



Meeting summary

October 19, 2023

9:00 a.m. to 3:30 p.m.

Hybrid meeting

Meeting attendance and objectives

The Washington Marine Resources Advisory Council (MRAC) held its 28th meeting on October 19, 2023, in person and by conference call. The meeting was facilitated by Martha Kongsgaard, MRAC Chair, Angie Thomson, Thomson Strategic Consulting, and Cory Archer, True Wind Collaborative.

Members in attendance: Martha Kongsgaard (Chair), Cynthia Catton (Department of Natural Resources), Meg Chadsey (WA Sea Grant), Bill Dewey (Taylor Shellfish Farms), Aaron Dufault (Washington Department of Fish and Wildlife, alternate), Rod Fleck (Washington Coast Marine Advisory Committee), Jennifer Hennessey (Washington State Department of Ecology, alternate), Annette Hoffmann (Washington Department of Ecology, alternate), Marilyn Sheldon (Coastal Shellfish Grower), Senator Keith Wagoner (Washington State Senate)

MRAC members not in attendance: Brian Allison (Puget Sound Commercial Crab Association), Mike Cassinelli (Recreational Fishing), Tom Davis (Washington State Farm Bureau), Norm Dicks (Van Ness Feldman LLP), Representative Joe Fitzgibbon (Washington State House of Representatives), Tony Floor (Northwest Marine Trade Association), Lucas Hart (Northwest Straits Commission), Jay Manning (Puget Sound Partnership), Erika McPhee-Shaw (Western Washington University), Mindy Roberts (Washington Environmental Council), Douglas Steding (Association of Washington Business), Kelly Susewind (Washington Department of Fish and Wildlife), Laura Watson (Washington State Department of Ecology)

Other participants: Simone Alin (National Oceanic and Atmospheric Association), Cory Archer (True Wind Collaborative, MRAC facilitation team), Shallin Busch (National Oceanic and Atmospheric Association), Meg Chadsey (WA Sea Grant), Brian Cochrane (WA State Conservation Commission), Natalie Coleman (Washington Department of Ecology), Jessica Cross (Pacific Northwest National Laboratory), John Elder (Washington State Senate), Richard Feely (National Oceanic and Atmospheric Association), Kristen Feifel (Puget Sound Partnership), Micah Horwith (Washington Department of Ecology), Terrie Klinger (Washington Ocean Acidification Center), Tommy Moore (Northwest Indians Fisheries Commission), Peter Murchie (Environmental Protection Agency), Talia Neiman (True Wind Collaborative, MRAC facilitation team), Jan Newton (Washington Ocean Acidification Center), Betsy Peabody (Puget Sound Restoration Fund), Candace Penn (Squaxin Tribe), Liz Perotti (National Oceanic and Atmospheric Association), Angie Thomson (Thomson Strategic Consulting, MRAC facilitation team), Jessie Turner (Ocean Acidification Alliance), Brad Warren (Global Ocean Health), Paul Williams (Suquamish Tribe), Katie Wrubel (Olympic Coast National Marine Sanctuary), Heather Yu (Cascadia Policy Solutions)

Meeting objectives:

- Share updates on recent ocean acidification efforts.

- Hear an update about recent ocean acidification science.
- Discuss MRAC communications strategy and discuss priorities outlined in new MRAC milestone one-pagers.
- Hear an update on Washington’s carbon dioxide emissions trajectory and goals, policies, and what still needs to happen to achieve net zero by 2050.
- Discuss how MRAC will engage in Marine Carbon Dioxide Removal.

Welcome and introductions

Martha Kongsgaard, MRAC Chair, welcomed participants and reviewed the meeting agenda.

Recent ocean acidification happenings

Participants shared recent ocean acidification activities. Highlights include:

- Martha Kongsgaard offered to take MRAC members to the Seattle Aquarium’s Ocean Pavilion once complete, as many are interested in the new space.
- Betsy Peabody, Puget Sound Restoration Fund, shared the Kenneth K. Chew Center for Shellfish Research and Restoration celebrated its 10-year anniversary.
 - Senator Keith Wagoner, Washington State Senate, offered support if the facility needs any improvements.
 - Shallin Busch, National Oceanic and Atmospheric Association, informed the group that additional funds have been routed to the hatchery for building improvements and should be completed by 2027.
- Jan Newton, Washington Ocean Acidification Center, provided two updates:
 - The Global Ocean Acidification Observing Network (GOA-ON) is reprising Global Ocean Acidification (OA) Week. A virtual multi-day forum will be held Monday, October 30, to Friday, November 3, 2023, to highlight ocean acidification research for sustainability initiatives around the world. Additional information can be found [here](#).
 - The Washington Ocean Acidification Center (WOAC) has concluded its seasonal cruises for the year.
- Cynthia Catton, Department of Natural Resources, shared the following with the group:
 - The Department of Natural Resources (DNR) is putting together the [Kelp and Eelgrass Conservation Plan](#), which will be submitted to legislature on December 1, 2023. This plan supports the [Submerged Aquatic Vegetation Strategy in the Puget Sound Action Agenda](#) and additional documentation includes the [Puget Sound Eelgrass Vital Sign indicator](#), [site-level trends](#), and the [Statewide Floating Kelp Vital Sign Indicator](#).
 - The Acidification Nearshore Monitoring Network (ANeMoNe) has ended their field season and will be focusing on maintaining sensors and data gathering through the winter season.
 - DNR is hiring a [WA DNR Aquatics Stewardship Science Lead](#). Cynthia asked MRAC members to share the posting with their networks and can be reached with any questions: Cynthia.Catton@dnr.wa.gov.

- Heather Yu, Cascadia Policy Solutions, noted the Pacific Coast Collaborative (PCC) revisited and assessed the Pacific Coast Climate Action Plan priorities, which included ocean acidification.
- Bill Dewey, Taylor Shellfish Farms, shared the following with the group:
 - NPR is interviewing Ebb Carbon regarding marine Carbon Dioxide Removal (mCDR). Brad Warren, Global Ocean Health, and Bill Dewey will also be interviewed regarding ocean acidification. These interviews will be shared with the group once published.
 - A marine terminal has been opened in Humboldt Bay, which will service offshore wind.
- Meg Chadsey, Washington Sea Grant, shared information about four USDA workshops, hosted in partnership with Bigelow Laboratory for Ocean Sciences, intended to identify 1) gaps in research related to the capacity for seaweeds and seagrasses to de-acidify the oceans and 2) opportunities to use farmed seaweeds and seagrasses as feedstock or other commercial uses. More information can be found [here](#).
- Candace Penn, Squaxin Tribe, highlighted the importance of eelgrass and eelgrass vital signs as the Squaxin Tribe monitors large kelp beds within the area. Candace asked the group if there are any additional action plans as many Tribes are experiencing rapid decrease within their watersheds.
 - Betsy Peabody shared the Puget Sound Restoration Fund is working to plant kelp seed this spring.
 - Cynthia Catton added the Squaxin Island kelp bed is a remnant bed, which is of high concern and critical to save. This kelp bed is highlighted within the [Kelp Forest and Eelgrass Meadow Conservation Plan](#) and planning efforts are currently underway.

Science update

Participants heard an update about recent ocean acidification science. Highlights include:

- Richard Feely, National Oceanic and Atmospheric Association, presented on the combined effects of anthropogenic carbon dioxide uptake and respiration on habitat sustainability for marine calcifiers along the Washington coast. Findings included:
 - Surface anthropogenic carbon dioxide concentrations generally increase along the coast from north to south, with the lowest values occurring in the strong upwelling region near the coast in northern California.
 - Anthropogenic carbon dioxide is the major cause of decreased pH and aragonite saturation in surface waters, whereas respiration processes (seasonal change) and anthropogenic carbon dioxide (decadal change) are the major cause of decreased pH and aragonite saturation state in subsurface waters.
 - Seasonal decreases in pH and aragonite saturation in late summer and fall in subsurface waters drop below critical thresholds for many calcifying species, causing decreased calcification and increasing dissolution.

- Simone Alin, National Oceanic and Atmospheric Association, presented 10 years of results from ocean acidification observations on seasonal WOAC cruises. The study of multiple stressors has provided valuable insight into how extreme events are affecting our marine ecosystems and provides a solid foundation for projections of ocean conditions between 2030 and 2050.

MRAC communications

The group heard a recap of the ocean acidification communications presentations shared during the July 25, 2023 MRAC meeting. Participants divided into small groups to discuss potential MRAC communication audiences and goals. Highlights include:

- Audience groups included science-to-policy translators, allies who can communicate ocean acidification messages with other sectors, policy makers, Tribes, general public groups willing to take action, and younger generations.
- Communications goals included ensuring information is shared repeatedly to build understanding and emphasize the message, report cards, or facts sheets that can be shared and updated as information changes or evolves over time, increased general awareness in schools, and helping policymakers see that the decisions they are making are impactful.

MRAC milestone one-pages

Participants discussed ocean acidification priorities looking forward. Highlights from the discussion include:

- Richard Feely suggested key ocean acidification facts should be included in the one-pagers to repeatedly highlight information and emphasize the importance.
- Martha Kongsgaard suggested including an overview of completed work, including the impact of the change and why it is important.
- Brad Warren noted the Department of Commerce has an open RFP of \$16 million to fund Carbon Dioxide Removal (CDR) work. This could be an opportunity for MRAC to partner with the Department of Commerce as they have an extensive network and communication tools.
- Annette Hoffmann, Washington Department of Ecology, suggested including a QR code on each one-pager as a way for audiences to review most recent and up-to-date information.
- Jessie Turner, Ocean Acidification Alliance, suggested identifying additional websites with high traffic, such as government or Tribal websites, where these one-pagers can be linked. This will allow for a broader audience to review the documents.

Washington's climate policy update

Participants heard about Washington’s greenhouse gas emissions trajectory and goals, recent policies, and what work needs to happen to reach net zero emission by 2050. Highlights include:

- Joel Creswell, Ecology’s Climate Policy Section Manager, reviewed four state programs:
 - Cap-and-Invest Program aimed to cap and reduce emissions over time.
 - Washington’s Clean Fuel Standard, encouraging groups to zero out their high carbon fuel deficits by the end of each year.
 - Hydrofluorocarbon (HFC) Reduction Program, which reduces, recovers, and reclaims hydrofluorocarbons through multiple programs.
 - Clean Vehicles Program, aiming to have 100% of new cars sold be zero emission by model year 2035 and require a percentage of all new truck sales to be zero emission by 2035, by weight class.
- Simon Alin asked if slides could be shared with the MRAC members as many of their individual groups would benefit from this resource.
 - Joel Creswell shared that a general overview slide does not exist but can be created.
 - Jessie Turner asked if this could include Washington’s emission projections linked to pH levels.
 - Joel Creswell and Micah Horwith, Washington Department of Ecology, will follow up with this request.

Developing Carbon Dioxide Removal guidelines

The group heard an example of how the Ocean Acidification Alliance explored how to engage with Carbon Dioxide Removal within their charge. Highlights include:

- Jessie Turner shared examples of how other groups determined their role in Carbon Dioxide Removal (CDR) conversations. Some considerations include:
 - Acknowledging the need for broad CDR.
 - Engaging policy makers regarding key questions and desired outcomes.
 - Bringing research to the table to set the tone.
 - Including outcomes and metrics.
 - Ensuring Tribal, First Nation, and Indigenous communities are a partner in the work.
 - Acknowledging these ideas should be best practices and guidelines.
 - Helping place ocean acidification in the narrative as potential risks and harms.
- Jessie Turner also highlighted the need to scale approaches, as different areas will require different methods.

Report out from the MRAC Carbon Dioxide Removal committee

Participants heard an update from the MRAC Carbon Dioxide Removal Committee, including a proposal for how MRAC could engage in this space. Highlights include:

- Meg Chadsey shared updates from the MRAC Carbon Dioxide Removal Committee. These included a high-level overview of potential suitable roles for MRAC, how they

were assessed by the group, and their level of effort needed. Less suitable roles were also shared and discussed.

- Potential roles included:
 - Low level of effort:
 - Share external mCDR information and opportunities with MRAC.
 - As appropriate, invite people engaged in mCDR to participate in MRAC discussions.
 - Moderate level of effort:
 - Integrate OAA statement on mCDR into MRAC's communications.
 - Develop key questions or information needs for new mCDR activities.
 - Encourage MRAC participation in groups or councils developing mCDR management strategies.
 - Proactively establish relationships so that policy considerations are addressed early and often in experimental mCDR design.
 - High level or effort:
 - Influence conversations in the high-level political landscape.
 - Convene mCDR conversations directly related to OA in WA.
 - Explore developing a WA strategy for mCDR as it relates to OA.
- Less suitable roles were also shared and discussed:
 - Support funding for mCDR.
 - Help create legislation to regulate mCDR across entities.
 - Conduct research to better understand the mCDR connection to ocean acidification and big-picture consequences of mCDR.
 - Contextualize the magnitude of CO₂ emission abatement needed to make mCDR practical.
 - Develop principles for a mCDR management policy.
 - Define marine jurisdictions for mCDR projects.
 - Engage in permitting discussions for mCDR projects.
 - Education, outreach, and needs assessment to support youth capacity building.
- Jessica Cross, Pacific Northwest National Laboratory, reviewed key concepts of mCDR and the nexus with ocean acidification.

MRAC and Carbon Dioxide Removal discussion

Participants discussed the proposed MRAC mCDR work plan. Highlights include:

- The group explored moving forward with four actions, while continuing to maintain the focus on other ocean acidification topics on MRAC's plate. Those four actions include:
 - Share external information and opportunities with MRAC so members can be engaged in this topic more broadly.
 - Invite experts and people engaged in CDR to participate in MRAC discussions to build the group's knowledge information as we continue to explore this topic. This could help determine if MRAC would advise policy makers to create a state entity to address CDR.

- Develop a series of key questions or information needs for new mCDR activities to ensure the techniques and approaches work for the proposed location.
- Engage with state agencies who are fielding mCDR permit requests to understand the number of projects on the horizon.
- Richard Feely informed the group there is a C-Can webinar on October 20, 2023 where mCDR funded proposals will be discussed. Attending this discussion can help MRAC better understand mCDR approaches and methods.

Next steps

- The next MRAC meeting will be held virtually in Spring 2024.
- Compile ideas generated from the MRAC communications discussion.
- The one-pagers will be shared with the group for input.
- Coordinate a report out to the Washington Coastal Marine Advisory Committee on MRAC's mCDR process.