



## MARINE RESOURCES ADVISORY COUNCIL

### **Meeting Summary**

July 22, 2015, 10:00 a.m. to 3:00 p.m.

NOAA Manchester Research Station, Port Orchard, WA

### **Meeting Attendance and Objectives**

The Washington Marine Resources Advisory Council (MRAC) held its eighth meeting on July 22, 2015. The meeting was facilitated by Angie Thomson of EnviroIssues and Martha Kongsgaard, MRAC Chair.

Members in attendance: Martha Kongsgaard (Chair), Norm Dicks, Bill Dewey, Michal Rechner (Department of Natural Resources alternate for Peter Goldmark), Garrett Dalan, Kelly Susewind (Department of Ecology alternate for Maia Bellon), Paul Dye, Nan McKay, Linda Anderson-Carnahan (Environmental Protection Agency alternate for Dennis McLerran), Gus Gates, Rich Childers (Washington Department of Fish and Wildlife alternate for Michele Culver), Chad Bowechop (Makah Tribal Council alternate for T.J. Greene), Libby Jewett (by phone)

MRAC members not in attendance: Brian Allison, Mike Cassinelli, Lisa Graumlich, Representative Dave Hayes, Steve Hollenhorst, Senator Steve Litzow, James Peters Senator Kevin Ranker, Phil Rockefeller, Dick Sheldon, Tom Davis, Tony Floor, Terry Williams, Kelly Wood

Other participants: Brad Warren (Global Ocean Health), Meg Chadsey (Washington Sea Grant), Betsy Peabody (Puget Sound Restoration Fund), Jan Newton (WOAC), Shallin Busch (NOAA), Mindy Roberts (Ecology), Joth Davis (PSRF/Taylor Shellfish), Teena Reichgott (EPA), Paul Williams (Suquamish Tribe), Laura Nelson (The Nature Conservancy/Makah Tribe), Benoit Eudeline (Taylor Shellfish), Yongwen Gao (Makah Tribe), Carol Reamer (Makah Tribe), Kirsten Feifel (WDRN), Kendall Farley (Northwest Power and Conservation Council)

### Meeting objectives:

- Hear from other ocean acidification groups on recent events and efforts
- Review outcomes of the state budget process
- Review progress towards Blue Ribbon Panel's recommendations related to adaptation and remediation, and discuss MRAC's targeted priorities for future activities

### Materials distributed:

- Adaptation and Remediation Blue Ribbon Panel Recommendation Progress Tracker
- MRAC Adaptation and Remediation Priorities – July 2014

### **Welcome and introductions**

Chair Martha Kongsgaard opened the meeting, thanked council members for their participation, and thanked the NOAA Manchester Research Station participants for hosting. She also welcomed new council member Nan McKay, replacing Ginny Broadhurst in representing the Northwest Straits Commission. Martha added that there are still two MRAC seats that need

filling –previously held by the Association of Washington Businesses and former Representative Larry Seaquist. Recommendations should be sent to Martha directly.

### **Recent ocean acidification happenings**

Martha provided an update on her recent trip with the Pacific Coast Collaborative (PCC) to Washington, D.C. The purpose of the trip was to talk with NOAA, EPA and legislators about ocean acidification and the upcoming products soon to be published by the West Coast Ocean Acidification and Hypoxia Science Panel. The PCC delegation also met with the White House’s Council on Environmental Quality (CEQ), who has invited the group to collaborate with the National Ocean Council – the body charged with implementing a national ocean policy – to bring ocean acidification policy ideas to the table.

Martha also shared that the Washington State MRAC is still considered a national leader in the ocean acidification landscape. Members of the PCC delegation met with a Maine legislator, as well as the Ocean Conservancy and the Ocean Foundation – organizations working to replicate MRACs across the United States – to provide support and consultation on how the MRAC process works.

Martha noted that this is an important time for ocean acidification science (75% of ocean acidification papers have been written since 2009), and yet it continues to be a challenge to work together regionally on the issue. In her research to prepare for the trip to Washington D.C., she noted that very few climate plans or related documents mentioned ocean acidification.

Martha invited council members to share updates on recent happenings related to ocean acidification.

- Bill Dewey (Taylor Shellfish) noted that the Oregon Legislature passed a bill in June 2015 to fund the Oregon Shellfish Initiative and monitoring at Hatfield Marine Science Center and Whiskey Creek Shellfish Hatchery. In this session, the legislature provided twice as much funding for ocean acidification as previous amounts, and an additional \$100,000 more than what was requested.
- Bill also mentioned that conservative blogger Todd Myers (Washington Policy Center) recently let him write a guest post (see link below).
- The Ocean Conservancy is organizing a U.S.-France Aquaculture Exchange this fall. The French shellfish industry largely isn’t yet engaged in ocean acidification because French growers have more pressing challenges to tackle, such as disease. This exchange will hopefully provide an opportunity for them to become more participate more in the discussion.
- Paul Dye (The Nature Conservancy) noted that Washington Sea Grant has led a consortium comprised of the Nature Conservancy, the Climate Impacts Group, and others, in developing a proposal to work with communities on coastal resilience and to retrofit our existing state programs (e.g., the Floodplains by Design program) to channel funding to focus on ocean acidification.
- Jan Newton (Washington Ocean Acidification Center, or WOAC) spoke about the Ocean Acidification international Reference User Group (OAiRUG) – a group working to translate ocean acidification science for policymakers in order to influence international climate policy. Their efforts will be used at the United Nations Framework Convention

on Climate Change 21<sup>st</sup> session of the Conference of Parties (COP 21), in Paris this year. climate change conference, the Conference of the Parties and the focus of their most recent meeting was to identify science gaps. They plan to travel around the world to engage communities within ocean acidification hot spots.

- Jan Newton and Bill Dewey will be attending the World Ocean Council's Sustainable Ocean Summit in Singapore this November, and will present on the collaborative monitoring being conducted across Washington State.
- Jan noted that XPrize winners were recently announced. Sunburst Sensors won first prize in both affordability and accuracy categories, and is a partner in the technology transfer program that NOAA and IOOS have funded to foster technology sharing among shellfish growers.
- Jan also noted that coastal upwelling is keeping normal temperatures on our coast, however offshore temperature averages are more than two standard deviations from normal. This will be a pivotal year in Puget Sound. She reminded participants that data collected through monitoring buoys is available online through NANOOS, IOOS, and the Global Ocean Observing Network.
- Mindy Roberts (Washington Department of Ecology) added that Ecology also has monitoring data from around Puget Sound and the coast. In October 2014, warm temperatures came through Admiralty Inlet and reached South Puget Sound in one month, providing a reminder of how connected our waters are.
- Brad Warren (Global Ocean Health) noted that his colleague Julia Sanders is funded to go to COP 21 in Paris. He invited those interested in getting involved to follow up with her.
- Paul Williams (Suquamish Tribe) reported that there was a recent three-day workshop on ocean acidification curricula for teachers. The teacher community is interested in forming partnerships with researchers and in getting students involved with research.
- Chad Bowe chop (Makah Tribe) stated that the Makah Tribe has become very involved in ocean policy initiatives at the federal level, with treaty rights as a major driver. Dr. Yongwen Gao and Washington Sea Grant Hershman fellow Laura Nelson are conducting research on ocean acidification and ocean policy issues for the tribe. In July 2015, the Makah will present to The Nature Conservancy on their mutual interests in ocean acidification and vessel safety.

Several members shared recent published resources, media hits, and upcoming events, compiled below.

OA resources, reports, and media hits:

- [Oceanography Magazine](#) - Special Issue on Emerging Themes in Ocean Acidification Science (June 2015)
- [EPA's Climate Change in the United States – Benefits of Global Action](#), including sections on ocean acidification and shellfish (June 2015)
- [NOAA ocean acidification story map](#) (made in collaboration with ESRI)
- [What oysters reveal about sea change](#) – NY Times op-ed by Mark Bittman (July 2015)
- [OA is killing baby oysters](#) – Al Jazeera America (June 2015)
- [Bill Dewey's guest post](#) – Washington Policy Center blog (June 2015)

Upcoming OA-related events (in order of occurrence):

- Puget Sound Media Day – July 30, 2015
- Our Oceans II Conference – October 5-6, 2015 in Valparaiso, Chile
- Coastal & Estuarine Research Federation (CERF) Conference – November 8-12, 2015 in Portland, OR
- World Ocean Council Sustainable Ocean Summit –November 9-11, 2015 in Singapore
- UNFCCC COP 21 – November 30-December 11, 2015 in Paris, France
- Ocean Conservancy U.S.-French Aquaculture Exchange, Fall 2015
- Salish Sea Ecosystem Conference – April 13-15, 2016 in Vancouver, BC
- 4<sup>th</sup> International Symposium on the Ocean in a High-CO<sub>2</sub> World – May 3-6, 2016 in Hobart, Australia

### **State budget debrief**

Martha reported that the Washington State Legislature allocated \$1.7 million for ocean acidification activities. This includes \$1.55 million through the University of Washington and \$150,000 in the Washington Department of Natural Resources' budget for facilitation of the MRAC. In future discussions, MRAC needs to determine how to approach the next legislative session and whether or not to pursue supplemental budget requests.

### **Strengthening OA response through shoreline planning and restoration**

Brad Warren presented on building coastal resilience to ocean acidification and rising seas, specifically how local planners can be empowered to make informed decisions about land use and priority restoration investments using high-resolution LIDAR geographic data. Initial pilot programs with Grays Harbor County and Willapa Bay have shown that this data can be very influential to local planners.

Brad noted that Washington Department of Ecology could facilitate this data transfer for Shoreline Master Programs (SMPs) across the state. He will follow up with a draft letter that MRAC could sign. View his presentation [here](#).

### **Developing communications for citizen engagement**

Meg Chadsey (Washington Sea Grant) presented on the efforts and challenges in engaging Washington State citizens on ocean acidification. Meg has been working to identify actions that individuals and communities can take to address ocean acidification, beyond writing to their legislators. Measures that lower CO<sub>2</sub> emissions and reduce carbon footprints are central to the list of actions. As part of these efforts, Meg and others are working to engage the green building industry to raise awareness of how an energy retrofit connects to ocean acidification. She also mentioned that Ginny Broadhurst (Northwest Straits Commission) is looking to build an ocean acidification GIS-based story map with success stories that could be distributed via flash drive.

Meg noted that identifying community-level actions and developing messaging around ocean acidification engagement is challenging, and that she would welcome help from MRAC on both. In addition, she will be presenting at the spring 2016 Salish Sea Ecosystem Conference on

actions at multiple levels, and offered to feature anything that council members think should be highlighted.

### **NOAA Manchester Research Station facility tour**

During the lunch break, hosts from NOAA provided a tour of the research station to meeting participants. The tour included stops at the Kenneth K. Chew Center for shellfish research and restoration (the newly funded conservation shellfish facilities recommended by the Blue Ribbon Panel), salmon rearing tanks, and a simulated streambed.

### **Adaptation and Remediation discussion**

Angie led the council through an in-depth discussion on the MRAC's role in advancing ocean acidification adaptation and remediation. She began by reviewing the Blue Ribbon Panel's related key early actions and outlining current actions underway relating to the Blue Ribbon Panel's recommended actions, as provided by members of the adaptation and remediation ad hoc committee. Angie also referred council members to the four priority actions developed by the Adaptation and Remediation ad hoc committee in July 2014. The four priority actions include:

- Seaweed cultivation
- Ocean acidification refuges
- Native oyster restoration
- Genetic adaptation in keystone species

Angie invited council members and the public to comment on these efforts and any progress not captured in the tracker. The council also brainstormed a few new actions as part of the discussion. Comments provided are listed below and captured in the updated Adaptation and Remediation Blue Ribbon Panel Recommendation Progress Tracker available on the [MRAC webpage](#).

- **OA practitioner workshop at 2016 Salish Sea Ecosystem Conference:** Paul Dye, in conjunction with Jan Newton and the Washington Ocean Acidification Center, offered to organize a practitioner-oriented session at the upcoming Salish Sea Ecosystem conference in spring 2016 as part of a broader list of ocean acidification sessions that WOAC has proposed. The intent of this particular session would be to encourage interaction and knowledge exchange between technical experts and ocean acidification practitioners.
- **Seaweed cultivation (Key Early Action 6.1.1):** Betsy Peabody (Puget Sound Restoration Fund, or PSRF) provided an update on the seaweed investigation project that PSRF is leading. The investigation received \$1.5 million from the Paul Allen Foundation, and the project is also applying for supplemental funding from the U.S. Navy. The investigation will be conducted over the course of five years on a three-acre site at Hood Head, just north of the Hood Canal Bridge. The project timeline has been accelerated to match natural processes, and seaweed planting will begin at the site in December 2015. WOAC will conduct in-field testing to see if the seaweed cultivation has beneficial impacts to water chemistry and pteropod health.

- **Shell recycling program** (Action 6.1.3): Rich Childers (Washington Department of Fish and Wildlife, or WDFW) shared that the agency is currently planning to conduct a risk analysis for a shell recycling program. Recycling shell from other regions could introduce disease. WDFW will assemble a pathologist, industry representatives, and others to analyze the level risk involved and determine next steps. Rich will provide an update at the next meeting.
  - Betsy Peabody added that part of the discussion should be whether treatment could occur to inoculate potentially diseased shell that are recycled.
  - Bill Dewey noted that this could be a great program to engage the restaurant industry and their customers. Shell recycling with restaurants is being done elsewhere in the U.S.
  
- **Water quality monitoring at six shellfish hatcheries** (Key Early Action 6.2.1): Jan Newton provided an update on the water quality monitoring across private shellfish hatcheries in Washington and Oregon. She noted that these efforts include a technology transfer program to facilitate monitoring and measurement for the growers. New nearshore monitoring stations will be coming online soon in addition to King County's new pH sensors, which WOAC is helping to install.
  - Benoit Eudeline (Taylor Shellfish) noted that the real-time data is used to adjust the carbonate chemistry. So far, 2015 has been a good year for carbonate chemistry, but not for shellfish survival.
  - George Waldbusser (Oregon State University) and Nina Bednarsek are working to develop an assay to help monitor shell growth and shellfish health. Nina will be the contact for that for those interested.
  
- **Investigating water treatment** (Key Early Action 6.2.3): WOAC distributed \$100,000 to Taylor Shellfish and Whisky Creek (\$50,000 each) for these investigations. Taylor Shellfish is currently working to do small-scale experiments and is continuing to build a system for water treatment investigations.
  
- **OA indicators development** (Action 6.2.4): WDNR is helping to develop an oyster bioassay that measures growth of oysters. With this and other efforts, Michel Rechner noted that WDNR has been working to roll efforts that address ocean acidification into existing agency programs. Jan added that pteropod monitoring on the outer coast and Salish Sea also contributes to fulfilling this recommended action.
  
- **Kelp preservation and restoration** (Action 6.3.1): WDNR maintains a marine vegetation atlas and is developing a kelp restoration process. In addition, the Northwest Straits Commission has also developed a protocol for monitoring kelp beds used by marine resource committees (MRCs) in four counties across Washington State. The Commission has also created a transboundary kelp alliance with Canada. The kelp culture facility at the Manchester Research Station could help provide capacity for kelp restoration in the future if funded is made available.
  - WDNR is also continuing surveying eelgrass. In recent surveys, the agency has identified new areas for growth at river deltas (e.g., Skykomish delta) and in Hood Canal.

- **Ocean acidification refuges** (Action 6.3.2): WDNR plans to move forward on identifying and developing ocean acidification refuges. The agency is looking to form a work group to develop a list of recommended criteria for refugia site selection. Several council members and meeting attendees volunteered to participate in the work group, including Betsy Peabody, Joth Davis, Paul Williams, Paul Dye, Shalin Busch, Rich Childers, and WOAC.
- **Native oysters** (Action 6.3.3): Betsy Peabody shared that Puget Sound Restoration Fund has set a goal to restore 100 acres of native oyster habitat by 2020. Only 40 acres of have been restored to date, due to lack of funding. A significant amount of groundwork has been made to roll out the project if additional funding is established.
- **Conservation hatchery techniques** (Action 6.3.4): The Kenneth K. Chew Center at the Manchester Research Station is the outcome of this recommendation and the funding to support it. The council agreed that stable funding should be continued for the Center, and that its success story should be communicated. Hatchery monitoring at this site should also be included in the NANOOS data network.
- **Genetic tolerance to OA** (Action 6.3.5): A Washington Sea Grant genetic research project for Pacific and gigas oysters is currently underway at the Kenneth K. Chew Center. NOAA is also conducting research at Mukilteo on molecular functions of organisms that make them resistant to ocean acidification.

Angie asked the council to discuss what adaptation and remediation efforts should be prioritized for funding.

- Shalin Busch noted that wild fisheries and other wild stocks (Dungeness crabs, for example.) are largely left out of the ocean acidification discussion, and that we need to start looking at how we will adapt our management practices to changing fishery resources. Others agreed that this is an important consideration and that there needs to be a long-term vision for response. The NOAA Northwest Fisheries Science Center is developing an implementation plan for wild fish harvest management, and there is an opportunity in that plan to push on this issue.

### **Next steps and action items**

The council agreed that the next meeting in October 2015 should be in Port Townsend, date and location to be determined. Meeting topics for the remainder of 2015 includes:

- Fall (October): Local Land Based Contributions
- Winter: Monitoring and Investigation

A few final action items were noted:

- Angie and the EnviroIssues team will update the Adaptation and Remediation progress tracker based on the discussion and distribute to the team.
- Martha and Angie will be in touch with council members as necessary to discuss the supplemental budget.

Martha thanked everyone for their participation and adjourned the meeting.