



DEPARTMENT OF DEFENSE

Department of the Navy

AGENCY: Department of the Navy, DoD.

ACTION: Notice of Meeting Minutes for publication and public comment in the Federal Register

SUMMARY: Minutes of the last Ocean Research Advisory Panel (ORAP) meeting will be open for public comment until September 16, 2013.

DATES: Comments will be taken until September 16, 2013.

ADDRESSES: The meeting was held at Marine Acoustics Inc, 4100 Fairfax Drive, Suite 730, Arlington, VA, 22203.

FOR FURTHER INFORMATION CONTACT: Dr. Joan S. Cleveland, Office of Naval Research, 875 North Randolph Street Suite 1425, Arlington, VA 22203-1995, telephone 703-696-4532.

SUPPLEMENTARY INFORMATION:

Dr. Cleveland, Designated Federal Officer, (DFO) called the meeting to order at 9:00am on May 21, 2013.

Introductions were made around the room and on the phone.

Dr. Leinen reviewed the agenda. The minutes from the January 2013 meeting were approved.

NATIONAL OCEAN COUNCIL (NOC) UPDATE - given by M. Weiss
(NOC)

- The National Ocean Policy Implementation Plan was released on April 16, 2013 - the final looks very different from the Draft Implementation Plan. Public comments were taken into account. The final plan focuses on the importance of incremental change and emphasizes local and regional capacity. Action items are identified by federal agency; many are related to the topics ORAP is working on. The Ocean Science and Technology and the Ocean Resource Management interagency committees are tracking progress and will provide reports annually. The final version clarifies what marine planning means and emphasizes the need for flexibility. States/regions are encouraged, but not required, to establish regional planning bodies.

Northeast, the Mid-Atlantic, the Pacific Islands and the Caribbean have established regional planning bodies; the Great Lakes region is discussing options; California expects to form a regional planning body by the end of the year.

- The NOC received the February memo from ORAP suggesting future topics for ORAP to report on and will consider those ideas while working with the NOC Steering Committee to identify new tasks for ORAP.

- Michael Weiss' term at the NOC ends in June.

Q&A:

- Ecosystem-Based Management

- o Now that the Implementation Plan has been released, are there any changes to the NOC request for the Ecosystem-Based Management (EBM) Report? Reply: No, all the things requested originally are still on point.

- Education

- o The ORAP Education working group needs information from the Office of Science and Technology Policy (OSTP) on the recommendations of the Committee on Science, Technology, Engineering, and Math Education (CoSTEM) and requests a teleconference with the OSTP to obtain updated information to better inform what will be included in the report to the NOC.
- Infrastructure - Agencies have no procedure for decommissioning infrastructure.
- Implementation Plan
 - o Alaska is pleased to see some of the things that appear in the Implementation Plan
 - o Will regions that have moved forward pass on information to other Regions and the ORAP?
 - o It is important to continue working with the states on marine planning.
- ORAP membership, meetings

- o The ORAP needs members that have multiple skill sets which will help ORAP with calling subject matter experts on the various topics that ORAP is asked to report on; the NOC should consider these when selecting nominees.
 - o ORAP would like to connect with the Government Coordinating Committee.
- Office of Management and Budget (OMB)
 - o Silos in the OMB negatively impact the ability of the agencies to conduct interagency activities once they have been planned.
 - o Comments on this impact should be included in the report(s).

BRIEFING: BALANCING OCEAN INFRASTRUCTURE WITH OCEAN
RESEARCH - R. Weller provided the briefing over the phone.

Highlights from the brief included:

- The task from the NOC was to report on how best to balance infrastructure and research if there is no new funding.
- The report will:
 - Adopt the National Research Council (NRC) report view of what the elements of the infrastructure are.
 - Review evolution of ocean sciences
 - Diversity
 - Multidisciplinary
 - Capabilities to field infrastructure
- Report Outline - Introduction; Summary & Review of the Portfolio and Processes; Problems, Challenges & Opportunities; Recommendations; and Summary of Recommendations
- Completed portions - Introduction; Summary & Review of the Portfolio and Processes; Problems, Challenges and Opportunities

- o Introduction - contains a review of the tasking and changes that have happened in the field.

- o Summary of the Portfolio - contains a review of the current infrastructure using the NRC definition, current agency funding (later discussion led to decision to not include funding), processes by which agencies make decisions, mechanisms that influence each agency's decision, external influences on agencies that change/modify/shape their decisions (e.g., OMB), role of the community in setting the balance; and the time horizons of processes and procedures (i.e., some decisions like fleet replacement have very long time horizons).

- o Problems, Challenges & Opportunities - there are no multi-year budgets for agencies; how do you coordinate things that you can't share?

- o Mechanisms - still working on this section.

- Some of the former NRC committees that advised on expenditures don't exist any longer

Highlights from the discussion included:

- Issues include inadequate funding to support both infrastructure and research using the data collected by the infrastructure; lack of agency coordination which leads to both duplication of infrastructure and not considering that one agency's infrastructure is used by other agencies; and absence of mechanisms for sun-setting infrastructure.

- National Science Foundation (NSF) has asked the NRC to undertake a Decadal Survey which will include discussion of the issue of facilities and infrastructure vs. research. Study members are being sought and the chairs of the committee have not yet been selected.

- Initially, the working group bounded the report to cover only federal elements of research vs. infrastructure, but a discussion of public/private partnerships led to the decision to expand.

- OMB budget examination process seems to disfavor multiple agencies supporting similar topics, which discourages interagency or international collaboration and

sharing of infrastructure. Should OMB establish a budget examiner for ocean infrastructure?

- The informal Great Lakes Association of Science Vessels has had some success with public/private partnerships after some initial problems. The National Center for Atmospheric Research is a successful example of focusing the community's infrastructure in a single location.

- There are multiple interagency working groups but the agency representatives need to be people who can actually make decisions; this should be highlighted in the infrastructure report.

- The National Ocean Partnership Program (NOPP) is a good example of successful interagency interaction. It allows agencies to plan and collaborate. But ORAP needs to recognize the difficulty of accountability and oversight in collaborative environments.

- Three questions that should be considered in the report are:

- o Is there sufficient research funding to take advantage of the infrastructure?
 - o How does research infrastructure transition to operational infrastructure?
 - e.g., NOAA's Tropical Ocean Global Atmosphere's Tropical Atmosphere Ocean (TOGA-TAO) deep ocean moorings.
 - What mechanisms can be proposed to allow a transition from research to operations without erosion of maintenance
 - o How can we sunset infrastructure or transfer it to another agency?
- Based on the discussion, modifications to the content and structure of the report will include:
 - o Discussion of private sector opportunities.
 - o Examples: Great Lakes Association of Science Vessels; TOGA-TOA; Repeat hydrographic carbon lines;

NOPP; Ships; Global Ocean Observing System; US Global
Change Research Program

- o High level cross-agency discussion rather than
analysis of individual agency processes.

Timeline:

- Draft to be provided to full ORAP for consideration at
the August meeting.

- If slight revisions required, plan to approve during
an October teleconference. If major revision required,
discuss again at winter ORAP meeting.

BRIEFING: LEVERAGING OCEAN EDUCATION OPPORTUNITIES - given
by S. Ramberg and G. Scowcroft

Highlights from the Brief include:

- A full draft should be ready after this meeting -
executive summary, introduction/background, and NOC goals
for education.

- 3 events related to education have transpired since ORAP started working on this report and need to be considered as the report is developed.

- o The Next Generation Science Standards (NGSS) have been released.

- o There is an OSTP FY14 budget proposal to restructure federal STEM Education programs.

- CoSTEM has recommended that STEM education funds be taken from mission agencies and given to Department of Education but Education doesn't have a mandate to support ocean literacy or education.

- o The NOP Implementation Plan has been released.

DRAFT Recommendations - current themes

- NOC formally endorses NGSS.
- Ocean literacy is prime leverage for all STEM literacy - motivates learners.

- o Content support to teachers in formal education.
- o Content support to "free choice" providers.
- o Target audiences must feature under-represented STEM groups at K-16 levels.
- o Directly involve relevant private institutions and industry.
- Forge NOC connections to Department of Education.

Potential Programmatic Advice:

- Be explicit on specific program goals within a larger context and clearly identify the target audiences for each program (suggest a framework for these with examples).
- Use uniform measures of success for all programs (provide examples).
- o Federal STEM/Education portfolio should contain sufficient "overlays" to foster overall coherency, best

practices and innovation while mitigating risk and avoiding fragmentation.

- Improve interagency partnerships
(suggestions for best practices).
 - Mitigate impediments to collaboration
(described).
- Clarify whether OSTP FY14 plan focuses on STEM pipeline or STEM literacy or both.

Federal Agency Comments

- National Oceanic and Atmospheric Administration (NOAA)
Education (M. Kaplan, invited discussant)

NOAA has a small amount of money for education but it leverages the entire NOAA investment in science. The education funds connect the agency infrastructure to the education community. The proposed changes in federal education spending could sever the connections between education and science investments. Can ORAP highlight this to the Department of Education and start discussions on how not to lose the benefits of leveraging? The NGSS includes

"Earth and Space Science" but not ocean science; what can be done to ensure that earth science includes ocean science?

- NSF Education (L. Rom, invited discussant)

NSF has already reorganized their education funding. Geoscience Education and Diversity funds were moved into the Directorate for Education and Human Resources. NSF expects an increase in funding for the graduate research fellowship program; perhaps applicants will include education-related efforts as broader impact. The Research Education for Undergraduates program continues but it is a narrow program. One concern is that if mission agency connections between education and research programs are broken, there is a serious threat to the ability to leverage infrastructure and science capabilities and make them available to educators.

Highlights from the discussion included:

- There was discussion about ORAP meeting with the Department of Education or suggesting that Education meet with the NOC to discuss the impact of the CoSTEM

recommendations on ocean education and potential ocean-related science standards content.

- o Even though mission-specific agency funding for STEM Education has been small, it has been effective; moving mission agency responsibilities to Education may result in ocean education being overlooked at the K-12 level.
- The proposed changes in federal education funding give funding and responsibility for informal education efforts to the Smithsonian. How can federal agencies leverage these investments?
- There was discussion about bringing technology-oriented corporations or educational foundations into the conversation about ocean education and science standards content and a suggestion to convene a panel composed of representatives from the private and foundation sectors.
- The ORAP education working group would like to meet (in person or teleconference) with an education representative from OSTP to discuss the CoSTEM

recommendations and OSTP's strategy for informal and formal ocean education.

- For informal education, the report may recommend creating education teams composed of 3 members, one each with expertise in learning science, ocean science and delivery of educational content to the public. The report will include examples of successful informal learning programs.

Timeline:

- Expect to have a reasonably polished draft ready to share with the full ORAP before the August meeting.

REVIEW OF DRAFT REPORT: IMPLEMENTING EBM - given by A. Rosenberg

EBM Report Summary:

- The draft report was written before the Implementation Plan was released.

- o Need to highlight the local/state lead

- Had a set of case studies and examples.
 - Need to do more in this section.
 - Things are moving fast and some of the examples/case studies are out of date.
- Possible steps -
 - Following May meeting, make additions based on discussions.
 - Add examples
 - Emphasize importance of state/regional pull as criteria for pilot projects
 - Clean up text; review; share with full ORAP; incorporate feedback
 - Send draft to NOC for comment

Action Item - Rosenberg, as lead for EBM report, will talk to Deerin Babb-Brott or another NOC EBM expert to find

out if the release of the Implementation Plan changes the direction of the original tasking.

Highlights of the discussion:

- The report needs to recommend consistent talking points about EBM to put forward to the community.
- A description of "best practices" was the original focus of the report but "best practices" is a moving target. The report will be reorganized to emphasize case studies, including examples of regional cooperation and lessons learned, and to define criteria for pilot studies. There was a request to create a mechanism for regions who conduct pilot projects to report what was done and what did or did not work. It was suggested that the NOC facilitate communication between regions and encourage the creation of "best practices".
- Commercial enterprise prefers the federal agencies to be more aligned and to have a common way to react. Offshore wind and aquaculture industries are advancing quickly because they are new and there is not a federal structure in place that they have to fit.

- The report will be reorganized to emphasize the case studies, including examples of regional cooperation and lessons learned. The description of criteria for pilot projects will be expanded and will include geographic and sectoral criteria. The effort in the Chesapeake Bay would make a good example; they could be asked to provide information that assists other regions. It was emphasized that the federal agencies remember that EBM and pilot studies should be led by the regions.

Timeline:

- Intention is to provide a draft to the full ORAP by mid-June
- Send draft to NOC by early August (the NOC Guidance Memo specifically calls for NOC review of a draft version of the EBM report)
- Approval at August meeting

The meeting was adjourned for Day 1 at 2:00pm.

The meeting was reconvened at 9:00am on May 22, 2013.

OVERVIEW OF PROGRESS FROM WORKING GROUPS

Ocean Education Report - Summary - S. Ramberg

- The report will focus on what is needed with respect to ocean education instead of on which agency should do which task. The working group will update the draft then provide it to the full ORAP for review and comment. The working group would like to meet or conference call with an education expert at OSTP to discuss the CoSTEM recommendations.

- The report will suggest approaches to applying the education standards to informal education.

- o Team of 3 experts: Learning scientist/ocean scientist/content delivery expert.

- o Neither the Smithsonian nor the Department of Education can deliver those 3 experts.

- o Identify gaps in the existing strategy or portfolio; then make recommendations to fill those holes.

- o Need to make the case that the full breadth of ocean research and education be leveraged.
- o Expect 2/3 of the Smithsonian funds will be spent on distance learning.
- Since the new NGSS recommend that K-12 formal education institutions cover Earth and Space Science in class, the report might suggest a) that Ocean Science be considered part of Earth and Space Science (the broad range of ocean science topics means much STEM content can be taught using the ocean as an example) and b) the skills of the teachers may need to be upgraded.
- It was suggested that the ORAP ask the World Ocean Council for information on workplace or education initiatives that they are organizing.

EBM Report - Summary - A. Rosenberg

- The report will describe examples of regional cooperation and suggest measures of impact.

- Sector criteria for pilot studies or regional cooperation will be added. The draft report will be reviewed with respect to the NOP Implementation Plan since the Plan had not yet been publically released when the draft was written.

- When the draft report is sent to the NOC, a cover letter will point out that this version is the requested draft, not a final report.

NEW TOPICS THAT THE ORAP MIGHT SUGGEST TO THE NOC
(discussion)

Diversity

- The February memo from the ORAP to the NOC suggesting future report topics included diversity; it has been recognized as a big issue for several decades but it is a difficult problem to get a handle on it; funding is a big issue to how this is handled; what are contributing factors to this issue?

- Many education programs have been targeted to training researchers but 70% of STEM jobs are not in academia; is

the system providing the right set of skills for non-research jobs - government, private sector, etc?

- Diversity is not separated from the other topics that were proposed to the NOC in February. For example, extreme events often have their greatest impact on disadvantaged neighborhoods and those neighborhoods are more diverse.

- What can the ocean education community learn from the military's progress in increasing diversity?

- Previous efforts to increase diversity in the ocean sciences community have taken place but progress has not been made; is there a study that explains why this is intractable in ocean sciences? Could an ORAP report suggest solutions, identify barriers?

- Resources providing data on diversity exist, e.g., Society for Advancement of Chicanos and Native Americans in Science.

Action Item - provide previous ORAP education report to current ORAP.

Public/Private Partnerships

- Economic realities will force changes in the way of doing business by federal and private institutions. Increased sharing and cooperation will be required as financial resources are restricted. The ORAP could examine the needs for and benefits of increased public/private partnerships for providing data and predictions about the ocean.

Action Item - provide report on public/private partnerships that Peter Betzer assisted in writing.

International Cooperation/Collaboration

- Given limited fiscal and infrastructure resources, international cooperation in ocean research and operations may become necessary in order to collect sufficient data to understand and predict the ocean. One example of international cooperation is the Arctic observing network but, in general, the federal agencies and scientific community do not undertake much international cooperation. The World Ocean Assessment, with members from all regions of the world, will be considering the overall state of the

world's ocean; their report could be relevant. Australia's requirement that large research programs fit into an international planning framework may be a useful example. The ORAP could examine the existing condition of international collaboration and suggest approaches for increasing collaboration.

Uncertainty

- Public policy decisions require decision-making but ocean data sets are always incomplete and predictions include uncertainty. How can uncertainty be assessed and conveyed to the public? The ORAP could examine uncertainty in decision making, how to improve estimates of uncertainty, and how to improve communication of uncertainty in prediction of ocean-related events.

Ocean Research Enterprise

- What are the emerging ocean research questions? What ocean skill sets are needed to address 21st century issues? Will public/private partnerships provide new approaches? The NRC's Polar Research Board is looking at the broad perspective and emerging issues. The NRC's Ocean Studies

Board is beginning a Decadal Study that will address these questions.

Technology Transfer from the Military

- Many ocean sensors and platforms used for research were first developed by the military. Early development of military ocean technology is carried out in an unclassified environment so that information is available in the literature.

Action Item - Co-chairs author a second memo to the NOC revisiting ideas for future topics for ORAP to report on

- Why diversity is important in ocean sciences.
- It is imperative to have international cooperation in the ocean enterprise.
- Uncertainty in data and model output.

FUTURE MEETINGS

- ONR has sufficient travel money to hold an August meeting, including travel support for invited speakers.
- It costs about the same to bring ORAP to DC or California but if the ORAP wants federal experts to attend, the meeting must be in DC.
- Cancel the August 1 teleconference; the next meeting will be held in DC or Monterey on August 21-22, 2013.
- Possible virtual meeting (must be open to the public) in October to approve the education report and discuss new tasks from the NOC.
- ONR will initiate doodle polls to schedule teleconference in September or October; next in-person meeting perhaps between December 2 and 6 or in January? Last week of March or first half of April?

OVERVIEW OF PROGRESS FROM WORKING GROUPS - CONTINUED

Ocean Infrastructure Report - Summary - B. Weller by phone

- The report is on track. The writing team will add a piece on public/private partnerships; offer examples of approaches on infrastructure; provide demographics of proposals submitted to NSF and discuss evolving mechanism(s) of infrastructure funding from research use to operational use.

- Expect to have a draft ready by the August meeting with possible ORAP review either in October or December/January.

PUBLIC COMMENT PERIOD

Susan Roberts, Director of the Ocean Studies Board (OSB), National Research Council regarding the upcoming NRC Study on Ocean Priorities

The OSB has been tasked to perform a Decadal Survey; the objective is to establish priorities for NSF ocean research and infrastructure with recognition that resources are limited. The OSB is planning a 20 member panel and is presently seeking recommendations for panel members. It is expected to take 2 years and up to 7 meetings to complete the report. Community outreach will be important. The NSF

is sponsoring the report but the panel will consider strategies of other federal ocean agencies. The committee will be very interested in the ORAP reports that are currently being written. Note the "ocean" in this context includes the Great Lakes. The members of ORAP can assist the OSB in populating the committee by telling their colleagues of the search.

There were no further comments from the public.

The DFO adjourned the meeting at 12:10pm.

Signed,

Margaret Leinen, PhD

Chair, Ocean Research Advisory Panel

Attendees: Margaret Leinen, Molly McCammon, Bob Duce, Gail Scowcroft, Joan Cleveland (DFO), Steve Martin (ADFO), Steve Ramberg, John Gannon, Andy Rosenberg, Bruce Tackett, Kelton Clark, Mike Bruno, Bob Weller (by phone), Michael Weiss,

John Andrechik, Heather Mannix, Orlando Florez, Dana Belden

Dated: August 14, 2013

D. G. ZIMMERMAN
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Alternate Federal Register Liaison Officer.

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