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**43<sup>rd</sup> Meeting of the NOAA Science Advisory Board**  
**Washington, DC**  
**5 April – 6 April 2012**

Presentations for this meeting will be posted on the SAB website at:

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

**SAB members in attendance:** : Mr. Raymond Ban (Chair) Consultant, The Weather Channel; Dr. Susan Avery, Director and President Woods Hole Oceanographic Institution; Dr. Eric Barron, President, Florida State University; Dr. Kathleen Broadwater, Deputy Executive Director, Maryland Port Administration; Dr. Heidi Cullen, CEO Climate Central; Dr. Eve Gruntfest, Director, Social Science Woven into Meteorology; Dr. Jeremy Jackson, Senior Scientist Emeritus Smithsonian Institution; Dr. Peter Kareiva, Chief Scientist and Director of Science, The Nature Conservancy; Dr. Frank Kudrna, CEO Kudrna and Associates; Dr. Jean May-Brett, STEM Partnership Coordinator, Louisiana Department of Education; Dr. James Sanchirico, Professor, Environmental Science and Policy, University of California, Davis; Dr. Jerry Schubel, Executive Director, Aquarium of the Pacific; Dr. Marshall Shepherd, Professor Dept. Geography & Atmospheric Sciences, University of Georgia; Dr. David Titley, Director, Oceanography, Space & MDA, US Navy; Dr. William Townsend, Townsend Aerospace Consulting; Dr. Dawn Wright, Chief Scientist, Environmental Systems Research Institute

NOAA senior management and Line Office representatives in attendance: Dr. Jane Lubchenco, Under Secretary of Commerce for Oceans and Atmosphere; Dr. Kathryn Sullivan, Assistant Secretary of Commerce for Oceans and Atmosphere; Dr. Charles S. Baker, Acting Deputy Under Secretary of Commerce for Oceans and Atmosphere; Ms. Margret Spring, Chief of Staff of Commerce for Oceans and Atmosphere; Ms. Sally Yozell, Director of Policy of Commerce for Oceans and Atmosphere; Mr. John M. Murphy, Chief, Programs and Plans Division, National Weather Service; Ms. Mary Kicza, Assistant Administrator, National Environmental Satellite, Data, and Information Service; Dr. Al Powell, Director, Satellite Applications and Research; Dr. Holly Bamford, Deputy Assistant Administrator, National Ocean Service; Dr. Richard Merrick, Chief Science Advisor, National Marine Fisheries Service; Dr. Patricia Montanio, Assistant Administrator, Program, Planning and Integration; Dr. Robert Detrick, Assistant Administration, Oceanic and Atmospheric Research; Capt. Dave Moroney, Deputy Director, Office of Marine and Aircraft Operations

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

**Thursday, 5 April 2012**

**Welcoming Remarks and NOAA Update**

Dr. Jane Lubchenco, Under Secretary of Commerce for Oceans and Atmosphere

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## Summary

The purpose of this presentation was to provide the Science Advisory Board (SAB) with an update of NOAA's activities since the last SAB meeting. Jane Lubchenco thanked the SAB members and those present for taking the time out to attend the meeting. She thanked the members for the four reports transmitted to NOAA since November and gave a status update on each report. She made mention of SAB members Thomas Zacharia who rotated off the board in December, Frank Kudrna who will be leaving the board in June, and Eric Barron who left the Portfolio Review Task Force. Dr. Lubchenco provided information on the Department of Commerce (DoC) priorities, which affect NOAA's priorities. Priority one and two are focused on supporting advanced manufacturing and increasing exports, while the third priority is focused on travel and tourism. Dr. Lubchenco said that these priorities support the President's and Secretary John Bryson's initiatives and frames NOAA's work and partnerships. Information on how NOAA does business was presented. Dr. Lubchenco spoke about NOAA's transition to cloud computing and stated that NOAA was one of the first agencies to implement the Google Unified Messaging Service, which provides a cloud-solution to email, calendars, document collaboration, and information sharing. She provided updates on leadership changes and the status of Scientific or Professional (ST) appointments. Kathy Sullivan is the new Acting Chief Scientist, eight ST and two Senior Level (SL) positions have been filled, and NOAA is currently recruiting for five new ST positions increasing the total number of STs and SLs from ten to sixteen.

An update on activities in the Gulf of Mexico was provided. Dr. Lubchenco stated that members of the public shared their reactions to the Phase I Draft Early Restoration Plan and Environmental Assessment (Phase I (DERP/EA) at public meetings in the Gulf States and Washington, DC, in January and February 2012; more than 750 people attended the meetings.

The trustees responsible for restoring the natural resources injured by the *Deepwater Horizon* Oil Spill listened as the public commented on the initial \$57 million round of early restoration projects. The Phase I DERP/EA is the first in an anticipated series of plans to begin restoration of the Gulf of Mexico to compensate for natural resource injuries, including the loss of human use of Gulf resources, from the spill. There are eight proposed projects for this phase of the early restoration, two each in Alabama, Florida, Louisiana and Mississippi. They include: shoreline marsh creation, coastal dune habitat restoration, nearshore artificial reef creation, oyster bed restoration and construction of boat ramps. Dr. Lubchenco also provided a very brief update on other projects related to the Gulf of Mexico, which included a report on the Gulf Of Mexico Ecosystem Restoration Strategy, and the 2<sup>nd</sup> National Science and Technology Committee (NSTC) Subcommittee on Ocean Science and Technology (SOST) DWH Principal Investigator (PI) Science Workshop in St. Petersburg, Fl.

Finally, Dr. Lubchenco gave a summary of some the major accomplishments and challenges for each of the Line Offices along with Sea Grant and The Educational Partnership Program's Cooperative Science Centers. For NOS the major accomplishment

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is the development and use of hindcast models; the greatest challenge is to effectively communicate this information to the public; NESDIS has successfully launched the NPOESS Preparatory Project (NPP.) The challenge that line office faces is prioritizing what can or cannot be done with various models and systems being developed; NWS launched the Weather Ready Nation initiative after identifying gaps and needs as it related to social science. NWS' main challenge at this time is funding for the continued incorporation of social science into its warnings. OAR has made significant improvements in its Research-to-Operations (R2O) models, and its greatest challenge is now upgrading NEXRAD to MPAR. Sea Grant has made great strides in aquaculture research, while their current challenge is to increase social science across all programs. The Climate Program Office has made a significant contribution to the Intergovernmental Panel on Climate Change (IPCC) – Managing the Risks of Extreme Events and Disasters to Advanced Climate Change Adaptation, Report, and the completion of the Coupled Model Intercomparison Project (CMIP5). Detection and attribution of multi-decadal change is currently a challenge. NMFS' contribution to the Distributed Biological Observatory and its long-term passive acoustic recorders are a great accomplishment, however, the challenge still lies in acquiring funding for research in the Arctic. The EPP Cooperative Science Centers have an increased number of graduates from their programs; however, funding for these programs is always a challenge.

### Discussion

David Titley said that the transition to Google cloud was a great idea and Google has been receiving good press coverage beyond the DoC. Dr. Lubchenco stated that Google has been very responsive. Admiral Titley asked if NOAA was able to take the cost savings and roll them back into the programs. Dr. Lubchenco said that the DoC made a commitment to find administrative efficiencies for FY12 and FY13 and this was included in the budget.

Susan Avery asked about increased security control using the cloud and how could this be achieved. Dr. Lubchenco expressed that she was aware that some information is very sensitive and she is working on this along with the NOAA IT CIO, who would be better at answering that question. Dr. Avery indicated that she would defer to the IT CIO.

Ray Ban commented that each of the Los presented future challenged, but one of his concerns was the challenges being faced NOAA-wide. Dr/ Lubchenco said maintaining a balanced portfolio between service, stewardship and science would prove to be most challenging. Currently, the budget pressures and the issues of satellites are causing an imbalance. She stated the second challenge is employee morale. There are signs that federal workers feel undervalued.

### **Update from the SAB Research and Development Portfolio Review Task Force (PRTF) and Discussion of Next Steps**

Peter Kareiva, The Nature Conservancy, SAB Member, and Co-Chair, PRTF

### Summary

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The purpose of this presentation was to provide background information on activities and meetings conducted by the Portfolio Review Task Force (PRTF) to date. Dr. Peter Kareiva provided information on the major requests to NOAA, the Terms of Reference and Additional Information document, and the timing of report and preliminary recommendations at the November SAB meeting. Dr. Kareiva gave updates specific to discussions at the April 4 PRTF meeting. These discussions included the development of an outline for the November report, the need for an introduction that informs readers of successes and impactful stories, the importance of paying attention to challenges and keeping the audience in mind – NOAA leadership, OMB, and Congress. Dr. Kareiva also made mention of other topics discussed at the April 4 PRTF meeting. These included data inputs, NOAA's priorities and budget, the census of bench scientists and the survey of those scientists, the role of the NOAA Chief Scientist, and plans to reach out to SAB working groups and others, in order to receive more insight on NOAA's research and development portfolio. In conclusion, Dr. Kareiva requested approval of the Terms of Reference and the Additional Information document.

### Discussion

Bill Townsend asked whether OSTP should be included when considering the audience because of the policy implications. Dr. Kareiva agreed that OSTP should be included.

David Titley stated that during the presentation there was no discussion on transition to operations. Susan Avery replied by stating that the group discussed how the transition of science knowledge to use is a challenge. She said that the stories on NOAA's research should include this aspect and that these could appear in various part of the report.

Jane Lubchenco thanked the task force for all the work that they had completed thus far, and expressed her appreciation for the way the task force has embraced the challenges. Dr. Lubchenco stated that the definitions for basic and applied science used in the presentation have been used for a long time and are outdated. Several SAB members agreed with Dr. Lubchenco that the definition of applied versus basic science should be done using "Pasteur's quadrant" also referred to as "use-inspired" science. Dr. Lubchenco invited the task force members to inform NOAA on what type of use-inspired science NOAA is or should be doing. Dr. Kareiva agreed that use-inspired would be a better way to review NOAA science and stated that the task force would add a section about NOAA's use-inspired research to the report. Dawn Wright added that the National Academy of Sciences Ocean Sciences Board, of which she is a member, has embarked on similar study reviewing ocean sciences programs including all agencies. The National Science foundation (NSF) is hoping to include use-inspired science in its granting process.

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Richard Merrick stated that much of the work NMFS does is not identified as research, however, the fisheries science centers do conduct a lot of research. He thought it would be good for the task force to try and capture that. Dr. Kareiva said that the task force hopes to get more information when the members meet with the fisheries science centers.

Dr. Lubchenco said that although the task force is reviewing what NOAA does and how NOAA does it, she would like the task force to also capture the conditions for success. This can be done by highlighting the reward systems, career paths, performance reviews, and leadership recognition. Dr. Kareiva said that a question was added to the survey and the task force will revise this question to emphasize this.

Robert Detrick expressed that one of the biggest issues raised by lab directors is the recruitment of the next generation of scientists. Dr. Detrick stated that the demographics are skewed to the older ages and given these difficult budget times it is a challenge to bring young people into the research work force. Dr. Detrick also stated that he hopes that the task force will make recommendations on how NOAA could generate the next group of scientists. He added that many young scientists come into the NOAA enterprise through CIs and that the task force should talk to those scientists as well.

Jeremy Jackson said that he was most concerned about detail versus generality. He stated that the environment is already challenging on accepting the idea of earth system science, and there is a need for preamble about what the world would be like without NOAA. Ray Ban commented by saying the SAB should be careful about being perceived as too much of an advocacy report. Dr. Jackson responded it can be done in an objective way and will be more powerful if understated.

David Titley and other SAB members suggested thinking about NOAA in terms of recent, relevant and resonate. The Navy as well as non-SAB task force members can test these concepts. Dr. Lubchenco stated that DOC is an audience and Ray Ban followed up by reminding the group that OSTP should also be considered an audience.

Ray Ban reviewed the terms of reference (ToR) and the motion to approve the ToR was passed with conditions to include transition to use, use-inspired research and including DOC and OSTP as well as Congress as part of the audience for the final recommendations. The motion was passed unanimously.

Dr. Lubchenco stated that Dr. Kareiva showed the FY13 budget for his rationale and suggested that the PRTF should examine multiple years. Dr. Kareiva agreed.

Eve Grunfest expressed concern that she thought the report would be punitive if other groups of people are involved in the review process, but is very pleased to know that the

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task force is framing things appropriately. Dr. Kareiva said that the task force rewrote the survey letter and he would be happy to share it if there is some concern.

Dr. Lubchenco suggested that the task force include another group – users of the information, for example, Friends of NOAA. Dr. Lubchenco expressed her understanding that this would be a challenging task to do in a comprehensive way, however, if there was some mechanism to engage dialogue with the users that would be a very valuable part of the review. Dr. Kareiva said that the task force is trying to get maximum coverage by attempting to distinguish who are the people they need to be talking. Richard Merrick suggested the task force also include NOS and NMFS lab directors, Dr. Kareiva agreed that is a good idea. Dr. Merrick also inquired about how bench scientists were being identified. Avery Sen responded saying the line offices have already identified bench scientists and their disciplines, and those people would be contacted for the survey. In addition Ray Ban stated that the survey will be going to all NOAA scientists who work at NOAA facilities. Dr. Ban asked if there are other groups beyond the scientists that were being considered for the survey. Dr. Kareiva said no, they would reach those groups in a different way.

David Titley suggested the task force review NOAA's science influence with other agencies, addressing, for example the impacts of NOAA science if it should go away. Susan Avery said that would be interesting but the task force wants to make sure to stick to the primary charge.

Cynthia Decker said reaching out to NOAA liaisons such as the NOAA Working Groups can help with handling some of the requests from the task force. Dr. Kareiva said he would send questions to Dr. Ban to be sent to EISWG. Dr. Ban asked if there was some formal way the task force wanted the working group to respond. Dr. Kareiva said the task force will capture the purpose of the review and ask the working group to provide advice based on their experiences on the NOAA's research portfolio and management.

Action 2: The Science Advisory Board approves the Terms of Reference for the SAB Research and Development Portfolio Review Task Force (PRTF) and Additional Information for PRTF, with addition of language on audience (OSTP, DoC leadership), and adding use-inspired research and transition to use to the definitions in the document.

**NOAA Response to the SAB Report on Fisheries Enterprise Data Management**  
Richard Merrick, Chief Scientist, NOAA National Marine Fisheries Service

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The purpose of this presentation was to discuss the Data Archive and Access Requirements Working Group (DAARWG) report on the Fisheries Enterprise Data Management System. Chief Scientist Dr. Richard Merrick provided a summary of this report highlighting the recommendations and efforts made in collaboration with NOAA's Enterprise Data Management Council (EDMC) for sharing lessons learned to meet these recommendations. Dr. Merrick also briefly spoke about the expanded approaches used by Fisheries in other NOAA programs, the approaches being made to share data catalog information, and NOAA's data management activities. In closing Dr. Merrick thanked Brion Cook for his contributions to this effort.

### Discussion

Frank Kudrna asked how NMFS data integrates with the Integrated Ocean Observing System (IOOS). Dr. Merrick said some of NMFS' data sets are available through IOOS, and the goal is for all their data sets to be accessed through IOOS. David Titley asked if another goal is for all of NOAA's data to be discoverable through a cloud access and is there a vision for NOAA's data through IOOS. Joe Klimavicz, NOAA Chief Information Officer, responded that NOAA is looking at all data in the data centers because the metadata is fragmented and incomplete throughout these centers. The plan is to consolidate data centers and holdings then move these data to the cloud. Dr. Klimavicz asserted that some data will need to be held in NOAA and work is being conducted on consolidating these data however, the biggest issue is sharing metadata. Dr. Merrick added that the goal is to get the metadata organized first.

Jane Lubchenco asked if there was a time horizon for getting the metadata in order. She added that there is a need to be looking at two parallel paths; one is getting the data in order while the other is moving forward on new systems. Dr. Merrick said that most commercial fisheries data are ready but the research data is are not available just yet. The goal is to have the metadata in order by next year.

Deidre Jones, Chair of the NOAA Environmental Data Management Committee, responded to Dr. Lubchenco's statement on parallel paths. Dr. Jones said that work was being done with the CIO and the NOAA Observing System Council (NOSC) to evaluate new initiatives, data management planning, document planning and data sharing.

Dawn Wright asked about InPort, the NMFS metadata repository system. Brion Cook, NMFS, responded that InPort is a database system that catalogs NMFS data sets. Metadata in InPort can be exported to other repositories. Every science center and regional office has a plan to get data into InPort and cataloged over the next two years with the intention of making all of it available through data.gov.

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Dr. Lubchenco asked the DAARWG members if they were satisfied with the report. Ferris Webster said that though things are not complete, NMFS is going in the right direction. Dr. Merrick stated that NMFS will work with DAARWG and other interested groups in the future.

### **NOAA Response to the Congress on Compensation Policy for Specialized Satellite Data Products and Services**

Helen Wood, Senior Advisor, NOAA National Environmental Satellite, Data and Information Service

#### Summary

The purpose of this presentation was to provide an informational briefing on the draft NOAA response to language in Congressional appropriations reports. Ms. Helen Wood briefed the SAB on the scope and approach of the report, NOAA's existing authorities to charge fees, and NOAA's current policies and practices. Ms. Wood stated the FY 12 NOAA Appropriations conference report contained language directing NOAA to outline a framework for developing a compensation policy that would enable NOAA to be reimbursed as appropriate for the use of specialized data products derived from NOAA satellite imagery and data. There was also language from the FY12 Senate Appropriations report that stated NOAA shall be reimbursed for any special products, services, data transfers, or any activities conducted in collaboration with other Federal agencies or non-Federal entities per section 112 of this title. She mentioned that DoD and NESDIS' international partners were also concerned about this language. Ms. Wood also discussed some of the major outcomes, one of which was the integrated, deliberative process for determining when it is appropriate for NOAA to be reimbursed for specialized data and products derived from NOAA satellites.

#### Discussion

William Townsend said routine products should be free and openly available and related to the SAB his experience with NASA's policy on the Landsat data. Dr. Townsend stated that he hoped NOAA would not go backwards in its data policy. Ms. Wood agreed and stated that the current approach is being reviewed by NOAA headquarters and that Congress focuses on specialized data products and services, i.e., work that NOAA does not normally do. Dr. Townsend asked Ms. Wood if she knew the request was generated. Jane Lubchenco responded saying many members of Congress have told her that the environmental satellites are becoming more expensive and NOAA needs to begin charging for what they do. Dr. Townsend suggested that clear distinctions should be made between data to private, for-profit companies and data to academic science communities. Mary Kicza said in her discussions with Asian international partners it was increasingly difficult to convince them to provide free and open access to data. This



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Congressional request may now make it more difficult to advance that point of view. Kathy Sullivan said she thought the U.S is still holding its position on providing free and open access to data. Charlie Barker added that when folks from NOAA committee wanted to shift costs to Department of Defense (DoD), one thought was that DoD might then consider charging for GPS data, but NOAA is a huge user of GPS data. This illustrates the inherent limitations of charging other federal agencies for such services.

RADM David Titley said that DoD is now reviewing a similar issue with its service agencies. He asked why commercial organizations should be charged and not the science organizations. Dr. Townsend gave an example of his experience with Landsat at NASA and stated that in privatizing Landsat they found that as EOSAT raised prices, people stopped using it. Ms. Wood explained that the U.S government cannot copyright its data so the first customer who buys them can do anything they want with them. She further explained that this has a dampening effect on recovering costs from sectors, making differentiation difficult. Ms. Wood said NOAA has been supporting national policy to provide data freely and openly online and any solution needs to take into account these realities. Several SAB members gave examples and provided reason for why NOAA should continue to provide free and open access to data. They also commended NOAA for doing an exceptional job in this regard.

Dr. Sullivan said that these issues are not likely to abate and the community should discuss at a higher level the benefits and values that the nation gains by taking a specific course of action. She advocated the need for NOAA to state the value proposition of open data access in a national context and for the national good. Dr. Townsend noted that in order to create a product not normally produced there should be a charge. He stated that NOAA should have a discussion with Congress on the need for a free and open access data policy. Dr. Sullivan agreed.

RADM Titley said that specialized needs are a good way to move forward and asked if there was a policy in NOAA for products from “legacy data” and would NOAA ever keep a legacy product if a company needed it. Dr. Wood responded saying no, not unless NOAA was in business with them and those products get direct support.

Dr. Lubchenco said that she did not have a good sense about what the scope of the specialized uses is. Dr. Wood said a good portion of user fees comes from consultants and lawyers.

Action 3: NOAA will provide updates at future Science Advisory Board meetings on the topic of requesting compensation for specialized satellite data products.

**Proposed New Members for the Data Archive and Access Requirements Working Group (DAARWG)**

Ferris Webster, University of Delaware, and Chair, DAARWG

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### Summary

The purpose of the presentation was to provide a proposal for four candidates to replace the members that rotated off the DAARWG in December 2011. Ferris Webster provided information on the candidates, along with the criteria for nomination, which included coastal expertise, industry representation, NASA experience, NSF experience, and climate expertise. The candidates were: Eoin Howlett, Applied Science Associates, RI; Steve Kempler, NASA Goddard, MD; Irene Qualters, NSF, DC; Francis Zwiers, University of Victoria, BC.

### Discussion

Ray Ban made mention of the fact that Dr. Webster will be rotating off at the end of 2012, therefore DAARWG will need another Chair soon.

Jane Lubchenco thanked Dr. Webster for his discussion on the member's qualification and asked that the DAARWG be more conscious of geographic and ethnic diversity when bringing on future members. Dr. Lubchenco suggested that there was a need for more people from the west coast. Dr. Webster stated he was conscious of the need for geographic coverage and will continue his efforts to ensure more diversity.

Eric Barron motioned to approve the new members and Susan Avery seconded the motion. There were no objections from the SAB members and the motion to approve was passed.

Action 4: The Science Advisory Board approves the candidates for the Data Archive and Access Requirements Working Group (DAARWG). Ferris Webster, Chair of the DAARWG, will communicate this to the candidates verbally; the SAB Chair will send appointment letters to them.

Action 5: The Science Advisory Board requests DAARWG to consider geographic and other aspects of diversity when selecting candidates to fill vacancies in the future.

### **Update from SAB Satellite Task Force (SATTF)**

Marshall Shepherd, University of Georgia and SAB member

### Summary

The purpose of this presentation was to provide an update on the SATTF recent activities. Marshall Shepherd provided information on the SATTF Terms of Reference and membership, and reminded the SAB of the guidance on satellites in the NOAA strategic

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plan and the national space policy guidance to NOAA. Dr. Shepherd discussed the FY13 budget and its impacts on satellite programs, which include the JPSS, GOES-R and the DSCOVR. He stated that currently there is a satellite architecture study in place to reduce costs and maintain/ improve capability. He also provided the SAB with an update on SATTF next meeting dates. Finally Dr. Shepherd thanked Dave Hermreck from NESDIS for putting together the presentation..

### Discussion

Susan Avery said that there is a discussion on ships that is analogous to satellites; these discussions are geared at understanding products/equipment versus costs. Dr. Avery asked if

SATTF is building and designing to match the budget instead of using a “wish list.” Mary Kicza answered that for satellites the NOAA Observing System Council (NOSC) has a verification and validation process that is worked through the budget. Dr Kicza said that NESDIS assesses the satellites and instruments to identify which ones are critical and which are supplementary.

Jane Lubchenco said NOAA had to jettison critical instruments that were no longer affordable, and the tradeoffs between budget and scheduling results in producing things based on the requirements, which are not necessarily cheaper.

Kathryn Sullivan said NOAA understands that designing to cost is where the agency is and will continue to be. Dr. Kicza said the issue is really that of balancing cost schedule and performance. She stated that cost is the driver and scheduling is a requirement; performance and capability are less important. Dr. Sullivan asked Dr. Shepherd how much SATTF plans to link what they are doing with what Department of Defense is doing. Dr. Shepherd said the committee has some ties to this activity but has not fully explored all of the possible relationships and they had affiliations with NESDIS. Tom Adang from NESDIS stated that he was directly involved with DOD and what they are doing. David Hermreck commented that satellite architecture studies are also paying attention to the DOD studies.

David Titley stated that the Norwegian Ministry of Defense is doing an exceptional job with its satellites and perhaps NOAA needs to take a look at this; the answer may lie with these European partners.

Dr. Lubchenco asked if funding decreases can be spread over time instead of having one year with one big budget decrease. She also asked if SATTF is considering more business models and funding scenarios because needs fluctuate over the years. Several task force members said that these were being discussed. Dr. Lubchenco suggested that SATTF review documents from the National Polar-orbiting Observational Environmental Satellite System (NPOESS), the predecessor to JPSS.

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## **External Review of the Cooperative Institute for Climate Science (CICS), Princeton University**

Frank Kudrna, Principal Water Resource Engineer, URS Corp, SAB member and Chair, CICS Princeton Review

### Summary

The purpose of this presentation was to report on the results of the review of the Cooperative Institute for Climate Science, Princeton University (CICS-P) review. Frank Kudrna provided information on the external Cooperative Institute (CI) review process, CICS-P themes, the overall assessment, and the thirteen findings and recommendations. Dr. Kudrna informed the SAB that while 13 recommendations were provided they are primarily items to further strengthen CICS-P. The review panel unanimously agreed that CICS-P should be continued and ranked the Institute's performance as Outstanding. The review panel was especially impressed with CICS-P in regards to the quality and number of publications produced, the mentorship of their graduate and postdoctoral students, and the role CICS-P played in the development of the Earth Systems Model at Geophysical Fluid Dynamics Laboratory (GFDL). To further strengthen CICS-P, the review panel provided thirteen recommendations. These recommendations included: 1) developing a mechanism for modifying science themes over a ten year period, 2) providing continued support to graduate and postdoctoral students, 3) NOAA viewing CI's as valuable and establishing flexible policies for managing the internal CICS-P budget during cutbacks, 4) CICS-P and GFDL working together to protect senior staff appointments during budget constraints, 5) continuing existing research while increasing efforts at integrating technological, social and economic dimensions within Earth system modeling activities, 6) diversifying their undergraduate program as well as staff, and 7) reporting on outreach activities being conducted.

The research, management, education and outreach programs of CICS-P were found to be of excellent quality and in line with NOAA's mission. The review panel encourages NOAA leadership to continue supporting CICS-P as they move forward under the guidance of recommendations provided.

### Discussion

Jean May-Brett asked if the recommendation made about the outreach aspects meant that there was a need to the extend education and outreach for CICS-P. Dr. Kudrna said that it means a broader definition is needed, one that would include education, so that researchers would have the opportunity to interface with that broader community and assist with outreach and education. He stated that CICS-P was very receptive to this recommendation.

Jorge Sarmiento, Director of CICS-P, said senior staff at CICS-P understands the importance of strong communication findings, while younger staff members may not be as aware. He stated that science, technology and policy are key components of strong communication and suggested that CICS-P think about conducting more formal training

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in preparation for communicating with the public and the press.

Jerry Schubel said CICS-P should consider working with Communicating Ocean Sciences to Informal Audiences (COSIA), which is a model developed by the National Science Foundation (NSF). Bob Detrick stated that, while visiting the Geophysical Fluid Dynamics Laboratory (GFDL) and CICS-P, he noted that both of these institutions are model relationships for integrating the CI with the research activities. Dr. Detrick mentioned that some of the GFDL staff are teaching and advising students in the Princeton program.

Charles Baker stated that CICS-P faculty seemed frustrated because they were not able to address all aspects of NOAA's mission. Dr. Kudrna said the issue was there were not enough resources to accomplish all they have hoped for. Dr. Detrick added that a few CI directors were also frustrated due to the inability to conduct social science research. Dr. Sarmiento stated that funding is not available for social science and economics.

Dr. Sarmiento expressed his appreciation for the effort the panel put into the review. He stated that their suggestions were very thoughtful.

The motion to accept and transmit this review to NOAA was made and passed unanimously.

Action 6: The Science Advisory Board approves the report from the review of the NOAA Cooperative Institute for Climate Science at Princeton University (CICS-P) and will transmit to NOAA.

Action 7: NOAA will respond to the recommendations from the CICS-P review by letter from OAR to the SAB Chair within one year.

## **Adjourn**

The meeting adjourned for the day at 5:30 PM

## **Friday, 6 April 2012**

Executive Director, Dr. Cynthia J. Decker opened the meeting and reviewed the agenda.

### **Contributions of Genomics to Understanding the Causes and Impacts of Harmful Algal Blooms**

Frances Van Dolah, Research Biochemist, Center for Coastal Environmental Health and Biomedical Research, NOAA National Ocean Service (NOS)

### **Summary**

The purpose of this presentation was to provide scientific information on understanding the causes and impacts of harmful algal blooms (HABs). Frances Van Dolah provided

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background information on the research location and study area (s), defined the terms related to genomics, and explained the different types of biotoxins that cause HABs. Dr. Van Dolah provided details on the microarray technique that was used to identify molecular processes regulating bloom growth and toxicity. She explained the process behind the formation of HABs using the HAB dinoflagellate *Karenia brevis* as an example, and that cell cycle proteins may be used as potential indicators of bloom growth status. Dr. Van Dolah provided detailed examples of how genomics approaches have contributed to understanding the domoic acid poisoning in California sea lions, and how dolphins can be used as sentinels for human health and environmental condition.

## Discussion

Peter Kareiva asked about the ability to detect sources of nitrogen used by the bloom organisms. Dr. Van Dolah stated that they are looking for patterns that show whether natural (nitrate) or anthropogenic forms (urea) of nitrogen are being utilized. This is known for diatoms but not for dinoflagellates.

Jeremy Jackson stated that studies conducted on *Karenia brevis* are fascinating and asked if data are finally being collected on the frequency and duration of these blooms. Dr. Van Dolah said the Florida Department of Environmental Protection is collecting data and the results of these data suggest that although the frequency of these blooms has not changed, the intensity has; blooms are now persisting in the winter. She stated that stronger efforts are being made document the extent and duration of these blooms, and that there is a group in Miami that is currently challenging the assertion that bloom frequency has not changed.

Jane Lubchenco thanked Dr. Van Dolah for her presentation and asked about the existence of a toxic and non toxic form of *Pseudo-nitzschia*. Dr. Van Dolah stated that some produce different amounts of toxins and that these toxins vary over time. She added that in 1998 there was a shift in the North Pacific Oscillation, which produced conditions that were favorable to *Pseudo-nitzschia* blooms. The hope is that this cycle will reverse when there is warmer water in the Eastern Pacific. Dr. Lubchenco asked about the presence of ciguatera on oil rigs. Dr. Van Dolah said in the last ten years incidences have been recorded in Texas, and that oil rigs are conducive to reef communities and ciguatera grows in these communities.

Marshall Shepherd asked about the differences in the frequency and distribution of bloom events between the Eastern and Northern Gulf of Mexico. Dr. Van Dolah said the Mississippi plume carries nutrients to the shelf, which are then transported to Southeastern Florida via currents. This may cause blooms in that region. Dr. Shepherd asked if there was sensitivity to sea surface temperature, Dr. Van Dolah said not to her knowledge.

David Titley stated that the toxins in the Mississippi Sound appear to be less than he would have expected. He said his expectation was that there would be more PCBs present. Susan Avery said in addition to the microarray sampling technique there is a

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need to have better measurements of the physical environment. She asked Dr. Van Dolah if they were getting any measurements from the Gulf. Dr. Van Dolah stated that these measurements are being collected using routine surveys conducted by Mote Marine Laboratory and Florida Wildlife Research Institute. Dr. Avery asked if there were any mitigation studies conducted on blooms regardless of their source and whether or not coastal communities have used such studies to stop or prevent blooms from occurring. Dr. Van Dolah stated that studies have been conducted on clay particles and that the results from these studies suggest that clay could be used to sequester toxins in the water column. However, coastal communities are very resistant to the idea of using clay in the water.

Jean May-Brett asked whether or not any research experience for teachers or summer experiences for students are available. Dr. Van Dolah said that she has not been involved in any teacher programs; however, there are several undergraduate summer programs among the SC Marine Research Center partner institutions (where her lab is located) that both NOAA HML and CCEHBR labs participate in. There may have been high school internship opportunities through the Hollings Marine Laboratory summer scholars programs.

### **Use of NOAA Logo by Affiliated Partners**

Alice McKenna, Department of Commerce Office of General Counsel

#### Summary

The purpose of this presentation was to provide information on the general terms of use for the NOAA logo. Department of Commerce Office of the General Counsel representative, Alice McKenna, stated that DoC logos are a government trademark that had expectations for services to be provided, and there was an interest in ensuring that logos are appropriately used. Ms. McKenna elaborated on the process that governs the use of the logos. She stated that the DOC and its operating units are governed by a series of administrative orders, and there is an approval and decision making process under these DAOs. Ms. McKenna explained that the DOC requires written approval from the NOAA Administrator for the use of NOAA's logo, and once the program office determines that it wishes to allow the use of the logo by a third party, the request is forwarded to the Assistant General Counsel for Administration for review. She further explained that the reason for this process is to be certain that the use of the logo is in line with the mission of the Department, that it would not cause embarrassment, there were no conflicting trademark rights, and finally that there is no appearance of endorsement or favoritism.

#### Discussion

Jane Lubchenco asked if all third parties aren't seeking some sort of endorsement at some level. She added that putting a logo on something funded or supported assumes some

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kind of endorsement. Ms. McKenna responded that although this may well be true, funding is only for specific activities.

Ray Ban noted that if The Weather Channel wanted to provide information on a severe weather situation, the NOAA logo would be used to visually direct people to the website for more information. He further noted that this type of use is not an endorsement. Ms. McKenna responded that there is also a website linking policy and a logo isn't necessarily needed to create an effective link.

Frank Kudrna stated that this issue has been ongoing for a long time and dates back to an engagement study that was conducted by the SAB. During this study it was found that NOAA's recognition was "almost nonexistent." Dr. Kudrna explained that during a conversation with the Cooperative Institutes (CI's) there was no recognition of NOAA on their websites and they had been told that they could not use the NOAA logo. Dr. Kudrna then asked if there was a practical way to allow recognition of NOAA via the logo.

Ms. McKenna responded that it may be possible for recognition to be had without the use of the logo because there are dangers when placing logos on other people's work product even if only funded in part. Dr. Kudrna followed up by asking if there was some sort of caveat that could be provided.

Several of the SAB members strongly expressed that NOAA has many important partners such as the CI's, Joint Institutes (JI's) and Sea Grant institutions that are NOAA-funded; these institutions should be allowed to use the logo on NOAA-funded products.

Several SAB members also stated that NASA allows the use of its logo on all NASA-related programs, events, websites and products. It was noted that although NASA and NOAA have funded projects together, NASA's logo is usually present on the products of such projects while NOAA's is not. Ms. McKenna responded by asking if the issue was that NOAA doesn't use its own logo on its own products. She stated that if that is the case then that's a separate issue. The use of the NOAA logo by third party is another matter. She stated that NASA may also be monitoring websites and use of its logo.

Al Powell said he runs the NOAA Visualization Laboratory and it has identified an issue on NOAA logo use by TV stations regarding the design of the logo. Dr. Powell stated that the TV stations are willing to use the logo if certain revisions are made in the lettering and color. In response to this, the Visualization Lab has created a watermark that meets the criteria of the TV stations. There has been no permission to use this, however.



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Susan Avery stated that, unlike university seals which are hard to reproduce, logos are simple and there is the need to have a logo that is usable. She stated that this issue has been going on since she was director of the Cooperative Institute for Research in Environmental Sciences (CIRES). NOAA has strong partners that are vetted and peer-reviewed, therefore not using that recognition is harmful to NOAA.

Peter Kareiva said images are a way to brand. /The Nature Conservancy has a simple, one-day process to review the use of its logo. Dr. Kareiva stated that there is a need to recognize the partners and not go through a process to approve each use of the logo by the same partners.

Eric Barron stated NOAA provides products and wants recognition, therefore, it should be made clear to the institutions and agencies NOAA sponsors that NOAA wants to receive credit. He explained that this can be done by providing a set of rules to which all NOAA-sponsored entities must adhere, and this would include the use of NOAA's logo. If those rules are violated that entity would be subject to punishment.

Richard Merrick asked if trademarking was regulated by Congress. Ms. McKenna responded that trademarking is regulated by management at the discretion of the DOC, not by law or regulation. Ms. McKenna added that the role of the SAB is to advise NOAA, and can put forth ideas to advance this policy by providing guidelines for the agency's consideration, which can then go to the General Counsel on a case-by-case basis.

Jean May Brett stated that NOAA was being lost in the education system because although there is a NOAA presence at conferences the NOAA logo cannot be used.

Jerry Schubel said a brand is a promise and NOAA made a promise to the nation that it will protect the nation by use of forecasts and science tools; therefore, appropriate use of the logo should be required and these things.

Jane Lubchenco said this topic is near and dear to her heart and there is a strong appetite to have better recognition of NOAA's work and the work of its partners. Dr. Lubchenco stated that this discussion has raised issues on way forward, and she asked the SAB to perhaps put together a small group of a few NOAA people, as well as a representative from the General Counsel to discuss what needs to be done on utilizing NOAA's logo in order to have better recognition on what NOAA does. Dr. Lubchenco continued by stating that the logo is a powerful symbol and there is a need to manage risk, but NOAA should move forward.

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Ray Ban asked if the SAB wants to create a task force or ad-hoc committee to develop a formal recommendation on this topic. Dr. Lubchenco suggested that suggestions should be entertained and work should be done with NOAA and DOC staff to develop a way to go forward.

Jerry Schubel made a motion that for trusted partners such as CIs and SGs there should be direct use of the NOAA logo. James Sanchirico expressed his concerns with the CIs stating that NOAA is involved in highly contentious political issues and regulations and it may not be wise to say CIs should have blanket use the logo given possible court cases on regulations.

Jerry Schubel put forth a second part of the motion—to form a committee to review best practices. David Titley asked that NOAA's Administration act on the original motion within 10-15 working days.

Action 8: The SAB recommends that NOAA strongly encourage and possibly require, subject to appropriate staff work, the CI/JIs and Sea Grant Institutions to use the NOAA logo on its websites and materials. NOAA will report back to the SAB on how this shall be done within two weeks of this meeting.

### **Working Groups Update**

Heidi Cullen reported that Climate Working Group (CWG) has not met for more than a year due to issues related to the proposed Climate Service. However, they will be meeting July 30-31 in Washington DC., working with Bob Detrick who is now the head of the Climate Goal.

Jerry Schubel provided the update on the Ocean Exploration Advisory Working Group. He stated that Craig McLean asked for a review of the OE program after the July 2011 meeting. On May 7-8, 2012 in Silver Spring a committee review will be conducted and a draft report is due on June 1<sup>st</sup> with a final report to be submitted by August 31<sup>st</sup>. The draft report will be delivered to the SAB at its July meeting.

Ray Ban provided an update on the EISWG. He stated that EISWG will be meeting May 1-2, 2012. Some of the key meeting points include a panel discussion on open weather and climate services with NOAA AAs and others. There will also be a discussion of the NOAA partnership policy.

Jim Sanchirico provided an update on the Ecosystem Sciences and Management Working Group (ESMWG). He stated that the last meeting was held in February at the Hollings

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Marine Lab in Charleston, SC. The next meeting will be on July 11-12 in San Francisco, CA. The group is currently waiting for the Arctic implementation plan and on Ecosystem-Based Fishery Management updates from the Fishery Management Councils. They are also working with NOAA on a new theme geared at understanding ecosystem services and valuation of coastal habitats and wetlands.

Cynthia Decker provided an update on DAARWG on behalf of Ferris Webster. Dr. Decker stated that the next meeting is in Washington, DC June 27-29, 2012. She recommended contacting Dr. Webster for information on meeting topics

Action 9: The Science Advisory Board Working Group liaisons at future meetings will introduce presentations by WG Chairs to the Board. This action will be incorporated into the SAB Working Groups Concept of Operations.

### **Review of Actions**

Cynthia J. Decker, Executive Director, SAB

Dr. Cynthia Decker reviewed the actions from the meeting. A request was made to reword the action on the NOAA logo to make it clearer.

### **Meeting Adjourn**

Meeting adjourned at 2:00 PM

### **Actions**

Action 1: NOAA Office of the Chief Information Officer (OCIO) will provide information on migration of NOAA to Google Unified Messaging System to Science Advisory Board members, as per questions at the meeting.

Action 2: The Science Advisory Board approves the Terms of Reference for the SAB Research and Development Portfolio Review Task Force (PRTF) and Additional Information for PRTF, with addition of language on audience (OSTP, DoC leadership), and adding use-inspired research and transition to use to the definitions in the document.

Action 3: NOAA will provide updates at future Science Advisory Board meetings on the topic of requesting compensation for specialized satellite data products.

Action 4: The Science Advisory Board approves the candidates for the Data Archive and Access Requirements Working Group (DAARWG). Ferris Webster, Chair of the

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DAARWG, will communicate this to the candidates verbally; the SAB Chair will send appointment letters to them.

Action 5: The Science Advisory Board requests DAARWG to consider geographic and other aspects of diversity when selecting candidates to fill vacancies in the future.

Action 6: The Science Advisory Board approves the report from the review of the NOAA Cooperative Institute for Climate Science at Princeton University (CICS-P) and will transmit to NOAA.

Action 7: NOAA will respond to the recommendations from the CICS-P review by letter from OAR to the SAB Chair within one year.

Action 8: The Science Advisory Board recommends that NOAA strongly encourage and possibly require, subject to appropriate staff work, the Cooperative/Joint Institutes and Sea Grant Institutes to use the NOAA logo on its websites and materials. NOAA will report back to the SAB on how this shall be done within two weeks of this meeting.

Action 9: The Science Advisory Board Working Group liaisons at future meetings will introduce presentations by WG Chairs to the Board. This action will be incorporated into the SAB Working Groups Concept of Operations.