

DRAFT

Fifth Meeting of the Ocean Exploration Advisory Board Washington, DC April 26-27 2016

Notification and Availability of Meeting Materials

The fifth meeting of the Ocean Exploration Advisory Board (OEAB) was announced to the public by Federal Register Notification on April 13, 2016, 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

Vice Admiral Paul G. Gaffney II, U. S. Navy (Ret.), Monmouth University, Chair
Dr. James Austin, University of Texas
Dr. Amanda Demopoulos, U.S. Geological Survey
Dr. Chris German, Woods Hole Oceanographic Institution
Ambassador Cameron Hume, Consultant
Mr. David Lang, OpenROV
Dr. Darlene Lim, National Aeronautics and Space Administration
Mr. John Kreider, Oceaneering, Inc.
Ms. Nicolette Nye, National Ocean Industries Association
Dr. Richard Rikoski, Hadal, Inc.
Dr. Dominique Rissolo, University of California at San Diego
Mr. Lance Towers, PE, Boeing, Inc.

NOAA Management and Staff in Attendance

Dr. Alan Leonardi, Director, OER
Mr. John McDonough, Deputy Director, OER
Mr. David McKinnie, Designated Federal Officer (DFO) for the OEAB
Ms. Yvette Jefferson, Alternate DFO

Invited Briefers

Dr. Paula Bontempi, Program Manager, Ocean Biology and Biogeochemistry, National Aeronautics and Space Administration
Dr. Russell Callender, Assistant Administrator, National Ocean Service, NOAA
Dr. Tom Hourigan, Habitat Protection, National Marine Fisheries Service, NOAA
Dr. Rodney Cluck, Chief, Division of Environmental Sciences, Bureau of Ocean Energy Management
Dr. Rick Murray, Director, Ocean Sciences Division, National Science Foundation
RADM David Score, Director, NOAA Office of Marine and Aviation Operations

Meeting Summary

- 1. Meeting Opening.** The Designated Federal Official opened the meeting on April 26, 2016 at Venable LLC in Washington, DC. Minutes of the January 20-21, 2016, meeting were discussed and approved. The Chair reviewed the previous meeting, the charge to the Board, previewed the agenda, and identified a series of issues for OEAB discussion. He also reported on OEAB activities conducted since its last meeting, including his briefing on the OEAB to the Integrated Ocean Observing System (IOOS) FACA board

and meetings to follow up on ocean exploration issues with NOAA Chief Scientist Rick Spinrad, OAR Assistant Administrator Craig McLean, and OER Director Alan Leonardi.

2. **NOAA Strategic Guidance Memoranda Discussion.** The Chair presented two proposed letters from the OEAB to NOAA leadership, one with recommendations related to FY18 budget formulation based on the NOAA FY18 Strategic Guidance Memoranda, and a second with recommendations for the FY19 Strategic Guidance Memoranda. Following discussion and incorporation of edits, the OEAB approved the documents and requested that the Chair send the letters to NOAA leadership. (Letters attached).
3. **New OEAB Task.** The Chair introduced a request from Dr. Spinrad that the OEAB consider new paradigms for ocean exploration. After discussion, the Board agreed that the Chair should further inform Dr. Spinrad how it plans to address the request with reference to the upcoming National Ocean Exploration Forum 2016 (“F-16”) in October, which will focus on marine technology (see below). Dr. Spinrad’s written request (March 28, 2016) is attached, as is the Chair’s initial response (March 29, 2016) that reviewed OEAB discussions to date on new paradigms for ocean exploration
4. **Office of Ocean Exploration and Research.** Dr. Alan Leonardi briefed the OEAB with a short overview of current and planned OER activities and a discussion of OER’s FY16 budget.
 - a. He reviewed current campaign activities of the NOAA Ship OKEANOS EXPLORER in the mid-Pacific and E/V NAUTILUS in the Northern East Pacific. He discussed OER investments in Arctic/coastal Alaska and mentioned OER-supported work on the Extended Continental Shelf (ECS) in that same region, noting it was nearing completion.
 - b. FY16 OER programs are being executed at ~\$32M. He presented several graphics to explain the funding allocation. A brief discussion ensued about potential prioritization actions OER would have to take if FY17 appropriation turned out to be significantly lower/higher than \$32M. The sense of the OEAB was that fair-share adjustments to the various pieces of the OER program may not be advisable and the Board would like to be able to make recommendations should the FY17 appropriation change significantly from FY16.
 - c. He also addressed the OEAB’s interest in the potential for a small (\$5-10K) grants program that could engage a broader segment of the community in ocean exploration. The OEAB asked OER to investigate options for such a small grants program, which would be most effectively implemented through an external partner.
5. **Mid-Atlantic Regional Ocean Council (MARCO).** OER’s John McDonough briefed the OEAB on the recent MARCO meeting and the role of MARCO in recent ocean exploration campaigns. Discussion noted MARCO’s use of ocean exploration data in a new data portal that is available for civil and federal decision makers and the important role partners such as MARCO play in ocean exploration campaigns.
6. **NASA Ocean Biology and Biogeochemistry Program.** Dr. Paula Bontempi, program manager for the NASA Ocean Biology and Biogeochemistry Program introduced a series of NASA satellite-based ocean programs and highlighted potential connections between NASA priorities for terrestrial and interplanetary exploration and research and ocean exploration.

7. **Public Comments.** A public comment session was conducted from approximately 2:15-2:45 on the first day. The OEAB received no comments from members of the public present or over the phone.
8. **Ocean Exploration Campaigns.** Dr. Leonardi briefed the Board on ocean exploration campaigns and described the evolution of the campaign model since 2010. He noted that while campaigns are both effective and rewarding, coordination requirements are significant and budget and organizational stability is required for success.
 - a. He described an upcoming campaign in the U.S. South Atlantic Bight and initial plans for a Transatlantic campaign. The OEAB applauded the campaign model and encouraged OER to bring science opportunities discussions (“bottom up” interaction) with civil scientists into campaign planning as early as possible and to publicize these opportunities widely.
 - b. While Dr. Leonardi’s presentation highlighted the U.S. South Atlantic Bight-and Transatlantic campaign plans the Board learned from National Ocean Service, National Marine Fisheries Service, National Science Foundation, and Bureau of Ocean Energy Management briefers that the Gulf of Mexico was a priority for their missions, for partnerships and for international collaborations. Further, discussion noted that there is significant new funding available for a variety of environmental activities in the Gulf as a result of the Deep Water Horizon settlements and such settlements may present opportunities for exploration partnering. The Board asked OER to discuss the relative priority of the Gulf *vis a vis* other campaign interest areas at the next OEAB meeting.
9. **NOAA National Marine Fisheries Service (NMFS).** Dr. Tom Hourigan briefed the Board, and stayed with the Board to join in a number of open discussions. He articulated the value of ocean exploration to NMFS, especially in characterizing living marine habitats in U.S. EEZs that support fisheries and the U.S. fishing industry. While he mentioned the value of telepresence-enabled exploration, he also identified the need to gather more samples. He discussed the value of information collected in recent Atlantic shelf (ACUMEN) and Pacific seamount (CAPSTONE) campaigns and saw the value of the planned Southeast US Atlantic Bight campaign. Further, he too mentioned the value of exploration characterization in the Gulf of Mexico.
10. **NOAA National Ocean Service.** Dr. Russell Callender engaged the OEAB in a discussion about the value NOS programs derive from ocean exploration. After introducing the primary NOS offices with an interest in ocean exploration results, he described how CAPSTONE is supporting NOS management requirements in the Pacific, the value of the California Borderlands campaign, which includes the E/V NAUTILUS, and the need for ocean exploration data to help evaluate new National Marine Sanctuary and Marine Heritage site proposals, particularly for the expansion of Flower Garden Banks National Marine Sanctuary. He further mentioned potential joint exploration activities with Cuba, including sister marine sanctuaries and marine heritage sites. While NOS is interested in mapping data and technology advances, it is also interested when any new observing instrument is developed by OER and tested in OE campaigns.
11. **Bureau of Ocean Energy Management (BOEM).** Dr. Rodney Cluck described BOEM’s mission requirements for ocean exploration and the agency’s long partnership with OER. He discussed BOEM’s environmental studies program to identify, assess, and manage impacts from offshore energy and marine mineral extraction. He said that the National Ocean Partnership Program was an important coordination mechanism for planning and coordinating the ocean exploration aspect of BOEM’s mission requirements. He endorsed the planned U.S. South Atlantic Bight ocean exploration campaign and said

that while BOEM's funding decisions will occur later, he expected the agency to engage with OER and other partners in that campaign.

12. **National Science Foundation (NSF).** Dr. Rick Murray led a discussion with the Board on the definition of ocean exploration, as NSF understands it. He was quite positive about the opportunities that the campaign paradigm could bring to the academic research community. And, while NSF responds to proposal pressure from the oceanographic community, NSF is open to proposals that leveraged ocean exploration campaigns or provided for demonstration of new instruments. He was particularly keen on involvement of scientists in planning for potential campaigns. To that end, he mentioned the value of joint sponsorship of workshops involving the ocean research community. OEAB members Austin, German and Lim will follow up with Dr. Murray in the next three months and use an OEAB-facilitated discussion between NSF program officers and OER as a pilot to refine procedures that enhance ocean exploration partnerships among agencies.
13. **NOAA Office of Aviation and Marine Operations (OMAO).** RADM David Score provided the Board with an overview of NOAA's fleet management practices, including NOAA Ship OKEANOS EXPLORER operations and costs, OMAO's plans for the fleet over the next five to ten years, and the activities of the Independent Review Team established to advise NOAA on fleet recapitalization. RADM Score said that OMAO is evaluating different crewing models and other approaches to increasing days at sea and mission readiness. He also noted that there is no requirement for NOAA ships to return to their administrative homeport annually. He described OKEANOS EXPLORER operating costs as about \$29K per day (exclusive of mission costs, such as the costs associated with remotely operated vehicle operations). The Board noted the desirability of the NOAA Ship RONALD H. BROWN for ocean exploration operations.
14. **Definition of "Ocean Exploration."** The OEAB discussed the importance of defining ocean exploration in terms that allow other exploring agencies to see it in their missions. Such a definition also helps bound the domain of potential activities in which OER should be engaged so as to avoid "mission creep." The Chair asked Dr. Leonardi to assist him in writing a new definition to be presented at the next OEAB meeting.
15. **Ocean Exploration "Elevator Speech."** The Board discussed options for a few words that convey the importance and urgency of ocean exploration and agreed that an effective message is: "America's future depends on understanding the oceans. We explore the oceans because their health and resilience are vital to our economy and to our lives: climate, food, shipping, national security, medicine, and natural resources."
16. **"Our Ocean Conference."** Noting the importance of Secretary Kerry's "Our Ocean Conference" to be held in September 2016, the OEAB recommended that OER contact the appropriate counterparts at the State Department to offer ocean exploration video and other graphics related to ocean exploration.
17. **Strategic Plan.** The subcommittee on strategic planning presented comments and revisions to OER's draft strategic plan. The Board agreed to revisit the plan at the end of its next meeting, along with an OER implementation plan framework to be provided in advance.
18. **Fourth National Ocean Exploration Forum.** The Chair updated the Board on planning underway for "F-16" to be held at Rockefeller University and co-sponsored by Monmouth University and OER. The theme is "Beyond the Ships." F-16 will look at adapting and adopting new technologies to fit the campaign paradigm using geographic locations as "war game" settings to discuss technology opportunities in the 2020-2025 timeframe. To that end, the Chair asked OER to solidify those geographic areas it deemed most valuable to be used as settings.

19. **“2nd Annual Ocean Worlds Meeting.”** OEAB members German and Lim introduced the upcoming Second Annual “Ocean Worlds meeting to be held August 25-26, 2016 at the National Academies center in Woods Hole, MA. The meeting is meant to encourage dialogue and cooperation between ocean and space scientists. OEAB members were encouraged to register on line and keep Drs. Lim and German informed of their interest.
20. **List of OEAB Discussion Topics.** At the January 2016 meeting, the OEAB generated a list of topics for it to continually review/discuss until actions were completed. That list was discussed and expanded at this meeting (attached).
21. **Next Meeting.** The Board discussed a next meeting in late summer/fall, with dates and location to be determined. Agenda items will include:
 - a. Conduct the annual review of the Federal Funding Opportunity process;
 - b. Request a briefing from the Office of Naval Research (ONR) to discuss ocean exploration partnering and requirements. Such a briefing would complement discussions that the Board has already had with U.S. Geological Survey, Naval Meteorology and Oceanography Command, NASA, the Bureau of Ocean Energy Management, and NSF. The time allocated to the ONR briefing may also include its recent activities and plans for Arctic research;
 - c. Invite the IOOS Staff and a Board member to discuss potential synergies with the Marine Biodiversity Observing Network (MBON); and,
 - d. Continue discussion of strategic planning, the definition of “ocean exploration” in the context of the national ocean exploration program, the Gulf of Mexico’s relative campaign priority, debrief on NOAA ship IRT progress, and debrief on the OEAB’s progress on discussions with NSF.
22. **Meeting Close.** The DFO closed the meeting at 3:45.

Attachments

1. OEAB Letter to NOAA Administrator Kathryn Sullivan on FY18 Budget Formulation
2. OEAB Letter to NOAA leadership on the FY19 Strategic Guidance Memorandum
3. OEAB List of Discussion Topics
4. Correspondence between NOAA Chief Scientist Spinrad and OEAB Chair Gaffney on NOAA’s request that the OEAB investigate new paradigms for ocean exploration.