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**Federal Advisory
Committee to the
National Oceanic and
Atmospheric
Administration and the
Interagency Ocean
Observation Committee**



**U.S. Integrated Ocean Observing System
Advisory Committee**

September 28, 2018

Capt. Bob Houtman
Dr. David Legler
Dr. Eric Lindstrom
Co-Chairs
Interagency Ocean Observation Committee
Consortium for Ocean Leadership

Dear Bob, David, and Eric:

Please find attached the final recommendations compiled by the out-going U.S. IOOS Advisory Committee (2015-2018 Term) to the recently seated 2018-2021 U.S. IOOS Advisory Committee Chairman and Members.

We hope you will find the recommendations useful in your continued support and advancement of the U.S. IOOS program.

As the outgoing Chairman it has been an honor and privilege to serve the IOOS Committee these last six years. On behalf of the outgoing committee, we extend our best wishes to the incoming committee and hope for its' continued success.

Sincerely,

VADM (ret.) Conrad C. Lautenbacher

Attachment: Recommendations of the IOOS AC
Cc: Rear Admiral Tim Gallaudet, Ph.D., USN Ret.

**Recommendations to the NOAA Administrator and IOOC Chairman
Final Statement by U.S. IOOS Advisory Committee
Term August 2015 - August 2018**

As you know, the U.S. IOOS Advisory Committee (IOOS AC) held a recent joint meeting with the NOAA's Hydrographic Services Review Panel in Juneau, Alaska on August 28-29, 2018. This was a very special meeting given member term limits and turnover rules contained in our authorizing legislation. As a result, a large number of the membership will be departing and new members will take their place. In essence, with an incoming total membership of 15, only three of the previous members will remain for this three-year term (2018 - 2021).

While this next statement certainly applies to all of us, the departing members wish to express their deepest appreciation for the opportunity to serve NOAA and the Interagency Ocean Observation Committee (IOOC) in this special advisory capacity. We thank you as well the NOAA staff members with whom we have worked for outstanding professionalism and dedication to NOAA ocean and coastal missions, as well as willingness to accept and embrace new ideas and ways of doing business.

This will be the final letter to you from the departing members, and as such we appreciate the opportunity to pass several final thoughts and recommendations for sustaining and improving the management efficacy and conservation fundamentals for our coastal ocean and Great Lakes resources.

There are opportunities before NOAA and the IOOC that would notably benefit the IOOS enterprise. Among these:

- We recommend that the U.S. IOOS Office be positioned at a level within NOAA that will enable more senior recognition during marketing and communication with partner agencies.
- We note there are challenges to the integration of ocean observing systems. Increased support from the IOOC would be advantageous to resolving this concern.
- An easy "win" will be to highlight and celebrate the upcoming 20 year anniversary of IOOS in 2019.

In today's connected, data-driven society, IOOS is positioned to inform the ocean community's "big data" initiatives. IOOS's integration mission will be vital to leveraging the now fully certified RICE resources as private industry vendors update their strategies for data curation and cloud-based computing services. We encourage NOAA and the IOOC to support IOOS in this direction. Important activities here include:

- Identify relevant data sets suitable for management and analysis by these techniques.
- Support the existing cross-NOAA "big data" initiatives and encourage continued direct engagement of IOOS in these efforts.

- Strive to develop and maintain connectivity to the private sector in this field to ensure currency of technology best practices and identify innovation opportunities.
- Enhance IOOS Data Management and Communications (DMAC) using the “big data” topic to evaluate and advance new DMAC methods and practitioners.

As our committee considers its upcoming transition we believe our experience is important as a microcosm of IOOS as a whole. The diversity in experience and geographic perspectives of our members are strengths that supported learning and noticeable, positive interactions between IOOS agencies and partners, the Regional Associations and the private sector. Diversity in experience and geographic perspectives of the AC also produced feedback to the NOAA Administrator and IOOC that was focused on being constructive, grounded in reality, and forward-thinking. The composition and approach of the IOOS AC are offered as an example of the value of stakeholder engagement in the strengthening of government efforts and outputs.

One challenge inherent in the AC composition and approach deserves to be recognized in order to continue to improve. Although the IOOS community is still largely centered around government agencies and funding, everyone who spoke with the AC about IOOS sustainability eventually acknowledged the primary need to further engage participants beyond the government-centric ecosystem. To that end, the IOOS leadership should consider shifting the AC membership toward more representation from private industry. The AC’s first generation of deliberations often struggled to reach consensus recommendations, or even consensus understanding in some cases, regarding how to incent additional business models which will enable IOOS to expand beyond the current finite top-down appropriations.

A second challenge inherent in the past AC composition and approach arose from its lack of focus on demographic diversity in IOOS. Now that STEM initiatives have gained such far-reaching penetration into underrepresented communities, well-suited AC members could derive recommendations on how to expand the reach of IOOS’ value and opportunities. During the initial AC years, it was very instructive to witness the self-learning within the AC and its invited guests, as we pondered how to convince more agencies to become active or how to gain the attention of prospective industry partners. As we vetted preliminary notions of how these customers could benefit from IOOS, we often realized we needed to get to know better these next waves of IOOS customers because their interests can be fundamentally different from the IOOS early adopters or practitioners. Engaging “them” to be part of “us” may help.

On numerous occasions, across a variety of topics, AC discussions often concluded with yearning to be better at marketing IOOS to new customers and or partners. The first generation of AC members held a variety of definitions of what marketing entails. For example, we expect Public-Private partnerships can advance IOOS’s growth, however the partnerships can prosper only with clear mutual understanding about IOOS core services, data products, data rights and protection of intellectual property. This clarity of purpose is essential to understanding what marketing can do for IOOS. How

should marketing be performed relative to IOOS's diverse growth goals? Which positions, organizational structures, and communication models align best with the existing IOOS leadership and missions? Of course, each of these questions can be answered correctly in a variety of ways depending on any given organization's leaders' preferences. In order to guide focused, effective, market-driven growth of IOOS, the AC suggests that methods for marketing of IOOS be embraced formally through structured methodology with marketing industry experts.

As IOOS engages private industry in new roles, the AC should be invited to continue its attempts to outline where current IOOS practitioners and industry have mutual interests, and where there may be innately different needs. Discussions of IOOS matters primarily of interest to industry were sometimes challenged by the fundamentally different mindset of private industry. For example, past AC deliberations across a spectrum of topics touched on considerations of data rights and intellectual property. "Ocean observing data require free and open access." "Open source software is virtuous and becoming prevalent." "Open, nested models can be powerful." Many stakeholders the AC met with held firmly to these principles as immutable, even while at times noting the lack of sustainable sources of revenue to maintain these open resources. Private industry offers many proven models of how to generate enough revenue to maintain resources from which customer value is created.

One message the AC heard continuously was that current government funding alone is insufficient to meet current, let alone future, requirements for ocean research and operations. These are essential to a growing and resilient economy. Various analyses of the Blue Economy, as it is termed today, have demonstrated the need for all resources - government, academic, and commercial - to come together for optimal outcomes. We recommend IOOS foster frequent and regular consultation among these three segments to make complementary use of both public and private funding.