

**NOAA Science Advisory Board
Teleconference Meeting
13 February 2015**

Presentations for this meeting have been posted on the Science Advisory Board (SAB) website: http://www.sab.noaa.gov/Meetings/2015/February/February_13_2015.html

SAB members in attendance:

Ms. P. Lynn Scarlett, Managing Director for Public Policy, The Nature Conservancy (*Chair*); Dr. Michael Donahue, Vice President, Water Resources and Environmental Services, URS Corporation; Dr. Robert Hicks, Professor of Economics, College of William and Mary; Dr. Jeremy Jackson, Senior Scientist Emeritus, Smithsonian Institution; Dr. Peter Kareiva, Chief Scientist and Director of Science, The Nature Conservancy; Dr. David M. Lodge, Professor, Environmental Change Initiative, University of Notre Dame; Dr. Jennifer A. Logan, Retired (Harvard University); Dr. Molly K. Macauley, Vice President for Research and Senior Fellow, Resources for the Future; Ms. Jean May-Brett, Retired (Louisiana Department of Education); Dr. Stephen Polasky, Professor, University of Minnesota, Dr. Jerry Schubel, President and CEO, Aquarium of the Pacific; Mr. Robert. S. Winokur, Retired (NOAA, Navy); and Dr. Dawn Wright, Chief Scientist, Environmental Systems Research Institute.

NOAA senior management and Line Office representatives in attendance:

Dr. Kathryn Sullivan, Under Secretary of Commerce for Oceans and Atmosphere; VADM Manson Brown, NOAA Assistant Secretary for Observations and Prediction; Dr. Rick Spinrad, NOAA Chief Scientist; Ms. Mary Erickson, Director, National Centers for Coastal Ocean Science; Ms. Laura Furgione, Deputy Assistant Administrator, NOAA National Weather Service; Dr. David Hermreck, Senior Program Advisor, National Environmental Satellite, Data, and Information Service; Mr. Craig McLean, Assistant Administrator for NOAA Office of Oceanic and Atmospheric Research; Dr. Richard Merrick, Chief Science Advisor, NOAA National Marine Fisheries Service; Dr. Al Powell, Director, Satellite Applications and Research

Staff for the Science Advisory Board in attendance: Dr. Cynthia J. Decker, Executive Director; Ms. Anna Hermes; Dr. Bridget Seegers.

Call to Order

Lynn Scarlett, The Nature Conservancy and Chair, NOAA SAB

Lynn welcomed and thanked everyone.

SAB Consent calendar

The Climate Working Group (CWG) had proposed four new members based on areas of expertise. Dr. Sullivan asked for questions/discussion.

Jean May-Brett moved to approve the climate working group members and proceed with CWG membership. Mike Donahue seconded the motion and it was unanimously approved.

The second consent calendar item was a one-year extension for Dr. Jake Rice as a member of the Ecosystem Sciences and Management Working Group (ESMWG). Jerry Schubel moved to approve to one year extension. Dawn Wright seconded the motion and it was unanimously approved.

Action 1: The Science Advisory Board approved the Consent Calendar items, which included the four new candidates for the SAB Climate Working Group (CWG) and extension for one year of a member of the SAB Ecosystem Sciences and Management Working Group (ESMWG). The SAB Office will communicate this to the chairs of the working groups who will communicate this to the individuals named.

NOAA Update

Kathryn Sullivan, Under Secretary of Commerce for Oceans and Atmosphere

Summary

Dr. Sullivan opened her remarks by recognizing the fact that the current Knauss Sea Grant Fellow with the SAB Office, Anna Hermes, is departing. Dr. Sullivan wished the very best to Anna and initiated a round of applause.

Dr. Sullivan then turned to the topic of the process of the NOAA Research Agenda formulation. Dr. Richard Spinrad, the NOAA Chief Scientist, has undertaken an effort to better define key principles of NOAA's research enterprise. Goals of the Research Agenda are to do more prioritizing based on expected mission impact, clearly define the roles and responsibilities for NOAA program managers and NOAA's partners, and to strongly justify the core capabilities. Specific attention will be given to organize research's transition to products (R2X). Dr. Spinrad will next be framing the organizing principles for this.

The second topic addressed was Cooperative Institutes (CIs) as an important part of the new NOAA research focus. The importance of CIs as a priority was demonstrated with the effort being started called *Cooperative Institutes for the 21st Century* (CI21). There are many initiatives that are moving forward with the hard work and comments of the SAB. It is clear that the current CI review model is not right for the time. There is a need for broader understanding of the roles of CIs in NOAA's research mission and goals.

Dr. Spinrad is leading the effort to re-examine and rethink these roles in addition to changes to operational aspects for the next generation of CIs. Dr. Spinrad will be talking at the CI directors meeting this spring to raise this idea to them.

A third key element to help make sure NOAA is moving research forward is the development of a Strategic Research Guidance Memo (SRGM). The SRGM would be a step to better formulate research priorities each year. It would provide broad guidance on research investments internal and external to help plan the next budget. It would be a hybrid of Office of Management and Budget (OMB) /Office of Science and Technology

Policy (OSTP) memorandum focused on NOAA research. This is only a concept right now but Dr. Spinrad expects to develop it more fully over the next few months.

Dr. Sullivan noted several leadership changes in NOAA, including Craig McLean as the new Assistant Administrator for Oceanic and Atmospheric Research.

Dr. Sullivan moved on to cover the FY2016 President's Budget, which had just been released earlier that week. She emphasized the broad outlines of NOAA's budget in this release.

NOAA is America's environmental intelligence (EI) and research agency and, as such, takes advantage of scientific and service opportunities.

NOAA has four priorities: 1) providing information and services for community and economic resilience, 2) creating a weather ready nation by evolving the National Weather Service (NWS), 3) investing in observational infrastructure, and 4) achieving organizational excellence. In all these areas, NOAA is receiving good feedback, alignment, and support on from a variety of NOAA partners.

NOAA has the unifying concept of resilience across its priorities. Resilience in NOAA is holistic and integrated and can be represented as a 3x3 matrix. Intrinsic to NOAA's resilience are three dimensions - societal, economic, and ecological - that go across the three focus areas of water, coasts, and oceans. She noted that many of the new budget initiatives in FY16 are related to resilience.

Priority 1 - Resilience

In FY16 there is a request for coastal resilience, which would expand Regional Coastal Resilience Grants program to work with partners to characterize benefits of natural defences such as dunes, wetlands etc... Funding was requested for conventional R&D for an integrated ocean acidification program to improve monitoring and forecasting with a focus to help coastal economies especially the shellfish industry.

The National Centers for Coastal Ocean Science (NCCOS) external competitive research funding for coastal issues such as harmful algal blooms (HABs), hypoxia, and coastal ecosystem assessments. A request was dedicated to competitive aquaculture grants to support research and development to implement sustainable domestic aquaculture.

Priority 2 – Evolving the National Weather Service

In terms of this priority, a goal is to achieve a better and faster pathway to move from science to applications. NWS needs reliable infrastructure to get tools to users. In the FY16 a request was dedicated to improve model forecasting and develop mid-range forecasts in the 14-30 day timeframe. Also, FY16 invests in airborne phase II radar and developing active phased array radar (APAR) as a possible solution to sensor replacements

Priority 3 – Observational Infrastructure

Broad highlights for observational infrastructure in FY16 include a request for supercomputing and a new ocean vessel to be built by the Navy. There is a need to

reinvest in the vessels. Today NOAA has 16 vessels, but because of ship retirements the number of vessels is predicted to drop to only eight by 2028. There is a need to for ships in NOAA's work and it is possible to leverage Navy's AGOR-class Vessel design, saving taxpayers millions of dollars. There was a requested for the polar satellite program to cover the third and fourth satellites in the series. This is a solution to averting a gap in polar satellite data, which would be disastrous for weather forecasting.

Priority 4 – Achieving Organization Excellence

The final priority is achieving organizational excellence. NOAA needs to hire and protect its people and to interact in a meaningful way with partners by creating contracts, running finances, etc. Therefore NOAA has a FY16 request to fill critical gaps in human resources and staffing for this. In NOAA the ratio of human resources staff to overall personnel is 1:117. This is low compared to other agencies, e.g. EPA 1:82, NASA 1:55, and NSF 1:46. NOAA currently doesn't have the ability to hire good talent, has difficulty processing promotions, and can't keep satisfied the talent we have nor recruit what NOAA needs. Typically, 3-5% of the budget is administrative cost, but at NOAA it is 1.5%.

Overall, Dr. Sullivan thinks the FY16 budget request keeps NOAA on the right path.

Discussion

Robert Winokur inquired about the non-weather satellite transfer to NASA. Dr. Sullivan responded with three points. First, NOAA has less budget latitude while NASA has bigger budgets and more flexibility. Second, there was a recommendation from the Independent Review Team (IRT) that NOAA should focus on core weather mission. And third, the Office of Science and Technology Policy (OSTP) distinguishes sustained from campaigned observations. NASA runs single research satellite campaigns while NOAA maintains sustained programs so the argument is that NOAA should keep its ongoing weather satellite programs.

Jerry Schubel commented that Dr. Sullivan's presentation was a strong vision and he was glad to see aquaculture as part of it.

Ms. Scarlett complimented Dr. Sullivan on a great budget with clear priorities. On organizational excellence she thought Dr. Sullivan did a nice job sharing benchmarks like human resources staff-to-employee ratios. Ms. Scarlett asked if it is known how these proposed increases link to better output performance such as faster contract processing. Dr. Sullivan responded that NOAA is dealing with backlogs at this point and an independent external analysis is being done looking for ways to improve and streamline NOAA hiring practices. The budget request would increase human capacity to make progress. The exact model for improvement will be finalized later in the year. Dr. Sullivan acknowledged the need to track output improvements with the increase in investment.

Dr. Sullivan also introduced her initial thoughts on the SAB Strategic Synthesis Subcommittee proposal that is to be presented next in the meeting. The proposal focuses on a new strategy plan for the role of the SAB and how it plays into NOAA's progress. Dr. Sullivan pointed out that NOAA has already started formulating the FY2017 budget, so the work the SAB is now doing will play into progress that lies ahead to FY2018 and beyond.

Dr. Sullivan noted with interest the five key focus points covered in the draft. She reminded the SAB not to focus on tactical strategies. NOAA can organize the mechanics. The observations in the current proposal are valid, but the level of guidance should be a long-range view to overcome barriers. NOAA wants the SAB to give "big picture" strategy for approaches to issues. What are the attributes NOAA needs to strive towards to be successful? SAB should describe the approach characteristics that would help ensure success and help identify the best ways to keep NOAA at cutting edge of EI. The SAB can help NOAA see where the world is going to be. Where should NOAA be aiming? Dr. Sullivan also pointed out that NOAA could better leverage SAB talents by interacting with NOAA Research Council...

SAB Strategy Synthesis Subcommittee presentation and discussion

Stephen Polasky, University of Minnesota, and Chair, SAB Strategy Synthesis Subcommittee

Ms. Scarlett thanked Stephen Polasky and the subcommittee for working on the SAB strategy and reminded everyone that this was an introduction and preliminary thoughts to prepare for a deeper discussion on the topic at the April SAB meeting.

Dr. Polasky began by reminding everyone that the proposal was a response to the last SAB meeting's recommendation for formation of the Strategic Synthesis Subcommittee. The group included Susan Avery, Molly Macauley, David Lodge, and Jeremy Jackson in addition to himself. He also acknowledged that Cynthia Decker, Anna Hermes, and Rick Spinrad supported the group with calls and comments throughout the process. Dr. Polasky stated that it is a draft proposal and that this presentation to the SAB was a chance for feedback. Everyone should be thinking about what would be the most useful input from the SAB to help NOAA stay on the front edge of environmental intelligence. That's the goal of this exercise.

Dr. Polasky introduced high level items from the proposal and stated that the committee was trying to develop something that is really strategic and not tactical. The focus was on 5-7 years ahead in NOAA's future, including what NOAA should be paying attention to in terms of technologies, environmental change, etc.

The Subcommittee laid out five substantial areas. The first four the subcommittee suggests can be covered in April at the next SAB meeting.

1. Improving the integrated observational systems. Integrating is key. Finding the most promising technologies and integrating them.

2. Ecosystem science and management. NOAA must understand about physical ecosystem science in a way similar to understanding weather, an integrated holistic science approach
3. Translate ecosystem science into impacts and human wellbeing. Ecosystem services equals benefits to people
4. Integrate system resilience with integrated decision-making. Identification of what tools will allow NOAA to help people adapt and respond. NOAA needs to get better at giving EI to decision makers.
5. Communication of NOAA success. Although the group agreed this is critical, it recommends this should not to be discussed at the April SAB meeting but should be the topic of its own at a separate meeting.

Broad scholars and big picture thinkers (Granger Morgan, Veerabhadran Ramanathan, and Simon Levin) will be attending the April meeting to help the SAB think about these strategies. They will stay at broad strategic level. Veerabhadran Ramanathan will be joining it remotely; Granger Morgan will attend on April 16; Simon Levin on April 17.

Summary

Jeremy Jackson said he has further revisions to make on his Ecosystem science and management section of proposal. He will keep these revisions focused on long range science view.

Peter Kareiva commented focusing on ecosystem service that it would help to add in the environment as an investment. Investors are becoming increasingly aware of natural capital. Part of natural capital is actual investment in the environment and how much you can get back from the investment. It is not just preventing loss. Environmental investment is growing quickly. Dr. Kareiva has been at a meeting talking to investment bankers and he suggested it might be good to get investment bankers to the SAB meeting for a talk. Dr. Kareiva has some ideas for good environmental capital speakers and will share the list with Dr. Sullivan and Dr. Spinrad.

Michael Donahue commented that getting outside speakers is a good idea, but wanted to make sure the meeting was designed to give board members plenty of time to talk. . Ms. Scarlett agreed with Dr. Donahue about the need for SAB discussion in addition to discussions with the outside speakers.

Dr. Polasky responded that the speakers will not be making big speeches, but likely 5-10 minute talks. The speakers will be there to help the SAB move the conversation in useful directions. The meeting focus is on dialogue and discussion.

Mr. Winokur posed a more philosophical question. Presuming the output from the strategic session is a report that the SAB sends to Dr. Sullivan would there any intent for the SAB to actually take a topic, develop a task force and actually get into the details of how to move things forward. Historically, SAB has done such things in Mr. Winokur's experience. Ms. Scarlett responded that the role for the SAB to move things into an

implementation plan has not been determined, but her feeling is the SAB members are the big thinkers and not implementers.

Dr. Sullivan followed by saying that it is still an open question. She agreed there could be space for the SAB to develop a more lengthy inquiry to shed more light on these topics and how NOAA could proceed. There will be a way to communicate with discussions and reports. However, the exact details of the plan will likely be developed and implemented by NOAA. Mr. Winokur said he didn't require a detailed answer at this point and perhaps it could be further discussed at the SAB April meeting.

Richard Merrick observed that some of the working groups are covering the issues discussed in the Strategic Synthesis Proposal. For example, the Ecosystem Sciences and Management Working Group (ESMWG) is discussing ecosystem services. He inquired about how the working groups are being included in the strategic planning. Ms. Scarlett replied there is a lot of work being done in the areas the Subcommittee suggested by the working groups. There is a need to make sure SAB knows all about that work.

Dr. Polasky stated it would be great to know where ESMWG is with its report. He thinks the subcommittee and ESMWG should interact to determine overlaps.

Robert Hicks, the SAB liaison to the ESMWG, agreed with Dr. Merrick and suggested SAB should know about what working groups are doing under the strategic areas.

Dr. Polasky added this is not just an issue for ecosystem services. There are obviously things getting done in all these strategic areas. Dr. Polasky said he could reach out to ESMWG about ecosystems services. He asked what other areas need to have this conversation prior to April.

Dr. Spinrad suggested having the April meeting first. Then, NOAA can take information from April meeting to work on better communication and make sure SAB and working groups are getting communications from NOAA. Ms. Scarlett said it would be helpful to get a general sense of working group efforts by the April discussion.

Mr. Winokur volunteered to discuss improving integrated observational systems with the Environmental Information Services Working Group (EISWG) in April and report back to the SAB during April meeting.

Dr. Spinrad said that all working groups could be given the state of the strategy plan. Action 3: Dr. Spinrad and Cynthia Decker will coordinate to make sure the working groups know about the strategic plan and get information from them that could be helpful to the SAB discussion of the Strategic Synthesis Plan.

Action 2: The Science Advisory Board will work through its liaisons to inform its working groups of the strategy exercise it is conducting with NOAA leadership and to get information from them on the issues of importance to those groups as input to that strategy.

Review of the Cooperative Institute for Marine and Atmospheric Studies (CIMAS)
Jean May-Brett, Louisiana Department of Education (retired), and Chair, CIMAS Review Panel

On Phone: Dr. Ben Kirtman from CIMAS

Summary

Jean May-Brett stated it was a pleasure to give the presentation and said the CIMAS review went well. The review panel was given plenty of information in advance and had opportunities to ask questions in advance to prepare.

Ms. May-Brett gave background of CIMAS and presented on the review results and recommendations on CIMAS's 1) Strategic Plan, 2) Science, 3) Education and Outreach, 4) Science Management.

CIMAS was established in 1977 and expanded in 2010. CIMAS has great NOAA collaborations and is financially sound. The CIMAS strategic plan is strong.

The science review showed that CIMAS has world-class research teams and excellent leadership. In addition, collaborations with CIMAS were clear and effective and the research is relevant to NOAA's mission. CIMAS also has a great outreach presence through its website.

Recommendations were provided in four areas:

1. Strategic Plan

- The panel recommends that planning should begin to prioritize the programs in CIMAS to prepare for inevitable decreases in federal funding.
- The panel suggests more attention should be given to outreach activities.

2. Science Review

- As current CIMAS research efforts mature and some move to an operational phase, follow-up research needs to be identified and phased into the project plans.
- The physical oceanography and climate programs, while consisting of meaningful components, seem to lack overarching coherence. An effort to prioritize global climate versus more locally-applicable research topics appropriate for CIMAS and consistent with AOML programs should be undertaken.
- Consideration should be given to bringing in more collaborators from other institutions (e.g., members of other CIs) that have direct relevance to specific CIMAS research group activities. A broader range of collaboration will benefit the CIMAS PI status in the community and strengthen their science program pursuits.
- Revisit the assessment regarding the optimum balance of CIMAS and AOML research activities. While CIMAS offers a nimble response (e.g., natural hazards), AOML provides long-term stability that encourages operational phases.

3. Education and Outreach

- The panel suggests that more CIMAS-directed support for graduate students like the Task III stock assessment education project at the University of South Florida should be proactively pursued.
- As suggested in the 2003 CIMAS review, formal tracking of CIMAS-funded students would add documented credibility for enhancing Task I education support. CIMAS is urged to initiate a retrospective examination of the subsequent career paths of their funded graduate and undergraduate students.
- CIMAS should explore novel/new funding mechanisms and partnerships for recruitment and support of students in subjects key to NOAA research and human resource needs.

4. Science Management

- More frequent use of the CIMAS Council of Fellows, which has only met once over the past 3 years, would help better strategize the longer term research goals of CIMAS.
- A science advisory working group of younger PIs would help encourage external funding opportunities and better enable CIMAS scientist growth, recognition, independent research, and external collaborations.
- Draft a “leadership transition” plan to help educate and guide future CIMAS management in the eventual “post-Ortner” era and/or transition period.

Based on the review, the panel recommends a rating of Outstanding for CIMAS.

Discussion

Dr. Merrick asked about CIMAS cooperating with the other Cooperative Institutes (CIs) in the region. Dr. Merrick pointed out that University of Miami is one of the NOAA Cooperative Science Center institutions and wondered if the reviewers had any feeling how the CI and the CSC are interacting. Ms. May-Brett did not have any details, but believes there is a strong collaboration.

Philip Hoffman added that increasing the collaboration of CSC and CIs is a goal at the NOAA level. Director Peter Ortner at CIMAS is actively trying to increase the collaboration. However, the traditional assessment does not ask for in-depth coverage of specific collaborations, so details could be missed in the review.

Mr. Winokur asked about whether the 7-8 partner institutions involved in the CI are fully involved. Ms. May-Brett stated that all the institutions are actively involved. They had representation at the review onsite and online during the review. In addition, the NOAA groups with which the review panel met noted a good deal of collaboration.

Ben Kirtman, CIMAS, agreed that there is strong collaborations and commitment between the institutions, which is demonstrated by the high number of collaborative proposals.

Craig McLean asked about the strategic plan recommendation that stated

“The panel recommends that planning should begin to prioritize the programs in CIMAS to prepare for inevitable decreases in federal funding.” He wanted to know if this was a recommendation directly for the CI. Ms. May-Brett responded that yes it was meant as a direct recommendation from the panel to CIMAS and the groups with whom they work. She acknowledged that CIMAS is financially very healthy but it would be a good precaution to look for prioritization and more leveraging opportunities.

Mr. McLean stated that many of the recommendations show the need for the Cooperative Institutes in the 21st Century initiative mentioned earlier by Dr. Spinrad as well as for improvements in how the sponsors and CIs communicate.

Ms. May-Brett continued the presentation with a report on CIMAS Education and Outreach. She stated the panel didn't have a real sense what is being done to involve the public at large and that there is a need to extend outreach. It was acknowledged that there is a lack of funding, but the panel feels there is still a way to do reach out. This is a large CI that has resources available. There is a need for more formal tracking of the diversity of graduate students and they should also do some tracking of this with historical data.

Dr. Kirtman stated that CIMAS is engaged in outreach and diversity efforts, but need to get the message out. He acknowledged the need to document the success of outreach areas.

Ms. May-Brett continued the presentation discussing CIMAS Science Management. She stated the panel was very pleased with responses since the review. There was concern about leadership transition but documents have been shared to indicate a clear transition plan. Dr. Kirtman agreed that the transition plan is very detailed. Philip Hoffman added that the CIMAS transition response is welcome. They have done a very good job in handling the transition.

One recommendation for CIMAS Science Management was that the CIMAS Council of Fellows should be more involved strategizing long-term research goals.

Ms. May-Brett in her final comments stated if NOAA OAR had been further along in the CI review guideline revisions it would have been interesting to ask how the ratings would compare between the new versus the previous guidelines. Ms. May-Brett also thinks the report should have an amendment that includes new information since the review. Overall, she believed it was a fantastic panel and she expressed her gratitude to the members.

Mr. Winokur moved to accept the CIMAS report. Dr. Hicks seconded the motion.

Action 3: The Science Advisory Board accepts the Report from the Review Panel for the Cooperative Institute for Marine and Atmospheric Studies (CIMAS) and will transmit the report to NOAA.

Public Comment

Dr. Decker asked if there were any public comments and there were none

Review of Actions

The SAB approved candidates for the Climate Working Group (CWG).

The SAB approved member extension approval for Jake Rice for the Ecosystem Sciences and Management Working Group (ESMWG).

The SAB accepted CIMAS review report and ranking of Outstanding.

Dr. Decker will give the strategic synthesis draft document to working groups.

Upcoming CI reviews include the Joint Institute for Marine and Atmospheric Research (JIMAR), which will have Susan Avery as chair. Also coming up are the Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) at University of Oklahoma and the Cooperative Institute for Marine Resources Studies (CIMRS) at Oregon State University.

Meeting Adjournment

The teleconference meeting adjourned 12:50 PM Eastern Standard Time.

List of Actions

Action 1: The Science Advisory Board approved the Consent Calendar items, which included the four new candidates for the SAB Climate Working Group (CWG) and extension for one year of a member of the SAB Ecosystem Sciences and Management Working Group (ESMWG). The SAB Office will communicate this to the chairs of the working groups who will communicate this to the individuals named.

Action 2: The Science Advisory Board will work through its liaisons to inform its working groups of the strategy exercise it is conducting with NOAA leadership and to get information from them on the issues of importance to those groups as input to that strategy.

Action 3: The Science Advisory Board accepts the Report from the Review Panel for the Cooperative Institute for Marine and Atmospheric Studies (CIMAS) and will transmit the report to NOAA.