JSOST – Ocean Research Priorities Plan "Town Hall"
American Fisheries Society Annual Meeting
Lake Placid, NY
September 12, 2006

Question- Lots of investments are being made in weather satellites, and weather satellites have many sensors on them. Why not add on ocean-oriented sensors, like ocean color for the near-shore environment?
Response- Ocean color flies on a number of satellites, most notably SeaWiFS (which is near its life expectancy). TheGOES-R satellite was planned to have a coastal waters imager with expanded capabilities compared to SeaWiFS. However, in the most recent briefings, the coastal waters imager was deleted from GOES-R due to budget issues. Strong public support from the community would help in prioritizing these needs.

Comment- The ORPP doesn't seem to include much support for science infrastructure. Significant needs include: 1) a comprehensive data management system; 2) the massive computational infrastructure needed for ecosystem-based management; 3) sensors and platforms (e.g., advanced acoustics and optics); 4) ocean science education in general, and for fisheries – the current educational system for fisheries science isn't sufficient to support the emerging needs for scientists to support ecosystem-based management; and 5) budget – implementation of the ORPP will require agencies and the administration to support the budgetary needs.
Response- Budget commitments are a concern for all the agencies; the Joint Ocean Commission is trying to encourage OMB to commit more funding. The four short-term priorities are meant to provide an opportunity to Congress to invest on a number of issues deemed by the community to be high priority, and to see if we can work across agencies. Integrated data management is a major issue. Currently, every agency does this individually. The new JSOST/SIMOR structure is an attempt to break down the barriers between agencies, to provide ready access to data holdings. Education is among the priorities. The educational system needs to produce more people with quantitative skills, and to increase diversity.

Comment- Sensor platforms are not limited to satellites. For example, aerial photography and LIDAR data for mapping fish habitat in shallow coastal areas can be obtained using airplanes.
Response-There are many options for sensors, including buoys, mobile technologies (AUV's), genomic sensors, towed and passive acoustics. For example, different agencies have buoys, and they ought to be able to work together for integrating data.

Question- Is the Department of Defense involved in the ORPP? Could their acoustic data and systems be opened up for ecosystem applications and sensors?
Response-Yes, the Navy, Corps of Engineers and Joint Chiefs are all involved in the ORPP. There are a number of considerations in opening up Department of Defense assets, particularly ones that may have been classified. At the end of this month, the ICOSRMI will be discussing ocean acoustics, including issues with national security implications.

Question- What about forecasting the impacts of non-extreme aspects like water use and diversion, which can have significant impacts on watersheds, estuaries, and coasts, even if they occur far upland?
Response- This is a very good question. Water itself is a natural resource, especially in the West. Many protected species and coastal habitats depend on freshwater flow. The issues raised in this question are not explored in detail in the ORPP, but are implied in the Sustaining Natural and Cultural Resources and Ecosystem Health societal goals. What about the role of land-based stressors and freshwater diversion on coastal ecosystems? The connections between water-quality regulators and natural-resource scientists and managers need to be improved.

Comment- MPAs cannot be effective if land-based problems are affecting them.

Question- With respect to the short-term priority on improving forecasting of extreme events, aren't we doing OK in this area already?
Response- Our ability to predict landfall of hurricanes is pretty good, but our ability to predict storm intensity and inundation from storm surge isn't as well developed. Also, there are other types of extreme events, such as tsunamis and extreme rainfall events.

Comment-The problem is not only predicting the extreme event, but predicting the ecosystem's response to it.
Response-True, we need better forecasting of responses like contamination, bioaccumulation, and habitat impacts. Will a Katrina-like event cause a complete loss of habitat, or will the inundated habitat recover?

Comment- The second short-term priority [CAMEO] is very broad.
Response- There are two components. The first is to create a new cadre of models, with the involvement of the academic community. The second component is a comparative analysis of MPA's. This includes inside-outside and before-after comparisons. MPA's are becoming a mechanism of choice for ecosystem-based management (e.g., NWHI monument). It's important to put MPA's on a better scientific footing.

Question- We could adapt terrestrially based ecological theory, which has a more extensive theoretical basis, for researching MPA's.
Response- This is a good point. There is the possibility of designing MPA's based on MARXAN, which is basically terrestrial. Some aspects of the marine environment are different, such as more larval transport. We may need our own class of models for MPA's.

Question- The short-term priorities all seem to involve ecosystems or physical oceanography. What about the social sciences?
Response- Social sciences are embedded in some of them. For example, there are some aspects of social sciences in CAMEO, such as analyzing fishing-effort displacement caused by MPA's. Presently we collect observations on these types of issues, but we don't have predictive capabilities.

Comment- The observing system is very important for conducting research, but funding an operational observing system cannot always have funding preference over funding for basic or discovery-oriented research.
Response- The challenge is to get NSF and the operational agencies like NOAA to work together, so each sector carves out an appropriate part. We need new money to develop and operate the observing system, as well as for supporting discovery-based research.

Comment- We don't know the budgetary commitments. Priorities for a $10 billion system differ from those of a $1 million system. If you don't know the budgetary resources, you have a shopping list, so you may do the easy, rather than the important, things. NOAA should step up and lead the 21 agencies and focus this effort.

Question- How will money be allocated to competitive research proposals?
Response- How much funding remains internal to agencies, versus how much goes out for external research, is a concern. NSF's money will primarily go out for proposals, as will some allocated to the other various agencies. For example, NSF is major participant in CAMEO, and would likely support model development as well as other components of the research. GLOBEC is an example of such a federal-academic partnership.

Question- Are there ways for international participation? Every priority is international in scope.
Response- The State Department was involved in developing the ORPP. The USA has lots of relevant treaty responsibilities. Climate has an international component, and is inherently global in nature, such as with Arctic and Antarctic issues. The ORPP may have more international aspects than meet the eye, but perhaps this needs to be called out more.

Question- The material on DNA sensors is focused on harmful algal blooms and pathogens. There are other potential applications for these technologies, such as fish identification in mixed stocks, stock identification, and forensics.
Response- The proposal is broader than just harmful algal blooms, so there still could be more engagement on fisheries-related biosensors here. One idea discussed in the sensor program is to build on the Census of Marine Life's genetic barcode of life efforts.