DRAFT

Fourth Meeting of the Ocean Exploration Advisory Board
St. Petersburg, Florida
January 20-21 2016

Notification and Availability of Meeting Materials
The fourth meeting of the Ocean Exploration Advisory Board (OEAB) was announced to the public by Federal Register Notification on December 23, 2015, 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. Jacqueline Dixon, University of South Florida
Ambassador Cameron Hume, Consultant
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.

Ocean Exploration Advisory Board Members Participating by Telephone
Dr. Chris German, Senior Scientist, Geology and Geophysics,
Woods Hole Oceanographic Institution (Day 2)

NOAA Management and Staff in Attendance
Mr. Craig McLean, Assistant Administrator, NOAA Research
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. Richard Spinrad, Chief Scientist, NOAA (via videoconference)
Dr. Shirley Pomponi, Executive Director, Cooperative Institute for Ocean Exploration, Technology, and Research
Dr. John Haines, Program Coordinator, Coastal and Marine Geology, U.S. Geological Survey

Meeting Summary

1. **Meeting Opening.** The Designated Federal Official opened the meeting on January 20, 2016, at SRI International, St. Petersburg, Florida. Minutes of the October 1-2, 2015 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.

2. **OEAB Charter Renewal.** The DFO reviewed the current OEAB charter, which expires in July 2016, described the renewal process, and invited the OEAB to comment on changes to the charter that may be appropriate. No immediate recommendations for change were made. The DFO will proceed with staffing the renewal of the charter.

3. **Office of Ocean Exploration and Research.** Dr. Alan Leonardi briefed the OEAB on draft NOAA ocean exploration strategic plan elements, provided an update on the FY16 appropriation, and discussed the appropriations report language with which OER is expected to comply. He gave a summary of National Ocean Exploration Forum 2015. Dr. Leonardi also gave an overview of OER's ocean exploration plans from FY16 to FY18, with a focus on exploration campaigns in the Pacific and the mid- and South Atlantic Bight involving multiple partners and multiple platforms.

   The OEAB provided initial feed back on the draft strategic plan elements and established a subcommittee to conduct additional review and comment. Ambassador Hume will chair the subcommittee, which Dr. Dixon, Mr. Towers, Mr. Kreider, and Dr. Austin agreed to join. The OEAB requested a briefing on the mid- and South Atlantic Bight at its next meeting that focuses on partnership development and community engagement; this next campaign will be the model for planning partnerships and communication with those inside and outside the ocean exploration community. The OEAB also drafted and approved a short statement about the importance of a national ocean exploration program and requested that it be included in the National Ocean Exploration Forum report (attachment 1).

3. **Cooperative Institute for Ocean Exploration, Research, and Technology (CIOERT)**. Dr. Shirley Pomponi, Executive Director presented to the OEAB on CIOERT and its activities in support of ocean exploration, including **sensor** technology development, marine biotech research, and exploration activities that resulted in fisheries and habitat management decisions. The briefing was very well received and spurred discussion about expanding the Cooperative Institute model to other institutions or groups.

4. **U.S. Geological Survey Activities in the Arctic and Role in Deep Sea Minerals.** Dr. John Haines, U.S. Geological Survey (USGS) program coordinator for coastal and marine geology, provided information about USGS activities in the Arctic, including the USGS role in Extended Continental Shelf (ECS) activities. He described active USGS involvement in planning for ocean exploration campaigns in the U.S. mid and south Atlantic EEZ collaborative ocean exploration campaigns to understand ecosystem structure and function in the U.S. South Atlantic region as a priority. Dr. Haines noted budgetary constraints in assessing deep sea minerals, including rare earth minerals. He identified USGS priorities for new exploration activities should new funding become available (in order of importance):

   · offshore West coast, Alaska, and Caribbean subduction zones for seismic/tsunami risk assessments;

   · Arctic gas hydrate/methane systems; and,

   · marine minerals for resource assessment and understanding associated ecosystems.

   Further, he endorsed the importance of partnering with agencies like NOAA to achieve USGS objectives in the Arctic and other areas.

5. **NOAA Arctic Activities.** Mr. Craig McLean, Assistant Administrator for NOAA Research, briefed the OEAB on NOAA's plan for the Arctic and introduced ongoing

activities in the region from across NOAA. He described NOAA's Arctic Action Plan catalogues ongoing mission program activities to represent a $16 million investment in the Arctic. The Chair noted that the OEAB will invite NASA, the Office of Naval Research, and the National Science Foundation to present information about their Arctic programs at a future OEAB meeting.

6. **NOAA Response to the OEAB Letter to NOAA Administrator Sullivan.** Following its third meeting, the OEAB sent a letter to Dr. Sullivan dated October 2nd with recommendations regarding ocean exploration funding and activities as well as suggested principles to guide NOAA's ocean exploration program (attachment 2). Dr. Richard Spinrad, NOAA Chief Scientist, discussed Dr. Sullivan's response via videoconference. He reinforced the importance of OER activities supporting NOAA mission priorities, noted a "phase lag" in the OEAB recommendation for a NOAA request in the President's Budget comparable to recent Congressional appropriations and the budget development cycle, and invited the OEAB to comment on the next Strategic Research Guidance Memorandum (for FY19).

   Dr. Spinrad suggested initiatives with which OER could align, such as the NOAA Big Data Project and Blue Economy discussions. Several OEAB Members responded that OER's budget is so constrained that it may be wise to focus on its principal and current exploration campaign tasks until more funding is available. He stressed the importance of leveraging internal and external partnerships to which the OEAB membership agreed, including through existing coordination mechanisms like the Office of Science and Technology Policy's Subcommittee on Ocean Science and Technology.

   The OEAB noted the importance of the NOAA Administrator identifying ocean exploration as an area of growing interest for NOAA and signaling an interest in increasing funding for ocean exploration activities, perhaps by proposing that core Ocean Exploration funding be included within the authorized Ocean Trust Fund when appropriated. The NOAA response letter is posted at the OEAB website and is attached (attachment 3).

7. **OEAB Discussion.** The agenda provided for an extended OEAB discussion. Topics included the:

   - importance of communicating the value of ocean exploration to the public and to decision makers, including Congress;
   - need for the OEAB to engage external partners (other agencies, the private sector, industry, and others);
   - importance of ensuring the science community is informed of how their contributions to priorities are used, and to give a broader segment of the science community an opportunity to participate in expeditions;
   - need to synchronize the process of soliciting input from the science community and from NOAA programs;
   - value of using small grants to reach potential ocean explorers, including non-traditional explorers; and.,
   - importance of developing the ocean exploration campaign model.

   The Chairman presented a list of topics for the Board to pursue in the future based on the discussion with Dr. Spinrad and extensive intra-Board discussions both days. That list is attached (attachment 4).

8. **Public Comments.** A public comment session was conducted from approximately 1:15 to 1:30 on the first day. The OEAB received no comments.

9. **Next Meeting.** The Board discussed a next meeting on the West Coast or in Washington DC in early summer. Topics for the next meeting could include: briefings from national ocean exploration stakeholders, such as NASA, the Office of Naval Research, the Bureau of Ocean Energy and Minerals, and the National Science Foundation; a briefing on the mid- and South Atlantic Bight campaign by OER with partner agencies in attendance; discussion of NOAA's ocean exploration strategic planning; OEAB comments on the FY19 Strategic Research Guidance Memorandum; and the OEAB's mandated review of the OER grants process.

10. **Meeting Close.** The DFO closed the meeting at noon. Several Board members then toured SRI International and the University of South Florida's College of Marine Science.

Attachments

1. OEAB statement on the national ocean exploration program for the National Ocean Exploration Forum 2015 report

2. OEAB October 2, 2015 letter to NOAA Administrator Sullivan

3. NOAA Administrator January 20, 2016 response letter to the OEAB

4. Chairman's list of topics for future discussion

Appexdix 2

Ocean Exploration Advisory Board

A Federal Advisory Committee Act Committee

October 2, 2015

Honorable Kathryn D. Sullivan, Ph.D.
Under Secretary of Commerce and
Administrator, National Oceanic and Atmospheric Administration
1401 Constitution Avenue, NW
Washington, DC 20230

Dear Under Secretary Sullivan:

The Ocean Exploration Advisory Board (OEAB) would like to provide you with several recommendations. We seek further discussion on all, or any, of the following:

Observation

We continue to commend the cooperation provided by your Ocean Exploration and Research (OER) office and the leadership of Dr. Alan Leonardi. We note that OER planning/spending is more aligned with National Oceanic and Atmospheric Administration (NOAA line office requirements than ever before.

Near Term Priorities

- FY16 Continuing Resolution (CR). Allocate funding at a rate at least equal to the average of the Senate Appropriations Committee and House Appropriations Committee marks until a final CR or Conference Committee Resolution is settled.
- FY17 Budget Proposal. Propose a NOAA OER budget that at least recognizes the Congressional Appropriation Committees' support for the program.
- The Extended Continental Shelf project should be completed as quickly as possible.
- OKEANOS EXPLORER and NAUTILUS have had notable success, to NOAA's benefit, in FY15, yet both ships are older and/or under-capitalized for the mission.
    - Develop top level requirements for capital upgrades of NAUTILUS and OKEANOS EXPLORER,
    - Develop a roadmap for investment in technologies to allow ships in the federal fleet to conduct exploration operations (viz., "fly-away" systems), and
    - For reliability and visibility purposes, limit OKEANOS EXPLORER operations to the US EEZ on the Atlantic and Pacific Coasts, Gulf, Caribbean and Hawaiian waters. Avoid deployment to the Marianas in FY16.

Principles

- Great nations are exploring nations; hence OER's viability is important to US prestige and character.
- Telepresence enables participation of a broader and more balanced user group in achieving successful STEM careers; NOAA can lead the nation in this regard.

- Exploration days-at-sea are expensive; every opportunity should be taken to collect samples and measure bio/geo/chemical/dynamics/acoustics phenomena.
- Creatively pursue partnerships, cost sharing or contracts to reach NOAA OER exploration, technology and education requirements.
- Take advantage of the recent OSTP endorsement of "citizen science/open science" and "crowd sourcing" by leading pilot projects within the NOAA OER program.
- Support periodic OER community meetings wherein NOAA officials express your future requirements and exploration opportunities are discussed by other stakeholders, thereby leading to better proposal writing and partnerships.
- Develop and use meaningful metrics for management and evaluation of OER investments and operations.

Sincerely, V/R

Paul G. Gaffney II
Vice Admiral, U.S. Navy (Ret.)
Chair

Copy to:
Dr. Richard Spinrad
OEAB file

Appendix 3

UNITED STATES DEPARTMENT OF COMMERCE
The Under Secretary of Commerce
for Oceans and Atmosphere
Washington, D.C. 20230

JAN 19 2016

VADM Paul G. Gaffney II, USN (ret)
Chair, Ocean Exploration Advisory Board
1112 Gist Street
Columbia, SC 29201

Dear VADM Gaffney:

Thank you for your letter on behalf of the Ocean Exploration Advisory Board (OEAB) conveying your recommendations for the National Oceanic and Atmospheric Administration's (NOAA) Office of Ocean Exploration and Research (OER). As part of NOAA's response, I have asked Dr. Richard Spinrad, NOAA Chief Scientist, to participate in an upcoming OEAB meeting to further discuss the topics you raise. In the meantime, I want to share an initial response to the OEAB's identified near term priorities.

- **FY16 Continuing Resolution and FY17 Budget Proposal:** The FY 2016 Omnibus Appropriation funds OER at $32 million. Congress expects NOAA to adhere to the report language for both House and Senate appropriation bills. OER's priorities largely are consistent with the report language guidance, and NOAA recognizes the increase will augment and expand on OER's planned activities. NOAA's submission for the FY 2017 President's Budget Request is with the Office of Management and Budget. NOAA anticipates the budget will be finalized and transmitted to Congress no later than February 1, 2016, as required by law.

- **The U.S. Extended Continental Shelf (ECS) Project:** The ECS project is focused on post-mapping analysis, although the *Okeanos Explorer* and other vessels are continuing to collect required data. The ECS project's current schedule calls for the analysis phase to be complete by 2019; the analysis, however, may reveal the need for additional mapping and possible seafloor sampling.

- **NOAA Ship *Okeanos Explorer* Maintenance and Recapitalization:** Half of NOAA vessels are expected to reach the end of their service life by 2028. NOAA's Office of Marine and Aviation Operations (OMAO) is pursuing a multi-part strategy for recapitalizing the current fleet. In addition to preparing the NOAA Fleet Plan (2012), NOAA leads the National Ocean Council's Interagency Working Group on Facilities and Infrastructure, which the Office of Management and Budget has directed to document Federal oceanographic research vessel requirements. The most recent Federal Oceanographic Fleet Status Report (2013) identifies exploration as a use and summarizes the capabilities of the *Okeanos Explorer*, but does not describe the ocean exploration requirement. OMAO established an Independent Review Team to assess fleet recapitalization. These efforts are critical to making the case for NOAA fleet recapitalization based on the current and long-term viability of the fleet, at-sea data collection requirements validated through the NOAA process, and opportunities for technology infusion.

- **Ocean Exploration Trust E/V *Nautilus* Maintenance and Recapitalization:** NOAA will request the Ocean Exploration Trust to describe its requirements and plans for investing in capital upgrades to the *E/V Nautilus*.

- **Development of an Exploration Technology Roadmap:** NOAA believes there are many emerging technologies capable of expanding the pace and scope of ocean exploration, including autonomous platforms, so-called "fly-away" systems, and new sensing and sampling capabilities, all of which can be designed for use on a variety of NOAA and partner vessels. OER is engaged in an ongoing dialogue with the community, including the Deep Submergence Science Community and the Task Force for Ocean Exploration and Research Technology and Infrastructure as well as existing partners (e.g. the Cooperative Institute for Ocean Exploration, Research, and Technology, the Ocean Exploration Trust, and the Global Foundation for Ocean Exploration) to identify requirements, catalogue appropriate technologies, and prepare a plan for developing and deploying new NOAA mission-relevant systems on NOAA and non-NOAA ships.

- **NOAA Ship *Okeanos Explorer* Operating Area:** The *Okeanos Explorer* operates almost exclusively in the U.S. Exclusive Economic Zone (EEZ), over 75 percent of which is outside the contiguous United States. NOAA's current FY 2016 and FY 2017 plans to deploy the *Okeanos Explorer* are based on NOAA mission priorities within the U.S. EEZ. OMAO is managing the maintenance and operations of the *Okeanos Explorer* according to established guidelines and practices and does not anticipate any difficulties operating in these areas, including the Western Pacific.

I appreciate your guidance and advice and I look forward to learning about the outcomes of the OEAB's discussions with Dr. Spinrad.

Sincerely,

Kathryn D. Sullivan, Ph.D.
Under Secretary of Commerce
for Oceans and Atmosphere

Appendix 4

Topics for Future OEAB Discussion

1. OEAB continue to engage other agencies with Ocean Exploration-related missions:

   · USGS (done)
   · OER (done)
   · Navy Ops (done)
   · Navy ONR
   · NASA
   · BOEM
   · NSF
   · DARPA

2. Discuss how to communicate drivers, utility, and success OUTWARD
   · To different audiences
   · Develop two-sentence "elevator speech"
   · Ask Dr. Ballard to discuss messaging about ocean exploration

3. Discuss how to "sync" science community list of priorities with NOAA requirements lists
   - give feedback to the science community about how its input is used
   - inform the science community about opportunities to pursue OER priorities).

4. Focus on establishing ocean exploration campaigns as the model for National Ocean Exploration Program partnership planning
   - Receive a briefing by OER with other agency partners on the SE Atlantic Campaign—starting with the story.

5. Review large and small grant opportunities within OER with an eye toward expanding the reach of OER investments in competitive (FFO) and non-competitive (BAA) grants.

6. Discuss the results of the Strategic Plan Review Subcommittee established in St Petersburg.

7. Provide input on the FY19 Strategic Research Guidance Memorandum.

8. Meet with National Ocean Industry Association officials; membership.

9. Develop ocean exploration transition documents for use with Presidential campaigns and then the new Presidential Transition Team.