36th Meeting of the NOAA Science Advisory Board
Teleconference
March 27-28, 2013

Presentations for this meeting have been posted on the SAB website at:

http://www.sab.noaa.gov/Meetings/meetings.html

SAB members in attendance: Mr. Raymond Ban (Chair), Ban and Associates Consulting LLC; Dr. Susan Avery, President, Woods Hole Oceanographic Institution; Dr. Heidi Cullen, Vice President for External Communications, Climate Central; Dr. Jeremy Jackson, Senior Scientists Emeritus, Smithsonian Institution; Dr. Peter Kareiva, Chief Scientists and Director of Science, The Nature Conservancy; Ms. Jean May-Brett, STEM Partnership Coordinator, Louisiana Department of Education; Dr. Jerry Schubel, President and CEO, Aquarium of the Pacific; Dr. Marshall Shepherd, Professor, Department of Geography and Atmospheric Sciences, University of Georgia; and Dr. Dawn Wright, Chief Scientist, Environmental Systems Research Institute

NOAA senior management and Line Office representatives in attendance: Dr. Kathryn Sullivan, Acting Under Secretary of Commerce for Oceans and Atmosphere and Acting NOAA Administrator; Dr. Holly Bamford, Administrator, National Ocean Service; Dr. John Murphy, Director, Office of Science and Technology, National Weather Service; Dr. Ned Cyr, Director, Office of Science and Technology, National Marine Fisheries Service; Dr. Robert Detrick, Assistant Administrator, Oceanic and Atmospheric Research; Ms. Pat Montanio, Assistant Administrator, Programs, Planning and Integration; David Moroney, Deputy Director, Office of Marine and Aircraft Operations

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

March 27, 2013

Call to Order
Ray Ban, Ban and Associates and Chair, SAB

Introduction
Ray Ban welcomed everyone to the 46th meeting of the NOAA SAB, thanking all for donating their time and expertise. Dr. Ban said the Board would do the best they can with the virtual meeting and highlighted the topics on the meeting agenda.

NOAA Update
Dr. Kathryn Sullivan, Acting Under Secretary of Commerce for Oceans and Atmosphere and Acting NOAA Administrator

Summary

Dr. Sullivan thanked the Board for its service and noted that, as NOAA continues to see the impact of sequestration, virtual meetings are being used for many purposes. NOAA is focusing on sustaining core operations in a balanced fashion, and thanked the Board for its flexibility on this matter.

NOAA has received the following SAB final reports since the November 2013 meeting: Ocean Exploration Program review, Satellite Task Force report, and the Review Report for the Cooperative Institutes for the North Atlantic Region (CINAR).

Dr. Sullivan noted the passing of Senator Daniel Inouye in December; this is a loss of a great leader and friend and steward of NOAA. NOAA named the Pacific Regional Center after the late Senator.

Dr. Sullivan thanked Ray Ban for agreeing to extend his term as Chair for one year through June 2014. Dr. Sullivan also thanked Heidi Cullen, Jeremy Jackson and Peter Kareiva for agreeing to serve a second term on the SAB. NOAA is working to fill the vacancies on the SAB; a review of candidate members has been completed and invitations to join the Board should be made soon.

In NOAA leadership, the Deputy Secretary of Commerce, Dr. Rebecca Blank is leaving early summer to become Chancellor at the University of Wisconsin at Madison. There should be a new Secretary of Commerce appointed soon thereafter. In NOAA, Jane Lubchenco, former NOAA Administrator went back to the West Coast. Margaret Spring, Principal Deputy Undersecretary, also returned to the West Coast. With David Titley's departure, David Kennedy is now the Deputy Undersecretary for operations. Holly Bamford is now the Assistant Administrator for the National Ocean Service. The new Director of the National Weather Service is Louis Uccellini. Dr. Sullivan said NOAA will let the SAB know when a new Administrator is appointed.

These are challenging budget times. NOAA will receive funds from the Hurricane Sandy supplemental funding bill; spending plans are now with appropriators for approval. NOAA has an FY 2013 appropriation as of March 21. The top number of $5.009 Billion does not include the sequestration reductions. NOAA leadership and the budget team have been conducted analyses preparing for the 5% sequestration budget. Now this team is working to take into account both the sequester cuts and the 1.8 % rescission. There is language in the current appropriations bill for NOAA that suggests that our satellite programs are still struggling, which is not the case. NOAA is examining the bill to understand how funds are allocated for satellites. Challenges exist for the line offices and these will be difficult. It will be a few weeks before the rollout of FY 14 budget request.

At its core NOAA is a scientific agency. There have been significant scientific accomplishments over the last four years, from 2009-2012. The full report can be found at www.noaa.gov/pdf/NOAA_Accomplishments_2009-2012.pdf.

On satellites, the Joint Polar Satellite System (JPSS) is on time, on budget; every instrument is at least 70% completed, the JPSS-1 spacecraft is on a fixed cost contract and on schedule. The success with the Suomi National Polar-orbiting Operational Environmental Satellite System Preparatory Project (NPP) gives confidence in the JPSS ground system. NPOESS is behind us

and we are successfully making JPSS an on-time, on-budget program. The Geostationary Operational Environmental Satellites (GOES) program is moving forward also.

At this year's Convention on International Trade in Endangered Species (CITES) Conference of the Parties meeting in Bangkok, countries agreed to increase protection for five commercially-exploited species of sharks and manta rays: oceanic white tip shark, three species of hammerhead sharks, the porbeagle shark (meat) and manta rays (gills). These listings increase the protection for these species, while allowing legal and sustainable trade.

On the topic of Illegal unreported and unregulated (IUU) fishing, NOAA submitted our congressionally mandated report identifying ten nations whose fishing vessels engaged in IUU fishing in 2011 or 2012, or had ineffective measures to prevent the unintended catch of protected species in 2012. IUU fishing represents one of the biggest threats to the U.S. fishing industry. U.S. fishermen following the rules should not have to compete with those using illegal or unsustainable fishing practices. All ten nations identified in this year's report had vessels that did not comply in 2011 and/or 2012 with conservation and management measures required under a regional fishery management organization to which the United States is a party. In February the United States along with other FAO members adopted the Voluntary Guidelines for Flag State Performance. The guidelines aim to cut down IUU fishing by improving the accountability of flag states-those countries which register fishing vessels and authorize them to fly their flags. The guidelines will be presented to the FAO Committee on Fisheries for endorsement at its next session in June 2014.

Forty years ago the first national marine sanctuary established where the USS Monitor lies. The USS Monitor is best known for its Civil War battle with the Confederate ironclad, CSS Virginia, the first time iron-armored ships clashed in naval warfare. The USS Monitor capsized and sank just south of Cape Hatteras, N.C; 16 crew members perished; two bodies were recovered from the gun turret in 2002. On March 8, the remains of these two unknown soldiers were buried, with full military honors, at Arlington National Cemetery. NOAA and the Joint POW-MIA Accounting Command worked for ten years to identify the sailors. Last year NOAA released forensic reconstructions of the sailors' faces, showing what they might have looked like while aboard the ship.

The NOAA 5-Year Research Plan articulates NOAA's R&D efforts and provides a vision for future. The NOAA Research Council is updating and revising this plan and incorporating recommendations made by the SAB on NOAA's R&D portfolio in various places. The Research Plan will be released for public comment in May.

The National Fish, Wildlife, and Plants Climate Adaptation Strategy was released yesterday. This strategy addresses the impacts of climate change on natural resource and the impacts to people who rely on them. This unified approach lays out a clear roadmap for actions in the next 5-10 years to address those impacts.

The draft National Climate Assessment (NCA) public comment period closes April 12; and a number of technical reports informing the NCA are on the NCA website.

NOAA was pleased to hear President Obama mention climate change in the State of Union address. The President's Council of Advisors on Science and Technology (PCAST) drafted a

recent letter on actions the President can take with a dual focus on mitigation and adaptation. NOAA is pulling together a response on its capabilities and assessments to respond to White House action.

NOAA scientists have been under tight guidance regarding participation in non-profit organizations. The Office of Government Ethics finds the potential conflict concerns are not valid. As a result, the agency is translating this information to policy for NOAA scientists, with hope that they can participate in leadership of professional societies in the future.

Discussion

Marshall Shepherd commented on the issue of NOAA scientists participating on professional societies. He pointed out the American Meteorological Society (AMS) has heard about relaxed restrictions in executive committees of professional society in a blog but wanted to know how final the information was on this. Dr. Sullivan responded that it is not yet final; she added that there were errors in the blog mentioned by Dr. Shepherd.

Dawn Wright asked, with respect to the mention of climate in the State of the Union address, if there has been connection with bicameral climate change task force. Dr. Sullivan responded that the Executive Office of President will bring forward initiatives responsive to the President's remarks on climate.

Heidi Cullen asked about the launch of the NCA report and the energy in the White House on climate. She heard there were local town hall meetings planned and asked if NOAA would be part of these. Dr. Cullen also asked if the interest in climate was a sign that discussion had reopened on the climate service. Dr. Sullivan said the NCA comment period closes April 12; the target date is March 2014 for final release of assessment. On the Presidential initiative on climate, there are no details that can be shared. There is interest in a number of policy areas; Dr. Sullivan is optimistic they will see richer engagement with constituents. There could, in theory, be another opportunity for a climate service but it would be difficult given the current budget constraints.

Susan Avery asked about PCAST and the climate commitment. She does not see a lot of articulation of how science is being used in decisional contexts. Dr. Avery said there are stakeholder groups using information and NOAA products as well as the Regional Integrated Science and Assessment (RISA) and adaptation programs. In addition to science commitment and furthering science on adaption, they demonstrate success stories of how the science is being used. Dr. Sullivan agreed; these examples reminded her of how science is being used in resilience and how NOAA info is being used in decisions made every day including events like Hurricane Sandy. That same kind of infusion in decision-making is happening on all scales every day; it is hard to show impacts of these daily events other than large Hurricane Sandy events. NOAA would appreciate any ideas on how to tell these stories.

Final Report of the Research and Development Portfolio Review Task Force

Peter Kareiva, The Nature Conservancy, SAB Member and Co-Chair, Research and Development Portfolio Review Task Force (PRTF)
Roberta Balstad, Columbia University and Co-Chair, PRTF

Summary

Peter Kareiva and Roberta Balstad stated that the report has been revised substantially from the draft presented to the SAB in November 2012: the report addresses issues raised during the public comment period; supporting text for the recommendations is more explicit; and the wording of the recommendations was changed to allow more freedom of action at NOAA, given the fiscal turbulence of current times. The number of recommendations has changed from 17 to 10. The final recommendations are:

1. The PRTF recommends that, in addition to its core strengths, NOAA needs greater capacity in the socioeconomic and integrated ecosystem sciences.
2. The PRTF recommends that NOAA should emphasize, highlight, and provide incentives to support the seamless integration of research and services in both its Research to Operations (R2O) and Operations to Research (O2R) enterprises.
3. The PRTF recommends that the SAB, in partnership with NOAA, form a special scientific task force to review existing observing capabilities, examine options for more cost-effective observation and data sharing strategies, and discuss evolving needs and sustainable approaches for new observations and technologies.
4. The PRTF recommends that the responsibilities and authority of the current Chief Scientist position be significantly enhanced to provide the necessary tools to ensure that the total R&D effort of NOAA is efficiently implemented and aligned with NOAA's strategic priorities. This will require budget authority so that resources can be matched to priorities.
5. The PRTF recommends that NOAA maintain a strong and productive internal scientific staff in its laboratories and centers.
6. The PRTF recommends that NOAA assess the Cooperative Institutes in terms of their scientific focus, funding and staffing levels to insure that the CIs have sufficient support to adequately leverage NOAA's investment and that they are aligned with strategic priorities.
7. The PRTF recommends that NOAA should critically examine its distribution of R&D funds and allocation of scientific staff within the agency to better align with the Next Generation Strategic Plan.

8. The PRTF recommends that NOAA capitalize on the support and skills of the extramural research community by developing carefully targeted initiatives that meet the needs of the Next Generation Strategic plan, that are stable and consistent over time to enable year to year planning, and that ensure the results are integrated into NOAA's R&D operations.

9. The PRTF recommends that in the current Federal budget situation, it is imperative that NOAA make the most of its existing talent and find ways to accelerate and enhance learning and professional development of that talent.

10. The PRTF recommends that NOAA work closely with the Department of Commerce, the Office of Management and Budget, and with the Congress to create ways to manage its R&D funds more flexibly and efficiently and to implement its new research priorities over a period of several years.

The task force was unanimous in its recommendations.

Discussion

Ray Ban thanked Roberta Balstad and Peter Kareiva for their excellent summary of the report and asked the Board members for any comments or questions on the report.

Jeremy Jackson said the reduction in the number of recommendations was a huge improvement and made the report more powerful. Dr. Jackson asked about the importance of the recommendation on the Chief Scientist and if this recommendation was as important as the first recommendation on social science.

Roberta Balstad said when the task force made recommendations less prescriptive to give NOAA more freedom of action; it did not change the numbering. The recommendation on the Chief Scientist is as important as adding new fields in science, eliminating wording on reporting lines. Peter Kareiva agreed that the Chief Scientist recommendation was important. Jeremy Jackson said all the recommendations will ride on not ride on whether there is a strong Chief Scientist.

Task Force member Berrien Moore said the recommendation on the role of the Chief Scientist was made before by the 2004 SAB Research Review Team and it didn't happen. The fact that this recommendation is coming back indicates how important it is. The fact the PRTF gave NOAA flexibility; the text points clearly that you have a new research agenda that has topics that are not in the current budget and program. Can't layer them over what you have you have a real challenge; action is still required. Susan Avery pointed out that recommendation three on the science stewardship, observations, and technology balance is very important. It was difficult for the PRTF to spend time to look at NOAA's observing technologies and strategies; the report recommends that the SAB have a standing committee on this topic.

Berrien Moore added that all ten recommendations need to be acted upon.

Dr. Sullivan thanked the Task Force for the wide-ranging work they put into this report and agrees that the 10 recommendations need to be considered and moved out on. Dr. Sullivan applauds the wisdom of not phrasing the recommendations as prescriptive, leaving agency some leeway; all actions on these recommendations will require extensive consultation with the

Congress. NOAA is not a corporation; it shares authority with the Congress. The Congress reserves to itself the right to decide where funding goes in agencies. A piece of the challenge is the current finely-divided budget structure; not only does the Chief Scientist not have budget authority but even NOAA organizations don't have a lot of flexibility given the budget structure. She is hopeful that this approach will allow NOAA to engage in the dialogue with Congress to make progress forward. Dr. Sullivan thanked the Task Force for retaining nicely balanced comments for strong internal NOAA science capacity; an ongoing nucleus of strength and excellence is needed in the future.

A motion to accept the report by Marshall Shepherd; it was seconded by Jean May-Brett and passed unanimously. Ray thanked the task force for the report.

NOAA response on the Need for a NOAA Environmental Data Management Framework
Jeff de la Beaujardiere, NOAA Data Management Architect and Chair, NOAA Environmental Data Management Committee.

Summary

Dr. Jeff de La Beaujardiere discussed the NOAA response to the SAB recommendations that NOAA should have an environmental data management framework. The Environmental Data Management Committee (EDMC) began with an initial draft based on the Office of Science and Technology Policy (OSTP) National Earth Observations Strategy chapter on data management. Four subsequent drafts were circulated to several NOAA Committees and Councils where they received valuable feedback. The goals of this framework are to 1) promote a common understanding of data management policies and activities across NOAA; 2) maximize the likelihood that environmental data will be discoverable, accessible, well-documented, and preserved for future use and; 3) encourage the development and use of uniform tools and practices across NOAA for environmental data. The presentation went over the data management framework principles, governance, resources, standards, architecture and assessment as well as an overview of the data lifecycle. The EDMC recommended the data should go to NOAA Data Centers where they will be assigned a Digital Object Identifier (DOI) which would allow datasets to be cited and usage to be tracked.

Discussion

Dawn Wright, SAB liaison to the Data Archive and Access Requirements Working Group (DAARWG), thanked Jeff for the report. On enabling users and the value added projects they might develop, these are exciting aspects as well as challenging to capture the value-added products and incorporating them in NOAA systems. Other people are also working on this at the National Science Foundation (NSF). She asked if the EDMC was aware of the United Nations Educational, Scientific and Cultural Organization (UNESCO) report on the use of DOI with data sets. Dr. de La Beaujardiere indicated that he is aware of the report; NASA and other government agencies are implementing the UNESCO recommendations and NOAA is working to do the same.

Susan Avery thanked Jeff and said the state of citation directives and DOIs will transform the way one can link things together and give credit to where data is needed and used.

Raymond Ban asked if anyone from DAARWG had a comment. Peter Falke from DAARWG said no comments but this is an interesting report. Mr. Ban also thanked NOAA for its response and thanked the EDMC for its great level of thinking on all of these issues.

NOAA Response to the SAB Report on External Data Usage
Jeff de la Beaujardiere, NOAA Data Management Architect and Chair, NOAA Environmental Data Management Committee

Summary

Dr. Jeff de La Beaujardiere discussed the NOAA response to the SAB report on external data usage. This report suggested "a timely NOAA policy for the use of external data, not produced by NOAA, could improve NOAA's data activities and serve as a model for wider collaboration by partners". The concern is if NOAA uses external data that are inaccurate, unreliable, or not within NOAA's legal right to use, then NOAA's credibility or reliability may be damaged. The development of an external data usage policy was assigned to the Environmental Data Management Committee (EDMC). The Initial draft was based on the National Weather Service Policy on external data usage. A best practice worksheet, to be filled out by the responsible NOAA official, was designed and circulated to NOAA Committees and Councils. This worksheet is comprised of a series of questions regarding the data purpose, quality, reliability, terms of use, life-cycle cost, information systems, metadata, accessibility, archiving and formal agreements.

Discussion

Peter Fox from DAARWG asked if this is the first guidance for practices on external data NOAA wide. Dr. de La Beaujardiere said yes. Dr. Fox suggested a change in title to "recommended practice" instead of "best practice" because the latter term assumes it has been compared to other practices. Dr. Fox asked if there are similar practices in other agencies; Dr. de La Beaujardiere didn't know and said the EDMC will ask other agencies about their wording practices.

Dr. Sullivan asked what agencies will receive the document for review; the response was that the United States Geologic Survey (USGS) has similar issues as does the National Aeronautics and Space Administration (NASA), Environmental Protection Agency (EPA), and the Army Corps of Engineers. A policy on external data would be a good thing to share with these agencies for review and NOAA could play a lead role in its further development.

Ray thanked Dr. de La Beaujardiere for both reports.

SAB discussion of NOAA employee travel restrictions to science meetings
Ray Ban, SAB Chair

The next talk was ahead of schedule and people were to call in to hear it. Mr. Ban suggested they discuss a concern expressed by some Board members regarding travel restrictions on NOAA employees attending science meetings. Dr. Marshall Shepherd wanted to verify information circulating and concern from scientific societies. He would like it on the record as a member of the SAB that there are some issues regarding the scientific integrity of NOAA given the travel restrictions.
Dr. Dawn Wright said there have been a lot of NOAA employees who expressed frustration over travel restrictions on meetings they would like to attend.

Dr. Sullivan responded, with the budget constraints, even the recommendation from the Portfolio Review Task Force (PRTF) report on professional development may be jeopardized. She added that it is helpful to keep in mind there are several different factors in the current situation. Increasing conservatism is affecting the office of Management and Budget (OMB) and other offices on the hosting of and participation in conferences. There is tighter scrutiny on conferences on many levels, not just government scientists. On top of that, there are financial pressures due to sequestration. There are limitations on budgets, reduced levels and strategic concerns. Agencies must demonstrate that the most important, highest priority programs are protected. What is missing amongst government offices is a clear understanding of the value that the agency gets from meetings. It is all too easy to construe these as junkets without knowing the true value. NOAA will do everything it can to argue the importance of scientific meeting attendance for the scientific enterprise. She urges the scientific community and organizations to focus on the importance and value of NOAA scientists attending scientific meetings and not dwell on how it has ruined the business plans for their meetings.

Dr. Marshall Shepherd agreed that the case needs to be made on training, continuing education and impacts on federal scientists and engagement with the community. He would be happy to work with the community on this.

Dr. Sullivan said NOAA has made an argument with the Office of Science and Technology Policy (OSTP) Director John Holdren. It would be useful to bring this to the attention of the nominees for the Director of OMB and Secretary of Commerce. The weather enterprise relies on seamless interactions between the public and private sector. Putting a barrier between these exchanges is a concern. The ability of the enterprise to protect the people of this country relies on these interactions, which often happen at meetings and conferences.

Mr. Ban agreed that information on how the weather enterprise works and the effectiveness of meetings and forums needs to be made

Dr. Shepherd said that he would raise these points at the American Meteorological Society Washington forum next week.

Mr. Ban noted the SAB should consider its activities under the budget realities of the 21st century, i.e. whether to maintain three in-person meetings per year. This also relates to working groups, where there should be consistency in the number and type of meetings per year. It might

be an issue if some working groups were able to have face-to-face meetings where others may not. It might be useful if the SAB develop some guidelines.

Dr. Shepherd agreed the SAB should have this conversation. Jeremy Jackson said he serves on groups that have virtual meetings but it is important to meet face to face once a year; He agreed this is something the SAB should consider. Mr. Ban said this may be a future agenda item. Dr. Sullivan welcomed the SAB comments on this issue; and is working on modifying guidance across the agency.

Review Report on Cooperative Institute for Ocean Exploration, Research and Technology
Jean May-Brett, STEM Partnership Coordinator, Louisiana Department of Education, SAB Member and Chair, CIOERT Review

Summary

Jean May-Brett presented the report from the review of the Cooperative Institute for Ocean Exploration, Research and Technology that was held October 2-3, 2012 in Fort Pierce, Florida. She started her talk by thanking the members of the team that conducted the review and NOAA staff who helped prepare the review report. CIOERT was established in an open competition in 2009. No Cooperative Institute (CI) existed before that time focused on ocean exploration, research and technology. It is a consortium with the CI headquartered at Harbor Branch Oceanographic Institute (HBOI) a campus of Florida Atlantic University (FAU) in Fort Pierce, Florida with participation by the University of North Carolina at Wilmington (UNCW), SRI International and University of Miami.

The report included three science recommendations, three education and outreach recommendations and four science management recommendations.

Science Recommendations

1. The review panel notes that many discoveries are appropriate for publication in high impact scientific journals. Publication of selected results will increase the visibility of CIOERT as research projects mature.

2. Funding should be dedicated to establish and maintain critical deep submergence capabilities for the NOAA community and for the continued development and use of Coral In Situ Metabolism and Energetics (CISME).

3. Enabling significant reciprocal visits between HBOI/FAU and UNCW drug development teams would help to fully realize the potential synergism between them.

Education and Outreach Recommendations

1. CIOERT leadership, NOAA's Office of Education and OERs Education Program Director should partner to develop and provide an outreach/education plan to showcase the research projects of direct and immediate societal importance. Educational modules incorporated into workshops and website exercises will help with the marketing/branding of CIOERT.

2. Expand the diversity of education and outreach efforts at educational facilities and schools near the partner sites (i.e. such as summer programs for teachers).

3. CIOERT should develop a website that includes links to partnering sites and research materials that proactively relate the CIOERT story.

Science Management Recommendations

1. The drug discovery groups at HBOI/FAU and UNCW have the potential to produce several important compounds that can be applied to cancer. Given this situation the CIOERT partners and NOAA should develop an equitable revenue sharing financial model that not only benefits the respective universities but also CIOERT. Building an endowment would be especially relevant to the needs of the involved faculty and staff who occasionally have to "weather" periods without any support.

2. The geographic separation of the primary collaborating groups presents an obstacle to effective communication that is a key to having CIOERT thrive. While we recognize the financial challenges the group has had to face we suggest that a regular phone call/Skype/video conference between and among the research groups would provide a way to stimulate productive exchanges and encourage greater interaction between drug discovery groups at HBOI/FAU and UNCW.

3. CIOERT should focus research on the eastern Gulf of Mexico which is rapidly becoming a major region for deep-water oil and gas production.

4. CIOERT leaders should apply innovative scientific training such as working with AnthoSOA (SRI International's graphical user interface), to the entire scientific team and staff. The application of such a system to this CI represents a major technical breakthrough and the review team hopes that a more robust experiment will be funded for CIOERT.

The review panel unanimously agreed to a performance rating of "outstanding"; the recommendations were made in an effort to strengthen CIOERT.

<u>Discussion</u>

Billy Causey, a member of the review panel, said he was impressed about what has been done through CIOERT with partnerships and so little funding. He noted that it was exciting to see the level of enthusiasm among the team at HBOI and UNCW.

Shirley Pomponi, CIOERT Director, thanked the NOAA support team who helped them organize the review, particularly Julien Lartigue. They appreciate the level of effort by the review team. The entire effort was worthwhile and they appreciate the recommendations that will help them improve quality. They have already started to implement some of these.

Dan Baden, UNCW, added that it has been an additional challenge with two institutions working in two different states and they have instituted best practices to help this arrangement.

Jean said the short review report can't capture the experience that CIOERT included in the review; the report doesn't have the full flavor to share with the SAB the work that CIOERT is doing.

Tim Arcano, Director of the NOAA Ocean Exploration and Research Program (OER), thanked Jean and her team as well as Shirley Pomponi and Dan Baden. He provided one point of context that while CIOERT has transitioned from a National Undersea Research Program (NURP) funding model to a CI funding model, CIOERT reinvented itself and leveraged partnerships and dollars to add to the NOAA funding.

Dr. Sullivan noted the AnthoSOA interface is a powerful tool. For CIOERT to have the accomplishments presented in the review in just a three-year period is a strong testament to the caliber of the team.

Susan Avery asked Dr. Pomponi and Baden about the drug discovery initiatives and revenue sharing. She is not familiar with HBOI and UNCW work on drug discovery and how that could be applied to cancer in full clinical trials. Dr. Pomponi replied that most of the discovery research is being funded by grants from the National Institutes of Health, but they do have in place the work funded by NOAA on ocean exploration that does add more value to some of the discoveries. It is typical to have revenue sharing in universities between the PIs and Departments. There is also joint ownership among the partners. However, with funding from NIH there is no revenue-sharing back with the federal agency. The review recommended that, proportional to the level of investment, the CI should share in the revenue. Dr. Baden replied in the case of funding from NIH and NSF, NIH would have access to the drug, royalty-free or can use carries to create new intellectual property. In the case of revenue-sharing, the proportion could be 1/3 HBOI, 1/3 UNCW and 1/3 to the investigators. Dr. Pomponi clarified that this was revenue from the intellectual property. Overall, the goal is to continue to develop relationships and funding with other NOAA organizations and partners.

Shirley Pomponi said NOAA has not taken enough credit for its discoveries on human health and the research it has enabled. NOAA has facilitated abilities of many researchers to explore outer continental shelf frontiers and the new organisms found that led to the development of new drugs. The second recommendation is should focused on opportunities to secure and leverage additional support for the CI. Ms. May-Brett said there might be other groups interested in drug development if more information about this work was known.

Tim Arcano said OER establishes partnerships to provide stability for uncertain future and identify sources of funding for a more diverse portfolio.

Ray Ban asked if there was a motion to accept report. Jerry Schubel made the motion and Susan Avery seconded the motion. The motion passed unanimously. Ray thanked Jean and the review team for their work on the review.

March 28. 2013

Public Comment Period
There were no public comments.

Climate Working Group Membership
Heidi Cullen, Climate Central and SAB Liaison to the Climate Working Group (CWG)

Summary

Heidi Cullen reviewed the CWG terms of reference, proposed a new member, and requested that terms of eight members be renewed.

New member:
Dr. Dean Roemmich, Scripps Institution for Oceanography

Members up for renewal:
Dr. Holly C. Hartmann, University of Arizona
Dr. John Dutton, Prescient Weather, Ltd.
Dr. James Hack, Oak Ridge National Laboratory
Ms. Jeanine Jones, California Dept. of Water Res.
Dr. Molly Macauley, Resources for the Future
Dr. Ellen Stone Mosley-Thompson, Oregon State University
Dr. Richard Moss, Joint Global Change Research Institute
Dr. Steven W. Running, University of Montana

The CWG requested the SAB approve the new and renewal memberships each for a three-year term.

Discussion

Ray Ban asked for any discussion on the renewal.

Marshall Shepherd mentioned that Ellen Stone Mosley-Thompson was not able to attend meetings. Cynthia Decker said Dr. Mosley-Thompson had contacted her stated she planned to attend future meetings. Her earlier absences were due to family issues.

Jean May-Brett asked when renewals become effective, whether as of approval today, March 28, 2013, or the dates that expired in 2011-12? Dr. Decker replied that the renewals will be as of the original expiration dates. Ray said expiration dates will continue then to be staggered. Motion made by Dr. Shepherd to renew the members. It was seconded Jerry Schubel.

Dawn Wright made a motion to approve Dean Roemmich as a new member. Jean May-Brett seconded.

Ray Ban asked if there were any other CWG updates

Dr. Cullen said the next meeting will be a teleconference. Holly Hartmann will lead the meeting for the first time as the new chair. James Hurrell may agree to serve as co-chair starting in 2014.

Susan Avery asked if the CWG discussed the National Climate Assessment (NCA) and the National Ocean Policy (NOP) impacts on NOAA at its last meeting. Heidi Cullen said in the past the group worked on the new climate service and could pass along these topics to the CWG for future discussion. Dr. Avery also wondered if the group would be looking at the Portfolio Review Task Force (PRFT) report and how it interfaces with the NOAA Climate Program. Heidi Cullen agreed to bring this up to the group as well.

Ray Ban thanked everyone for their input and said this is the reason the SAB instituted working group updates at their meeting. The Board can offer these directional items to the Working Group. Mr. Ban said it is his vision that liaisons take these recommendations back to the Working Group Chairs and these topics become part of the charge to the group. Ray Ban thanked Dr. Cullen for her presentation.

Proposal for a RESTORE Act Working Group
Richard Merrick, Chief Scientist, National Marine Fisheries Service

Summary

Ray Ban introduced this talk by stating that, in his opinion, this is a request for a hybrid working group for two functions—an SAB working group and an advisory group to meet terms of the Restore Act.

Richard Merrick provided an overview of NOAA's involvement in the RESTORE Act science, a then provided requests to the SAB to 1) create a Working Group to advise the SAB on these activities, and 2) if agreed, review draft Terms of Reference for the group.

The RESTORE Act requires a formal way to engage with groups carrying out the science plan. In section 1604 of the Act, NOAA is charged with developing a framework to establish the Gulf Coast Ecosystem Restoration Science, Observation, Monitoring, and Technology Program. The purpose of this program is to achieve an integrative, holistic understanding of the Gulf of Mexico ecosystem and support, to the maximum extent practicable, restoration efforts and the long-term sustainability of the ecosystem. While this program will be developed by a cross-NOAA Line Office team, with US Fish & Wildlife Service (USFWS) representatives, initial guidance will come from the NOAA Administrator and NOAA Research Council. The Act also requires NOAA to coordinate with representatives from the Gulf States Marine Fisheries Commission, the Gulf of Mexico Fishery Management Council, and the five Gulf Centers of Excellence.

NOAA has posed to do this by establishing a FACA approved advisory which will meet regularly (2-3X/year) to provide advice and input for implementation of NOAA's RESTORE science program. NOAA is proposing to establish this body as a standing working group under the NOAA Science Advisory Board, called the **Restoration Science Program Advisory Working Group (RSPAWG).**

Should the SAB agree to create this working group, Dr. Merrick requested the SAB provide comments on the draft Terms of Reference and approve the concept of the proposed membership.

Discussion

Susan Avery asked if NOAA has reviewed the principles of the RESTORE Science program as well as the focus areas and if the focus areas shown are what will be in the science plan. Richard Merrick said yes, that is where it is headed. In the first year, however, all four focus areas might not be part of the funding announcements.

Russell Callender, representative from the National Ocean Service, said the first thing NOAA will do is to find out what research is currently being funded in these focus areas so they don't duplicate others.

Dr. Avery asked if these themes are what NOAA identified. Dr. Merrick said no, these largely come from the Act itself. Dr. Avery followed up by asking how the Gulf "state of health" is defined. Dr. Callender said there is an Integrated Ecosystem Assessment (IEA) type of approach, similar to the existing IEA in the Gulf of Mexico.

Dr. Avery asked how ecosystem health is defined in this program, e.g. in terms of ecosystem services to humanity or as the biological productivity of an ecosystem (an ocean health index). Here it sounds like it is defined as ecosystem services. Dr. Merrick said discussions have not been had in that level of detail but it will be included in the science plan.

Dr. Avery asked if the RESTORE science funding will be used in engaging entire nation's science capability or only capability and assets of the Gulf States. Dr. Merrick said any money that goes to Centers of Excellence will stay in the Gulf. NOAA's intent will focus on the Gulf but assets use could be national. The National Academy of Sciences (NAS) has been allocated funding and will accept proposals nationally and internationally to answer the Gulf questions. Dr. Avery liked those ideas and said that most funding to date has gone to institutions in the Gulf but this is a national problem and having national assets to handle this is the way to go. Dr. Merrick agreed.

Dr. Sullivan said the political desires are that the funds go to the Gulf. Dr. Avery said she understood but wanted to be clear that it is important that the best science is funded, no matter where it is. Dr. Merrick said he has communicated this to the Gulf of Mexico partners and has made it clear that the working group would be focused on national research. He reminded everyone that this will be advisory to NOAA only.

Jerry Schubel said while this group would be advisory, if there was no influence in shaping the program it should be dissolved. Two keys characteristics for the program should be integration of efforts across the Gulf and focusing science on addressing management questions. This is a good opportunity for regulation, rehabilitation and the integration and synthesis across the Gulf so there should be a focus on management questions.

Dr. Avery agreed the SAB should set up a group. Dr. Merrick said the key is to coordinate all of these RESTORE Act groups to focus on science that will solve problems.

Jeremy Jackson asked if the Centers of Excellence can spend their money any way they want or will the SAB working group have any influence on them. Dr. Merrick said this group has no authority to comment on the spending. It will only provide broad advice to the program.

Dawn Wright asked regarding the organization and governance slide, how high up in the National Ocean Service will be the administration. Dr. Merrick said the program will be housed in National Centers for Coastal Ocean Science (NCCOS). Dr. Avery asked if they are engaging the relevant Oceanic and Atmospheric Research (OAR) people. Dr. Merrick said yes, and Gary Matlock is on the NOAA RESTORE Act Oversight Board. Dr. Matlock said Shelby Walker from OAR is detailed into NCCOS half time to work on this program. Jean May-Brett said she sees this as a responsibility to be part of the future. The restoration of the Gulf is critical to the nation.

Ray Ban transitioned to the question of establishing a Working Group under the SAB. Working groups are vehicles of the SAB and when recommendations are developed in them they come to the SAB for consideration. The Board decides whether to accept, modify or reject those recommendations and may send them to NOAA. As a hybrid advisory group, NOAA is leveraging SAB FACA status to more efficiently discharge the need for a separate advisory committee. Does this group provide advice directly to the program or does that advice come as a recommendation to the SAB or some combination of both? Dr. Ban asked Cynthia Decker if there has been anything like this in the past that she is not aware of. Dr. Decker said that this group can either be a FACA group on its own or a working group under SAB. As the latter all recommendations would come to the Board and would be considered before being sent to NOAA, just as with other SAB working groups.

Dr. Ban asked if Dr. Merrick was comfortable that the group would not provide advice directly to the program but to the SAB for acceptance and transmittal. Dr. Merrick said that was his vision, having these people work together in addition to formal advice, would provide synergy to further work in the Gulf.

Dr. Sullivan asked if this, as an SAB working group, required the word "advisory" in its name. Dr. Decker replied the Ocean Exploration Advisory Working Group (OEAWG) has the word "advisory" in it and it has not caused any problems. Dr. Ban said as long as there is clarity that this is a working group of the SAB and advisory is just in the title. Dr. Decker noted the SAB should review the Terms of Reference (ToR) and make sure these roles are clear.

Dr. Ban asked if there are points to be raised on the establishment of the Gulf Coast Restoration Science Program Advisory Working Group (RSPAWG). Jerry Schubel made a motion to approve and Jean May-Brett seconded. The motion carried unanimously.

Dr. Merrick then discussed the proposed a general structure for membership. He noted that NOAA will work with a small group from the SAB on a list of members. He also pointed out there will be a formal liaison with the Ecosystem Science and Management Working Group (ESMWG).

Ray Ban agreed and suggested a few Board members working NOAA staff can go through the ToR and membership and present those both to the SAB at its summer meeting. He asked for comments on this approach and asked for nominations of board members on the call to work on these two items with NOAA staff. Cynthia Decker said helping with the ToR and membership does not mean it is a permanent commitment to the working group.

Susan Avery said she would agree to serve offering input on the ToR and membership. She then asked about timeline. Dr. Merrick said the group would need to be set up by mid-summer. Jean May-Brett also volunteered. If any other board member is interested in joining Dr. Avery and Ms. May-Brett to work with NOAA they should let Ray Ban know. Dr. Ban wanted to capture in the actions that Dr. Avery pointed out the Portfolio Review Task Force (PRTF) recommendation to create an observations working group.

Dr. Merrick said one challenge with this program is to establish a long term monitoring program in the Gulf. If there was a separate working group on observations and monitoring that could provide advice that would be helpful.

Cooperative Institute for Climate and Satellites Review Report
Mike Keebaugh, SAB Member-Emeritus and Chair, Cooperative Institute for Climate and Satellites Review

Summary

Mike Keebaugh presented the External Review of the Cooperative Institute for Climate and Satellites (CICS). This Institute includes the University of Maryland, College Park (CICS-MD) and North Carolina State University (CICS-NC); the SAB review included both locations. CICS was established through an open competition in 2009. NOAA provided $50 million in funding over the past three and a half years; CICS institutions provided $500,000 in matching funds.

The review panel's report noted that CICS' vision is closely aligned with NOAA's vision and goals, and commended the superior research, planning, management, outreach and education demonstrated during the first four years of the institute. The panel concluded that CICS is a valuable NOAA CI and gave the institute a performance rating of Outstanding. The report noted that CICS is addressing NOAA scientific and strategic needs related to climate and satellites. In most cases, there is a clear path from research to operations. CICS-NC is well-aligned with NOAA's National Climatic Data Center (NCDC). CICS-MD co-location supports broad

connectivity between the University of Maryland, NOAA and NASA that is particularly important to support current and emerging satellite-related research and workforce planning.

The report included the following recommendations:

1. CICS should increase its use of the metrics it has identified in order to better monitor and communicate performance. CICS should consider defining additional metrics to monitor and communicate performance related to education and outreach. While difficult to define, these metrics will help it make a larger positive impact on NOAA, particularly with respect to identifying and filling gaps in capabilities/capacities.

2. CICS should increase interactions and collaboration between CICS-NC and CICS-MD, particularly where the scientific expertise and projects are similar such as in the precipitation and land surface temperature areas.

3. CICS should require an introduction to International Traffic in Arms Regulations (ITAR) training for scientific employees. Online coursework is available from both university and industry organizations.

4. There are both positives and negative aspects to the administration of CICS as a single Cooperative Agreement (CA) instead of two CAs (MD and NC). A single CA is easier with respect to administrative duties that are supported by CICS-MD. A single CA is also consistent with the preliminary NOAA SAB look at CI's, which recommends reducing the number of CI's. There is currently no impact on the science from having one CA but it is clear there are concerns on the part of some of the CICS personnel and funders. This has been studied in more detail by the administrative reviewers. The CICS administrative review team has recommended that this issue be addressed by collecting and analyzing data on purported delays with funneling all tasking and funding through CICS-MD. The science panel supports this recommendation.

5. The directors of the Earth Science and Interdisciplinary Center (ESSIC) and CICS should work together to clarify who on the staff is considered part of CICS-MD, particularly when scientists are receiving funding from both NOAA and NASA. UMD should communicate this throughout the organization so that CICS is appropriately credited for research done under the umbrella of the cooperative institute.

6. CICS-NC would benefit from additional support for the director such as a part-time deputy director, as well as for the outreach coordinator. CICS-MD would benefit from an outreach coordinator. Some of these personnel changes are already being planned

7. Personnel at CICS-NC should be better informed on the career ladder associated with their positions. They also need to understand better how they are evaluated (academic criteria only or additional credit for operational support? Is there a formal or informal connection with their NCDC task collaborators?).

8. CICS-NC may benefit from undergraduate summer internships to strengthen ties with the North Carolina State University.

9. If CICS-NC is able to streamline administrative processes or identify efficiencies in other areas, it should put savings into the reserve fund so that there are more funds for new starts and exploratory research.

10. CICS must determine, with NOAA, what commitments to matching funds can be made so that NOAA may consider this prior to evaluating the five-year renewal.

11. There is an issue of limited space for CICS-MD growth. The current on-site facility is reaching capacity. It will be important to address this problem for future growth.

Discussion

Dawn Wright asked about slide 14 on the City University of New York (CUNY) and diversity there—is this disciplinary or ethnic diversity? Mr. Keebaugh said this represented ethnic diversity. Cynthia Decker, SAB Executive Director, noted that the Center for Excellence in Remote Sensing Science and Technology Center (CREST) at CUNY is one of the five Educational Partnership Program (EPPs) supported by NOAA; Dr. Decker will send Dr. Wright more information on these EPPs.

Ray Ban asked if any panel members want to make comments. Michael King, review panel member, said this was a very impressive group. Phil Arkin, Executive Director, CICS, provided a correction - the Atmospheric and Oceanic Sciences program is in a department but is not a separate department. Otis Brown, Director of the CICS-NC said it was a great report and the directors have already acted on the report, starting with the ITAR training. Hugo Berbery, Director of CICS-MD, thanked the panel for the review; they are working on several issues pointed out, including metrics and outreach, particularly with CUNY/CREST, and have plans to increase and make clear relationship between CICS-MD and CICS-NC.

Marshall Shepherd asked if Howard University is one of the CICS partners. Mr. Keebaugh responded that Howard University is part of the consortium and is a hub for another of the EPPs. CUNY/CREST has had more interactions with the CICS consortium than the Howard University consortium due to the CREST focus on satellites.

Kathy Sullivan added her thanks to the review team. There is more to execute with this one than with other reviews. She noted her appreciation to Ingrid Guch, NESDIS CI program manager, for organizing the review. She also noted that the structure of the CI with two centers does not appear to be a hindrance to its function. She appreciates the focus on ITAR training. Phil Arkin added that Maryland has initiated ITAR training.

Jean May-Brett pointed out that the date on cover of report should be changed from January 2012 to January 2013.

Susan Avery made a notion to approve the report. The motion was seconded by Jerry Schubel. Members voted to approve with one abstention by Ms. May-Brett. Ray Ban thanked Mike Keebaugh and the review committee and Drs. Arkin, Brown and Berbery from CICS.

Working Group Updates

Data Archive and Access Requirements Working Group (DAARWG)

Dawn Wright, SAB Liaison to DAARWG provided an update. Chris Lenhardt, Renaissance Computing Institute, University of North Carolina Chapel Hill, is the new Chair, effective January 2013. Two new members also came on board; Irene Qualters with the National Science Foundation Office of Cyberinfrastructure and Francis William Zwiers of the University of Victoria. Dr. Wright provided an overview of the June 27-29, 2012 and November 7-9, 2012 meetings. Future activities include May 2013 meeting to continue discussion of NOAA's Comprehensive Large Array-data Stewardship System (CLASS), data center consolidation, and other types of data collected by NOAA. The Working Group will also review their Terms of Reference and seek ways to increase visibility in the context of the SAB and opportunities to interact with other working groups.

Chris Lenhardt thanked Jeff de La Beaujardiere, Lewis McCulloch and Adam Steckel in NOAA for their support in keeping DAARWG going. Ray Ban thanked Dawn Wright and Chris Lenhardt for the update.

Environmental Information Services Working Group (EISWG)

Ray Ban, SAB liaison to EISWG said in a February SAB conference call, the EISWG Co-Chairs, Walt Dabberdt and Nancy Colleton, presented their recommendations for the future of EISWG, the SAB accepted their recommendations and EISWG will be continue to be an SAB Working Group but will expand its scope beyond the National Weather Service(NWS) to other parts of NOAA. The EISWG will be meeting virtually on April 17 and the agenda will include input from NWS Assistant Administrator Louis Uccellini on budget and other topics. EISWG will review membership and add appropriate subject matter experts to move beyond NWS as outlined in their revised Terms of Reference. There has been a lot of coordination between EISWG and the Climate Working group as well as the development of some task forces between the two groups. Dawn Wright asked about closer collaboration with EISWG and CWG and whether DAARWG members can participate in the next CWG or EISWG teleconference. Ray Ban said this would be a good idea if Dawn Wright or Chris Lenhardt is available; he will communicate this proposal to Walt Dabberdt and Nancy Colleton.

Ecosystem Sciences and Management Working Group (ESMWG)

David Fluharty, ESMWG Co-Chair, reported that the Working Group met at the end of February in Seattle, and will meet by teleconference for two days in June and in person in October. The Working Group has had two active subcommittees over the last year and is coming to conclusion of reports. One of these is on the topic of Ecosystem-Based Fisheries Management (EBFM),

which will be a review of ecosystem principles in ecosystem management. The second will be on coastal habitat restoration, including expenditures for the American Recovery and Reinvestment Act (ARRA) funding and how this funding promoted ecosystem habitat restoration. Both reports will be taken up to final approval by the Working Group at the June meeting with a target for presentation at the SAB mid-summer meeting. The SAB will be receiving nominations to replace Ivan Valiela who retired from the working group. Later in the year the ESMWG will request term extensions for members. For new members, the group is looking at the expertise needed for the topics of Ecosystem Services Valuation. NOAA has asked for advice to look at different methods used and best practices in this area. This is an emerging area with a variety of ideas on how it is working. A second topic for consideration is Traditional and Local Ecological Knowledge (TEK/LEK). There is a strong desire in NOAA to look for better ways to interact with traditional and user communities to answer key scientific questions.

Finally, Dr. Fluharty reminded the members the ESMWG developed a report to the SAB on Coastal and Marine Spatial Planning. The authors of that have published a paper on that topic. Cynthia Decker asked about the lead author on the paper and David Fluharty responded that Jeremy Collie, former ESMWG member, is the lead author; the citation for the paper is Estuarine, Coastal and Shelf Science, Vol.117 (2013) 1-11.

Ocean Exploration Advisory Working Group (OEAWG)

Jerry Schubel, SAB liaison to the OEAWG, reported that the Working Group is co-chaired by Bob Ballard and Larry Mayer and reminded the Board that a review report was presented to the SAB on the first decade of the Ocean Exploration program. OEAWG is working on one of the recommendations, to convene a national forum on Ocean Exploration. The working group last met in person on January 3-4, 2013 at the National Geographic Society in Washington, D.C. They held a teleconference meeting on March 25th and another teleconference is planned for April 1st .

The Ocean Exploration Forum will be held July 19-21, 2013 with attendance on July 19 and 20 by invitation only. On July 21, the Forum will be open to public and will include live feed from three ships of exploration. The goal of the Forum is to outline a national program of Ocean Exploration in 2020 that includes a public/private partnership with NOAA taking the lead in the federal government. Co-sponsors for the Forum are NASA, EPA, BOEM, the state of California or State Department?, Google, ESRI and National Geographic Society. OEAWG raised $100,000 to support the Forum and Marcia McNutt is the Executive Chair.

SAB Summer Meeting

Cynthia Decker reported there have been three doodle polls to determine members' availability for a summer meeting; without finding two days where more than six people are available. Ray Ban asked members if they preferred a virtual meeting or a six-member, in-person meeting in Boulder, Colorado. Jeremy Jackson voted for virtual meeting; given the government fiscal sequestration, he believed it was inappropriate to hold an in-person meeting for six members.

Marshall Shepherd seconded the idea of virtual meeting in the summer as he finds it difficult to travel during that time. Dr. Decker will re-poll people for the virtual meeting. Ray Ban asked for preference in timing for two half-day meetings. Jeremy Jackson said afternoons worked for time zone issues. Dr. Sullivan endorsed that timing from the NOAA point of view and the 2- 3 hour blocks of time work well for a virtual meeting. Dr. Sullivan thanked the members of the Board for their thoughtfulness on the meeting and the NOAA financial issues; she appreciated it.

Summary of Meeting Actions

Action 1: The Science Advisory Board accepted the final report from the Research and Development Portfolio Review Task Force and will transmit it to the NOAA Administrator.

Action 2: NOAA will provide a response to the Science Advisory Board on the Research and Development Portfolio Review Task Force report within one year.

Action 3: The Science Advisory Board will consider whether to establish a standing Observations Working Group in the future.

Action 4: The Science Advisory Board accepted the final report from the review team for the Cooperative Institute for Ocean Exploration, Research and Technology (CIOERT) and will transmit the report to the NOAA Administrator.

Action 5: The Cooperative Institute for Ocean Exploration, Research and Technology will provide a response to NOAA on the review report by letter within one year.

Action 6: The Science Advisory Board accepted the proposal from the Climate Working Group (CWG) to renew eight members for a 2nd 3-year term, dating from the expiration dates of their original term. The SAB Chair will send letters to the members to inform them of the decision; the CWG liaison will send them email messages about same.

Action 7: The Science Advisory Board accepted the proposal from the CWG for a candidate to fill one remaining vacancy. The SAB Chair will send a letter to the individual to inform him of the decision; the CWG liaison will send him and email message about same.

Action 8: The Science Advisory Board suggested the Climate Working Group should consider at future meetings topics such as the National Climate Assessment and the recommendations from the SAB Research and Development Portfolio Review Task Force.

Action 9: The Science Advisory Board agreed to work with NOAA to establish a standing working group, the Gulf Coast Ecosystem Restoration Science Program Advisory Working Group (RSPAWG).

Action 10: The Science Advisory Board will form a small group with NOAA personnel to revise the RSPAWG terms of reference and recommend an approach to membership.

Action 11: The Science Advisory Board accepted the final report from the review team for the Cooperative Institute for Climate and Satellites (CICS-M) and will transmit the report to the NOAA Administrator.

Action 12: The Cooperative Institute for Climate and Satellites (CICS-M) will provide a response to NOAA on the review report by letter within one year.

Action 13: The Science Advisory Board will request co-chairs of the SAB Environmental Information Services Working Group (EISWG) to allow the Data Archive and Access Requirements Working Group (DAARWG) to send a representative to its next meeting.

Action 14: Pending agreement by EISWG co-chairs, D. Wright, DAARWG liaison, and Chris Lenhardt, DAARWG Chair, will attend the next EISWG meeting.

Action 15: Dave Fluharty, co-chair of the Ecosystem Sciences and Management Working Group (ESMWG), will provide the SAB Office with a pdf file of the recent paper on coastal and marine spatial planning written by ESMWG members.

Action 16: The Science Advisory Board agreed that the summer 2013 meeting will be a webinar. The SAB Office will work with the members to identify dates for this.