

Oregon's Coordinating Council on Ocean Acidification and Hypoxia (OAH)

*Presentation to Oregon Global Warming Commission
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**Oregon Coordinating
Council on Ocean
Acidification & Hypoxia**

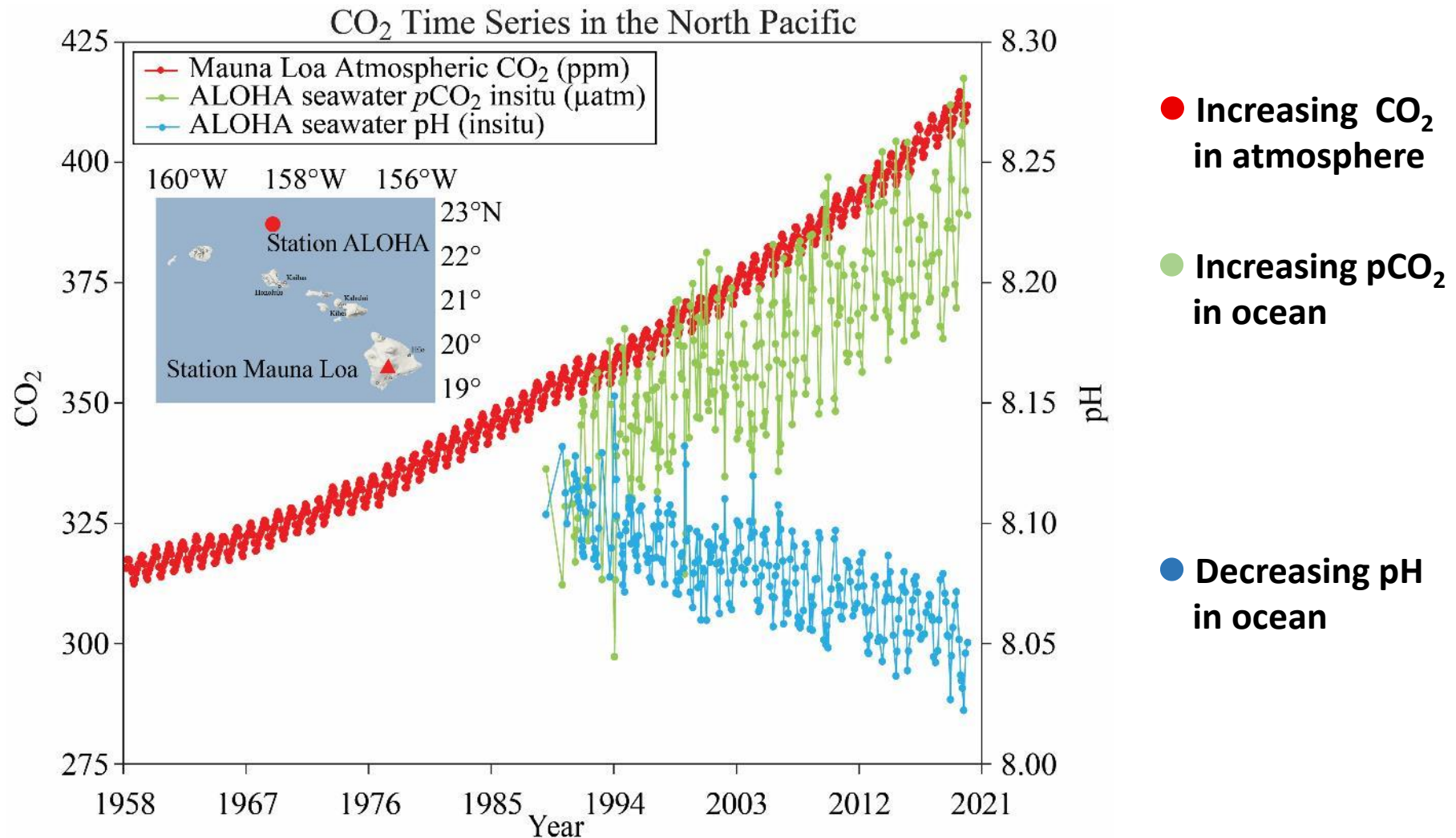
Today's presentation

- State of science of ocean acidification and hypoxia
- Oregon takes action, OAH Council efforts
- International and regional coordination
- Aligning priorities with OGWC
- Questions and comments

SCIENCE OF OAH

Why it is happening & the impacts

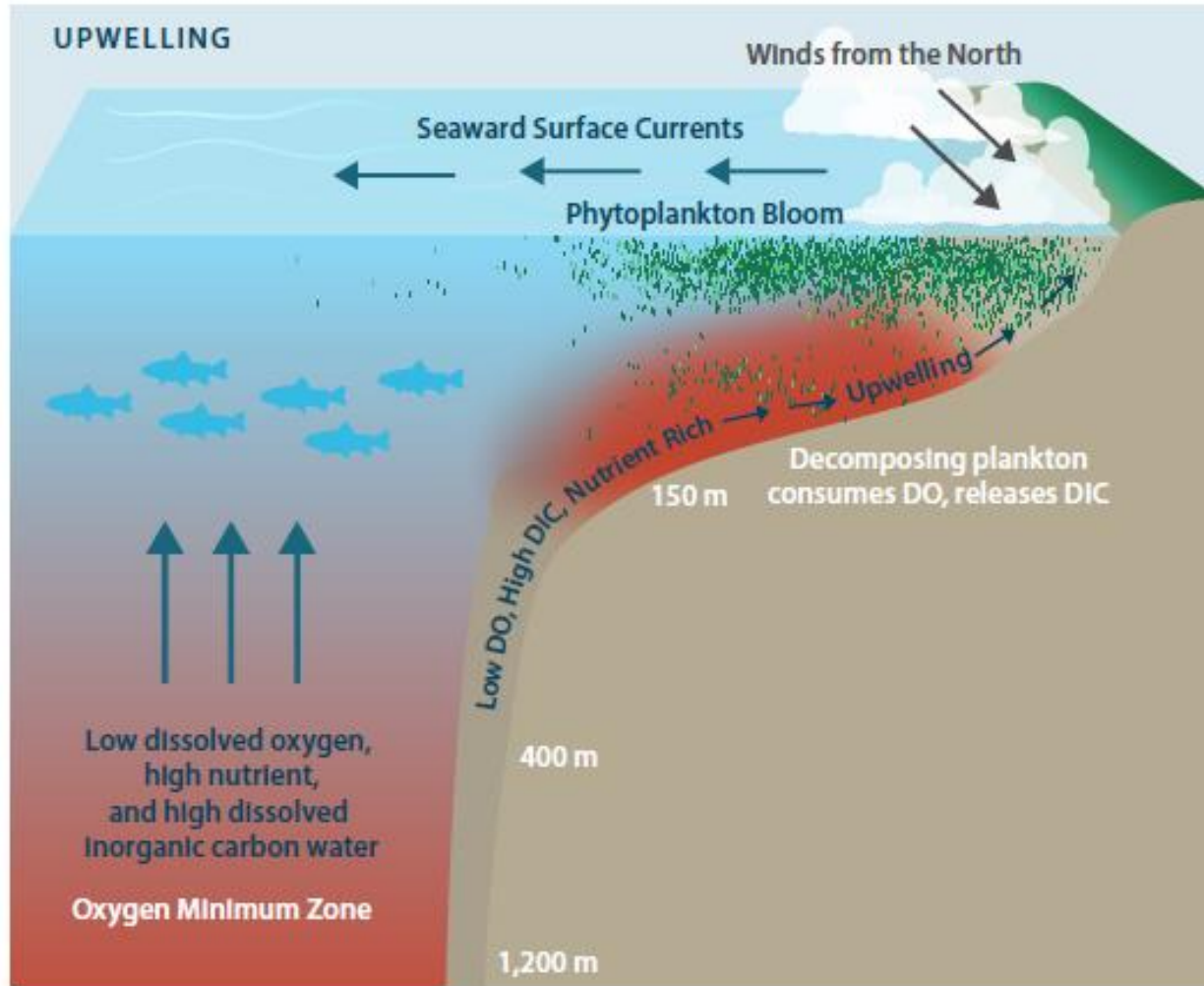
Increased CO₂ and CO₂/pH = Ocean Acidification



Data: Mauna Loa (ftp://aftp.cmdl.noaa.gov/products/trends/co2/co2_mm_mlo.txt) ALOHA (<http://hahana.soest.hawaii.edu/hot/hot-dogs/bextraction.html>) ALOHA pH & pCO₂ are calculated at in-situ temperature from DIC & TA (measured from samples collected on Hawaii Ocean Times-series (HOT) cruises) using co2sys (Pelletier, v25b06) with constants: Lueker et al. 2000, KSO4: Dickson, Total boron: Lee et al. 2010, & KF: seacarb

Ocean Hypoxia in PNW

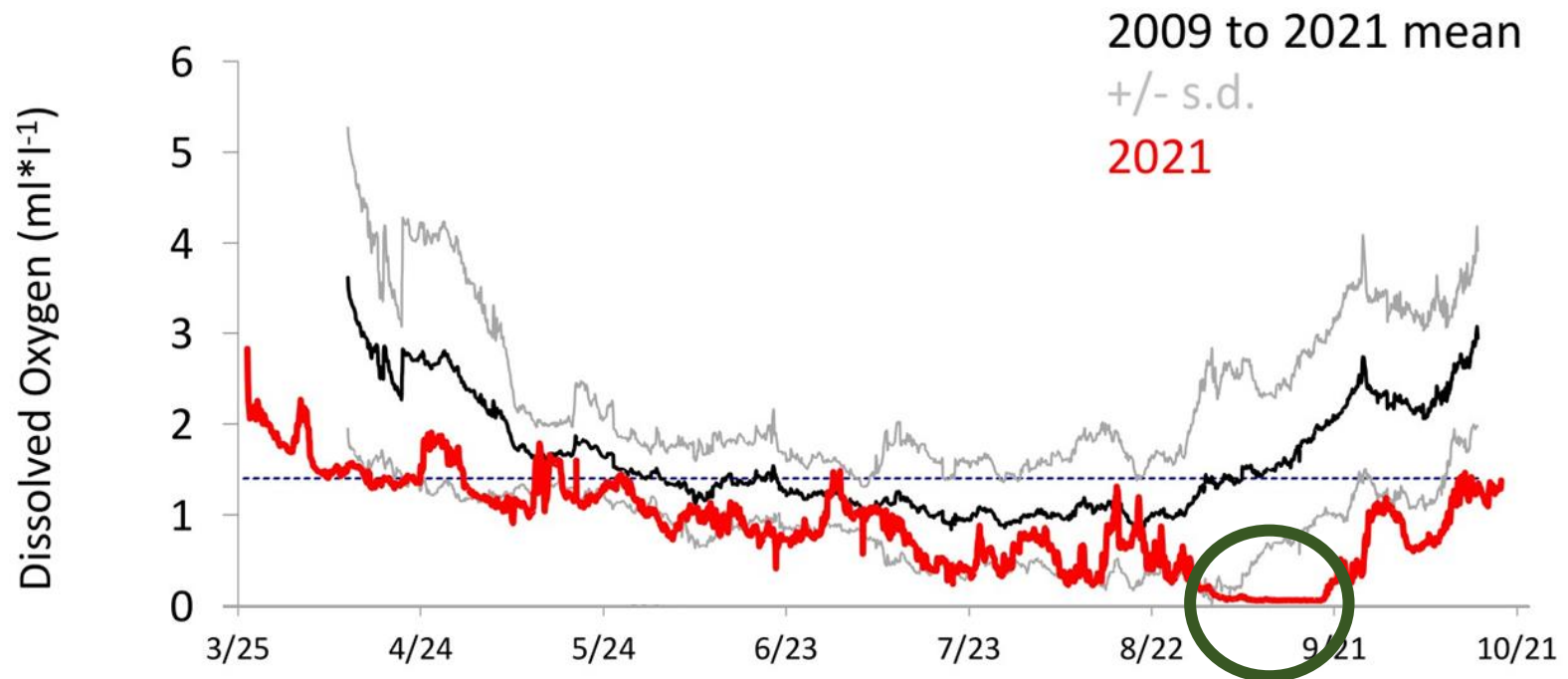
North Pacific Coast



(Hypoxia 1.4 mL/L **OR** 2.0 mg/L O₂)

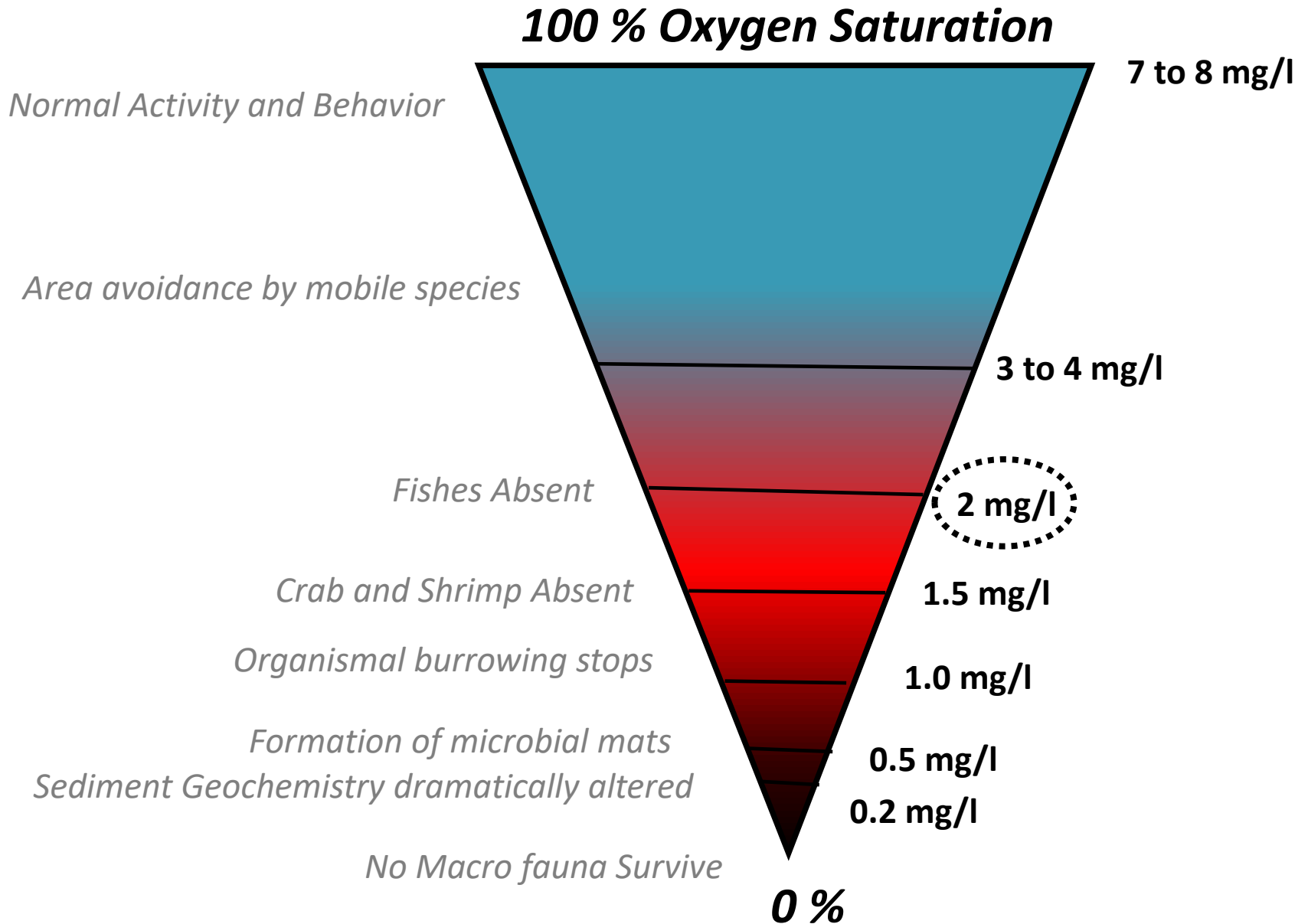
Hypoxia in Oregon

**PISCO observations (preliminary):
Near-bottom dissolved oxygen in 70 m off Cape
Perpetua, Oregon**



(Hypoxia 1.4 mL/L **OR** 2.0 mg/L O_2)

Ocean Hypoxia Impacts



(Hypoxia 1.4 mL/L **OR** 2.0 mg/L O₂)

OREGON TAKES ACTION,
OAH COUNCIL
ACCOMPLISHMENTS

Oregon OAH Council established (2017)

79th OREGON LEGISLATIVE ASSEMBLY--2017 Regular Session

Enrolled Senate Bill 1039

Sponsored by Senators ROBLAN, KRUSE

CHAPTER

AN ACT

Relating to ocean chemistry.

Whereas Oregon is an epicenter for the global manifestation of ocean acidification and hypoxia; and

Whereas the natural seasonal process of upwelling transports corrosive waters into the nearshore and estuaries, causing marine waters within this state's jurisdiction to be especially vulnerable to ocean acidification; and

Whereas ocean acidification, hypoxia and changes in ocean temperature are intensifying; and

Whereas Oregon has rich and vibrant wild marine fisheries, including shellfish fisheries; and

Whereas ocean acidification and hypoxia are known to cause mortality and reduced growth and productivity in marine organisms, including in species that form the foundation of the marine food web; and

Whereas negative impacts from ocean acidification, hypoxia or both have already been observed in species that are commercially, culturally and economically important to this state, including oysters, mussels and crabs; and

Whereas Oregon's coastal communities and economies are important to this state and are dependent on a thriving marine ecosystem; and

Oregon OAH Council



**Oregon Coordinating
Council on Ocean
Acidification & Hypoxia**

OAH Council Recommended Priorities

-  Support and maintain Oregon's monitoring of OAH oceanographic metrics and biological response metrics **(Actions 1.1.a/c)**
-  Incorporate OAH into CO₂ management and mitigation discussions in the state **(Action 2.1.b)**
 - Including GHG reduction techniques
-  Support new initiatives to promote natural ecosystem resilience **(Actions 3.2.a/b)**
-  Keep legislators and policy-makers up-to-date on the science, impacts of and solutions for OAH **(Action 4.2.a)**
-  Develop high-level policy guidance for the state's government agencies on prioritizing OAH in agency workload **(Action 5.1.a)**

Noteworthy accomplishments

- **Developed Oregon's OAH Action Plan (2019)**
- **Produced 3 Biennial Reports to the Legislature on OAH (2018, 2020, 2022)**
- **Hosted 5 Fisherman-Scientist OAH Roundtables in collaboration with Oregon Sea Grant (2016, 2017, 2021, 2022, 2023)**
- **Coordinated the Multiagency Report on OAH Programs and Needs (2021)**
- **Supported the passage of House Bill 3114 (2021)**
- **Organized Oregon's first OAH Symposium (2023)**

81st OREGON LEGISLATIVE ASSEMBLY--2021 Regular Session

House Bill 3114

Sponsored by Representative GOMBERG, Senator ANDERSON, Representatives SMITH DB, WRIGHT (at the request of Oregon State University)

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure **as introduced**.

Appropriates moneys from General Fund to Oregon Ocean Science Trust, State Department of Fish and Wildlife and Higher Education Coordinating Commission in certain amounts for certain purposes related to ocean chemistry.

Declares emergency, effective July 1, 2021.

A BILL FOR AN ACT

1

2 Relating to ocean chemistry; and declaring an emergency.

3 Whereas Oregon is an epicenter for the global manifestation of ocean acidification and hypoxia;

4 and

5 Whereas the natural seasonal process of upwelling transports corrosive waters into the

6 nearshore and estuaries, causing marine waters within this state's jurisdiction to be especially vul-

7 nerable to ocean acidification; and

8 Whereas ocean acidification, hypoxia and changes in ocean temperature are intensifying; and

9 Whereas Oregon has rich and vibrant wild marine fisheries, including shellfish fisheries; and

10 Whereas ocean acidification and hypoxia are known to cause mortality and reduced growth and

REGIONAL AND INTERNATIONAL COORDINATION

Pacific Coast Collaborative (PCC) OAH Subcommittee and OA Alliance



- PCC OAH subcommittee formed to align regional, cross-boarder, and national efforts on ocean change
- PCC subcommittee led to the development of the International OA Alliance
- Both groups provide opportunities to shape ocean change work at the regional and international level

MEMBER EXAMPLES

<https://www.oaalliance.org/member-examples>

COMPLETED OA ACTION PLANS:

Facilitated through the OA Alliance, national, subnational, regional and tribal governments are proactively responding to the impacts of ocean acidification as they create OA Action Plans to effectively promote solutions and advancing knowledge into action.

OA Action Plans include strategies for reducing carbon emissions and local land-based pollution, strengthening monitoring nearshore to better understand and predict local conditions, investing in adaptive measures in partnership with industry or seafood dependent communities, and advancing information sharing strategies that help policy makers respond.

“Changing ocean conditions, including ocean acidification, threatens our culture and way of life. Fishing is key to the Makah, since time immemorial the Makah people, our culture, and ceremonies have been dependent on resources from the ocean. The Makah Tribe is developing an action plan to address these threats to protect Makah’s treaty reserved rights.”

— Chairman John Ides, Sr. of the Makah Tribe



DOWNLOAD

Netherlands, North Atlantic, Europe



DOWNLOAD

United States of America, North America



DOWNLOAD

State of Oregon, Pacific, USA North America

ALIGNING PRIORITIES WITH OGWC

Examples of OAH Council & OGWC Shared Priorities

- Limit climate change impacts on Oregon's cultural and economic viability, including fishing industry
- Reduce causes of climate change
- Mitigate and adapt to climate change through advancing natural climate or natural working lands solutions
- Coordinate with state agencies and entities on addressing climate change



Key Next Steps

- 2024 OAH Legislative Report
- Finalization of HB3114 projects (2024)
- Development of 2025-2031 Action Plan





Comments or Questions? Please contact
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