

NOAA Science Advisory Board March 2008

**31st Meeting of the NOAA Science Advisory Board
Silver Spring, MD
12-13 March 2008**

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; Mr. David Blaskovich, Sales & Marketing Executive, Weather & Environmental Markets, High Performance Computing, IBM Corporation; Mr. Michael Keebaugh, Vice President, Raytheon Company; Dr. Geraldine Knatz, Executive Director, Port of Los Angeles; Dr. Frank Kudrna, President and CEO, Kudrna & Associates, Ltd.; Dr. James Mahoney, Environmental Consultant; Mr. Sean O'Keefe, Former Chancellor, Louisiana State University and A&M College; Dr. John Snow, Dean, College of Atmospheric and Geographic Sciences, University of Oklahoma; Dr. Carolyn Thoroughgood, Vice Provost for Research, University of Delaware; 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; Ms. Mary Kicza, Assistant Administrator, National Environmental Satellite, Data and Information Service; Dr. Stan Wilson, Senior Scientist, National Environmental Satellite, Data and Information Service; Dr. James Balsiger, Acting Assistant Administrator, National Marine Fisheries Service; Dr. Steven Murawski, Director of Scientific Programs and Chief Science Advisor, National Marine Fisheries Service; Ms. Vickie Nadolski, Deputy Assistant Administrator, representing the Assistant Administrator, National Weather Service; Dr. Paul Doremus, Acting Assistant Administrator, Office of Program Planning and Integration; Dr. William Corso, Deputy Assistant Administrator, representing the Assistant Administrator, National Ocean Service; Rear Admiral Philip Kenul, Acting Deputy Director, Office of Marine and Aviation Operations, and Director, Marine and Aviation Operations Center

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

Wednesday March 12, 2008

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.

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

VADM Lautenbacher welcomed all participants and provided updates on topics of interest since the November 2007 SAB meeting. These topics included several transitions in the SAB membership, NOAA and Department of Commerce senior staff, NOAA budget trends, a legislative update, and seven themes of priority interest to NOAA.

Regarding the budget, NOAA has had some success in adding resources to NOAA's activities with the FY09 President's Budget, reaching \$4.1 billion. This represents the highest level of support for NOAA's initiatives to date, an important benchmark to note. Special recognition was made of the proposed NOAA Organic Act which would provide the legal framework for the establishment of NOAA.

Seven NOAA themes to develop prior to the impending Administration transition were discussed:

- 1) Global Earth Observation System of Systems (GEOSS) – An overview of US Government representation and priorities for the 4th ministerial summit were highlighted.
- 2) NOAA and Climate – NOAA is well positioned to leverage partnerships to unite the full capacity of federal, regional, state, and local efforts to meet public climate information needs through the development of a NOAA National Climate Service.
- 3) Regional collaboration – Five goals for improving NOAA's interdisciplinary regional collaborations were discussed.
- 4) Water – Highlighted as a precious resource that cuts across not just NOAA but across many Federal agencies.
- 5) Coasts – Population, weather, and climate change pressure is increasing and therefore NOAA will respond by bringing many coastal programs together into a unified effort.
- 6) Education, Outreach, & Extension – The recently passed America Competes Act describes NOAA's role in education; this will benefit from the SAB's recommendations to be discussed in this meeting.
- 7) Communications – A number of initiatives were discussed including NOAA messaging and websites.

Discussion:

A member questioned whether NOAA should consolidate NOAA-related legislation into one bill for Congress. The Oceans 21 bill has not met with success in practical terms and so therefore NOAA will continue to push the individual pieces of legislation through Congress while unifying them operationally once passed.

Another member noted that air quality is a very important issue especially along the coast and that there is currently not enough air quality research on high seas and Pacific coast in particular. Air quality is a global issue and NOAA is beginning to fill the information gap through operational air quality forecasts (ozone and particulates) and global air quality studies in the context of GEOSS

A member highlighted the interest of the investment banking community in climate services. Nearly all sectors are showing an interest in climate services; NOAA can play a role by providing better public sector framework on this issue.

Preliminary Draft Report from the Working Group to Examine Advisory Options for Improving Communications among NOAA's Partners (Partnerships WG or PWG) - Mike Keebaugh - Vice President, Raytheon Company and SAB Member

The purpose of the briefing was to present the PWG's preliminary draft report and request comments from the SAB. By way of background, it was noted that in July 2006, the SAB reviewed the advisory mechanisms NOAA uses in support of the NOAA "Policy on Partnership in the Provision of Environmental Information" and concluded that the *ad hoc* approach employed was insufficient. This policy was a response to a National Research Council (NRC) study on effective partnerships in climate and weather which recommended The National Weather Service (NWS) to establish an independent advisory committee to provide ongoing advice regarding weather and climate issues. The SAB formed the PWG to examine and recommend advisory options for improving communications among the various public, private and academic entities.

The PWG agreed that a formal mechanism was necessary, identified criteria and examined alternatives. The various alternatives were discussed, including a preferred approach to establish a standing/permanent working group. It was noted that certain members of the PWG felt strongly that ultimately a new federal advisory committee (FACA) should be created but that, granted the urgency of this situation, the entire group supports the creation of a standing working group as an interim solution. The precedent for such a group exists within the current SAB structure and it was argued that this combination of alternatives represents the best solution. The standing working group would initially focus on NWS with an evaluation after 1-2 years to determine if focus should expand to the broader environmental information enterprise and/or if a new federal advisory committee should be established.

Discussion:

The Chair commended the group for their work.

A member supported the recommendations and noted that setting up a federal advisory committee can be very difficult and should not be hurriedly decided. He continued that NOAA has had some tense relations in the past with certain private interests in the weather community. While he recognized the value of NOAA receiving criticism, he cautioned that the working group should not be hijacked by a few vocal individuals who consider NOAA's weather products and services as competition with their own. Regarding internal collaboration within NOAA, the VADM has made many changes and been successful in creating "one NOAA." NWS, however, has been and continues to be criticized for not collaborating sufficiently. The PWG could therefore have a role both externally and internally to improve collaborations that are already in progress.

Dr. Balsiger asked about the process and how the working group would function. It would function in the same way as the other standing working groups with reports and recommendations passing through the SAB.

A PWG member commended the chairmanship of Mr. Keebaugh and suggested that the report would not have come together without his leadership.

Ms. Glackin thanked the group for their efforts and noted that overall she is comfortable with the proposed phased approach. She was somewhat concerned with the label that focuses uniquely on NWS and suggested that perhaps it should be broadened to "weather services" from the outset. Furthermore, NOAA has been working on National Climate Services, from retrospective climatology to other forward thinking aspects, and is initiating a committee within the American Meteorological Society (AMS) to support NOAA in this effort. She asked whether the PWG has discussed National Climate Services and what role the group might play in this emerging area. Mr. Keebaugh responded that NWS is an established organization while a national climate service is evolving and therefore it might be more difficult for the presumed permanent PWG to address a "moving target."

A PWG member mentioned that there was extensive discussion of the breadth of the mandate of the group – broad or narrow. He preferred that the group begin immediately with a focus on weather that could actually be tested. Perhaps in the future the PWG would morph into a FACA committee with several working groups on various topics. Furthermore, he cautioned that the SAB should not “have the best get in the way of doing something good.”

Dr. Spinrad understood the concept of starting with NWS. However, from NOAA’s perspective, he suggested there is value in the PWG hearing and learning from other NOAA lines and their operational principles from the beginning. This interaction could help facilitate an eventual smoother scaling up to broader topical areas than weather.

Ms. Nadolski offered her appreciation of the PWG and welcomed the continued support through these difficult issues. She acknowledged that there had been some issues in the past and that NWS has renewed relationships with many private sector partners in the weather community. Moreover, she noted a renewed commitment by NWS to improved collaboration with NOAA research.

VADM Lautenbacher thanked the group and generally agreed with the previous comments. He noted the need for a partnership policy for all of NOAA beyond weather as nearly all of NOAA’s activities involve collaboration of some form with industry and academia. Moreover, he recognized that the issues with weather and industry have been challenging over his tenure but noted that the relationships are improving. He recommended that the group begin with NWS but will somehow need to look at bigger picture and implications along the way for the whole of NOAA. Finally, he noted that he is looking forward to the final report and moving forward.

A member commended the group and reminded everyone that all actions of a standing PWG will have to go through the SAB. Perhaps it is at that stage that the broader analysis can occur to ensure that ideas are vetted and optimized NOAA-wide. He supported the statement in the report that the long-term solution is to ultimately establish a new and permanent federal advisory committee. Regarding the term for members of the proposed standing PWG, a three-year term might not be enough to get members up to speed and functional. He noted that AMS committees are currently moving from three- to four-year initial terms for just that reason.

Another member suggested that, from an administrative standpoint, it takes 3-4 years just to set up a federal advisory committee. He recommended that the group be established under an existing FACA committee for administrative expediency. VADM Lautenbacher said this was the current proposal and that this should be established right away under the SAB

Dr. Balsiger asked whether a new federal advisory committee would report through the SAB. The response was that, no, a new committee would not necessarily have any formal linkage with the SAB.

A member noted that the demand has come from a select/specific group and therefore their concerns should be responded to initially. Ultimately, it will be important for the PWG to broaden its scope NOAA-wide.

Ms. Kicza asked whether the PWG will develop the terms of reference (TOR) for the working group now or wait until report is done. The Chair suggested that it would be ideal if the PWG could have the TOR ready for the SAB July meeting. Mr. Keebaugh suggested that this is doable with NOAA’s leadership and the SAB’s support. The Chair suggested that next specific steps in coordination can occur after the meeting. Dr. Decker reminded the group that the report will still go through a public comment period.

A member raised a procedural point by asking when the report would go out for public comment. Dr. Decker estimated mid-April. The member highlighted that the TOR would likely be of great interest for public comment. Therefore he proposed that the TOR and related processes could be drafted by the PWG for review at the July SAB meeting and then sent out for public comment. Moreover, given the subject matter, he suggested that the membership should likewise be solicited through a Federal Register Notice (FRN). Mr. Keebaugh said the PWG is willing to try to take this on.

Another member noted that the NRC Fair Weather report came out some time ago and that its findings were validated by yet another NRC report three years ago. Given the amount of time that this has taken thus far the SAB should not hurry through this important stage and so he therefore seconded the previous recommendation to have the TOR vetted by the SAB in July and then have it sent out for public comment.

VADM Lautenbacher stated for the record that this is a very important issue and it is critical for NOAA to have partnerships policy. He re-iterated that NOAA cannot function without healthy partnerships with the private sector and academia. Moreover, this must be carried out in a consistent manner.

Action 1: The Working Group to Examine Advisory Options for Improving Communications among NOAA's Partners will revise its Preliminary Draft Report as per comments received at the March 2008 SAB meeting. The report will be sent out for public comment, revised as per these comments, and the Final Report will be presented to the SAB. This public comment request will be combined with that for the draft Terms of Reference as in Action 2.

Action 2: The Working Group to Examine Advisory Options for Improving Communications among NOAA's Partners will draft terms of reference for a standing Science Advisory Board Working Group, as per its recommendation to the SAB, and provide this to the SAB for review and comment. After revision, the Draft Terms of Reference will be sent out for public comment (in conjunction with the Draft Report as in Action 1), revised as per these comments, and the Final Terms of Reference will be presented to the SAB. The terms of reference will include the use of a Federal Register Notice to solicit candidates for the new standing working group.

Census of Marine Life (CoML) Program - *Andy Rosenberg - University of New Hampshire and Chair, U.S. National Committee for the CoML*

The purpose of the presentation was to introduce the SAB to the Census of Marine Life, relate the CoML activities to work of NOAA, and discuss whether NOAA could play a more significant role for CoML in the next phase (beyond 2010). More than 2000 scientists in 80 countries are engaged in this decade-long research program to assess and explain the diversity, distribution and abundance of marine life (past, present & future) culminating with integrative reports in 2010. The presentation provided an overview of the program with specific emphasis on its relevance to NOAA. Approximately 25% of CoML funding comes from the Alfred P. Sloan Foundation, with large contributions also from NOAA, the Office of Naval Research (ONR), and the National Science Foundation (NSF). CoML researchers are convinced that the human and technical structure built over the last decade is relevant and would add value to many aspects across NOAA and so therefore propose that NOAA could be the logical and ultimate home for CoML. The action requested was to form a subcommittee of the SAB to serve as a liaison with the US National Committee for the CoML to determine how to establish and carry forward the CoML in support of NOAA's mission beyond 2010.

Discussion:

The Chair thanked Dr. Rosenberg and noted the significant progress that has occurred over the past decade.

A member noted his surprise that NSF played only a limited programmatic role in the CoML. NSF has provided significant support through competitive grants (project by project) but indeed has had less programmatic input.

Dr. Balsiger supports the efforts of the CoML and sees a natural connection with the NOAA goal teams and PPBES process and offered that committees would likely need to be set up to further explore this issue. Dr. Rosenberg agreed and would like the relationship go beyond funding with NOAA ultimately hosting the Ocean Biogeographic Information System (OBIS).

A member applauded the efforts and accomplishments of the CoML and suggested that it is a model program for public-private partnerships. She fully supported the request to form a SAB subcommittee to further explore the CoML-NOAA relationship especially due to the funding realities as the first phase draws to a close in 2010.

Ms. Kicza requested more information on the international component of CoML and asked whether there is an international dialogue on the future of the CoML. Scientists from 80 countries have been involved in some form in the CoML and there are plans to carry out an international dialogue. Focus is currently on the synthesis publications and final meeting in 2010. Furthermore, the intention is to maintain both the international and US national structure of the CoML.

Dr. Spinrad asked about the policy implications and influence on the CoML and whether it has engaged in the ocean iron fertilization research. Dr. Rosenberg noted that the CoML does not form policy statements and that new CoML bar-coding work could be helpful to track uptake as well as the short- to long-term impacts of iron fertilization. Furthermore, at its core CoML's work is basic science but indeed much of the extended CoML efforts have policy implications. This latter aspect could be expanded depending on future institutional arrangements with NOAA.

A member suggested that this is ultimately a management decision for NOAA. Furthermore, he noted that there are three aspects of the CoML to consider: 1) many NOAA researchers are individually funded by the program; 2) continued maintenance of assets such as CoML's databases; and 3) the US National Committee, which seems to add integrative value. Moreover, timing is also an important issue with NOAA currently working on its FY10 budget and the reality that much of the CoML structure could deteriorate quickly without new funding sources.

The Chair reinforced the urgency of assessing this issue and suggested that NOAA should be leading this dialogue. A major contribution of the CoML to the research and management community has been the development of a systematic way of looking at biodiversity and related protocols.

Dr. Rosenberg suggested that the previously mentioned three aspects could form the basis of the SAB subcommittee's terms of reference and furthermore a fourth element could be the public-private structure. Although multiple federal agencies are involved in the CoML (e.g. USGS), it was suggested that it would be best to work with NOAA initially due to its mandate in oceans and coastal research rather than branching out to an inter-agency dialogue at this stage; CoML needs a home if it is to be maintained.

Another member commented that more mobility of staff between partners might be helpful for NGOs, academia, industry, and the Federal government and questioned whether the Ocean community is at the right stage regarding the mobility of ideas and skill sets. Dr. Rosenberg agreed that there is a need to improve the opportunities for scientists to move between sectors which provide real benefits. Additional public-private partnerships could potentially improve matters and NOAA's Cooperative Institutes were also noted as supporting this dynamic. Public funding does entail certain necessary restrictions and so therefore a mix of private and public funding for the future of CoML would probably be ideal.

VADM Lautenbacher was very impressed with CoML and its numerous accomplishments. The appropriate and long-term home for CoML has been the ocean community (the Consortium for Oceanographic Research and Education, now the Consortium for Ocean Leadership). In response to the request by CoML, it is up to the SAB and CoML to form their respective committees to work together to explore the issue of further NOAA and CoML integration. VADM Lautenbacher is open to that and reemphasized the fact that NOAA has funded certain aspects of the CoML and further that this support will likely continue. However, to see CoML become a NOAA project is not likely the best course of action because CoML is bigger than NOAA and should not be limited and stifled in this way. That said, interagency issues are important, difficult, and real. In the context of GEOSS, biodiversity is one of the nine societal benefit areas and therefore perhaps the SAB could explore the role of NOAA with regards to biodiversity.

A member noted that it may be difficult for NOAA to take on additional roles while funding remains flat. Another member suggested that NOAA could have interesting role nevertheless in promoting CoML as a new public-private partnership.

The Chair summarized the discussion saying that a subcommittee of the SAB should be established to take this further and that perhaps this could be a part of the new ecosystems working group to be discussed later in this meeting. Additional biological sciences expertise may be needed and he is interested in hearing from SAB members that are especially interested in being apart of this effort. With no objections he suggested that the SAB will move forward on forming a joint subcommittee. Dr. Rosenberg noted that, beyond himself, several other members of the U.S. National Committee of the CoML had previously expressed an interest in working with this SAB group, including Wes Tunnel, Paul Kelly, Paul Sandifer, Vera Alexander, and Shirley Pomponi.

Action 3: The SAB will form a subcommittee to discuss the appropriate role of NOAA in the transition of the Census of Marine Life program beyond 2010. The Subcommittee will work with designated members of the CoML U.S. National Committee on this issue.

SAB Benchmark Review Discussion - *Richard Spinrad - Assistant Administrator for NOAA Research and Chair, NOAA Research Council*

Dr. Spinrad opened his remarks by clarifying that he was speaking as the Chair of the NOAA Research Council and that the purpose of the session was to move forward the discussion on an eventual SAB benchmark review. He reminded the SAB that this discussion was a follow-on to a previous discussions with the SAB (March 2007 was most recent) and that the concept of a SAB Benchmark Review can be traced back to recommendations issued from the Research Review Team. Additional contextual information mentioned included that OAR has produced an internal policy that establishes the authorities and responsibilities for managing periodic science reviews of research laboratories in OAR. At the November

2007 meeting, the SAB was briefed on the process of the OAR reviews and their linkage with a SAB benchmark review.

- Phase 1 – Every 3-4 years a quality and performance review for each lab, center, and science office is to occur. Each NOAA line office carries out reviews for their research entities and OAR has identified and is implementing certain common methods for its lab reviews.
- Phase 2 – Every four years the Research Council will conduct a review of the mission relevance of NOAA research activities.
- Phase 3 – Every four years the SAB should evaluate NOAA's research enterprise by way of a benchmark comparison with other environmental research agencies, as well as to assess NOAA's internal evaluation of research and development. The objective of the review would be an independent, holistic evaluation of NOAA's research portfolio to provide long-term strategic direction.

The previously-mentioned reviews are at varying stages of development and implementation but are all works in progress and will be improved over time. Therefore, regarding the phase 3 reviews, Dr. Spinrad would like to hear the SAB's perspective on what a benchmark review would look like and work together toward its implementation. At the November 2007 meeting, the concept of a pilot benchmark review was raised and can be further discussed.

The Benchmark review could include comparisons with other environmental research agencies (e.g. a metric of the cost per peer-reviewed publications such as what was recently tracked in the NOAA Cooperative Institutes). The review could be tailored to also assess the research evaluation processes used by other agencies. Moreover, the benchmark review could validate the quality and relevance of NOAA's research including progress against the NOAA 5-Year Research Plan objectives and milestones and the NOAA 20-Year Vision. The benchmark review could foster a shift in the corporate culture to improve the cross-fertilization of intersecting research topics.

An important and as yet unanswered question regards the methodology, how much effort it will entail, and how the responsibilities will be divided. The Research Council is willing to coordinate the data calls and other functions required for the benchmark review. Dr. Spinrad suggested that there is a need to come to closure on certain details pertaining to the review process as this will likely require significant effort.

Regarding immediate next steps, Dr. Spinrad raised the need to better define the granularity and scope of the benchmark review. The topical granularity of the review could focus on oceans, air, etc. or perhaps at the NOAA mission goal level. The scope of the benchmark review could cover for example the quality and performance in a given research domain looking both internally and across agencies. Lastly, Dr. Spinrad reminded the SAB that it agreed at the November 2007 SAB meeting to confine the benchmark review to the science portfolio not resource or facility management.

Discussion:

The Chair thanked Dr. Spinrad for the presentation and the reminder on how the benchmark review discussion has evolved and additional clarity on next steps.

A member noted that the SAB will need to discuss available resources because such reviews require a substantial effort. Another member offered that the SAB's role should be at a high level, perhaps at the NOAA mission goals, as many activities cut across multiple labs and line offices. This would help avoid unnecessary details and ensure a good return on time invested. Another member agreed about the level of engagement and added that it would be helpful if the review could provide examples of both success and failure.

A participant encouraged the SAB to step back and look at new modes of reviews such as the test-beds (working research to applications). By the time the benchmark review is carried out the test beds will have been operating for 3-4 years which will be sufficient time for evaluation. Dr. Spinrad noted that test-beds are used differently across NOAA although such a review may still be worthwhile. Furthermore, he noted that the benchmark review could also assess whether NOAA's investment in the Cooperative and Joint Institutes (approximately 25-35% of NOAA's research funds) is at the correct level to maximize its contribution to NOAA's mission.

A member commented that additional general guidance will be necessary to ensure that SAB is being provided the baseline information or minimum standards to carry out the review. The Research Council has established the Committee on Monitoring Research (CMR) which will provide the necessary guidance. It was re-iterated that OAR has issued a policy on the lab reviews process and other line offices may have similar guidance documents.

The Chair wondered what could be learned from other federal agencies that perhaps have already carried out such reviews. Dr. Sandra Knight, Chair of the CMR, responded that they are trying to answer these questions. The CMR has established a workplan in which one of the elements is to look at other federal agencies and how they monitor research and use performance metrics. They are looking for common denominators and best practices. Dr. Spinrad responded further that the Research Council does have a roster of federal agencies that carry out research in similar domains as NOAA, however he suggested that the SAB and the Research Council should not be limited to just the atmospheric and oceanic science bodies and could likely add value by reviewing certain "non-traditional" domains such as biomedical research for lessons learned, methods, etc.

Dr. Decker offered that it might be helpful for the Research Council to look at the science advisory bodies of other agencies and if and how they have carried out benchmark reviews. Dr. Spinrad agreed that that would be a good starting point.

Another member commented on the high quality reviews that he has witnessed by private sector (e.g. the National Academies Sustainability Initiative which included Dupont, Dow, and Exxon among other companies). The Electric Power Research Institute, the National Council of Paper Industry, and the Chicago Climate Exchange have all carried out interesting reviews and utilized methodologies from which the SAB and Research Council could learn. Another member agreed that a few new industry-driven processes are quite exciting including the previously mentioned Sustainability Initiative as well as the Council Competitiveness Group.

Dr. Spinrad indicated that the Research Council could be ready to further develop the granularity and scope of the benchmark review if needed. The Chair accepted the offer and asked if this could be ready by the July SAB meeting.

The Chair re-emphasized another member's previous comment that this should not be overly burdensome and wondered if there was something to be gained by using aspects from the Office of Management and Budget Program Assessment Rating Tool (PART) process that reviews research across agencies. Dr. Spinrad, concurred on using the PART but said that the SAB should go further to invest some time to do this right.

Dr. Murawski added that the traditional model is visit a lab and review all the divisions, however, increasingly, NOAA recognizes the benefit of reviewing across labs and programs and conducting peer reviews of products not facilities. A member agreed and reemphasized that the SAB's focus should be on the science not visiting a facility since that lends itself to an administrative or management review.

The Chair concluded that the review should provide a benchmark across agencies which would be very valuable. The first step will be to create a baseline of information on research in the agency.

Another member noted that the recruitment and retention of top quality scientists in NOAA is an important issue and questioned if such information would be captured in the review. Dr. Spinrad responded that the focus on the pre-eminence of NOAA's research will help recruit and maintain scientists and furthermore that this benchmark review is one way of establishing and communicating NOAA's pre-eminence in research.

Action 4: NOAA will draft a statement for the Research Benchmark Review that provides agency thoughts on the granularity and scope of the review. This will be provided to the SAB for further discussion at the July 2008 meeting.

NOAA Hydrographic Services Review Panel (HSRP) - *RADM Richard West, U.S. Navy (ret.), Member HSRP*

RADM West reviewed recent activities of the HSRP including the five themes indentified in their recent report (HSRP Most Wanted Hydrographic Services Improvements):

1. Map - Aggressively map the nation's shoreline and Navigationally Significant waters
2. Coordinated federal standards - Integrate coastal mapping efforts and ensure Federally maintained channels/approaches/ anchorages are surveyed to highest standard
3. Modernize observing system infrastructure - Modernize heights and implement real-time water level and current observing systems in all major commercial ports
4. Strengthen emergency response - Strengthen NOAA's Navigation Services emergency response and recovery capabilities)
5. Get the word out - Disseminate NOAA's hydrographic services data and products to achieve greatest public benefit

In addition five areas for possible collaboration between the HSRP and SAB were noted for discussion, including: 1) Future applications of data collected by NOAA NavServices; 2) Support for Integrated Ocean and Coastal Mapping (IOCM); 3) Monitor Integrated Ocean Observing System (IOOS) Development; 4) Research-to-operations in hydrographic services; and 5) Monitor modernization and fleet recapitalization.

Discussion:

A member inquired about the technology demonstrated in a bathymetry chart video and whether this replacement of the paper chart could also help a ship to run autonomously. It was noted that this technology is moving in that direction.

A participant asked whether the US Army Corp of Engineers' and USGS standards have been harmonized with NOAA's. This is still a work in progress and they are exploring harmonization in concert with the International Hydrographic Organization (IHO).

A member commended the HSRP and the report and suggested that the HSRP has done exactly what a FACA should do in its report. Furthermore, he noted that this is one of NOAA's biggest values to society and the HSRP should brief the Department of Commerce leadership. A HSRP member noted that such a brief has already occurred.

NOAA Response to the SAB High-Performance Computing Recommendations and the Way Forward
- Joseph Klimavicz - Director for High Performance Computing & Communication, NOAA Office of the Chief Information Officer (CIO)

Mr. Klimavicz provided a progress update on responding to the SAB's April 4, 2007 recommendations on high-performance computing (HPC). Overall there is a need for a long-term high-performance computing strategy and architecture to advance science on leadership-class systems, minimize the research to operations timelines, and sustain operational workloads. The need for increased computing in the context of NOAA's hurricane and climate change-related efforts was described as driven by national demand, advancement of science, and the advancements in HPC. NOAA's specific actions to date regarding the seven SAB recommendations were described as were NOAA's short and longer-term goals and related challenges in HPC.

Discussion:

A member applauded the suite of actions described and highlighted the value of the interactions with the Department of Energy (DoE) as an important component in demonstrating the need for improved HPC in NOAA. HPC was noted to be power-intensive and the recent trend has been to send computing to where power is inexpensive rather than build costly power plants. It was also noted that the SAB FWRWG will likely recommend that NOAA develop additional computing capacity since fire weather data needs are significant.

Another member commended the interagency work with DoE and furthermore questioned if NOAA has explored how the larger private sector internet firms (Google, Yahoo, etc.) with enormous computing and analytical needs have dealt with the power issue. Mr. Klimavicz noted that they intend to and that power will remain a key issue in HPC in the region because northern Virginia has already reached its maximum power capacity and other sources simply do not exist regardless of the funding.

Another member commented that the dialogue with the SAB on HPC was initiated in December 2006 and response time is too long (FY06 request – FY10 expected NOAA response action). NOAA needs a core HPC team immediately. Mr. Klimavicz should be authorized to work with peer organizations immediately because "the wall" is coming (e.g. 2011-2012 clock speed breaking point). HPC should be included as a key component of the NOAA strategic transition package to the next Administration.

A participant noted that NOAA still does not appear to be tapping into the computational sciences community. Mr. Klimavicz responded that others have highlighted similar shortcomings, which he is aware of and working to reconcile. NOAA remains constrained by an insufficient number of software engineers to achieve the task at hand.

Another member underlined the importance of repairing and improving the collaboration with DoE and noted that the two agencies have a great opportunity to share resources. Moreover, it was suggested that NOAA should provide additional resources toward HPC and DoE should revise its position on claiming leadership in climate modeling.

A member noted that there is a need to access the DoE's HPC machines in order to better identify the parameterization needed for hurricane models in particular. Carrying out experiments for the 1-2 Km hurricane model using DoE leadership-class machines alone would be a positive outcome of a NOAA and DoE collaboration.

VADM Lautenbacher concurred with previous comments on the DoE/NOAA collaboration and necessary improvements. He furthermore clarified that NOAA should have a leadership role in an operational national climate service which does not preclude and rather requires that other federal agency partners carry out the research and analysis on specific aspects and applications relevant to their respective mandates. The DoE should not be the operational climate facility. The federal government will need to work out the roles and develop a lead agency for climate services; that lead should be NOAA.

Public Comment Period

There were no public comments submitted or presented.

Social Sciences Working Group Update - David Fluharty – University of Washington and Chair, NOAA SAB, and member SSWG

At the March 2006 SAB meeting Rodney Weiher briefed the SAB on what NOAA is doing vis-à-vis the social sciences, highlighting primarily activities in NMFS and NOS. In response the SAB formed the SSWG with Susan Hanna as chair to take the issue back up. At the February 2008 meeting, the group heard from six federal agencies regarding the use and integration of the social sciences. The next meeting is scheduled for May 8-9, 2008 in Seattle, WA. This will be an executive meeting to develop a preliminary draft report for the July SAB meeting. Likewise, the SSWG is planning to meet with the Research Council in June.

Discussion:

A member asked whether someone from NCAR's Societal Impact Program (SIP) is involved. Dr. Fluharty responded that Jeff Lazo is the head of the SIP and is also a SSWG member.

VADM Lautenbacher commented on the lack of avenues or requirements permitting NOAA to hire social scientists. The need for additional social science capacity is frequently raised by the SAB and other entities. Potential opportunities exist through the recent Magnuson-Stevens Act re-authorization regarding the management of coastal communities and resources and related work on coasts and resilience. Making the case for the contribution of the social sciences to NOAA's mission will be important to justify any proposed changes. He noted that NOAA is carrying out more multidisciplinary work. He encouraged the SSWG to look at business opportunities to break down the physical and social science divide which will permit NOAA to hire more social scientists on important multidisciplinary teams.

Dr. Fluharty noted that the human element is critical to Integrated Ecosystem Assessments (IEAs) and that the SSWG will take to heart the encouragement and the challenge to prove the value of the social sciences. Twenty social scientists participated at a recent IEA workshop. The IEAs, Fisheries Management Councils, and the Local Area Management process are great social experiments. NOAA should integrate and develop the social sciences strategically. The SSWG is charged to contribute to determining the "what and how" of integrating the social sciences into NOAA.

A member recalled a National Academies study on the Army Corps of Engineers cost-benefit of project review and suggested that it should include a risk assessment of not making a given investment. The more metrics such as the PART are incorporated, the better NOAA can make the cost-benefit case on the societal value of an effort.

Another member noted that a cultural change is needed and is happening. With relatively minimal effort, NOAA can bring in the richness and competencies of social scientists to provide significant value back to society. VADM Lautenbacher noted the need to change culture and not just improve black box technologies. A participant echoed that in IT security the weakest link has been demonstrated to be people and so we need to work on social engineering to counter security breaches. Dr. Fluharty commented that people's behavior will change with the correct incentive structure; establishing that structure requires contributions from the social sciences.

Ms. Glackin supported the statement that this is a cultural issue within NOAA. Getting managers to commit and see value to investing in social scientists rather than just physical scientists when there are limited dollars is very difficult. NMFS has done well in part because they have been sued to make sure they did. VADM Lautenbacher noted that any proposal should articulate the "what's in it for me?" argument.

Thursday March 13, 2008

Working Group Updates - Data Archiving and Access Requirements – David Blaskovich, IBM Corporation, SAB member and member, DAARWG

Mr. Blaskovich provided a brief review of the DAARWG Terms of Reference, noted that the group has convened three meetings since this standing working group was established, and summarized the presentations and discussions at the most recent meeting held in January 2008. Special mention was made of the NOAA National Geophysical Data Center's (NGDC) development of a prototype system for accessing data from the Comprehensive Large Array-Data Storage System (CLASS). He considers this among the best examples of applications coming out of the public sector and believes a demonstration to the SAB would be valuable. The next meeting will be June 10-11 in Ashville, NC. Lastly, he provided an update on the DAARWG's membership and moved that two new members be appointed. The SAB unanimously approved the appointment of these new members.

Discussion:

Ms. Glackin asked if the DAARWG had any observations on data integration and the Group on Earth Observations Integrated Data Environment (GEO-IDE). The DAARWG has not developed a position on this and is continuing deliberations.

Action 5: The SAB approved the proposed new members of the DAARWG and will nominate them onto the working group.

Final Report from the Extension, Outreach & Education Working Group (EOEWG) - Frank Kudrna – Kudrna and Associates, Ltd and SAB Member; Gerry Wheeler – National Science Teachers Association and SAB Member

The purpose of the briefing was to present the final report, discuss changes made as a result of the public comments, and request approval by the SAB. Twenty-nine comments were received from the public and were generally supportive of the report. As a result, editorial changes were made in four of the recommendations and other clarifications regarding the scope of the report were included – specifically, language that it is not a full survey of NOAA’s EOE activities and that the report is not a “how-to” guide for implementation.

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 is not aware of the range of NOAA’s services. 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 “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.

They suggested that internalizing the concept of engagement in NOAA would require a major culture shift. Eight findings and associated recommendations as well as proposal for actions that could be completed in the short term were briefly highlighted. The emphasized an approach that would morph the existing Educational Council to be into an Engagement Council. Moreover, they proposed that 10% of NOAA budget should be dedicated to “engagement”; extension, outreach and education efforts should be better coordinated; and NOAA’s logo should be used more widely so that the public is aware of its products and services.

Discussion:

VADM Lautenbacher clarified that General Counsel has advised that NOAA cannot put the logo on websites or places not in NOAA’s control; however attribution to NOAA products is appropriate. Dr. Spinrad noted that the Research Council is likewise cognizant of this issue and has suggested a possible solution to include clarifying text/caveats accompanying the NOAA logo. Dr. Kudrna agreed with that option and commented that it will be difficult to have a “One-NOAA” and raise public awareness without the use of the logo for NOAA-funded initiatives.

A member asked whether the EOEWG, when referring to other clients and customers, includes other federal agencies. The co-chairs replied that yes, other federal agencies can be customers of NOAA.

Another member commented that there is a great opportunity in education and outreach. He noted furthermore that there appears to be important overlaps between the EOEWG, PWG, and the SSWG. Coordination and collaboration among these groups is important to maximize their impact and offered that either the SAB or the members of the various working groups could ensure connectivity among the groups. Moreover, it will be important that these groups work to avoid competing actions within NOAA. Dr. Kudrna agreed that coordination is needed, and responded that this possible overlap was highlighted in last SAB meeting and steps are being taken. Dr. Wheeler noted that the SAB Office was helpful in this regard.

A member noted that a fine line separates a consumer marketing strategy from an education and outreach effort that increases awareness and connectivity. Furthermore, he cautioned that industry might have a negative reaction if this drifts into consumer marketing effort. Dr. Kudrna responded that the EOEWG has embraced the engagement model of the Kellogg Commission in which engagement occurs through formally listening to clients. The member commented that there is a narrow space to navigate but agrees that it is possible.

Ms. Kicza noted that the specific target of allocating 10% of NOAA's budget to EOE is significant. By way of comparison, a space science division of NASA worked towards a 2% budget allocation target through requiring this in competitive grants. Drs. Kudrna and Wheeler commented that the EOEWG considered requesting much more and that significant discussion led to the 10% recommendation. It was noted that they were challenged by not having benchmark information from other federal agencies. Specific research proposal requirements to include an "engagement" component in line with NOAA's mission may be worth further exploration.

Another member was cautious of picking NASA as a model since NOAA is a service agency. Another service agency such as the USDA would be more appropriate. Dr. Wheeler noted that the EOEWG explored the USDA model and decided that NOAA is unique and should create its own model benefitting from the Kellogg model

The SAB Chair supported the EOEWG's recommendation to review regional efforts through which models can be tested at a regional scale (e.g. California Current ecosystem group). As each region is unique, different or adapted models will be needed to meet each region's needs. There is a convergence in the partnership and outreach efforts within the SAB and it will be important to ensure effective collaboration. Dr. Kudrna agreed that the regional scale is the right one to test engagement models to shift culture.

Dr. Doremus noted that NOAA has already started moving in the direction recommended (e.g. engagement efforts in the Gulf of Mexico) and underlined NOAA's appreciation of the EOEWG report. Indeed a culture shift is needed to improve stakeholder engagement. He noted that there will remain a tension on where effort should be focused. Putting more effort in engagement in councils and regions and outside of the line office execution will likely isolate and not allow the important embedding of engagement into NOAA core functioning. Lastly, it was noted that effort should likely be on both sides and that the SAB should be aware of this tension. Dr. Kudrna underlined the need for buy-in of NOAA's leadership; from there the SAB and NOAA can collaboratively explore the details.

VADM Lautenbacher echoed that there is significant overlap between the PWG and EOEWG and would like to hear from the SAB on how these efforts can fit together. Some form of a policy of engagement to clarify these issues could be useful. Dr. Wheeler concurred that there is an overlap. VADM Lautenbacher noted that engagement as articulated in the report is a new concept in NOAA and that they are struggling with grasping what can be tangibly implemented.

Another member highlighted that the definitions of engagement as used by the EOEWG are found on page 6 of the EOEWG report. Returning to the USDA model, it was noted that some form of extension could be helpful to encourage and relate to a growing population of users of weather and climate information. VADM Lautenbacher underlined the difference between engaging the general public and the commercial sector and further that NOAA's work with fisheries is more comparable to the USDA. Furthermore, he noted a significant difference in extension techniques used with a farmer and with the commercial weather sector;

NOAA should not be trying to teach the commercial weather sector how to do its job better. The member responded that NOAA can provide specific advice to the commercial weather sector (e.g. moving a given product up in the commercial weather sector's cycle of development would help NOAA).

Another member commented that it would be interesting if a mechanism, perhaps through PWG, could provide an opportunity for NOAA to better collaborate with the commercial weather sector on strategic planning of EOE programs in NOAA. Such collaboration could create a much more robust plan for all parties involved, resulting in the delivery of improved services to the American public. More specifically, he imagines a joint private and public sector strategic planning effort to articulate a vision over a 5-10 year timeframe of which partner does what and what benefit it will deliver to American public. It would not include specific mandates or metrics to avoid a misperception of collusion. Perhaps such a structure through the PWG could ultimately yield more specific relationships.

Dr. Kudrna noted that large industries currently work with NOAA and they seem to have a communication problem as was discussed in the context of the PWG. NOAA therefore should have a dialogue with its clients to better understand the problem. Moreover, NOAA does not have a direct line of communication with the state governors which, if created, could be helpful to shape programs at the regional level. The EOEWG avoided being prescriptive in its recommendations but overall argued that engagement needs to occur at a series of different levels. Another member noted that the EOEWG has articulated a much broader scope than the PWG and wondered towards what subset of the EOEWG the PWG could contribute.

Ms. Glackin noted her agreement with many of the comments thus far and highlighted the need for a culture shift towards engagement. A real challenge for NOAA is how to most effectively make this shift. Effecting this change though one committee will be difficult and it is necessary to focus on concrete actions. An example is the recent effort to improve the dialogue with the Federal Aviation Administration (FAA), which can link back to a broader partnership with industry and academics. Lastly, she noted a concern with broad characterization of EOE and that broadening the mandate of the newly-formed Education Council to cover engagement issues will be difficult.

Ms. Koch, Director of the NOAA Office of Education, noted that at a recent NOAA leadership meeting several participants asked "what's in it for me?" in regards to the draft EOEWG report. Many agreed that the findings and recommendations of the draft report were important but that someone else should implement it. It was agreed that the regional level is the appropriate scale for moving forward. The previously-mentioned pilot effort in the Gulf of Mexico will be useful. The Education Council was noted to be a very exciting and new body which has just started to generate some momentum to promote discussions of education across NOAA. In preliminary deliberations on the EOEWG draft report the Education Council disagrees with the recommendation to become an Engagement Council because they fear the education theme will be lost. The US Congress has empowered with noteworthy resources the NOAA Education Office to move forward on the education mandate and therefore they are hesitant to be diverted to other albeit worthwhile efforts at this stage.

Dr. Kudrna noted that the EOEWG recognized that this new engagement effort will need to happen at the NOAA corporate level not in a disjointed level in individual line offices. With this in mind they recommended a corporate body, the Education Council as such a body that could be modified to include the broader mandate. Dr. Wheeler recognized that there is some momentum currently in the Education Council and that Dr. Koch and colleagues are concerned with the possibility of losing that progress. However, he remains convinced that this recommendation is the correct action and furthermore commented that change, although difficult in the early stages of an effort, will become even more difficult in the future.

VADM Lautenbacher said NOAA is taking the report very seriously and commits to systematically responding to the recommendations.

Another member reemphasized the value proposition and the need to make the “what’s in it for me?” argument. Flexibility should be maintained to preserve the different and important channels of communication to NOAA.

A member noted that NOAA was not a part of the America COMPETES Act from the outset but was pulled in later, which represents a big success for NOAA. This provides NOAA a tremendous opportunity and serves as a major energizer since everyone will benefit. The EOEWG report offers a blueprint to begin to move forward with the implementation phase.

A motion was made for the SAB to approve the report, to which there was unanimous agreement.

Action 6: The SAB approved the Final Report of the EOEWG and will transmit it to NOAA.

Action 7: NOAA will provide a written response to SAB EOEWG Report.

Discussion of SAB Strategic Planning - David Fluharty – University of Washington and Chair, NOAA SAB

The Chair introduced the session, noting that the SAB has successfully provided advice to NOAA and thought it would be beneficial for the SAB itself to reflect and think strategically about its future actions. Four questions for discussion were read: 1) Are we responsive to NOAA requests? 2) Are we taking a scientific lead in advising NOAA? 3) Can we be more efficient in our processes/ provision of advice? 4) What is the SAB role in transition between administrations?

Discussion:

1) Are we responsive to NOAA requests?

A member noted that the self evaluation is not always the most effective and therefore would like to hear from NOAA. VADM Lautenbacher responded that the SAB has been very responsive and helpful at the various levels of NOAA (Administrator’s office and lines and staff offices).

2) Are we taking a scientific lead in advising NOAA?

A participant mentioned that ocean acidification is a good example where this has worked well.

3) Can we be more efficient in our processes/ provision of advice?

Dr. Spinrad asked if there are mechanisms that the SAB could employ to provide a quicker response time (e.g. NRC has a quick vote mechanism). If such a mechanism was operational, NOAA could perhaps bring a different class of requests to the SAB.

A member noted that for the most part, the SAB has been reactive rather than proactive. It would be valuable if the SAB could be more proactive on the science side.

Another member noted that from the outside the perception is that the SAB is a deliberative body that provides physical science-oriented advice to NOAA. In practice the SAB thinks and acts well beyond the physical sciences. He then asked whether there a better term than “science” to describe what the SAB

deliberates and recommends and therefore is the name “SAB” appropriate. Another member raised the value proposition and noted the importance of bringing the current priorities from the public to NOAA is a value-added of the SAB. Dr. Decker added that some language from the SAB charter was revised in 2005 to capture and codify the mandate of the SAB to provide guidance beyond matters strictly related to the physical sciences.

Another member offered that a dialogue on future issues on the horizon for the SAB would help the SAB think strategically about issues and generally make the board more efficient. The Chair concurred and suggested that the SAB schedule a block of time for each meeting during which members can discuss and think about the agenda topics coming up over the next several meetings (e.g. SAB benchmark reviews, CI reviews, etc.).

The Chair recalled the mention of mechanisms to facilitate quicker response times. Dr. Decker suggested that certain SAB business could potentially be conducted virtually and by having teleconferences. The Chair requested if SAB member would be open to treating pressing business through an interim (inter-meeting) teleconference call. A member responded that there are many new technologies such as “Net-meeting” that could possibly facilitate such meetings. Another member asked whether the SAB Charter speaks to the physical presence of members for decision making. Dr. Decker responded that any such inter-sessional meetings would have to be carried out in compliance with FACA rules and furthermore the SAB Office will explore options and report back to the Board. Another member suggested that it would be good to have a dedicated SAB teleconference call number and system that announces the names of callers as they join and leave the call. Moreover he noted that any interim calls should address very important and high level issues. An example could include the timely Administration transition discussions leading up to and after the election in November 2008.

4) What is the SAB role in transition between administrations?

The Chair commented that in 2000 the SAB developed a document articulating 11 priorities in preparation for the last Administration transition. He then asked the Board how to best communicate NOAA’s and the SAB’s priorities to the next Administration.

Dr. Doremus noted that NOAA is developing a transition package with two components: 1) operations, and 2) strategy. NOAA is currently building out these two components and would appreciate the SAB’s input. Two specific ways the SAB can engage were described: 1) through formal mechanisms (i.e. the CWG is vetting a strategic paper on development of a National Climate Service); and 2) broader critique of NOAA’s issues, approaches to addressing these issues, and overall role. He noted furthermore that VADM Lautenbacher articulated 6-7 themes in his presentation on March 12 which NOAA would appreciate support on how these themes and/or others could be best packaged and articulated. The SAB could take a broad view and review and endorse the NOAA transition package. He further clarified that NOAA is not developing strategy for the transition but rather pulling from NOAA existing strategy and focusing on key aspects to communicate to the next Administration.

Dr. Doremus also commented on the SAB’s long term planning noting that NOAA reviews its strategic plan from a 3-4 year perspective. Perhaps the SAB through the PWG or otherwise could support NOAA in its strategic planning using longer term mechanisms for engagement.

A member commented that there might be value in the SAB aligning itself with other organizations (e.g. priorities from a coastal states association) regarding the Administration transition.

Another member offered that a NOAA transition plan or package should be fairly straightforward and simple. Regarding the SAB's own communications to the next Administration, he suggested that the Chair draft a 4-5 page letter highlighting what the SAB has deliberated over the past 18 months and propose what the SAB wants to discuss in future. It should be made clear that the SAB is an independent body that advises the Administrator and moreover should be both reactive and proactive. The Chair agreed on the content but countered that two pages covering the top 2-3 priorities should suffice.

Dr. Spinrad recommended that the letter could be informed by asking what previous Administrators would have liked to have heard before they come on.

A member said that transition teams expect to hear from agencies that they are doing great work and need more money. Drafting a letter is good idea and should include a description of the role of the SAB and also mention issues the country needs to address in the coming years and what NOAA can and should do. Another member supported the idea of a two page letter that does not overwhelm the reader with information but rather leaves them wanting to learn more.

Another member offered that beyond a letter it would be valuable for the SAB to schedule face-to-face appointments with the next Administration to discuss these themes.

A member suggested that the SAB should focus on science and steer clear from issues that could discredit NOAA (i.e., avoid stating a particular advocacy position on a climate issue). That said, key policy-oriented issues should be raised (i.e., NOAA needs direct more attention on attracting and retaining key staff, etc.). Any communications should make clear the SAB's independence and credibility.

The Chair and other members agreed that it would be worthwhile to review NOAA transition package at the July meeting to discuss, provide advice, and endorse it as appropriate. Another added that NOAA's transition package should include a short list of key contributions that NOAA can make to provide value to the American people.

VADM Lautenbacher noted that he was introduced to the SAB very early in his position through meetings with members during which they described the Board and inquired what his priorities were. Overall this was good and resulted in the SAB we have today. However, he noted that the SAB, at the time, spent too much effort asking him what he wanted to do and not enough on describing what the SAB has to offer and specifically what were its proposals.

VADM Lautenbacher reiterated that SAB input on the NOAA transition plan would be helpful at the July meeting. The SAB should play an important role in the continuity between Administrators as SAB members have real-world outside experiences representing important constituencies that should be brought to the next Administration. Moreover, he noted that very often several members of the new president's transition team will take up positions in the DoC leadership and so therefore it would be wise to reach out to whoever they will be. Lastly, he mentioned the SAB's possible role in helping the transition team select the best individuals for key positions in the White House Council on Environmental Quality (CEQ) and Office of Science and Technology Policy (OSTP).

A member highlighted the GEOSS program as a success of NOAA in which NOAA has done well in leadership and should be carried forward. Likewise, NOAA has been successful in climate science and interagency collaboration although he noted those issues also demonstrated the importance of the CEQ and

OSTP leadership. Lastly he recommended that biological/ecological issues likewise should be better integrated in how NOAA describes its climate related efforts.

The Chair summarized: 1) the SAB has given itself a good grade on responsiveness; 2) the SAB is interested in looking longer-term and becoming more proactive and would like to schedule time in each future meeting for such forward-thinking discussion; 3) the SAB staff will review the new communication technologies and means of interaction and review the rules that restrict such inter-sessional SAB meetings; and 4) the Chair will draft a two page letter to the next Administration and circulate it to the members for comments.

VADM Lautenbacher noted that NOAA and the SAB should expect that the day after the election the new Administration's transition team will be up and running. That said, he noted the appointment of the NOAA Administrator will not likely happen right away which will allow more time to work with the DoC political appointees on the nomination for the next NOAA Administrator.

Action 8: The SAB office will explore methods for the SAB to meet via teleconference or the internet that meet FACA requirements and provide these to the SAB for consideration and implementation. These methods will be used only for highly-important, time-critical inter-sessional decisions and will not replace the three annual meetings.

Action 9: The SAB office will send to SAB members the documents used by the SAB for the 2000 Administration change as well as the summary list of topics addressed by the SAB in the last two years.

Action 10: The SAB will begin drafting a letter to the next Administration but will schedule further discussions of strategic planning and transition at future meetings.

Results of the Review of the NOAA Coral Reef Conservation Program (CRCP) - David Kennedy - Program Manager, NOAA Coral Reef Conservation Program, National Ocean Service (NOS)

The purpose of the briefing was to inform the SAB about the recent CRCP external review process, panel recommendations, and NOAA's plans for responding. The CRCP was initiated in 2000 and has focused extensively on increasing scientific understanding of coral reef ecosystems. The CRCP determined that an external review would be beneficial before significantly changing its portfolio of activities. The CRCP briefed the SAB in July 2006 on the upcoming external program review and at that time the SAB declined involvement in the review but requested an update once complete.

A non-CRCP selection committee was formed which proceeded to select an expert panel of academics and practitioners to carry out the review. In preparation the CRCP provided the panel a self-assessment document for their review. The review meeting was held in September 2007 and the panel's results and recommendations were delivered to NOAA in December 2007.

Overall the panel was highly impressed with the CRCP's accomplishments and applauded the CRCP for establishing a "place for coral". The panel provided individual feedback to the CRCP, which was summarized into 18 synthesized recommendations by an outside contractor.

The CRCP has developed some draft principles to respond to the panel's recommendations. A team with representatives from four Line Offices will develop a roadmap for moving forward by using the results of the review and revised priorities. It was noted that the resources available are still insufficient to address the

magnitude of the threats facing coral reefs and that additional support will be necessary from Federal agency partners.

Discussion:

The Chair and other members commended the effort of the review panel and the CRCP.

A member noted that a response action plan to a spill or other punctuated events that would guide how a community can respond seemed to be lacking in the report. Mr. Kennedy responded that there are two important parts: 1) Climate events and bleaching; and 2) emergency response to oil spills results from a ship grounding on a reef. Regarding the former, a manager's guide to bleaching has been developed. Thus far response to the oil spills issue has been *ad hoc* because NOAA has not had the resources to comprehensively address it. Liability provisions in the pending Coral Reef Conservation Act reauthorization and associated new funding may allow the CRCP to invest in such response planning processes. The member stated that NOAA should improve its ability to monitor, characterize, and mitigate toxic coastal events and in the meanwhile be clear on the state of the science and practice.

Another member noted that NOAA is an information provider. For example, NOAA is not going to stop climate change but rather provide the key information to guide society toward taking some important mitigating actions. Dr. Murawski mentioned that certain fish regulations currently under debate may be the "snail darter" that leads to some of the first federal climate change regulations.

The Chair asked whether the CRCP is involved in the development of the pelagic ecosystem plan by the Western Pacific Management Council. Mr. Kennedy confirmed this and noted that WestPAC is in part funded through the CRCP. The Chair also asked the level of involvement of the CRCP in the main islands and new monument islands comparison. Mr. Kennedy responded that the CRCP funded much of the research and effort that went into the designation of the Northwest Hawaiian Islands National Monument, and the CRCP currently funds ongoing assessments that characterize the ecosystems in both the Main and Northwestern Hawaiian Islands.

NOAA Activities in Support of the International Year of the Reef (IYOR) - David Kennedy - Program Manager, NOAA Coral Reef Conservation Program, NOS

The purpose of the informational briefing was for the SAB to be more familiar with the 2008 international year of the reef (IYOR) and NOAA's role. The U.S. State Department currently serves as the co-chair of the International Coral Reef Initiative and it has asked NOAA to serve a lead role in coordinating U.S. and international IYOR activities. NOAA will highlight strategic linkages between coral reefs and other NOAA priorities. Designed to build on the awareness of coral reef issues highlighted in the 1997 international year of the reef, the 2008 IYOR is a year-long campaign of events and activities during which international, national, and local messages are developed and disseminated.

Discussion:

A member inquired about the means of message dissemination. The IYOR messages are posted on a website that is vetted by 75 organizations and the materials are widely used in structures ranging from county schools to a non-profit organization's national programs.

A question was asked about the links between the previously described COML and the activities of the IYOR. There is no apparent direct contact while monitoring data were noted to be shared.

Dr. Murawski asked for an update on the reauthorization of the Coral Reef Conservation Act. Mr. Kennedy responded that it has passed in the House and is awaiting time on the floor of the Senate. Despite the recent slowing of action on this act there are still positive signs coming out of the Senate. Mr. Kennedy noted that staff changes in the Commerce Committee have contributed to the recent delays. He remains hopeful that the Act will pass this year and is using the IYOR in a legislative push.

NOAA Activities in Support of the International Polar Year (IPY) - John Calder – Director, Arctic Research Program, Climate Program Office, NOAA Research

The purpose of the informational briefing was to give an update on what NOAA is doing in the polar regions with special note of the IPY activities. 2008 marks the fourth IPY with the first celebrated in 1882. NOAA's approach has been to build on current polar programs related to weather, climate, living marine resources, and coastal hazards. NOAA's primary contributions are its environmental observations and modeling activities that will continue beyond the IPY. A website (www.IPY.org) was launched to communicate IPY related activities. Dr. Calder described a cross section of representative ongoing NOAA efforts in the polar regions.

The Chair thanked Dr. Calder for the informative briefing. There were no questions from the members for Dr. Calder.

Results from the Ocean Exploration Advisory Working Group Workshops - Larry Mayer - Director, Center for Coastal & Ocean Mapping, Chase Ocean Engineering, University of New Hampshire, Co-Chair OEAWG

Dr. Mayer came to inform the SAB of the results of recent OEAWG workshops, solicit guidance, and generally raise awareness of the role and value of OE in NOAA and the nation. The OEAWG's membership and terms of reference were reviewed as were several important precursor initiatives (i.e., President's Panel on Ocean Exploration, US Commission on Ocean Policy, and Ocean Research Priorities Plan).

The OEAWG was formed in 2006 and held two meetings in 2006, two workshops in 2007, and is planning a third meeting for May 2008. The first meeting was informational during which members learned that the OE program was proposal-driven much like a NSF model. Since OE is not a traditional scientific discipline it was argued that it therefore requires a different approach. Subsequently the OEAWG was pleased to understand that a new paradigm is under development in which the proposal driven model is merged with a more stable and permanent structure including a dedicated vessel (Okeanos Explorer). There appears to be a clear interest on the Hill in OE with both a House and Senate bill promoting OE in NOAA. The second meeting focused on workshop planning and a day at Disney Imagineering in which many suggestions regarding improving the communications and marketing of OE were discussed.

The planning workshop sought to raise awareness of OE program, engage community in new approach of OE, and seek input on priority targets for the Okeanos Explorer in the Pacific. The workshop was informed by 46 white papers and 25 thematic non-NOAA participants and facilitated by NOAA and the OEAWG. The desired outcomes of the technology workshop were to refine the OE technology priorities, identify technology gaps, and develop strategies for filling said gaps. Suggestions from the workshops were initially to focus on regions of high potential for discovery, take time to ensure success, and improve communications both external and within NOAA.

Discussion:

A member commended the effort of the OEAWG and appreciated the note of caution for OE to not be too rushed for results at this stage. That said, he noted that balance will be important as exploration is by definition a high risk venture and delaying too long is a failure.

A member asked whether OE has any dedicated archeological research planned or ongoing. Dr. Hammond replied that indeed there are rigorous Marine Heritage programs ongoing and that although not highlighted in this briefing, there are many other components of the OE program. Dr. Spinrad commended Dr. Hammond's work as acting director for the OE program over the last 3-4 years.

Another member commented that among NOAA's activities OE stands out as one that can generate and catch attention. For example the history of Shackleton's voyage in the Antarctic was initially doubted as a real human interest story however it proved to be a huge success and garnered significant attention. Furthermore, OE could be the magnet that brings people to NOAA. Another member described potential public awareness raising events at the ports where the Okeanos Explorer finishes cruise to generate excitement about OE and NOAA in general.

Ms. Glackin noted that the focus of OEAWG is on OE and that since the creation of the working group, OE and the National Undersea Research Program (NURP) have merged into the Office of Ocean Exploration and Research (OER). Therefore NOAA needs to have a discussion on whether the TOR of the OEAWG should change to include this broadened view.

A member inquired about the length of the average research cruise. Approximately 30 days is the length of a typical cruise during which it is always a challenge to balance the risk of further investigation of a particular discovery with the unknown of the next.

Dr. Mayer discussed a new model in which alternative shared leadership structure for a cruise is in place and not limited by the current model of chief scientist and PI leadership and subsequent data ownership. Challenges and limitations were noted for the different models. The OEAWG is working on a protocol to implement this new model.

Ms. Glackin raised a procedural question about the need for endorsement/approval of the recommendations presented in this briefing. Dr. Mayer responded that this briefing represented a first draft synthesis which will benefit from additional vetting in the OEAWG prior to being re-submitted to the SAB.

The Chair concluded with recognition that these recommendations will be further vetted before the SAB approves them; noted that a new member will need to be nominated; noted that perhaps the TOR will need to be modified to capture the full scope of OER; recommended that the SAB and NOAA should review the funding experience of the OEAWG with both private foundation and public NOAA funding supporting its meetings; and finally was please to note the interest of Mr. O'Keefe in OEAWG especially with Dr. Ballard's tenure on the SAB drawing to a close.

Dr. Decker announced that Ms. Whitcomb from SAB office will provide some additional staffing support to the OEAWG.

Action 11: The Science Advisory Board Ocean Exploration Advisory Working Group will provide a written report to the SAB with its recommendations.

Action 12: The OEAWG will provide candidates for filling one vacancy to the SAB, which will be considered for nomination.

Discussion of a Proposed SAB Standing Working Group on Ecosystem Sciences and Management (ESMWG) - David Fluharty – University of Washington and Chair, NOAA SAB

The Chair reminded the SAB that at the last meeting he committed to developing a draft terms of reference (TOR) for a new standing Ecosystem Sciences and Management Working Group (ESMWG) modeled after the SAB Climate Working Group (CWG). He proceeded to talk through the draft document, drawing attention to the charge, scope, and the desired skill sets for future members. He concluded the TOR review by proposing a process on the way forward with: 1) initial SAB approval at this meeting; 2) solicitation of nominees through a federal register notice (FRN); and 3) the ambitious goal to have it up and running by the July meeting.

Discussion:

A member recalled the previous Ecosystem working group and wondered if this new group is being established to follow on the last group and to more fully explore other ecosystem related activities that did not receive appropriate attention by the first group. The Chair agreed and highlighted the role of the ESMWG to formally advise NOAA through the SAB on the nascent Integrated Ecosystem Assessment efforts. Moreover, he noted that the TOR is broad enough to create space to also review the organizational issues which the previous group did not have time to explore.

Another member inquired whether the SAB will also create working groups for the Benchmark review and follow-on to the PWG. Speaking to the Benchmark review, Dr. Spinrad reminded the SAB that he took as an action to further develop several options pertaining to the granularity and scope of the review and then it will be up to the SAB to determine if a working group will be necessary.

A NWS representative noted his concern that the NWS was not identified in the TOR among the LOs listed and cautioned that the charter should not be written in an exclusionary way. The Chair acknowledged that hydrology is a key component to ecosystem related activities and agreed to include an explicit reference to NWS.

Ms. Glackin reiterated NOAA's successful experience with the CWG in particular and that NOAA is looking forward to the same type of relationship with the ESMWG. Furthermore, the mission goals are linked to the NOAA strategic plan and so there is room for growth as priorities change and the next Administration may very likely modify the strategic plan. Therefore creating a working group that monitors and advises NOAA on its ecosystem goal is a good idea. Lastly, she noted that the presentation did not include a monitoring and evaluation component that was in the TOR.

Dr. Murawski said that he is looking forward to having an independent sounding board and also a group that can advocate for NOAA on ecosystem related activities. Ecosystems are inherently partnerships and therefore bringing together various viewpoints will be very valuable. The larger focus of helping NOAA implement IEAs including the corresponding legislative strategy will greatly benefit NOAA. The Chair noted that a valuable skill set for the group will be an expert on working ecosystem principles in legislation.

A member made a motion to pass the TOR and stand up a permanent ecosystem working group. Revisions will be made to be more inclusive as per the NWS request. With these changes noted it was passed unanimously.

Another member commented on the relative value of having specialized working groups over permanent and ad hoc timeframes. This continuum should be assessed and the working groups should reflect NOAA's highest priorities. Comprehensive ecosystem management is central to NOAA's mission and its activities and therefore a permanent working group on ecosystems should be established. It is also wise to set this up during the current Administration.

Action 13: The SAB accepted the draft Terms of Reference for the proposed Ecosystem Sciences and Management Working Group and will revise as per comments at the meeting. The SAB will work with NOAA to take the next steps to establish the working group, including the use of a Federal Register Notice to solicit candidates for the ESMWG.

National Academy of Sciences (NAS) Board on Atmospheric Sciences and Climate (BASC) - Curtis Marshall - Program Officer, BASC

Dr. Marshall provided an overview of the Board on Atmospheric Sciences and Climate and an update on recent developments. The BASC has as a primary responsibility to interact with relevant agencies, design studies to meet their needs, and ensure studies are carried out successfully. They establish both *ad hoc* and standing committees to carry out the necessary work. They draft many reports requested by Congress or Federal agencies and also carry out the peer review for several Climate Change Science Program (CCSP) Synthesis and Assessment Products.

A new specific and significant Climate Study was described that will have a \$5.8 million budget over three years. This Congressionally-mandated study will bring NOAA and NAS (BASC) together to carry out the study and will include a major climate summit with a budget of \$800 thousand. The NAS has also allocated funding for several "state of the science" reports to complement the overall study.

The next BASC meeting will take place early this summer at Woods Hole.

Discussion:

A member highlighted the value of the NAS 2008 Climate Change summary report. The strength of the BASC and NAS reports in general is the external peer review. It is critical for the BASC and NAS to maintain its objectivity and not be perceived as telling the "consumer" of the reports what they want to hear. Major climate legislation will be enacted in the coming year(s) and this will be informed by the common value set of NOAA and NAS.

Dr. Decker inquired about the relationship between CCSP and the upcoming Climate Study. The Climate Study will likely outlive the CCSP and the CCSP reports will feed into the Study. A unified Synthesis and Assessment Product will be drafted that will articulate how the CCSP it will plug into the Climate Study and Summit.

Ms. Glackin noted that the audience for the Study has not yet been precisely defined and added that the CCSP has been reluctant to take on the domain of climate services. The upcoming Climate Study will be a timely and valuable opportunity to inform the next Administration and the Intergovernmental Panel on

Climate Change (IPCC) about next steps in climate. One of the Study's outputs should be to guide programs like the CCSP to adjust its scope and priorities.

A member noted that significant effort was invested to position the NAS to have an oversight role on the CCSP and furthermore that it was envisioned to be a longstanding body. At that time the CEQ, OSTP, and others were committed to having CCSP continue. A participant commented that after the next CCSP product is released it is unclear of the future role of the CCSP. A member suggested that if necessary there should be a decision to end the CCSP and not just let it dissolve through inaction.

Fire Weather Research Working Group Update - *John Snow, University of Oklahoma, SAB member, and Chair, FWRWG*

Dr. Snow provided an update including some initial recommendations of the FWRWG at the request of Scott Rayder, NOAA Chief of Staff, to inform the FY2010 budget process.

All fire fighting is local but it impacts people and properties everywhere especially at the wildland-urban interface. Fire fighters and public safety agencies have to work at very short time scales (0-30 minutes) in order to control fires at the wildland-urban interface in most cost-effective manner as possible (6-48 hours). The FWRWG understands that Incident Meteorologists (IMETs) are key to fire fighting. Moreover, prescribed burns are also important but can create air quality concerns and tradeoffs.

The wildfire community is very complex and the user community is extremely diverse. The US Department of Agriculture (USDA) and the Department of the Interior (DOI) both carry out research and fight fires. NOAA should understand the playing field and proceed cautiously so as to avoid duplication of efforts and maximize impacts. NOAA has an important role to play which is increasingly recognized by its partners. Regionalization will have an important role so that NOAA can work with partners to identify carefully and clearly its niche in both operations and research in the fire weather area. The NWS should continue be the operational lead in NOAA while it is less clear who should lead in R&D for fire weather in NOAA.

Four early recommendations from the FWRWG were mentioned: 1) high resolution analysis and modeling of meteorological conditions in complex terrain (500m down to 100m scales) in GIS format; 2) move forward with the National Institute of Standards and Technology (NIST) and NOAA joint fire weather project; 3) enhanced tools for flash flood forecasting/debris flow prediction in burn areas; and 4) support growth of the IMET program in terms of numbers and suite of tools available.

Discussion:

A member asked whether wildfire managers can clear areas rather than carry out prescribed burns. Different methods are used based on region-specific conditions and limitations.

Another member noted that the NOAA/NIST fire weather project is an outgrowth of DoC efforts to get engaged in fire weather. Ms Glackin noted that NOAA is working to secure funding for this project.

Climate Working Group Update - *Antonio J. Busalacchi – University of Maryland and Chair, CWG*

Dr. Busalacchi provided an overview of lessons learned from previous CWG meetings, described upcoming meetings, and discussed membership issues including nominations for new members. The CWG has set in

place a process whereby each year they will focus on a major element of the Climate Program Office (CPO) and started with the Climate Observations and Analysis Program in 2007. Next, they will review the Climate Research and Modeling Program later in March 2008.

The CWG was pleased to see the CPO shift from five to three program elements as integration has always been an issue and that restructuring will facilitate integration. The Climate Services Strategic Plan was well thought out and timely document. In June 2008, per the request of the SAB, the CWG will help move the dialogue forward with a meeting to review and critique the third program element (Climate Services Development), specifically NOAA's business strategy and organizational models for a National Climate Service.

Dr. Busalacchi is interested in having a joint CWG-SSWG meeting after its summer retreat focusing on the proposed National Climate Service. He described the skill sets needed and request that the SAB approve the nomination of 4 new members (Jeanine Jones – water resources; John Dutton – private sector, Molly Macauley – NGOs; and Marshall Shephard – regional/remote sensing). There will likely be other membership issues to discuss at this summer's SAB meeting.

Discussion:

A member asked his fellow SAB members whether the SAB should be more explicit with a policy on how the SAB working groups are populated. The Chair noted that the CWG has largely been responsible for repopulating its own team. Dr. Decker suggested that for new standing working groups the SAB should solicit members through a formal FRN. As for existing working groups she recommended that a FRN could be useful if there are significant gaps but would not be necessary for replacing individual members.

A member moved that the preferred four nominees be accepted. The Chair noted the unanimous approval and highlighted the mutual interest in having a joint SSWG and CWG session. Dr. Busalacchi suggested that the CWG and SSWG should form an ongoing relationship as the integration between their respective charges will require a longer-term partnership.

A member inquired about the role of ecosystems in the CWG. Dr. Busalacchi recognized the importance of ecosystems however noted that the funding is limited and it is not yet a priority. Dr. Koblinsky, Director of CPO and Climate Goal Lead, noted that Dr. Busalacchi has not yet been party to the significant improvement of communications between the Ecosystem and Climate Goal Teams over the past 6-12 months and that the CWG will be engaged on such matters in the summer and the fall 2008.

Dr. Busalacchi concluded by requesting that the SAB champion NOAA as the seat for a National Climate Service as we approach and go through the Administration transition. Dr. Koblinsky noted that he hopes the CWG and NOAA will report on the June National Climate Service meeting at the July SAB meeting.

Action 14: The SAB approved the proposed four new members of the CWG and will nominate them onto the working group.

Action 15: The SAB will work with the CWG on the nominations for the remaining vacancies to ensure the appropriate sectors and areas of expertise are represented, including the use of a Federal Register Notice to solicit candidates.

Cynthia Decker – Executive Director, NOAA SAB

Dr. Decker outlined the meeting decisions and actions. A member noted that the PWG should address several important process-related questions in addition to the TOR for the standing PWG. The Chair reminded that the SAB members will also be queried for their interest in working on joint SAB – COML subcommittee. He also clarified that the SAB is expecting to hear from the Research Council on some options for the granularity and scope of the SAB Benchmark Review.

Dr. Decker reminded the SAB and NOAA leadership that the SAB summer meeting will be outside of Cleveland, OH with a Great Lakes theme and will take place on July 16-17th. Frank Kudrna was instrumental in selecting this location and theme. Likewise, it was noted that the SAB will be invited to take part in a Legislative Day on July 18 organized by the Stone Lab and Sea Grant office during which the entire Ohio State Legislature is invited with all their families to participate. A member noted that this is a highly successful example of an education, extension, and outreach event.

Ms. Glackin thanked the SAB to their time and attention. The Chair then closed the meeting.

5:30 PM Meeting Adjourns