Summary

NOAA's Office of Oceanic and Atmospheric Research

Roundtable: Ocean and Coastal Ecosystem Management

On May 24th, about a dozen representatives of coastal states, the insurance industry, the private sector, the fishing industry, Sea Grant and academia joined Dr. Richard W. Spinrad, Assistant Administrator for Oceanic and Atmospheric Research (OAR), for a roundtable on Ocean and Coastal Ecosystem Management to share their input and help ensure our priorities reflect the needs of our current and future partners and customers. Following is a summary of the major points discussed at the roundtable.

Opening Remarks

In his opening remarks, Dr. Spinrad welcomed the group and underscored the important role NOAA Research plays in NOAA achieving its mission and goals. He stressed three messages – OAR supports preeminent research at all levels of the organization; OAR research provides value to society; and OAR operates in a culture of transparency, reaching out to constituents for input on research priorities and planning.

Before turning the floor over to the constituents, Dr. Spinrad discussed topics that keep him up at night including securing the resources required to carry out NOAA's mission, attracting and sustaining a preeminent scientific workforce, and maintaining scientific openness.

Constituent Observations

Participants identified current and future areas where NOAA could focus resources and efforts to help them meet their ocean and coastal ecosystem management needs and improve the value of NOAA's products and services.

Four common themes emerged: connectivity; attention to transitioning; the value of modeling; and monitoring and observing systems.

Connectivity

Connectivity with stakeholders was repeatedly raised as a good way to improve the value of NOAA's products and services to society and maximize the efficient use of limited resources.

Participants noted that improved connections between NOAA and its stakeholders regarding available environmental observing, monitoring and modeling tools, particularly as they relate to global climate change, will reduce duplication and maximize the value of limited resources. Participants also raised the importance of communication among stakeholders, such as the states, regarding analyses already completed, particularly for climate change adaptation and mitigation. Participants were enthusiastic about NOAA's regional initiatives but recommended careful consideration be given to the leads for regional initiatives; for example, whether they would be driven by NOAA or by local and regional leaders.

Some suggestions for improving NOAA's connectivity with stakeholders to ensure an efficient allocation of resources included:

- Working with coastal managers to improve access to one-NOAA information, such as the Digital Coast initiative;

- Increasing communication and cooperation with local stakeholders, such as fisherman, including using fishing platforms as research vessels and observation platforms
- Creating mechanisms for discussions between scientists and local users to better utilize local knowledge and improve policy decisions;
- Using Sea Grant to improve communication between local users and federal agencies, such as NOAA;
- Focusing substantial resources on decision support tools that incorporate uncertainty and are easily understandable to users; and
- Creating a single NOAA focal point for hurricane research.

Participants stressed the importance of translating scientific findings and predictions into language policy makers and managers can understand and utilize. They recommended NOAA employ social science to improve its ability to translate science into easily digestible information.

Participants noted that while the Intergovernmental Panel on Climate Change recently released its most definitive statements on the anthropogenic nature of global climate change, the public remains confused about the state of the science. They expressed the need for an authoritative voice on global climate change and recommended NOAA improve its communication of the impacts of global climate change. They urged NOAA to better communicate the significance of seemingly divergent climate predictions issued by different NOAA labs, such as those for hurricane intensity. Some participants also noted that while policy makers require long-term predictions, discussion of the impacts of global climate change on a shorter event horizon would improve the public's ability to understand and respond.

Finally, participants stressed the importance of communicating the value of research as an investment in future NOAA products and services to decision makers, ensuring NOAA's ability to prioritize research and secure needed resources.

Attention to Transitioning

Ensuring smooth and efficient transitions from research to operations was a common theme. Three areas for improvement arose – collocating researchers and operational scientists, increasing private sector involvement, and increasing communication between local/state and federal scientists.

Participants recommended NOAA could smooth the transition from research to operations and improve collaboration by collocating operational scientists and researchers. A participant noted the UK Met Office has forecasters working side-by-side with applied and basic researchers; while NOAA forecasters and researchers not only work in different buildings but often in different states. Dr. Spinrad noted an exception within NOAA, the National Weather Center in Norman, OK, where researchers at the National Severe Storms Laboratory and forecasters for the National Weather Service Storm Prediction Center work together on projects such as the NOAA Hazardous Weather Testbed with great success.

Participants also raised the challenge of engaging the private sector in transitions from research to operations. One challenge raised was determining when to commercialize research applications including how to manage the transition from academic/publicly-funded research to the private sector. Participants expressed interest in determining how the private sector might become involved in NOAA's regionalization efforts. Participants discussed existing mechanisms such as the Small Business Innovation Research program (SBIR) and the National Institute of Technology and Standards (NIST) Advanced Technology Program; however, it was noted that they stop at the precipice – providing money for research but not for transitioning the research findings into operations or commercial applications.

A participant noted that state biologists, who are often very visible in their local communities, work closely with federal biologists. Participants recommended extending this type of collaboration to the atmospheric sciences as well as improving communication between scientific disciplines to speed transitions from research to operations and improve applications.

The Value of Modeling and Observing and Monitoring Systems

The value of NOAA's models and NOAA's observing and monitoring systems, and improvements to the same, was repeatedly raised as being important to the success of many participants' efforts.

Modeling

Participants are looking to NOAA and NOAA's partners to improve environmental modeling capabilities. In particular, participants require improved global climate change models and predictions, hurricane models, and ecosystem models.

Participants expressed a need for improved global climate change models and predictions. They identified a need for improved understanding of the impacts of global climate change on local communities and the implications for the intensity and frequency of storms and drought, ecosystem balance, and human health. They also expressed interest in widespread inundation modeling.

For hurricane models, participants stated a need for improved forecasting of intensity, track and attenuation over land for individual storms, as well as improved seasonal and inter-annual forecasting of hurricane frequency and risk. In stressing the value of such forecasts, a participant noted that in response to Hurricanes Katrina and Ivan, the American Petroleum Institute recently set new wave height criteria for offshore oil and gas platforms in parts of the Gulf of Mexico that are about 22 feet higher than the previous standards. Improved forecasting over the oceans with an ideal goal of being able to assess the overall risk of a particular location to storms was also requested. In addition, participants would like NOAA to continue to work to reduce the uncertainty associated with hurricane forecasts and improve the communication of forecast uncertainty.

In addition, participants stated the need for improving and coordinating model validation and improving the understanding of the interaction between the oceans and weather, climate and ecosystems. Improving model validation was seen as particularly important for high impact, infrequent events. They noted a need for greater fidelity in bio-geochemical predictions and measurements, explaining these predictions and measurements are where physical predictions were 25 years ago.

Finally, participants noted the need for improved ecosystem modeling. They expressed interest in models that could predict the impacts of changes (natural or manmade) on ecosystems as a whole as well as on specific resources within an ecosystem. In addition, participants noted a need for understanding the implications changes to ecosystems could have on communities' vulnerability to climate change, and hurricanes and other natural disasters.

Observing & Monitoring Systems

Participants stressed the importance of maintaining and enhancing NOAA's observing systems as well as improving data integration and management. They also noted a need for strengthening NOAA's ecosystem monitoring capabilities.

Participants expressed concern that some of the space-based observing systems that researchers and forecasters depend on may not be available in the future. They noted that many researchers do not realize the challenges NOAA faces in continuing to provide access to key spaced-based observations, particularly satellite-based ocean surface wind observations. Dr. Spinrad noted that NOAA and the Department of Defense are aware of the concerns regarding NOAA's satellite observing capabilities and are taking steps to address those concerns.

Participants noted a need for more lidar data, increased density of observations over the oceans and coasts, and increased updates to NOAA bathymetric data. They also stated the need for an improved understanding of how global climate change and, for example, global sea level rise, may impact existing observing systems for tides, currents, wave height and bathymetry.

Participants also discussed the need for maintaining existing monitoring systems, such as stream gauges, and expanding NOAA's monitoring capabilities. One participant noted that such systems are needed to measure the success of ecosystem restoration projects. Another participant noted the need for systems that not only monitor ecosystems for toxins harmful to humans, but that also help managers predict toxicity. For example, they noted the value – both economic and for human health - of being able to predict when a beach should be closed rather than closing a beach after a toxin is detected. Participants also stressed the importance of being able to better monitor bio-resources and to track marine species such as turtles and whales. Finally, participants expressed interest in remote-sensed monitoring capabilities and water quality monitoring.

Conclusion

Participants stressed the need for improved connectivity through increased collaboration, outreach, and improved communication of complex scientific information; improved mechanisms for transition research to operations both within federal agencies as well as with private companies; improved modeling capabilities to enhance society's understanding of the risks – particularly those associated with global climate change and natural disasters; and, improved observing and monitoring systems to ensure the data needed is readily available in real-time and in the right format.