

NOAA Science Advisory Board November 2007 FINAL

**30th Meeting of the NOAA Science Advisory Board
University of Oklahoma, Norman, Oklahoma
5-6 November 2007**

Presentations for this meeting will be posted on the SAB website at
<http://www.sab.noaa.gov/Meetings/meetings.html>

Meeting Attendees

SAB members in attendance: Dr. David Fluharty, Chair, and Wakefield Professor of Ocean and Fishery Sciences, School of Marine Affairs, University of Washington; Mr. Raymond Ban, Executive Vice President, The Weather Channel; Dr. Frank Kudrna, President and CEO, Kudrna & Associates, Ltd.; Dr. James Neil Sanchirico, Associate Professor, Environmental Science and Policy, University of California at Davis; Dr. John Snow, Dean, College of Atmospheric and Geographic Sciences, University of Oklahoma Dr. Gerald Wheeler, Executive Director, National Science Teachers Association

NOAA senior management and Line Office representatives in attendance: Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.), Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator; Ms. Mary Glackin, Acting Deputy Undersecretary for Oceans and Atmosphere; Dr. Richard Spinrad, Assistant Administrator, Office of Oceanic and Atmospheric Research; Dr. Alexander MacDonald, Deputy Assistant Administrator for Laboratories and Cooperative Institutes, OAR and Director, Earth System Research Laboratory, Office of Oceanic and Atmospheric Research; Dr. Stan Wilson, Senior Scientist, representing the Assistant Administrator, National Environmental Satellite, Data and Information Service; Dr. Steven Murawski, Director of Scientific Programs and Chief Science Advisor, representing the Assistant Administrator, National Marine Fisheries Service; Dr. Jack Hayes, Assistant Administrator, National Weather Service; Dr. Paul Doremus, Acting Assistant Administrator, Office of Program Planning and Integration; Dr. Gary Matlock, Director, National Centers for Coastal Ocean Science, representing the Assistant Administrator, National Ocean Service; Geoffrey Fuller, Deputy Director, representing the Office of Marine and Aviation Operations

Staff for the Science Advisory Board in attendance: Dr. Cynthia J. Decker, Executive Director; Kristen Laursen; Mary Anne Whitcomb.

Monday November 5, 2007

Opening Statement of the Chair and Self-Introductions by SAB Members

David Fluharty – University of Washington and Chair, NOAA Science Advisory Board

David Fluharty opened the meeting, welcoming members, NOAA leadership, and other attendees.

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Welcoming Remarks-Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.) – Under Secretary of Commerce for Oceans and Atmosphere & NOAA Administrator

VADM Lautenbacher provided updates on topics of interest since the August SAB meeting. These topics included several transitions in NOAA senior staff, NOAA budget trends, a legislative update, status of the Whale Ship Strike Reduction Final Rule, updates on the National Polar-orbiting Observational Environmental Satellite System (NPOESS) and Geostationary Operational Orbiting Environmental Satellite Series R (GOES-R), climate services update, an update on the GEO Ministerial Summit in Cape Town on November 30, 2007 and NOAA's participation in it, an update on the new NOAA Education Authorization in the America COMPETES Act passed on August 9, Nobel Peace prize winners and NOAA participation, and the wrap-up of a successful NOAA 200th anniversary celebration.

On budget trends, VADM Lautenbacher reported that the House and the Senate marks are both higher than the FY08 President's Budget request. A conference committee is starting shortly to consider this. NOAA is currently funded through a continuing resolution for FY 2008 and the agency hopes to get an appropriation bill this year.

Introduction to the National Weather Center *Doug Forsyth, NOAA National Severe Storms Laboratory and Kevin Kloesel, College of Atmospheric and Geographic Sciences, University of Oklahoma*

Acting for Dr. Snow, Douglas Forsyth and Kevin Kloesel provided a brief overview on the history and current operations of the National Weather Center in Norman. They led a walking tour of the National Weather Center for SAB members and meeting attendees. Presentations were made on University of Oklahoma research highlights in the following areas:

- *Shared Mobile Atmospheric Research and Teaching Radar (SMART-R) -- Mike Biggerstaff*
- *Oklahoma Mesonet -- Ken Crawford*
- *Lightning/Electric Fields Measurement Program -- Bill Beasley*

Final NOAA Response to the Reports from the Hurricane Intensity Research Working Group (HIRWG)

Richard Spinrad – Co-Chair, Hurricane Forecast Improvement Project Executive Oversight Board, NOAA Research Council, and NOAA Office of Oceanic and Atmospheric Research (OAR)

Jack Hayes – Co-Chair, Hurricane Forecast Improvement Project and NOAA National Weather Service

Ahsha Tribble – NOAA Hurricane Forecast Improvement Plan, National Weather Service (NWS) (Drs. Robert Atlas, Frank Marks and George Smith participated in this discussion via conference telephone.)

Dr. Spinrad and Dr. Hayes introduced this topic and pointed out that it was not a program briefing. Rather it discusses the next steps in program development as well as organizational

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issues. The Hurricane Forecast Improvement Project (HFIP) Plan incorporates most of the recommendations from the HIRWG report. The purposes of briefing this plan to the SAB is to request input from and inform the SAB of NOAA's intentions on its future hurricane research and operational activities. The HFIP Plan is a response not only to the HIRWG report, but to similar efforts from the National Science Board (NSB) and the Office of the Federal Coordinator for Meteorology (OFCM) report, "Interagency Strategic Research Plan for Tropical Cyclones: The Way Ahead in fall 2006".

The original HIRWG report was provided to the NOAA Research Council for review and was then handed off to the HFIP Co-Leads Frank Marks and Ahsha Tribble. HFIP has two foci: the way ahead on hurricane forecasting and responses to the specific recommendations from HIRWG. The NOAA Research Council and HFIP leadership are seeking SAB feedback on the NOAA HFIP plan. Dr. Tribble's briefing is on concepts for SAB feedback. OAR and NWS will be working this into the programming cycle but, given competing priorities, funding will be an issue. At this point, Dr. Tribble took over the briefing.

NOAA established the HFIP to develop a balanced and prioritized 10-year project plan. This will build on recent reports and recommendations and will specify stretch goals and metrics, particularly in terms of rapid intensity and change. Research and operational efforts necessary to improve forecasts of rapid intensity change will also improve intensity and track forecasts. Performance metrics have been identified for HFIP.

The HFIP builds on related NOAA planning documents and considers key recommendations from HIRWG, NSB, and OFCM. It is used as a discussion document to coordinate views on recent congressional language introduced to establish a National Hurricane Research Initiative.

The HFIP Portfolio has three major components: 1) improvement of model guidance; 2) development of a capability for evaluating observations systems to decide how to make investments in observation systems in the future, define future research and development observing strategies in the future, and get data to forecasters effectively; 3) expansion and improvement of forecaster tools. Short, mid- and long-term actions as well as priorities and payoffs for each group of actions were discussed.

Discussion:

A member asked about the investments required for three recommendations. What's the cost involved? Richard Spinrad said this is not a full program plan and NOAA has not done the program phasing and associated costs. There are several efforts costing hundreds of millions of dollars going on in parallel, but this is tens of millions, perhaps \$30-50 M and it is scalable. Jack Hayes said it assumes \$20-40 M over ten years.

A member asked if the agency met its targets on accuracy and elimination of false predictions, what savings would occur to involved states? Jack Hayes said metrics involved with rapid intensification are more difficult to assess than evacuation with hurricane tracks.

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A member said the performance measures were science measures and it would be better to cast these as social science performance measures that are understandable to people. He wanted to know why social science is tacked on at the end. Richard Spinrad said he agrees that it needs to be a societally-relevant metric. On social science side, we will have to coordinate with NSB and NSF and what they see for social science is needed for a full portfolio

John Snow reminded the group in attendance that he chaired the HIRWG and wanted to share his concerns with the group. He thinks the ten-year timeline is far too long. The 1-kilometer resolution recommendation is doable in five years—there are two research 1KM models that are running now so that should make the transition to operations easier. Also, ten years makes things harder to sell because the payoff is too far off. NOAA has done pretty well in improving track forecasts, but ten years to develop a 1KM forecast model is too long. NOAA can get support if it leads with vigor. Are there opportunities for ownership by others in the plan (universities, oil companies)? It will not happen with NOAA by itself. NOAA must aggressively engage a lot more people to solve this problem in a shorter timeframe.

Dr. Hayes asked if any of the 1KM models demonstrated improvement in the intensification problem? There are ocean and coastal models that need to be coupled to this. He said the external community needs to meet NOAA halfway and not “tend to” its own interests.

Dr. Spinrad said NOAA must iterate with the SAB and get feedback on the HFIP. He thinks NOAA has organized itself internally and is ready for the feedback.

Mary Glackin noted that the first two questions were about costs and benefits. NOAA is developing the means to estimate costs, but is still struggling to get the information on benefits that it needs to further engage the emergency management community. She also believes the existing evidence indicates, that the funding for observations needs to be increased for the models to be improved, if we want to make significant gains in improving hurricane forecasting.

Frank Marks said the plan proposes to demonstrate the 1KM capability within 2-3 years, but it will take ten years to get it operationally-implemented on high-performance computers in NOAA. This is a classic example of data collection improvement requirements and the transition of research capability to operations, which takes time.

A member stated that, if NOAA can translate false alarm and probability of detection into some cost estimates, it would be better off. Noting Minority Report recommendation #3, he asked if there is a way to parallel investment in lower resolution modeling as well as higher resolution. NOAA responded that this will be done on a parallel path in HFIP.

A member said there is a benefit to society to get online faster and a need to improve models, i.e. the two must be balanced.

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A member asked about the plan for garnering support for the project - who should support it and how should this be done? The traditional mechanisms are going to the American Meteorological Society, the American Geophysical Union, National Science Foundation (NSF), and OFCM as well as other mechanisms such as a formal "Request for Input". He believes that NOAA should try to get other organizations to participate.

Stan Wilson, NOAA NESDIS, stated that, in FY05, 06 and 07, NESDIS had a Congressional earmark of \$4M to facilitate the transition of NASA research into corresponding operational capabilities within NOAA. Of this amount, approximately \$1.5 M was invested each year to demonstrate the utility of QuikSCAT-derived surface vector winds, thus laying the basis for the current use of this NASA research data stream in operational warnings, advisories, and forecasts within NOAA. We used these funds as financial incentives in the establishment of partnerships between the external scientific and the internal NOAA operational communities, one effort of which was focused on the early detection, tracking, and characterization of tropical cyclones and hurricanes. Through this work, NOAA has come to realize that the external scientific community is ready, willing, and able - bringing new skills and insights - to engage with its counterpart within NOAA to develop new and improved operational capabilities.

A member said the number of people engaged in this work in the U.S. is limited. The HIRWG had a hard time identifying 75 people in the US who do this most of the time. A major effort will be needed to attract more talent into the field. This effort will need to bring in new people and new thinking. One component is increasing the workforce available to do this.

VADM Lautenbacher said he appreciated the conversation. The issue of leadership in hurricane research is an important one. There has always been a question of where is the national leadership on this issue and where should it originate. NOAA has been working on how to coalesce its own people to work on this issue and finally has them talking together at various levels. He thinks that this national effort should be led by NOAA, which is in charge of national forecasting. The next step is to develop this project into a full plan across NOAA that works with other interested organizations. There are no identified new funds for this activity. NOAA has a long way to go and needs the advice from the SAB to help.

VADM Lautenbacher asked what NOAA should do to provide a compelling argument for societal investment. The SAB believes the answer is to frame performance measures as risk reduction, how to model it and value it. The agency can achieve some risk reduction without going to 90 percent solution.

A member said the oil companies have many people on rigs. If NOAA forecasts improve, it may be sufficient to leave people on platform if they are low risk instead of evacuating all the platforms and disrupting production. At what level do forecasts have to be to change their decision-making process?

A member noted that each performance measure must be translated so that the public understands what it means. Another member responded that the agency must incorporate end

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user and social science aspects in these measures. He asked if people were represented in the program who could provide insights into what is really needed. Scientists think they know best what is needed. The members further noted that it is amazing what can be done if the customer is consulted. The stretch goals project a 90% improvement in ten years; this could be cast differently if one asks where the intersection is in three years, in five years, etc. The project needs a clear focus on intensity forecasting and a focus on end user needs, e.g. if the project achieves 60 percent in five years, this could be a huge benefit for user. The project must incorporate people with insight on the psychology of false alarm rates.

Dr. Hayes responded that the project didn't reach out to users, but focused on science first. However, he agrees that involving the users should be done.

Action: The Science Advisory Board (SAB) will provide to NOAA a clear statement of its concerns regarding the NOAA Response to the Hurricane Intensity Research Working Group Reports and the Hurricane Forecast Improvement Project.

NOAA Research Highlights. In conjunction with the scheduling of the SAB meeting at the National Weather Center, NOAA scientists presented information on the following topics:

- *Hazardous Weather Testbed – Jack Kain, Steve Weiss*
- *OAR National Severe Storms Lab – Jeff Kimpel, Travis Smith*
- *NWS/NCEP Storm Prediction Center – Joe Schaefer, Russ Schneider*
- *NWS Norman Weather Forecast Office – Mike Foster, David Andra*
- *NWS Warning Decision Training Branch – Ed Mahoney*
- *Phased-Array Radar – Doug Forsyth, Pam Heinselman*
- *Coastal, Inland Flood Observation & Warning Project – Kevin Kelleher, Suzanne Van Cooten*

Tuesday, 6 November 2007

Official Call to Order and Review of Agenda

Dr. Fluharty thanked John Snow and the University of Oklahoma for the dinner on Monday night and the discussions with staff.

Final NOAA Response to the External Review of NOAA's Ecosystem Research and Science Enterprise

Steve Murawski – NOAA Research Council, National Marine Fisheries Service and Ecosystem Goal Team Lead

Summary:

The purpose of this briefing was to provide NOAA's final written response to the Ecosystem External Review report and get SAB comments on this response.

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The NOAA response to the Ecosystem report can be characterized by three themes: 1) integration of NOAA's ecosystem sciences, 2) organization of NOAA's capabilities for effective and efficient delivery, and 3) expanded resources and capabilities to meet NOAA's evolving mission requirements. The model for implementing ecosystem management can best be described by the DPSIR model: Drivers to Pressure to State to Impact to Response.

NOAA is implementing the recommendations of the report in the context of many internal and external drivers, including the NOAA regionalization effort; the Subcommittee on the Integrated Management of Ocean Resources (SIMOR) and Sea Grant regional projects; reauthorization of Magnuson-Stevens Fisheries Management Act and other legislation; multiple internal and external efforts on Ecosystem Approaches to Management (EAM), Ecosystem-Based Management (EBM), and Integrated Ecosystem Assessments (IEAs); Integrated Ocean Observing System planning; and the Joint Subcommittee on Ocean Science and Technology (JSOST) Ocean Research Priorities Plan (ORPP). In addition, the FY 08 Office of Management and Budget passback language required NOAA to review its coastal programs – OAR National Sea Grant College Program, NOS National Centers for Coastal Ocean Science (NCCOS), NOS Office of Coastal Resource Management (OCRM), and NOS Coastal Services Center. Since then, the language in the Senate conference report has directed the four programs to work together to meet their mandates. This may result in a realignment of these offices.

NOAA categorized the SAB report recommendations into four general areas: regionalization, Integrated Ecosystem Assessments, ecosystem science and monitoring, and organizational issues. Dr. Murawski discussed the response to date for each of the recommendations. To date, of 17 recommendations in the Ecosystem report, six have been accepted for implantation, seven have been partially accepted, and the rest are pending.

The Ecosystem Goal Team has coordinated [four](#) recommendations to NOAA as a result of this report. Over the next six months, the internal ecosystem task team, in conjunction with the Research Council and Regional Teams, will develop alternatives for the establishment of a regional ecosystem science coordinating mechanism. The IEA Ecosystem Goal Team and PATT, in coordination with the Regional teams and Research Council, will work out the regional approach to IEAs. The IOOS program, the IEA PATT and the EGT to provide a consistent set of requirements for the PPBES process, coordinated with the regional science coordination entities designated in (1). And finally, a small, strategic group of Deputy Assistant Administrators and other senior leaders in NOAA will consider structural changes within NOAA to better meet the needs of providing ecosystem services consistent with the objectives outlined in the Ecosystem report.

In addition to the actions taken by NOAA, the agency asked the SAB to form a standing Ecosystem Science Working Group to provide ongoing dialogue, enhance communication with external partners and stakeholders to provide a sounding board for proposals to enhance the delivery of science supporting ecosystem approaches to management.

Discussion:

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A member asked if NOAA has begun to think about the decisions for which it is responsible and how this paradigm shift to ecosystem management will impact them and which ones will be impacted most. Dr. Murawski responded that they would like to start by aligning with fisheries and protected species areas. One pilot project is to work on fisheries ecosystem indicators with OAR and NMFS so the organization is more attuned to ecosystem approach. In protected species, an integrated ecosystem approach is needed. This approach can also be implemented through the legislative authorities provided to the marine sanctuaries program for place-based management. In interactions with other agencies, NOAA can comment through the permitting process on a number of actions, including those of the Army Corps of Engineers. The real issue is whether there can be alignment on issues among federal agencies; this will be more difficult.

A member noted that there is no ecosystem analogue across government to the Office of the Federal Coordinator for Meteorology (OFCM). Perhaps the time has come for a standing coordinating agency for this purpose. Another member supported this idea by noting that NOAA seems to be spending a lot of time on issues that an agency like OFCM could handle more effectively. Dr. Murawski indicated that the Office of Science and Technology Policy (OSTP) has an effort on this through the Committee on Environment and Natural Resources (CENR). In addition, SIMOR is a loose conglomeration of agencies that could have a coordinating responsibility if they wanted to take this on.

A member commented that “business as usual” will have a low probability of success. This effort will require a campaign at the enterprise level to drive it through the organization to make it happen. He doesn’t think it will happen through the line offices alone. Dr. Murawski commented that there is enthusiasm on collaboration but there also needs to be accountability. There should be some organizational changes in order to better manage external partners, i.e. those funded but not managed by the agency.

A member asked if the Ecosystem Goal Team plans to identify best practices as they go along. Dr. Murawski said the first few pilot projects, in the Gulf of Mexico, California and Alaska, will be critical in setting the pace and identifying pitfalls to be avoided.

VADM Lautenbacher said this idea is outside of everyone’s field of expertise but if NOAA can’t figure out how to push the nation in this direction it will mortgage the way the nation’s resources are managed. NOAA needs to make sure that people understand what it is doing. Dr. Murawski talked about form following function and possible organization change and accountability, authority and funding. For that reason, NOAA has a matrix management system; Steve Murawski is the lead for the ecosystem goal and he able to say there is some matrix accountability but it is not perfect. The agency can modify this if it think it is useful. He thanked Dr. Murawski for tackling this difficult problem and making it work.

Stan Wilson noted that characterizing the environment is moving to the regions so how will this issue be coordinated with IOOS and its regional associations? The users are region specific and need a close coupling. Dr. Murawski responded that regional associations pull together observations and management. In the California Current Pacific Ocean Observing System

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(PacOOS) there are three regional association directors. There is a growing role needed to ensure that there is coordination among the regional associations - a consistent coordination of regional ecosystems.

VADM Lautenbacher commented that this effort is trying to build the foundation for something that answers many of the questions asked by the agency. NOAA is building something that services the entire agency, that answers questions, and that deals with real problems. Is this the right kind of structure and what is needed to sell it as an output. He is interested in SAB thoughts on that. Dr. Murawski said even if this was only done internally in NOAA, the agency would be more successful. This responds to recommendations in the Ocean Research Priorities Plan and the Pew Foundation report on the NOAA's need for regional ecosystem approach.

Mary Glackin noted that as a mechanism and tool ecosystem-based management could bring the agency together, if the benefits and purpose are clearly identified. These are clear for the Magnuson-Stevens and protected species management but she isn't sure about other aspects. She sees a growing concern over a variety of services offered to coastal communities. Coastal services do not have sharply identified sets of objectives and are very locally driven. This has been a challenge in budgeting for this goal. MSA clearly dictates the investment needs in contrast to the services provided to coastline users. She thanked Steve but said there is a lot ahead in NOAA to get this going.

A member asked about that the standing working group on ecosystem science requested by NOAA. There seem to be two purposes identified but achieving both will require a diverse group of people - enhance communication with external partners and stakeholders and act as a sounding board for science program proposals. How many people and goals would or should this group have? Dr. Murawski noted that the dialogue requires more experts than are on the SAB currently. One possibility is for the group to provide advice initially in a particular place or region such as the California Current pilot project. The other is to blend scientific expertise as well as with engagement at the national level. So there are two models, one region-specific and the other engagement across agencies.

One member noted that what NOAA is doing now is foundational. NOAA will have trouble adapting to this and the working group could provide advice on alternative ways of handling this, e.g. linking in to the Sea Grant process. The SAB should try to identify alternative strategies through activities that are underway and setting a timeline that allows a handoff to the regional groups that are now being organized. However, this will be a moving target—whatever NOAA does must be nimble and tracking with what is going on in the agency and providing timely feedback and advice. The SAB Social Sciences Working Group and a social science component would help. The recommendations from the SAB Extension, Outreach and Education Working Group will be of help also.

Mary Glackin said the SAB Climate Working Group has been very helpful to NOAA; they are lined up to help with planning and programming decisions. This ecosystem WG could help in

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the same way. Steve Murawski agreed that this was a driving force behind what NOAA was thinking of with this recommendation to SAB.

VADM Lautenbacher stated that it would be important to have a standing working group to help us with this process. It would be useful to have a continual sounding board as the agency moves out on this concept.

A member asked if the mandate on providing advice on scientific programs might not be too much for the group. Ms. Glackin noted that the Climate Working Group does this and it works very well. David Fluharty said the SAB would consider how to do this and come back with a proposal to NOAA at the March 2008 meeting.

Action: The Science Advisory Board (SAB) will work with NOAA to develop draft Terms of Reference for a proposed standing working group on Ecosystems These draft ToR will be used by the SAB to determine if it should establish such a group.

Extension, Outreach and Education Working Group Draft Report

Frank Kudrna – Kudrna and Associates, Ltd and SAB Member

Gerry Wheeler – National Science Teachers Association and SAB Member

Summary:

The purpose of the briefing was to present the Draft Report and get SAB comments.

Frank Kudrna made three points from the Executive Summary of the report.

The Working Group concluded that NOAA must dramatically change its way of doing business if it expects to more fully engage and serve its consumers and clients. In general, the public does not know NOAA. The Working Group believes that NOAA's return on investment to society is reduced because NOAA does not present an understandable vision to its clientele and does not systematically listen to and communicate with its partners and with the public.

NOAA is the Nation's leading ocean and atmospheric science and service agency and, through the America COMPETES Act of 2007, has the responsibility to lead this country's extension, outreach and education programs in this arena. The Group embraced the concept of "engagement" (with users of NOAA products and services) to represent the desired outcome.

Extension, outreach and education are the "tools" that NOAA would use to become a fully engaged agency that is more connected to its customers, fostering enhanced partnerships and leveraging programs. This will allow NOAA's contribution to overall competitiveness to be more efficient and effective, increasing the overall value of NOAA to society.

The report provided eight findings and associated recommendations as well as proposal for actions that could be completed in the short term.

Discussion:

Mary Glackin agrees that the low return on investment in public support for NOAA is due to a lack of engagement but expects opposition to the recommendations of the report from within NOAA. The agency will need to find ways to get all of NOAA to support these ideas so suggestions would be appreciated. She asked if the group had come across any data or direction on how to develop this as something other than logo branding? Gerry Wheeler said this is a culture change. The National Science Foundation has struggled with this for ten years; it is a long process. He noted that NASA provided the working group with a strategic plan graphic that shows how all of this that fits together in that agency. Frank Kudrna noted that some of the early products that NOAA implements from this report may demonstrate the benefits.

Ms. Glackin also asked if the budget numbers stated in the report include funding for the Warning Coordination Meteorologists in the National Weather Service. Louisa Koch responded that the total for 2006 does not, but the 2007 total does include an appropriate portion of their salary money.

An SAB member said that the presentation noted that the NOAA logo is not allowed to be used on Cooperative Institute publications and programs even though NOAA funds the Institutes, and confirmed that this has been his experience as well.

In response to the presentation that noted NOAA has an opportunity to provide environmental input into development of science curriculum standards in schools, Louisa Koch said that NOAA is providing input into the development of California's model environmental curriculum.

A member cautioned that there is a fine line that separates the terms of extension, outreach and education and their meaning from a consumer marketing campaign that comes across as a commercial activity. This concept could have a grating impact on the weather and climate enterprise. On the weather side, NOAA is part of a public, academic, and commercial enterprise that provides services to the public. In the partnership recommendations, the working group should include the weather and climate enterprise partners because it is critical to enfranchise that group.

A member said it is worth considering why higher education intuitions funded the Kellogg study. Over the last 30 years state institutions and their states have become disconnected. This is the result of how higher education is funded and growing accountability for a smaller amount of money. The impetus for the Kellogg report was to help universities respond to a changing world. There has been some success through the report, however, most university faculties have not responded well. Some university administrations, on the other hand, have adopted many of the Kellogg recommendations and philosophy.

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A member noted that NOAA should communicate to researchers that, in a time of limited funding, it is important to demonstrate that their work is having impact in order to ensure future budgets. User involvement will help in obtaining future funding.

A member asked about the definition of the terms “extension, outreach and education” in a NOAA context. For example, in USDA, under the land grant system, the term “extension” means they are helping people make money. Gerry Wheeler agreed that the WG would review its definitions in light of these comments.

David Fluharty observed that NOAA is not necessarily at a disadvantage compared to other agencies on public understanding of what they do. There is a general literacy problem about governance but NOAA can insert itself into the void and enhance its visibility. Gerry Wheeler responded that David Fluharty’s observation may be true with respect to environmental issues but public does have an idea of what some agencies do, such as IRS and FDA. Another member noted that the overarching issue is how NOAA can improve its services.

A member asked if there was any synergy with ecosystem pilot project and the EOEWG recommended Sea Grant Gulf of Mexico pilot. Steve Murawski said there is a lack of readiness to do integrated ecosystem assessments in the Gulf as a first pilot. However, he agrees that the success of the IEAs will be good communication on the benefits to society of these assessments and the recommendations that come from them.

VADM Lautenbacher thanked Gerry Wheeler, Frank Kudrna and the entire working group for the presentation. The report is very helpful. He agreed with an earlier comment regarding the breadth of NOAA’s partners and the need to engage all of them appropriately. He noted that there is a difference between partnerships and engagement in the ocean and atmospheric parts of the agency but NOAA must create one enterprise. There is a lot in the group’s report based on the American COMPETES Act and the statement it makes about NOAA and education. But NOAA has not tested the authorities in this legislation and it must be very careful where it allocates money and how it develops these ideas with the Commerce Department. Testing the America COMPETES Act will be an important endeavor in the future.

The VADM also noted that NOAA has reorganized the Public Affairs Office, renamed it a Communications Office, and hired a new director. He asked whether the group had taken a look at that and what they saw. Should the Communications Office be driven by the proposed Engagement Council or the Engagement Council driven by the Communications organization? Frank Kudrna said the group met with Anson Franklin, Director of the Communications Office, and noted that the Office is charged with providing information about major accomplishments of NOAA. He thinks that the WG is primarily concerned with the feedback to NOAA from users and constituents and how that will shape its products and services. Gerry Wheeler added that the group saw the Council and Communications Office as two different entities. But he agreed that the Communications Office could play a role in developing perception surveys and that there should be a connection between the two entities. VADM Lautenbacher asked if the working group could make that connection in the final report.

A member said the notion of getting feedback is important. He pointed out that many people think they know how to conduct surveys but in reality are not experienced. It can cost a lot to do these but it is worth hiring people who know how to do this kind of work.

Frank noted that the EOEWG heard during its research that NOAA employees would be willing to talk about “OneNOAA” issues if they had information or training.

David Fluharty suggested that this kind of activity could be put in job descriptions. He pointed out, however, that this responsibility would be different for different types of jobs, i.e. resource managers versus research scientists. Gerry Wheeler said the EOEWG stayed away from specifics such as job descriptions but agreed with David. Frank said that the WG was responding to statements it heard from NOAA people who did engage in outreach and education but were told these activities were not part of their charge. He noted that by changing the mission and vision of the agency, by providing training in outreach, and adding these activities to job descriptions, NOAA may be able to change its culture.

A member commented that at the August 2007 SAB meeting, he was impressed by the excitement of the Ocean Exploration program of NOAA. He related this to the way The Weather Channel works. It connects on the emotional side of people. Similarly, NASA has been able make an emotional connection for people to the excitement about space exploration. Both NASA and TWC have become brands that provide an emotional connection. If NOAA wants to make a similar connection, Ocean Exploration may be an opportunity to do this and the entire agency can leverage it.

Action: The Science Advisory Board (SAB) Extension, Outreach and Education Working Group (EOEWG) will revise its draft report according to comments received at the SAB meeting and provide this version for public comment.

Working Group Updates

Fire Weather Research – John Snow

The Fire Weather Research Working Group (FWRWG) has met once in Silver Spring in October 2007 as an organizational meeting. The members come from diverse backgrounds, including representatives from both the research and user communities. Two additional meetings have been scheduled – January 2008 in Los Angeles, CA and April 2008 in Boise, ID to see the National Interagency Fire Center. A final writing meeting is tentatively scheduled for June in Norman, OK. John Snow provided some early impressions from the first meeting. There is a real threat to society from wildland fires, emphasized by recent fires in southern California, a repetition of what happened four years ago. The reasons for this include urbanization of the wilderness, and worrisome changes in climate, which suggest that wildland fires will become aggravated in the future. The NWS has incident meteorologists but they are a small group made

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up of volunteers from within NWS, and they are stretched quite thin in response to fire and other natural disasters. In order to better assist the Incident Meteorologists (IMETs) and the firefighting community, the FWRWG will be examining research needs in microscale and mesoscale weather models at the fire front. Predictions on these scales must be communicated in the field so that the response structure can provide rapid responses at multiple levels. There is no single federal research organization looking at fire weather so the group will have to consider how any recommendations for research would be implemented. The National Science Foundation doesn't cover fire weather and the National Institute for Standards and Technology (NIST) is largely focused on fires in the built environment. The U.S. Forest Service is primarily concerned with research on fuels and post-fire phenomena such as debris flows across landscapes. The FWRWG plans to present a draft report to the SAB at the summer 2008 meeting and a final report in fall 2008.

Jack Hayes said he visited the San Diego Weather Forecast Office during the October fires. He noted that incident commanders are very dependent on information from NWS. He would like to know what the line is between microscale/mesoscale fire dynamics and the weather effects. Dr. Hayes said there is an initiative on fire weather in OFCM and input would help him steer the group. John Snow pointed out that the current training manuals contain anecdotal information but don't include heuristic, quantitative approaches such as synoptic meteorology. Cynthia Decker point out that there are a number of users on the working group, not just researchers.

Social Sciences – James Sanchirico

The Social Sciences Working Group has met once, in October 2007. There was a previous 2003 SAB report on social sciences that provided recommendations for fitting social sciences into the NOAA line office structure. NOAA is not so confined to the LO structure now but has Goal Teams and Councils. This group will revisit the original recommendations and determine how social sciences can better be integrated into NOAA given this new structure. How can NOAA better identify and measure its programmatic outcomes. Had first meeting in October in Silver Spring that covered what was done earlier in the report, what the Research Council is doing. Susan Hanna is chairing. One discussion was underrepresented in risk communication; they may recruit members with that specialty. Will have report from November report.

A member asked if the Societal Impacts program of the National Corporation for Atmospheric Research (NCAR) is involved with this group. Dr. Sanchirico pointed out that one of the SSWG members is from that program. In addition, the NOAA Weather and Water Goal Team is working with that group at NCAR.

Partnerships – Mike Keebaugh

The background of the working group to improve the dialogue between NOAA and outside partners was reviewed. The group had one meeting in October 2007 and will work to develop a draft report by the end of the year. This will be sent to the SAB in early February for discussion at the March 2008 meeting. The primary goal is for the group to recommend a formal

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mechanism for providing advice to NOAA on environmental services. The perceived concern is that the existing mechanisms are ad hoc; some standing mechanism is needed for all partners to provide input on a regular and consistent basis. A new Federal Advisory Committee is not the immediate solution but may be the answer eventually, given the long timeframe of concern about this issue. The group will examine all of the options.

Public Comments

There were no public comments submitted or presented.

NOAA Oceanic and Atmospheric Research Laboratory Reviews

Michael Uhart – Director, Laboratories and Cooperative Institutes, NOAA OAR

Summary:

This presentation was a request for feedback as to whether Quality, Relevance, and Performance are the correct indicators for NOAA Office of Oceanic and Atmospheric Research (OAR) laboratory reviews. It also provided information on how this might relate to the Benchmark Reviews to be conducted by the SAB. Dr. Uhart showed the Research Evaluation slide that the SAB had seen in March on the four levels of research evaluation. The SAB will be responsible for a Benchmark Review every 4 years, as a culmination of this process. He noted that the first three OAR lab reviews, scheduled in 2008, are: 1) the Earth System Research Laboratory Chemical Sciences Programs in January, 2) the Atlantic Oceanographic and Meteorological Laboratory in March, and 3) the Pacific Marine Environmental Laboratory in August. The review teams will be made up of members both internal and external to NOAA.

Discussion:

A member asked if NOAA has given any thought to the use of anonymous reviewers, using the National Science Foundation (NSF) example of anonymous mail reviewers in addition to panelists. Dr. Uhart responded that there were no plans to use anonymous reviewers but it would be considered. One SAB member noted that Cliff Jacobs at NSF is an authority on atmospheric science laboratory reviews and he might have some ideas to provide on this process.

A member asked about the benchmarking by SAB, noting that having similar material between organizations would be helpful. He wanted to know if there has been any discussion of commonality of review standards. This issue is being addressed by the Monitoring Research Committee of the NOAA Research Council (RC) as these standards come out, however OAR did not want to wait on its lab reviews until this process is completed. Richard Spinrad said NOAA wants to take advantage of the flexibility of current processes and package the results in terms of quality, relevance, and performance. Sandra Knight, Director of OAR's Office of Policy, Planning, and Evaluation and Chair of the Monitoring Research Committee, pointed out that some agencies like the Environmental Protection Agency may already do this so NOAA will ask for some of the same criteria.

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A member asked if the Benchmark Review would be a paper review of materials provided by NOAA. Dr. Spinrad said NOAA has the responsibility to provide data for the Benchmark Review but the details of this is still a pending action between the Research Council and SAB.

A member said there are two pieces in a benchmark review - collection of the data from NOAA and turning around for a comparison with other agencies such as NASA, NSF, USGS, etc. The comparison part is the most difficult part since NOAA would have to get similar data from the other agencies. The latter is of greatest concern.

Another member agreed that external, anonymous reviews are a good idea. He also thinks that consideration of outreach and education activities as part of the review would be useful and important.

Mary Glackin asked about whether the reviews will consider the health of the laboratories in terms of succession planning, i.e. the human resources aspect. Sandy MacDonald, OAR Deputy Assistant Administrator for Laboratories and Cooperative Institutes, indicated that, at least for the ESRL review, there will be a meeting between lab management and reviewers where this could be discussed.

A member asked whether the internal dynamics in the laboratory would be considered, i.e. are people getting along, are there impediments to the work of the laboratory, and is there a healthy relationship between the elements of the lab and the management? Richard Spinrad responded that meeting with the working scientists will be a key element in the review to get at this issue. Sandy MacDonald said examining this aspect will be valuable.

A member asked if there will be a rating or ranking provided as a result of the reviews. For now, it appears that the results will be just findings and recommendations. Richard Spinrad said a large part of the process will be the engagement with the laboratory in addition to the review itself. Steve Murawski said another aspect will be how transferable this is from lab to lab. In the Physical and Social Sciences Task Team report (an internal review of OAR programs in these areas, presented to the SAB in 2006), a continuum of research was outlined. One of the results could be that the lab staff understands where the lab fits into the larger NOAA research picture.

Another member sounded a cautionary note; it is his understanding that these reviews will be focused on science. While there are management-related questions to be considered, the issues should be where the science has focused, what is the science now, and what is planned for the future.

Regarding the slide on “elevance,” a member suggested that OAR take a first look at NOAA research plans and then review that set of bullets and in what order. Part of the evaluation of relevance includes how the lab is meeting NOAA’s mission needs as expressed in the NOAA 5-Year Research Plan and 20-Year Vision.

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Mary Glackin commented on the slide on the overarching table on research evaluation as well. NOAA leadership has reinforced the role of the NOAA Research Council to be the comprehensive mechanism to ensure consistency. The program should also acknowledge there is a lot of work to implement all the levels of review. NOAA is just beginning this process and the role of the Research Council is an important one.

A member said the SAB should have an internal discussion about how to do Benchmark Reviews. One way to get this information is to ask experts in agencies for comparative evaluation. Another member said it might be time to develop the list now of programs and agencies that could be used in the comparison to the NOAA programs. Richard Spinrad indicated that the first Benchmark Review will take place three years from now. He agreed that the RC will take the action to develop guiding principles and some examples of benchmarking.

Action: NOAA Research Council will consider incorporating suggestions from the Science Advisory Board (SAB) into its monitoring research activities and plans, including consultation with the National Science Foundation about that agency's reviews.

Action: The NOAA Research Council will explore with the Science Advisory Board (SAB) ways to get review material from other agencies for the Benchmark Review. The NOAA Research Council will initiate this with a draft document.

Recap of Meeting Decisions and Actions

Cynthia Decker – Executive Director, NOAA Science Advisory Board

Cynthia Decker reviewed the meeting decisions and actions.

The next meeting will take place on March 12-13 in Silver Spring, MD. David Fluharty proposed that a briefing on the Census of Marine Life be included in that agenda; the SAB members agreed to this. Cynthia Decker cautioned the group that the March agenda will be very full.

The summer 2008 meeting date has not been set but likely will be in Boulder, CO at ESRL or the Stone Laboratory of Ohio State University in Lake Erie.

Meeting Adjourns