

DRAFT Minutes
Ninth Meeting of the Ocean Exploration Advisory Board
Seattle, Washington
January 30-31, 2018

Notification and Availability of Meeting Materials

The ninth meeting of the Ocean Exploration Advisory Board (OEAB) was announced to the public by Federal Register Notification, and on the OEAB website at www.oeab.noaa.gov. Background material and presentations prepared for this meeting are posted on the OEAB website.

Ocean Exploration Advisory Board Members in Attendance

Mr. John Kreider, Oceaneering, Inc. (Chair)
Dr. James Austin, University of Texas/Austin (Vice Chair)
Ambassador Cameron Hume, Consultant (Vice Chair)

Dr. Amanda Demopoulos, U.S. Geological Survey
Dr. Jacqueline Dixon, University of South Florida
Dr. Christopher German, Woods Hole Oceanographic Institution
Mr. David Lang, OpenROV
Dr. Darlene Lim, NASA
Ms. Nicolette Nye, National Ocean Industries Association**
Dr. Richard Rikoski, Hadal, Inc.
Dr. Dominique Rissolo, University of California at San Diego
Mr. Lance Towers, The Boeing Company

NOAA Management and Staff in Attendance

Dr. Alan Leonardi, Director, OER
Mr. David McKinnie, Designated Federal Officer for the OEAB
Dr. Stephen Hammond, OER
Dr. Adrienne Copeland, OER

Invited Briefers

Dr. John Delany, Professor of Oceanography, University of Washington
Ms. Katy Croff Bell, MIT Media Lab (via teleconference)
Ms. Dana Manalang, Systems Engineer, Advanced Physics Laboratory, UW
Mr. Spencer Reeder, Climate and Energy Programs, Paul G. Allen Philanthropies

Meeting Summary

1. **Meeting Opening.** The Designated Federal Officer (DFO) opened the meeting on January 30th, 2018, at the University of Washington's School of Oceanography.
2. **Approval of Minutes.** Mr. Towers made a motion to approve the minutes from the 8th OEAB meeting, held in Hanover, Maryland. Dr. Austin seconded, and the Board approved the minutes (see OEAB website for Meeting 8 minutes).

* Ms. Nye participated in the first day.

3. **Chairman's Remarks.** The Chair reviewed his perspective on the status of ocean exploration and how the OEAB can engage NOAA leadership to advance NOAA priorities and a national ocean exploration program. He noted Acting NOAA Administrator RDML Tim Gallaudet's three priorities for NOAA: 1) lead the world in earth system observation and weather prediction; 2) minimize impacts from severe weather; 3) increase the sustainable economic contributions of our fisheries and oceans. Mr. Kreider posed the question of how the OEAB can help advise the NOAA Administrator on supporting Blue Economy priorities by increasing the "aperture" of ocean exploration. He noted the executive order on a federal strategy to ensure secure and reliable supplies of critical minerals and the relationship of the executive order's requirements and ocean exploration. Mr. Kreider observed that to be more effective, the OEAB would need to be clear it is advising the NOAA Administrator, not the Office of Oceanic and Atmospheric Research or the Office of Ocean Exploration and Research and so establish the appropriate relationships with the new NOAA leadership and respond to their requirements.

4. **Briefing on Ocean Exploration and the Time Domain.** After welcoming the OEAB to School of Oceanography, Dr. John Delany opened his briefing with comments on the importance of observations in the time domain to understand ocean processes and the relationships among these processes that collectively determine ocean health and the life support and economic services on which humanity depends. He explained that thinking of these observations as important to ocean exploration allows for a more complete understanding of areas of interest, and that smaller study areas, such as Axial Seamount, can serve as a proxy for other areas of the ocean, and even of conditions on other ocean worlds. He then summarized the Ocean Observatories Initiative (OOI) and the Axial Seamount OOI node, along with recent results, including observations of hydrothermal vent growth.

The discussion with the OEAB that followed touched on funding, data management, whether the private sector can be encouraged to invest in observational networks; and using OOI data and results to help explain the nature and importance of ocean processes to the public.

Dr. Delaney's presentation is posted on the OEAB website, along with all other presentations provided during this meeting.

5. **Presentation on Ocean Exploration in a Sea of Data 2017.** Dr. Dominique Rissolo provided the OEAB with a summary of National Ocean Exploration Forum 2017: Ocean Exploration in a Sea of Data. This fifth National Ocean Exploration forum focused on data synthesis and visualization. Bringing together the ocean exploration community with students and faculty focused on new techniques that allow new insights and discoveries because science can be done differently with these tools, but also provide new and exciting ways to share ocean exploration results with the public. Students and professors at Jacobs School of Engineering and Scripps Oceanographic Institutions prepared five demonstrations of innovative ways to synthesize and visualize ocean exploration data; working groups discussed the implications of these demonstrations and made recommendations to the community for how to capitalize on these new approaches. Dr. Rissolo presented the executive summary of the forum report to the OEAB.

6. **National Ocean Exploration Forum 2018.** NOAA has accepted an offer by Katy Croff Bell, of the MIT Media Lab, in Cambridge, Massachusetts, to co-organize and host the next National Ocean Exploration Forum, which will focus on public engagement. Ms.

Croff Bell provided the OEAB with a brief overview of initial planning for NOEF 2018 and noted that in addition to MIT Media Labs, the New England Aquarium, Massachusetts Sea Grant, and the MIT Museum have agreed to host the next Forum, planned for 8-10 November 2018.

In discussion, the OEAB noted their hope that this next Forum would help the community become more effective at informing the public about ocean exploration. The OEAB also noted the need to review the Forum process after November for value, and to suggest how the Forum process might evolve.

7. **General Ocean Survey and Sampling Iterative Protocol (GOSSIP).** Dr. Demopoulos provided a short briefing on GOSSIP, developed under Nekton, which is a proposed protocol to collect and manage global ocean data in a consistent manner to make the data comparable. GOSSIP intends to improve field research productivity and analysis and to deliver data in a form that is more useful to resource managers and others who make decisions about the ocean. She presented GOSSIP as one example (there have been multiple classification systems proposed) that could make ocean exploration data more useful to the science community at large.
8. **OEAB Working Group on Platforms and Technology.** As chair of the OEAB working group on platforms and technology, Dr. Demopoulos summarized the deliberations of the working group to date. She noted current technologies, emerging technologies and approaches, and the pros and cons of operations conducted by industry, NSF, NOAA, and not-for-profits. The working group's next steps are to engage experts from a variety of sectors, to develop a guidance document that could be a resource for NOAA's ocean exploration program, including a focus on next-generation ocean exploration tools and approaches.
9. **OEAB Discussion.** Following these presentations, the OEAB engaged in a general discussion about how the OEAB might increase its value to the NOAA Administrator, given current NOAA priorities. The wide-ranging discussion referred often to the need to target audiences, for better messaging about the deep ocean, and innovative ways to reach target audiences. The Chair guided the OEAB through an exercise to consider what "success" means for the OEAB. Common themes included raising awareness of humanity's dependence on the ocean, increased public engagement, and more and more effective national-level ocean exploration partnerships.
10. **Ocean Exploration and Research Update.** Dr. Alan Leonardi, OER Director, provided a program overview that included a summary of the FY 2018 budget, a review of OER's ocean exploration expeditions to date, and a summary of CAPSTONE results. He highlighted OER's international partnerships in the Central Pacific and successful efforts to present ocean exploration results in terms relevant to Pacific Island nation cultures. He reviewed OER's engagement metrics for 2017 (combined with those from the Ocean Exploration Trust as NOAA's key exploration partner) and previewed plans for 2018, 2019, and 2020.

The OEAB requested information about multibeam mapping costs and the areas the *Okeanos Explorer* has mapped inside and outside of the U.S. EEZ.

11. **Annual Federal Funding Opportunity Process Review.** Dr. Leonardi provided the OEAB with a summary of the Federal Funding Opportunity (FFO) process as background for the annual review required by law. Dr. Leonardi also provided additional information

on the Federal Funding Opportunity (FFO) to show progress in evaluating FFO proposals and updating data on the nature and impact of OER's FFO investments.

The OEAB noted challenges with the timing of the process, given the need for time to establish collaboration and other grants applications deadlines, discussed ways the FFO call for proposals could reach a wider audience of potentially interested scientists, and discussed the implications of OER's policy not to consider ship time funded from other sources in the review process.

The OEAB formally endorsed the process in a letter to acting NOAA Administrator Gallaudet, with comments recommending that NOAA consider compressing parts of the review schedule to allow for earlier award announcements and conduct a review of the implications of including externally funded ship time costs in proposals.

12. **Public Comment Period.** The OEAB invited public comment at 1145 on 31 January. No comments were received.
13. **Advanced Physics Laboratory.** The OEAB was pleased to receive a tour of the Advanced Physics Laboratory's Engineering Systems facility for an introduction to new technologies of value to ocean exploration and expresses its appreciation to Ms. Dana Manalang, [need correct title]
14. **Request for OEAB Subcommittee on Education.** In his role as the acting Engagement Division lead, David McKinnie presented an OER request for an OEAB subcommittee to conduct an independent review of the OER education program. He explained that the review should be similar in form to the Decadal Review of NOAA's ocean exploration program conducted in 2012 by a subcommittee of the NOAA Science Advisory Board. Mr. McKinnie presented a charge for the subcommittee and noted that Dr. Jerry Schubel, president and CEO of the Aquarium of the Pacific at Long Beach, had agreed to serve as chair.

Following discussion, the OEAB requested that the charge be amended to include OER authorities and made several recommendations for review panelists. OEAB members Jackie Dixon, David Lang, and Dominique Rissolo volunteered to serve on the panel.

15. **Paul G. Allen Philanthropies.** Mr. Spencer Reeder, who leads Paul Allen Philanthropies' Climate and Energy portfolio, introduced his organization's current priorities and reviewed funded projects relevant to ocean exploration. He noted a Lamont Doherty project to send gliders under the ice shelf in Antarctica, the Deep Argo program at NOAA's Pacific Marine Environmental Laboratory, as well as projects with the Department of Transportation to test approaches to minimizing carbon emissions from transportation. Mr. Reeder explained that all of these projects are intended to have impact, and leverage expertise resident in Paul Allen's various organizations. Mr. Allen is not keen to simply fund or co-fund projects, however worthy. Paul Allen Philanthropies does not issue a call for proposals, but tends to seek out potential grantees with relevant expertise or capabilities. He explained that Paul Allen's marine archeology activities, such as the recent discovery of the U.S.S. *Lexington*, are not managed from the philanthropic organization. He also noted that the R/V *Petrel* is not operated according to a long-term schedule.
16. **Next Meeting.** OEAB members proposed a next meeting in Washington, DC in May 2018 aligned if possible with RDML Gallaudet's schedule. The OEAB expressed interest

in hearing from RDML Gallaudet on his priorities; from RADM Michael Silah, Director of the Office of Marine and Aviation Operations, on issues related to the NOAA fleet, including an update on the Request for Information on the use of chartered vessels for NOAA mission requirements; from U.S. Geologic Survey on the executive order on strategic minerals; and from the National Science Foundation on fly-away systems and the potential for increased collaboration across the ocean exploration community. The OEAB proposed an additional meeting to be held at Woods Hole Oceanographic Institution in September 2018.

17. **Meeting Close.** The DFO closed the meeting at approximately 5:10 P.M. on January 31, 2018.