



16 March 2010

Honorable Arne Duncan
Secretary, U.S. Department of Education
400 Maryland Avenue, SW
Washington, DC 20202

Dear Secretary Duncan:

In November, I wrote to you on behalf of this Federal Advisory Committee recommending that the U.S. Department of Education (USDE) consider formally involving itself with the federal interagency ocean science and resource management collaboration called the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI). ICOSRMI will become a White House-led effort called the National Ocean Council later this year.

For over a decade, ocean education has been a key topic of interagency discussion and action under the National Oceanographic Partnership Program. We believe that USDE should be continually aware of those ongoing efforts and leverage them when possible, especially as the priority for STEM education increases.

With over 50% of the U.S. population living within 50 miles of a coast, Americans stand ready to be educated on the critical role the ocean plays in daily life, not just for coastal areas but for communities in all 50 states. We are convinced that student exposure to the wonders of ocean and coastal knowledge can inspire extensive interest in pursuing STEM education. To that end, we urge USDE to give favorable consideration to those competing in "Race to the Top," and other education incentive programs, when they include exposure to STEM in their programs.

I will be pleased to meet with the appropriate USDE leader to discuss our continuing attention to ocean education matters.

Sincerely,

Paul G. Gaffney II
Vice Admiral, U.S. Navy (Ret.)
Chair, ORRAP
President, Monmouth University



Memo to: Co-Chairs, Joint Subcommittee on Ocean Science and Technology (JSOST)
From: Chair, Ocean Research and Resources Advisory Panel (ORRAP)
Date: March 16, 2010
Re: Recommendations for future direction of the Ocean Research Priorities Plan and Implementation Strategy (ORPPIS)

The ORRAP is the only ocean committee under the Federal Advisory Committee Act. It has a broad mandate to provide advice to federal agencies on topics that range from ocean research to education to management of the Nation's ocean resources.

The continuous production of new ocean knowledge is obtained through research into ocean processes followed by continual observation of those processes. Such knowledge is an essential ingredient in ensuring wise use and stewardship of those resources. As such, the ORRAP looks forward to continuing to help the JSOST strengthen the ORPPIS by identifying ways to maximize ocean knowledge and remaining faithful to the priorities highlighted in the ORRAP's transition document to the Obama administration. The ORRAP strongly recommends that the JSOST consider reducing the number of priorities by combining key elements of several into a few. Recognizing that some elements of the ORPPIS refresh are pending guidance that stems from the outcomes of the Interagency Ocean Policy Task Force (OPTF) effort and articulation of a National Ocean Policy, the ORRAP nonetheless recommends expeditious JSOST agency collaboration with the OPTF on the following issues. In order to develop *and implement* worthwhile guidance to the nation on ocean issues, we believe the following guiding principles deserve very serious consideration:

- **The overriding principle that supports nearly all priorities is the need to increase ocean knowledge.** This principle supports tracking and decision making related to climate change, awareness and responses involving ocean acidification, management of fisheries, Coastal and Marine Spatial Planning, education, and assessment of socio-economic impacts. We support responsible use and stewardship of ocean resources based on continually improving ocean knowledge. Furthermore, if the ocean science and management communities are to determine policy options for sustainable marine ecosystems, it is imperative that there be sustainable funding for the knowledge gathering needed to support those management efforts.
- **An incontrovertible element of success is improved interagency collaboration.** The ORRAP recommends improved collaboration in ocean science, operations and management. One initial step is the establishment of a National Ocean Council (or similar organization) with White House empowerment and authority to bridge resources and coordinate programs across agencies. The current method of individual agencies guarding their resources and operating in isolation is a serious impediment to progress. The Integrated Ocean Observing System presents a prime opportunity to truly integrate interagency priorities and programs.
- **Specifically define what is meant by “research” and “priorities.”** “Research” must be defined broadly. In our view, it must encompass not only basic research, but also infrastructure, observations and monitoring, process science, applied science, modeling, and conversion of predictive models into actionable advice. Indeed, the ORPPIS should celebrate the breadth of ocean knowledge up front: the Ocean Knowledge Priorities Plan. **The ORRAP endorses the priorities mutually developed by JSOST agencies but expects such**

priorities to be treated as priorities regardless of budget constraints. We believe a priority is a serious matter that should be addressed even if no new money is made available.

- **Geographically specific models are needed to convince people to take action and to serve as the basis for actionable decisions.** Global climate change elements of the ORPPIS should put a great deal of emphasis on model specificity by region and model reconciliation, so as to help decision makers with adaptation. Regional observations in all U.S. Large Marine Ecosystems should be at the forefront of a national program. Regional priorities should be set and competed regionally, as opposed to having a limited amount of funding competed across regions. A national program is intended to imply a more equitable partnership of academic, government, and private participants, rather than a federal program focused primarily on intramural agency programs.
- **Improvements to climate models must be supported by data.** The ORRAP notes increasing calls for improved models and model output to support decision making, and we affirm that improved specificity in regional climate models is one very important, contemporary example. However, we also recommend caution. Unless model improvements are supported by data and knowledge of oceanographic processes, then model output will not improve credibility. In other words, there are three equally important legs to this stool: *research into processes leads to observing to accumulate data which enables modeling.*
- **The critical need for ocean infrastructure to enable agencies to gain ocean knowledge that one needs to inform decisions must be established as a high priority.** Reconcile the satellite responsibilities of NASA and NOAA to ensure long time-series ocean observations from space. When security permits, harness the global reach and relative robustness of the DOD/Navy and the Intelligence Community (satellites) in ocean and climate data collection. Commit to implement IOOS, as well as hydrographic, bathymetric, and ocean bottom composition surveys; commit to support the evolving academic research fleet needs; and ensure that the network of academic, private, and federal marine laboratories remains a robust component of the U.S. ocean science infrastructure.
- **Engage the Department of Education.** The ORRAP sees the potential for the ocean environment to inspire students that are considering STEM studies. To increase that potential, the ORRAP reiterates its strong recommendation that the Department of Education join the ocean governance structure at all levels, beginning with the highest. An actionable plan to increase diversity in the ocean sciences is necessary for the development of an educated workforce to implement a national ocean policy.

The ORRAP continues to support and applaud the JSOST's efforts to refine the ORPPIS and to work with the OPTF to develop a national ocean policy.

Sincerely,



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



Memo to: Director, NOAA IOOS Program Office
From: Chair, Ocean Research and Resources Advisory Panel (ORRAP)
Date: March 15, 2010
Re: ORRAP comments on the NOAA IOOS Road Map

The ORRAP is the only ocean committee under the Federal Advisory Committee Act. It has a broad mandate to provide advice to federal agencies on topics that range from ocean research to education to management of the Nation's ocean resources. We believe a sustained Integrated Ocean Observing System (IOOS) is a first-order priority for the nation's ocean science enterprise and thus have made numerous recommendations in support of such a system. We thank the NOAA IOOS Program Office for the opportunity to comment on the draft IOOS Road Map.

1. We understand that the document is intended to provide a description of requirements for system functionality in order to develop a full costing of the system, and that it is not intended to describe an overall organizational structure and delegation of responsibilities to organizations. We have seen the NOAA IOOS Program Office's presentations on their view of what is needed in the Road Map. We believe, however, that the IOOS Road Map should articulate a clear IOOS vision, overall organizational structure, and delineation of roles and responsibilities among the NOAA IOOS Program office, the other federal agencies committed to IOOS, the IOOS Regional Associations, and other federal backbone observing systems.
 - a. The role of federal partners (backbone members and other federally-supported monitoring and observing efforts as well as federal users) is not well defined.
 - b. There are a plethora of federal efforts (like the NOAA NERRS System-wide Monitoring Program and the NSF LTER Program) that are and can make significant contributions to IOOS, but the Road Map does not articulate their function.
2. The IOOS Regional Associations and Regional Coastal Ocean Observing Systems are major components of IOOS (in both Congressional legislation and Congressional funding). The role of these systems should be mentioned in the Road Map, especially as they relate to supporting the needs of users and providing societal benefits at the local and regional levels.
3. Regarding IOOS information management: it was not clear whether the Road Map is proposing a distributed approach (the regional data centers), a centralized approach, or a combination of the two. The Road Map has an opportunity to describe how IOOS is setting the foundation for national data management for both federal and non-federal sources that is called for in the Interim Framework for Coastal and Marine Spatial Planning.



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Ocean Research & Resources Advisory Panel
A United States Federal Advisory Committee

4. IOOS output products are important and have already proven to be quite useful. The Road Map should describe more about output possibilities and how IOOS clients would request and/or gain access to output products.
5. We note that system/subsystem costing [“resource levels”] is not in this version of the Road Map. We sense if costs were to constrain the Road Map, then one may see a completely different view of the way ahead.

The ORRAP continues to support and applaud the IOOS Program Office for leading NOAA’s efforts to implement IOOS.

Sincerely,

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