



MARINE RESOURCES ADVISORY COUNCIL

Meeting Summary

March 31, 2015, 10:00 a.m. to 3:00 p.m.

Columbia Room, Capitol Campus

Meeting Attendance and Objectives

The Washington Marine Resources Advisory Council (MRAC) held its seventh meeting on March 31, 2015. The meeting was facilitated by Angie Thomson of EnviroIssues and Martha Kongsgaard, MRAC Chair.

Members in attendance: Martha Kongsgaard (Chair), Michal Rechner (Department of Natural Resources alternate for Peter Goldmark), Christine Woodward, Garrett Dalan, Hedia Adelman (Department of Ecology alternate for Maia Bellon), Lisa Graumlich, Paul Dye, Michele Culver, Senator Kevin Ranker, Tom Davis, Teena Reichgott (Environmental Protection Agency alternate for Dennis McLerran), Ron Shultz (Washington State Conservation Commission alternate for James Peters), Gus Gates, Richard Feely (NOAA alternate for Libby Jewett)

MRAC members not in attendance: Bill Dewey, Terry Williams, Tony Floor, Brian Allison, Senator Steve Litzow, Mike Cassinelli, T.J. Greene, Norm Dicks, Kelly Wood, Phil Rockefeller, Dick Sheldon, Steve Hollenhorst, Representative Dave Hayes

Other participants: Betsy Peabody (Puget Sound Restoration Fund), Julie Horowitz (Governor's Office), Micah Horwith (DNR), Jan Newton (WOAC), Terrie Klinger (WOAC), Nina Bednarsek (NOAA), Hilary Browning (Department of Health), Shallin Busch (NOAA), Skyli McAfee (California Ocean Science Trust), Mindy Roberts (Ecology), Raechel Waters (Vulcan), Casey Dennehy (Surfrider Foundation), Jacqueline Laverdure (NOAA-OCNMS), Kevin Grant NOAA-OCNMS), Micah McCarty (Nisqually Tribe), Katrina Lassiter (DNR), Brad Warren (Global Ocean Health), Julia Sanders (Global Ocean Health), Jay Manning (Cascadia Law Group), Jessie Turner (Cascadia Law Group)

Meeting objectives:

- Review status of MRAC budget requests and legislative initiatives
- Hear from other ocean acidification groups on recent events
- Review progress towards Blue Ribbon Panel's recommendations related to education and outreach, discuss MRAC's targeted priorities for future activities
- Review proposed MRAC work plan for 2015

Materials distributed:

- Ocean Acidification Report
- Washington Ocean Acidification Center Science Information Sheets
- Education and Outreach Blue Ribbon Panel Recommendation Progress Tracker
- MRAC Education and Outreach Priorities – July 2014
- Ocean Acidification Activity update from Bill Dewey

Welcome, Recent and Upcoming Happenings

Chair Martha Kongsgaard opened the meeting and thanked Council members for their participation. She explained the goals of the meeting and the importance of ocean acidification as demonstrated by recent legislative efforts. She noted that since the last Council meeting in November 2014, there has been significant activity within the ocean acidification landscape. She explained that the MRAC hosted a work session in front of the House Environment Committee, and has been engaging the Legislature through one-on-one conversations to communicate the importance of addressing ocean acidification to the appropriate members of the Legislature. She added that the MRAC prepared a report on the progress made on ocean acidification, and presented the report to the Legislature. She noted that a remaining task for the MRAC is to address the Council's 2017 sunset date, which can be addressed during the next legislative session. She added that the Seattle Aquarium will be hosting an event on April 2, 2015, coinciding with the XPrize, to highlight ocean acidification. In addition, she explained that she spent time in Washington, D.C. to talk about Puget Sound and ocean acidification. She suggested that, as a way to thank Senator Maria Cantwell for her support, the MRAC put together a short video that Senator Cantwell can use when discussing ocean acidification in meetings in D.C.

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

- Richard Feely explained that NOAA Administrator Dr. Kathryn Sullivan visited Seattle and discussed ocean acidification at several events. He noted the importance of clearly articulating the integration between observing and monitoring systems, to address Dr. Sullivan's concerns that Congress may not understand how these systems are connected. Paul Dye added that at one event, Dr. Sullivan focused on environmental intelligence and the role of the private sector in increasing understanding of the issues.
- Richard Feely reported on the completion of a NOAA study which evaluated the carbon signal of water and the carbon dioxide concentration of upwelling water. He explained that upwelled water contains the highest levels of carbon dioxide. The study revealed an assessment of the anthropogenic carbon signal in Washington's waters. The results reinforce what was found in the 1994 data collection, and that the study will be published shortly.
- Teena Reichgott explained that the decision in the court case brought against EPA by the Center for Biological Diversity came out in EPA's favor. She added that EPA is continuing to look at developing criteria for water quality in terms of ocean acidification. She also noted that the Suquamish tribe has received funds for education and outreach projects that might be of interest to MRAC members.
- Jan Newton explained that NANOOS competed for an ocean technology transfer award that will fund the research and development transfer to commercialize pCO₂ sensors, making calculating aragonite saturation less expensive. This would allow for testing sensors to be placed in shellfish hatcheries along the coast.

Status of MRAC Budget Requests and Related Legislative Initiatives

Martha began the discussion of recent budget requests. Julie Horowitz explained that the Governor's budget included \$1.7 million in funding for MRAC's decision packages. This includes \$1.55 million through the University of Washington and \$150,000 in the Department of Natural Resources' budget for facilitation of the MRAC. She explained that the House budget includes the same total amount for MRAC proposals as the Governor's budget – \$1.7 million. Later in the meeting, Senator Kevin

Ranker provided an update on the just-released Senate budget, and explained that it includes \$1.7 million for the University of Washington's ocean acidification proposals and \$150,000 for MRAC facilitation (\$1.85 million total). He explained the process for reconciling the House and Senate budgets, and was optimistic that MRAC funding will be included in the final budget.

Shallin Busch explained that NOAA's federal budget currently includes \$2.5 million for ocean acidification, and specific project funding will be decided in April 2015. Half of the funding above the previous budget will be dedicated to competitive awards. She noted that the President's proposed 2016 budget would increase the national program budget from \$8 million to \$30 million. She added that the region-specific budgets have yet to be determined, and expressed confidence that there will be investments in the West Coast. She explained that the increase to \$30 million has drawn a lot of attention, and the Ocean Conservancy has spearheaded efforts to work with the ocean acidification community.

Science Moment

Jan Newton presented recent work on the biological effects of changes in seawater chemistry conducted by the Washington Ocean Acidification Center (WOAC) in collaboration with its many partners. The partners studied plankton at eight integrated monitoring stations along the coast. The study is intended to last for several years, but results are already indicating that there are very clear hotspots of acidity and pteropod dissolution. The study has also shown that seasonal upwelling affects the pH recorded at each of the monitoring stations.

Terrie Klinger then presented the scientific products of the West Coast Ocean Acidification and Hypoxia Science Panel. The first product was a recent paper examining how physiological studies can help interpret and predict the effects of global environmental change. The second paper discusses how existing knowledge can determine decision-making and resource management at the ecosystem scale. The third paper argues that monitoring, modeling, and vulnerability assessments are all required to respond to ocean acidification. Terrie noted that there is immense collaboration between groups working on ocean acidification, such as the partnerships within the WOAC.

Regional Collaboration on Ocean Acidification

Jay Manning discussed the work of the Pacific Coast Collaborative (PCC) on ocean acidification. He explained that the PCC began in 2007 as an agreement between California, Washington, Oregon and British Columbia to work together on a number of environmental issues, one of which was the oceans. Jay explained that 90% of the group's work focuses on energy and climate, and about 10% of the work focuses on ocean acidification. Although it is a relatively small part of what the PCC does, Jay expressed confidence that ocean acidification will always be a part of the PCC's work.

The leaders of the states and province signed on to a Pacific Coast climate and energy agenda. The agenda included two points to guide the ocean acidification effort: 1) to enhance the already constructed partnerships between federal government and state and province governments; 2) to engage industries and include industry voices in the discussion. He noted that industry engagement has been a slower process, but some progress has been made.

Jay noted that a staff-level meeting has been set for April 15 in Seattle to develop a set of recommendations which will then be taken back to federal agency leadership. The meeting will

focus on science and research, mitigation and adaptation, and state and federal funding to support ocean acidification efforts. The meeting will also include tribal representatives and agency leaders from British Columbia and Canadian ocean agencies. Jay added that there is potential for increased collaboration between the United States and Canada as well as between state and federal governments, and the April meeting will help determine the level of international engagement. He noted that the Alaskan leadership may be interested in observing the process, and perhaps becoming more engaged in the future.

West Coast Ocean Acidification and Hypoxia Science Panel

Skyli McAfee presented to the group on behalf of the West Coast Ocean Acidification and Hypoxia Science Panel. She explained that while MRAC is a leader for other states, the priorities of her organization are slightly different than those of the MRAC. Founded by the California Ocean Science Trust to deploy ocean expertise in an effective manner, the group is broken up into working groups that write papers on ocean and coastal dynamics. The panel is working to gain momentum to merge scientific expertise with political action. As the panel began to focus on regional ocean issues, it realized that it also had the tools to address ocean acidification and hypoxia. She explained that since ocean acidification is a multi-stressor issue, each indicator of ocean acidification (pCO₂, hypoxia, pH, etc.) will tell a different story. She stressed that chemistry itself is not the problem, but instead it is the effects of the changing chemistry that are of concern. She added that this provides an opportunity to address multiple stressors together, rather than funding one item at a time.

Skyli emphasized the need for regional collaboration. She noted that California, Washington, and Oregon are all working individually to address ocean acidification, but a regional system would only make these efforts stronger. She commented that integrating socially, scientifically, politically, etc. would create more opportunities to tackle ocean acidification on a larger scale.

Education and Outreach Priorities discussion

Angie led the council through an in-depth discussion on the MRAC's role in education and outreach. She began by reviewing the Blue Ribbon Panel's related key early actions and the progress on education and outreach, outlining current actions underway relating to the Blue Ribbon Panel's recommended actions. She invited council members and the public to note any actions not captured in the table.

Angie also referred council members to the seven priority actions developed by the Education and Outreach ad hoc committee in July 2014, and Betsy Peabody provided background information on the ad hoc committee's intent for proposing these priorities. Angie noted that none of the priorities were included in proposals for funding in the next biennium. The seven priority actions include:

- OA website
- Public forums and targeted outreach
- OA science conference
- OA literacy research and polling
- Online OA college
- Incorporating OA in K-12 curriculum
- Incorporating OA in higher education curriculum

Angie and Martha asked for feedback from the MRAC on these seven priorities and what role the MRAC can take in advancing ocean acidification education and outreach, based on the resources of the group.

MRAC members first discussed the outreach landscape and offered the following as their top outreach priorities:

- **Identifying and targeting outreach to key stakeholder groups**, including local entities, conservation districts, and water authorities. The group agreed that an outreach strategy should begin with identifying key stakeholder groups, then reaching out to those group to understand their needs and perspectives, how they best receiving information, how they adapt to risk and uncertainty, what action they can take, their processes, etc. A short list of a few target stakeholder groups would be more effective than trying to provide outreach to many, and this list should consist of groups that can actually take action. Once identified, these groups could be connected via an online OA college.

The first step, before all other education and outreach priorities, should be to identify these target stakeholder groups. Paul Dye, Gus Gates, and Ron Shultz volunteered to sit on a subcommittee to develop this list and advance the outreach strategy. Once stakeholder groups are identified, individual MRAC members could reach out and develop a relationship with the group. Others interested in joining the subcommittee should contact Angie.

Garrett Dalan mentioned that Marine Resources Committees (MRCs) could provide a good platform local education and outreach, so long as key messages are appropriately customized to audiences.

- **An OA Conference** that addresses the socio-economic impacts of ocean acidification and bridges the science with resource management. The WOAC's upcoming conference on May 26 will identify opportunities for collaboration across the regional scientific community. The conference's primary audience is scientists within academia and agencies, but it does not target resource managers and decision-makers. The Salish Sea Ecosystems Conference could add an extra day specific to these additional audiences. Martha will propose this for this year's conference in Vancouver, BC since she is involved with the conference planning. The Seattle Aquarium may also be interested in hosting Sound Conversations event annually.
- **OA Websites** that provides linkages to other existing ocean acidification websites. The group discussed how having multiple websites on ocean acidification is positive, and the benefits of having one website that connects the many available resources. There are currently a few websites that are fulfilling this purpose. Washington Sea Grant recently updated their website to include a collection of OA documents, and the NANOOS webpage also has many links to ocean acidification materials. MRAC members were encouraged to share additional information for web publication with Amy Sprenger.
- **High-level strategic coordination** to integrate individual efforts. This includes developing a response protocol across multiple agencies for responding to negative media coverage. A collection of key talking points and FAQs would be helpful for deploying responses in a

timely manner, along with a list of individuals who could be contacted to help address questions.

MRAC members also discussed their role in education. It was determined that the education subcommittee should reconvene and report back to the MRAC on two or three specific actions that they would like the MRAC to take on that are appropriate for the skills and resources the council provides. While the MRAC's top education priorities were less clear, the following ideas were offered:

- Engaging Washington Department of Education in a high-level, strategic conversation about regularizing OA curriculum
- Engaging Aquarium and Pacific Science Center on children's education
- Engaging OSPI on devoting education funds for OA science kits
- Citing MRAC priorities and Blue Ribbon Panel Recommendations in education-related grant proposals

Additionally, Paul Williams noted that there is an opportunity to integrate ocean acidification curriculum into Next Generation Science Standards, adopted last year in Washington State for K-12 education. These standards are just beginning to roll out now and will be online in 2018. Currently, ocean acidification is only mentioned once in the 12th grade curriculum, but it lends itself well to interdisciplinary ideas. The main challenge is convincing each school district to use the curriculum. Paul has been writing grants to work with individual school districts and is working with OSPI to advance ocean acidification curriculum.

Julie Horowitz added that Washington Shellfish Initiative is interested in engaging more in K-12 OA education.

Betsy mentioned that Steve Hollenhorst was a strong advocate of ocean acidification literacy research and polling, and that since he was not present at the meeting, a discussion of this should be tabled until a future meeting.

MRAC Workplan in 2015 & Next Steps

Angie proposed having a similar discussion for the other three focus topics (Local Land Based Contributions, Adaptation and Remediation, and Monitoring and Investigation) at the next three MRAC meetings throughout 2015, with the intent to prepare for budget proposal development in 2016. The group agreed that this was a worthwhile discussion and approved of the workplan, including the following tentative meeting schedule and order of discussions:

- Summer: Adaptation and Remediation
- Fall: Local Land Based Contributions
- Winter: Monitoring and Investigation

Specific meeting details will be shared in advance of these upcoming meetings. Note that the summer meeting may include a field trip to a hatchery or kelp propagation facility and may be longer in duration as a result.

Martha thanked everyone for their participation and adjourned the meeting.

Action Items

- Angie and the EnviroIssues team will set up conference calls for the education and outreach sub-committees
- The new outreach subcommittee will identify a list of targeted stakeholder groups
- The education subcommittee will identify two or three actions items appropriate for the full MRAC
- Martha will propose an additional day at the Salish Sea Ecosystems Conference to discuss OA
- Martha will reach out to OSPI about how MRAC can move forward with OA education
- Interested members can contact Angie about developing a protocol for responding to negative media coverage