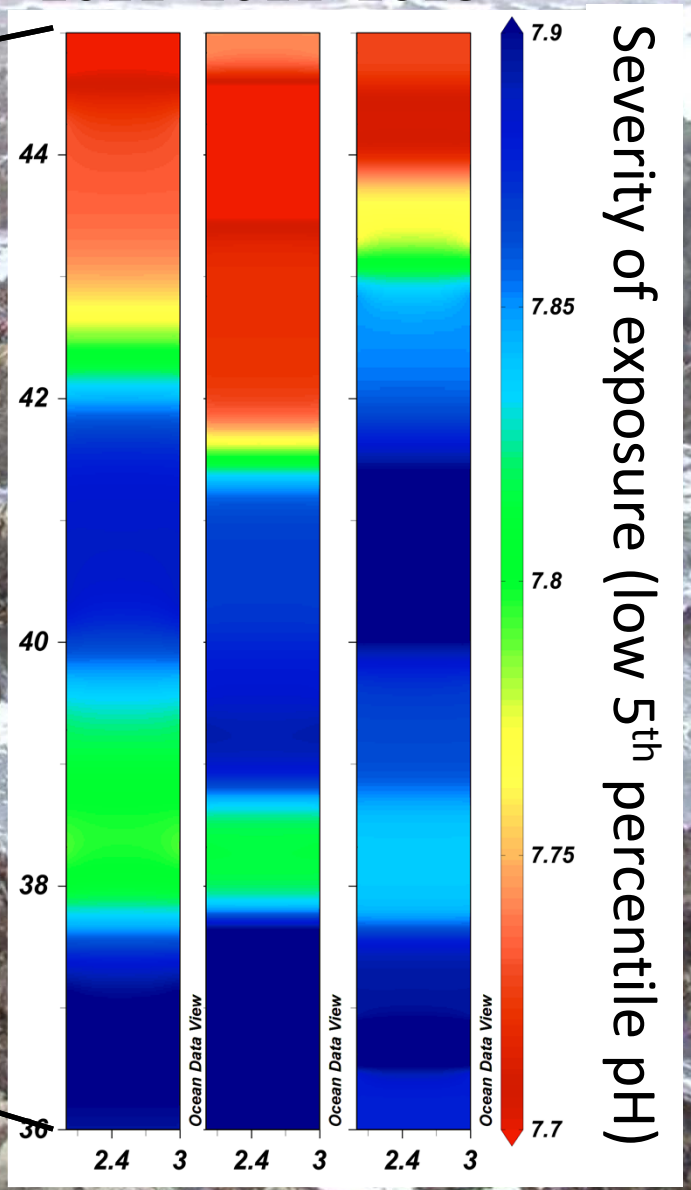
Cape Mendocino

Bodega Bay

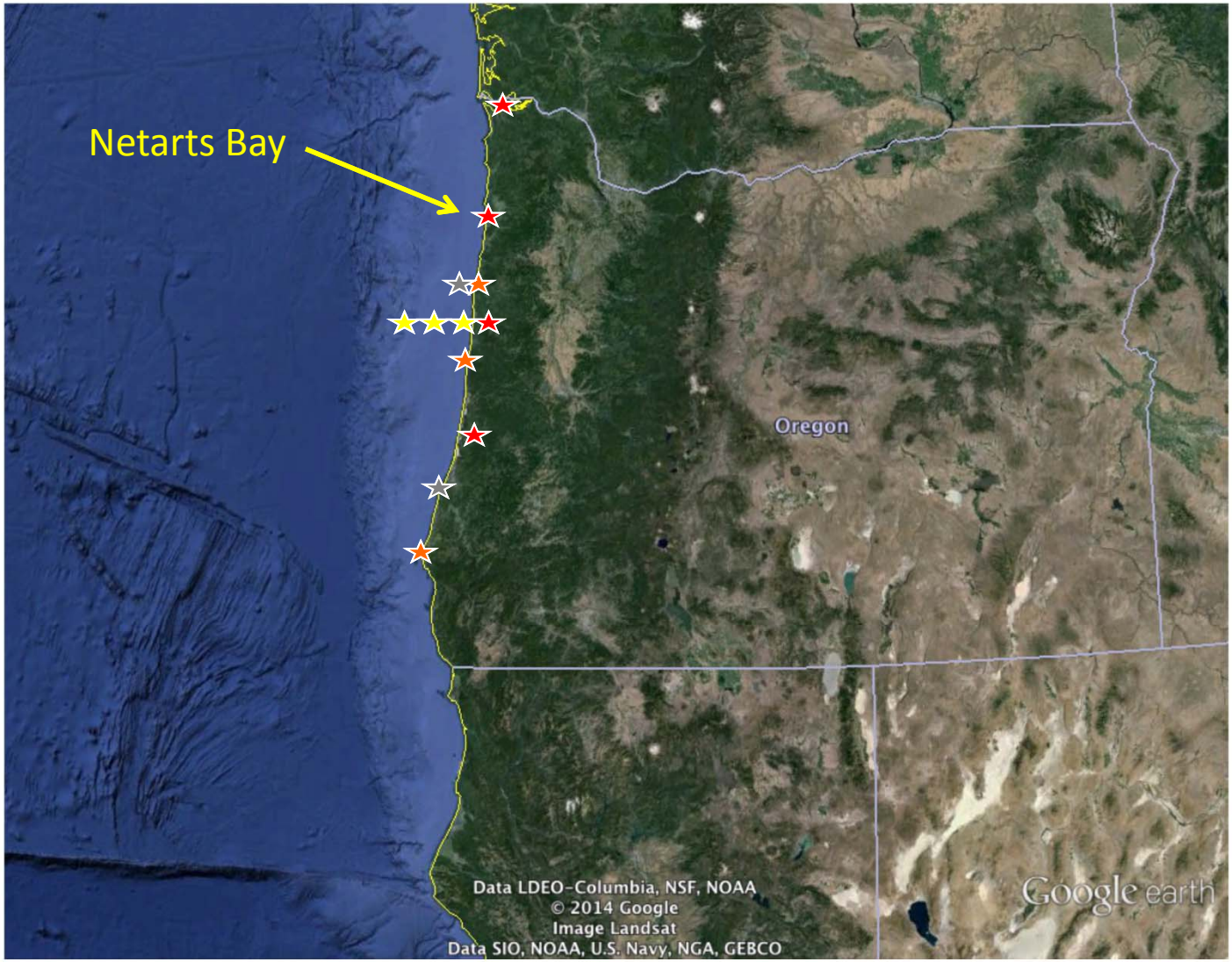
Monterey Bay

A picture of repeating "hot spots" and "refuges"





How well are we doing monitoring our coast?



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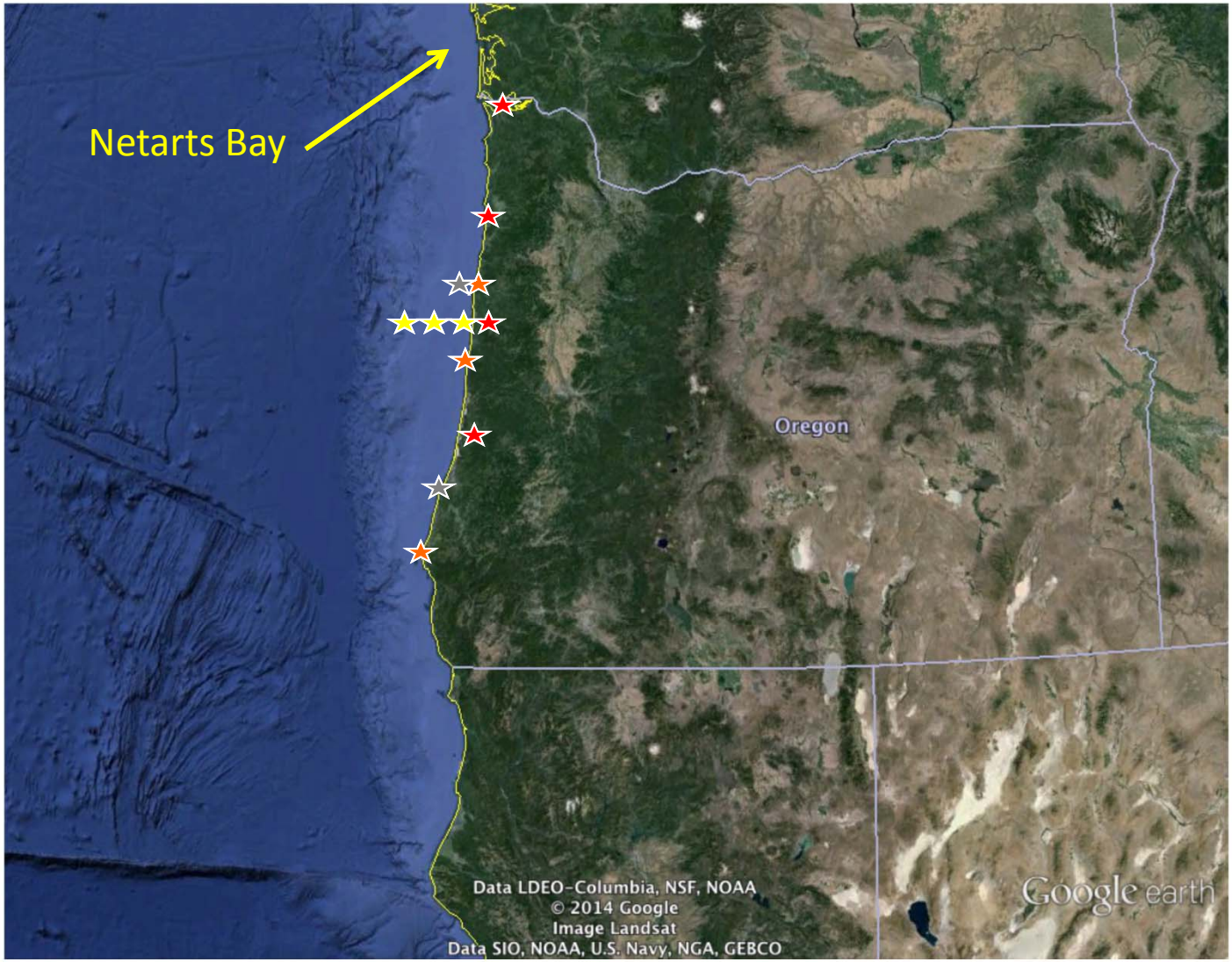

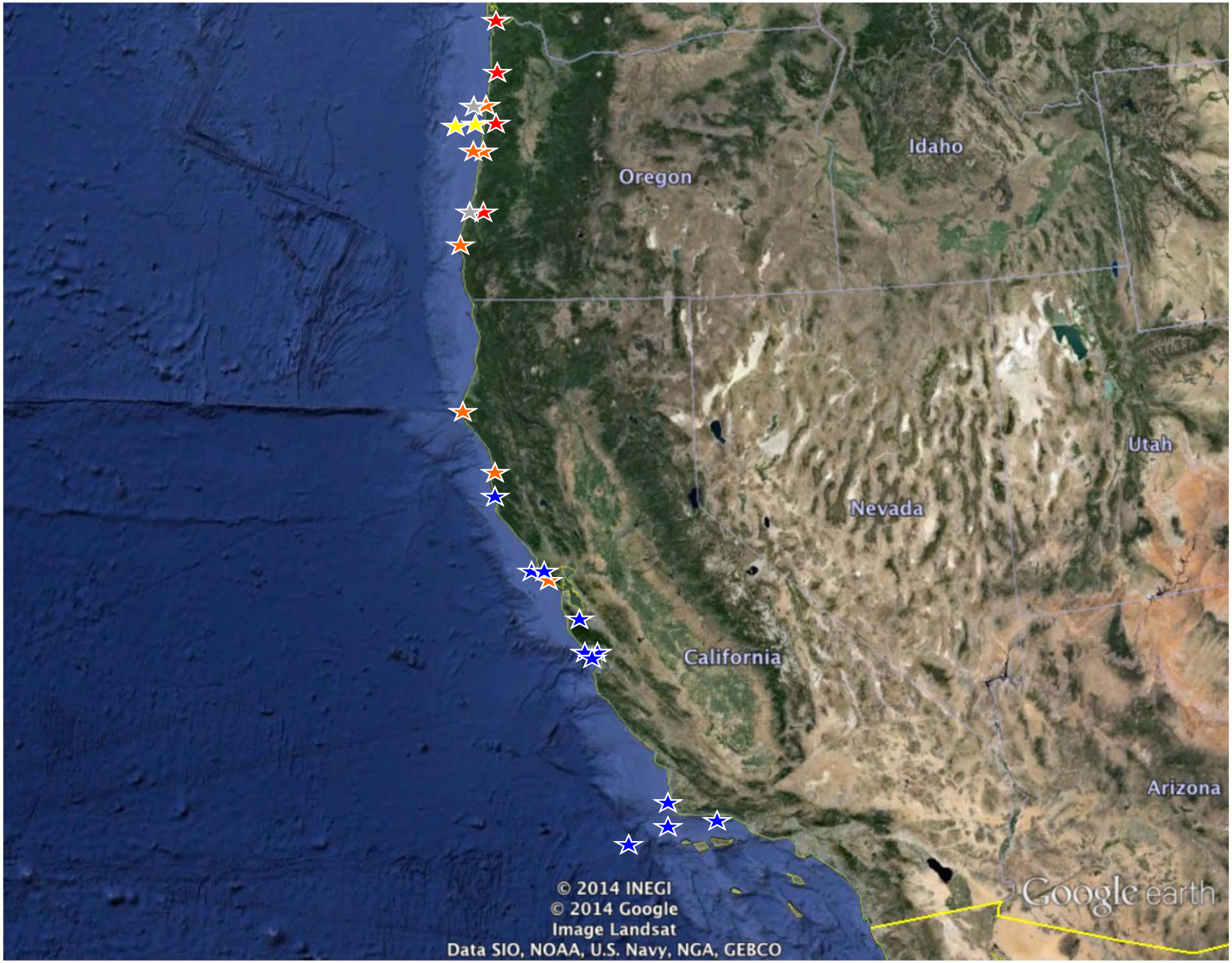
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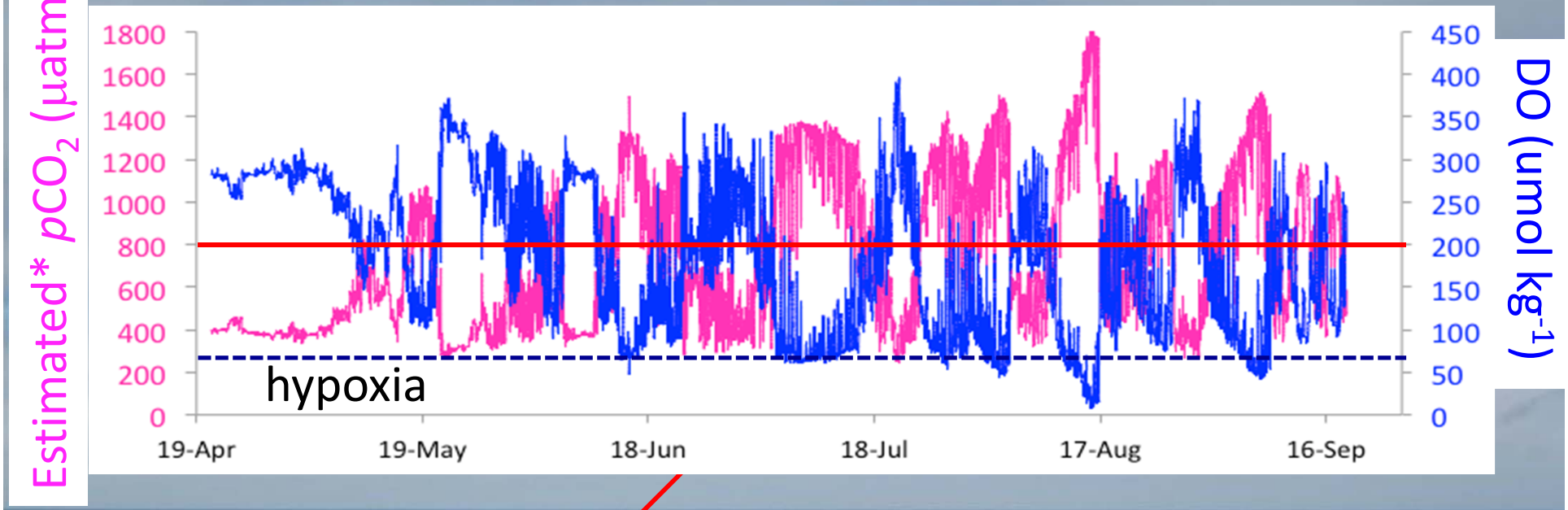
Google earth

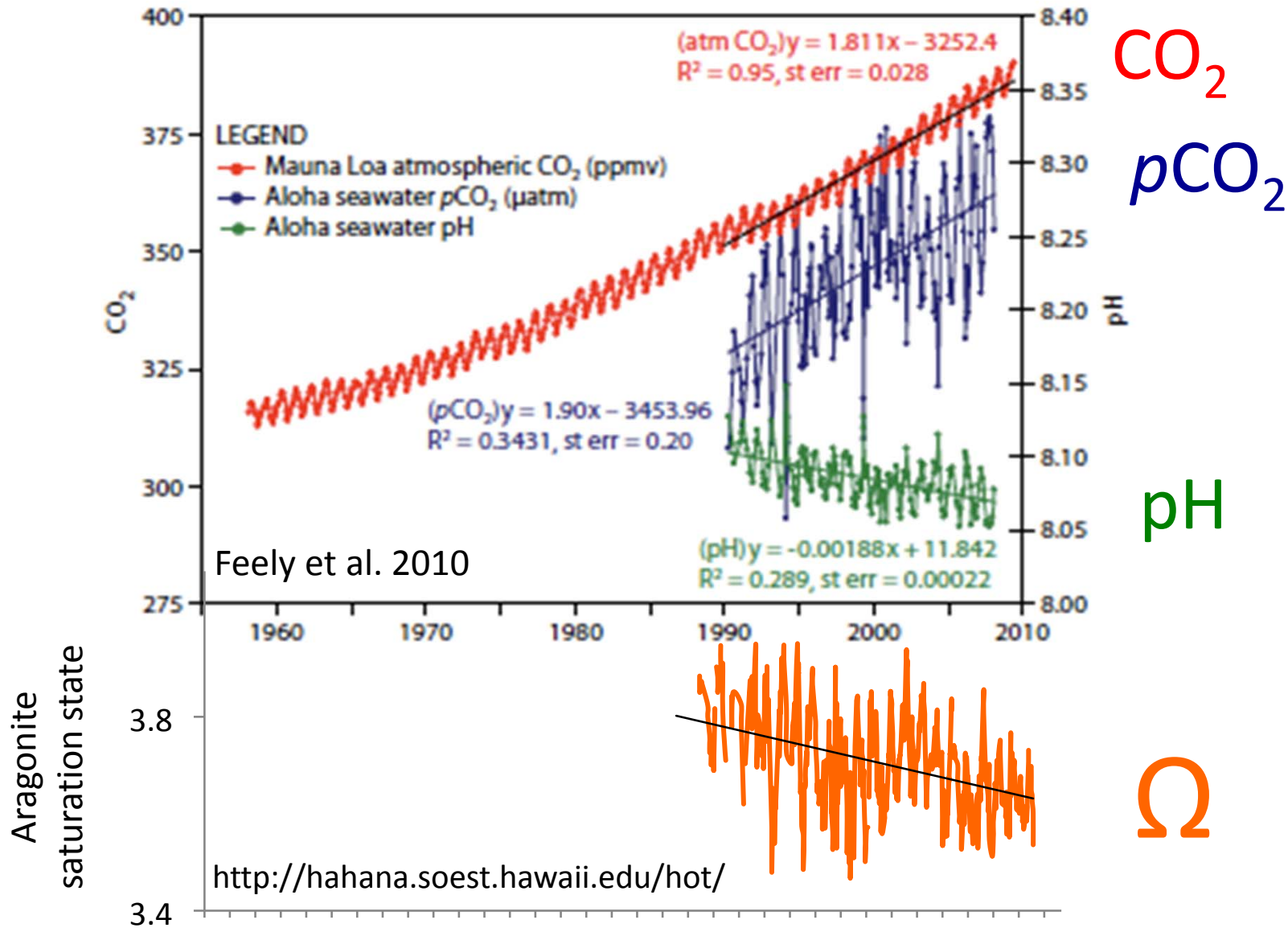
- Ocean Acidification and Hypoxia are linked stressors
- Coast-wide challenges
- Need to make the science in this rapidly moving field accessible to decision makers
- Need to identify what we don't know but really need to know

What will the near future hold?



* With added DIC from last equilibration with 400ppm atmosphere

CO_2 uptake has measurably changed ocean chemistry and has made it harder for organisms to grow shells



Ocean acidification in Oregon's coastal ocean: update on the state of the science

Francis Chan & Burke Hales

Oregon State University OSU

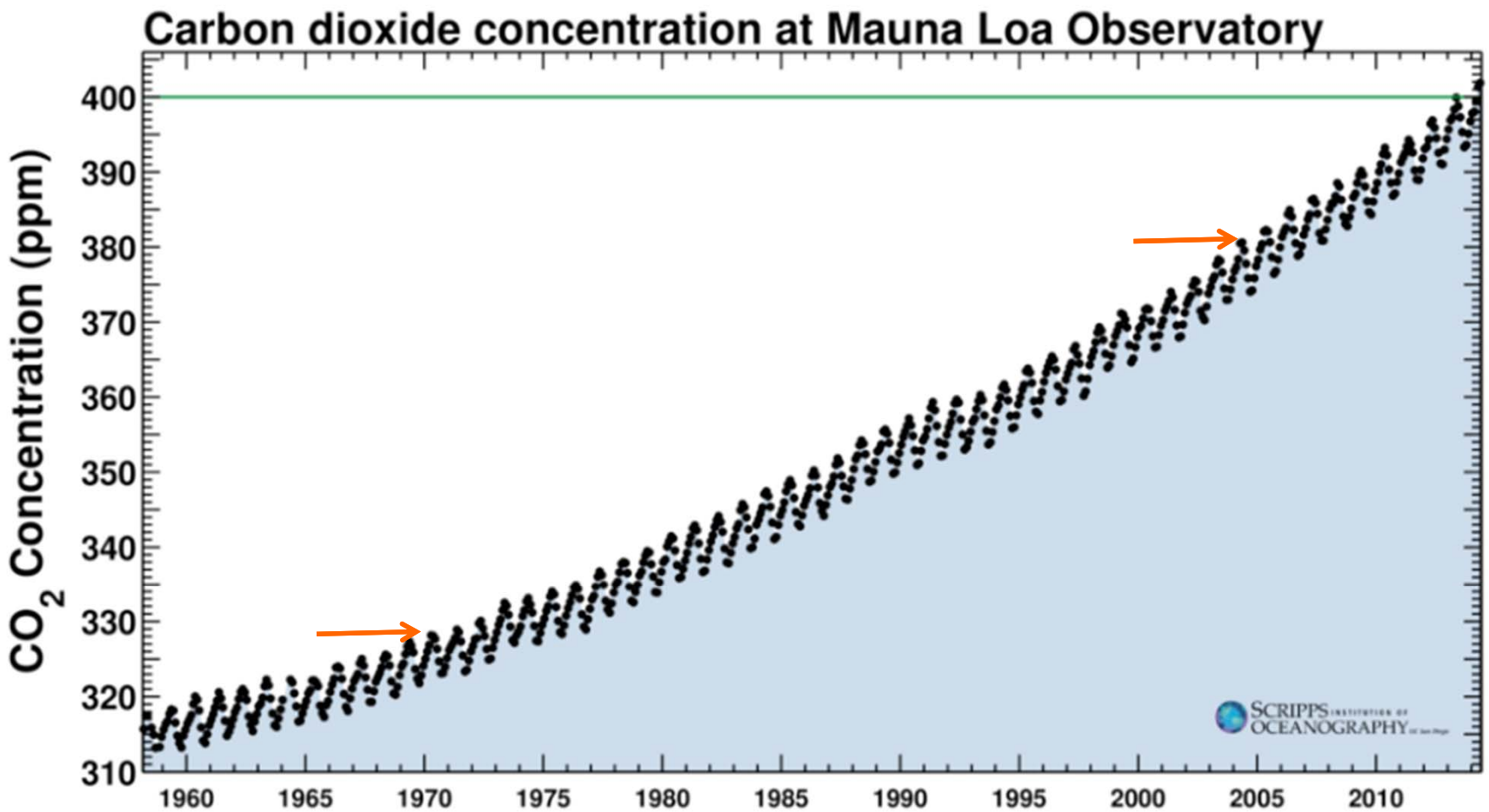
PISCO

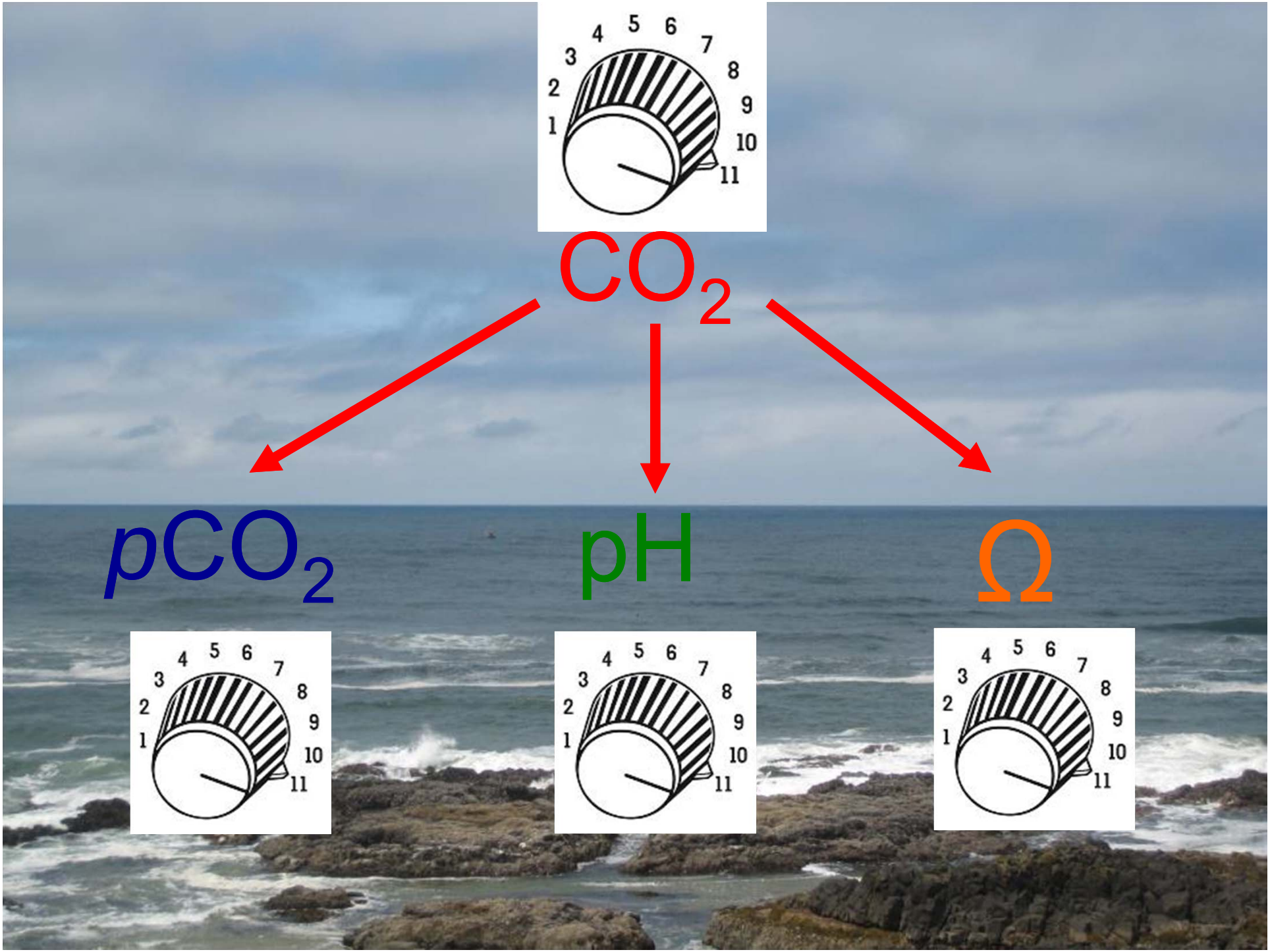
Partnership for Interdisciplinary Studies of Coastal Oceans

College of Earth, Ocean, and Atmospheric Sciences

Physical Oceanography

The ocean has absorbed vast amounts of CO2 the we've put into the atmosphere




CO2
pCO2
pH
Ω