

**NOAA Science Advisory Board
Teleconference Meeting
August 31, 2017
1:00-5:00 PM Eastern Daylight Time**

Presentations for this meeting have been posted on the Science Advisory Board (SAB) website:

<http://www.sab.noaa.gov/SABMeetings.aspx>

SAB members in attendance:

Ms. P. Lynn Scarlett, Managing Director for Public Policy, The Nature Conservancy (Chair); Dr. Susan Avery, President Emeritus, Woods Hole Oceanographic Institution; Dr. Michael Donahue, Vice President, AECOM Corporation; Dr. Everette Joseph, Director, Atmospheric Science Research Center, University at Albany, State University of New York (SUNY); Dr. Eugenia Kalnay, Professor, University of Maryland; Ms. Jean May- Brett, STEM Partnership Coordinator, Louisiana Department of Education (ret.); Dr. Richard Moss, Joint Global Change Research Institute, University of Maryland; Dr. Denise Reed, University of New Orleans; ; and Mr. Robert S. Winokur, Consultant (ret. NOAA, Navy)

Working Group representatives in attendance:

Dr. Kirstin Dow, representative, Climate Working Group; Dr. Christopher Lenhardt, Chair. Data Archive and Access Requirements Working Group; Dr. John Snow, Co-Chair, Environmental Information Services Working Group; Dr. David Fluharty, Co-Chair, Ecosystem Sciences and Management Working Group.

NOAA senior management and Line Office representatives in attendance:

Mr. Benjamin Friedman, Deputy Under Secretary for Operations Performing the Duties of Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator; Mr. Mark Paese, Deputy Assistant Administrator, NOAA National Environmental Satellite, Data and Information Service (NESDIS); Dr. Gary C. Matlock, Deputy Assistant Administrator for Science, NOAA Office of Oceanic and Atmospheric Research (OAR); Ms. Mary Erickson, Deputy Assistant Administrator, NOAA National Weather Service (NWS); Dr. Mark Monaco, Director, Center for Coastal Monitoring and Assessment; NOAA National Ocean Service (NOS); and Dr. Cisco Werner, Chief Scientist, NOAA National Marine Fisheries Service (NMFS).

Staff for the Science Advisory Board in attendance:

Dr. Cynthia Decker, Executive Director and Designated Federal Officer; Ms. Elizabeth Akede and Ms. Mary Anne Whitcomb

Call to Order and SAB Consent Calendar

Lynn Scarlett, SAB Chair, called the meeting to order and thanked NOAA and NWS for contributions to this nation and most recently with Hurricane Harvey.

Ben Friedman thanked Ms. Scarlett for those comments, adding that Hurricane Harvey has been an all-NOAA effort with some tired folks who are still working.

Consent Calendar

Meeting Minutes from July 5 teleconference and Working Group status reports are on the consent calendar; Ms. Scarlett asked for approval of both items. Bob Winokur made a motion to accept them; Jean May-Brett seconded the motion and the motion was approved unanimously.

NOAA Update

Ben Friedman

Ben Friedman reported that he has been Acting Administrator for eight months with nothing to report on selection of a new Administrator.

Personnel Updates

At the Department of Commerce there is a new General Counsel, third in line in authority, Peter Davidson from Verizon who has held previous political positions. Izzy Hernandez is Deputy Chief of Staff and Acting Head of the International Trade Administration.

In NOAA Chris Oliver is the new Assistant Administrator of the National Marine Fisheries Service; he was previously the Executive Director of the North Pacific Fishery Management Council in Alaska. Julie Roberts is the new Director of Communications and is working with White House issues. In the Office of Marine and Aircraft Operations (OMAO) RADM Score is retiring after 27 years and is being replaced by Capt. Mike Silah as a two star admiral. Mike Silah recently served as Chief of Aircraft Operations Center. The new OMAO Deputy is Gary Reisner, formerly the NOAA budget officer. In NESDIS, Harry Cikanek is the new Director of the Center for Satellite Applications and Research (STAR), Mary Wolgamuth is the head of the National Centers of Environmental Information (NCEI) in Ashville, and Greg Mandt is now the Director of the Joint Polar-Orbiting Satellite System (JPSS) Center. Mr. Friedman also took time to acknowledge the recent passing of Ms. Margaret Davidson. She passed away on May 23. She was very much loved and respected, having served in several senior positions in NOS, making a significant mark in the organization. Bob Winokur said Margaret Davidson will be awarded posthumously the Distinguished Achievement Award from the Marine Technology Society.

Hurricane Harvey and NOAA Response

On August 4, NOAA participated in the annual hurricane preparedness briefing for the President and Vice President and reported that there was expected an above-normal hurricane season, with an expected 14-19 named storms and 2-5 major hurricanes. The three months ahead is the timeframe when 95% of storms are expected to occur. Hurricane Harvey made landfall on August 25, the first category 4 hurricane to hit in 13 years. The storm broke all sorts of records including a recording of 52 inches of rain in one area, a new record for Continental US. This has been an all-NOAA response. Before the storm, hurricane hunters flew many missions and during the storm, over 65 missions, providing updated information to researchers and forecasters for models and predictions. There was a significant amount of time to forecast the storm; deaths would have been higher without these forecasts. NOAA satellites are performing well with lots of imagery used. During the storm, the NWS worked around the clock at the National Hurricane Center (NHC) in Miami and on the ground in Texas and Louisiana, providing constant updates and helping emergency managers respond. NMFS has offices in the region and had boats that helped with emergency response, saving 26 people. As the storm has ended the NOS picked up the pace flying the King Air - doing disaster surveys, mapping and photographing area to help disaster response and to open up the ports. It has been an all-NOAA effort, a huge amount of work by the agency.

Administration priorities

The White House issued FY 2019 budget priorities - a four page memorandum outlining priorities of military superiority, American prosperity, and health, among others. This happened after NOAA worked on their FY 19 budget submissions and the budgets may be adjusted based on these new priorities.

The Department of the Interior led a review of Executive Order 13792 on national monuments; NOAA has five marine monuments managed with Interior. The public made a million comments on the executive order; NOAA is waiting for the final report to be sent to the White House.

A review of Executive Order 13795: America First - Offshore Energy Strategy also included a review of national marine sanctuaries and monuments. NOAA received 100, 000 comments; the Commerce report is due to the White House on October 25.

NOAA is responding to an executive order on reforming government with activities being carried out government-wide and Department-wide; there is also work on NOAA-centric initiatives. This is a government-wide effort to look for ways to gain efficiencies

The federal charter for the Advisory Committee for the Sustained National Climate Assessment (ACSNCA) expired August 20 and was not renewed. There should be no impact to the completion of the 4th National Climate Assessment as a result of this; NOAA thanked all involved in this advisory committee. A draft of the 4th NCA has been released and NOAA provided comments. The Climate Science Special Report, which is a subset of this effort, is scheduled for release in the Fall.

The Geostationary Operational Environmental Satellite (GOES)-16 is still being tested but is in operation; and will be fully operational and move to GOES East in November.

JPSS has resolved the technical issue that delayed a launch which is now scheduled for November 10; kudos to NESDIS and NASA for making this happen.

At end of May, NOAA moved the Aircraft Operations Center from MacDill Air Force Base to Lakeland, Florida. This is a new facility with 58000 square feet and all aircraft will be housed there. NOAA is also working with Congress on an aircraft plan, similar to the ship plan, to recapitalize aircraft and replace them as they age. The Senate markup of the FY 2018 appropriation includes some funding to purchase a new King Air; there is also full funding for a new ship and \$75 million for recapitalizing new ships.

All work discussed here is due to the remarkable people working in NOAA.

Discussion

Richard Moss asked about the coordination with the Federal Emergency Management Administration (FEMA) and NWS on the hurricane effort and if there was anything new. Mary Erickson said there is a NOAA liaison in the FEMA command center and also liaisons at a regional level; NWS staff did briefings multiple times a day, some in the field at the Texas command center and others at FEMA headquarters. When Brock Long became FEMA Director, he reached out to the NWS to make sure there was strong coordination at high levels and invited the NWS to be part of the public briefing events. The briefings on Hurricane Harvey started the weekend before the storm. Mary Erickson added on communication, the NWS worked on consistency of messaging with FEMA and on decision support; FEMA was asking for advance information to stage recovery and timing of bringing in National Guard. Ben Friedman said the NHC had a media pool and was conducting interviews every three minutes. NOAA also has NOS staff working with FEMA on pollution and other issues.

Richard Moss mentioned the disbanding of the ACSNCA and thanked Ben Friedman and others for the support of the committee. The decision does not reflect lack of support of the 4th National Climate Assessment. Research has pointed out the static science reports are not the best way to provide climate info to decision managers. The National Climate Assessment and Development Advisory Committee (NCADAC) recommended the establishment of the ACSNCA and the committee was working on issues such as improving engagement and cost effective data collection for evaluation; what is lost is the development of a more sustained effort from the climate assessments. He suggested the SAB may want to take this up in terms of NOAA-specific issues. Ben Friedman thanked Richard Moss for chairing the committee and all the work done before the committee was terminated.

Next Steps for Short Term Topics for SAB Advice

Lynn Scarlett, The Nature Conservancy and Chair, NOAA SAB
Benjamin Friedman, Deputy Under Secretary for Operations Performing the duties of Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

Summary

Lynn Scarlett started the discussion by reminding participants of the three short-term topics. The goal is to address each topic sequentially. At the next SAB meeting, October 30-31, the SAB will focus on the first topic, the Value of Information (VoI) and its three subtopics; (1) Quantification and documentation of the value of information gathered by NOAA; (2) Better understanding of how information is used; and (3) Better communication of the value of NOAA information. The subsequent topics will be addressed at future SAB meetings.

At the October SAB meeting, subtopic one of the VoI topic will be addressed by the NOAA Chief Economist. Subtopic two will be addressed by a panel of speakers/rapid roundtable focusing on the usability of information. Subtopic three may not have speakers at the October meeting it was addressed in part by a session at the 2014 SAB meeting. The SAB had a panel discussion at that meeting with emergency managers around "[A Retrospective Look at Two Colorado Flash Floods: Big Thompson 1976 and Front Range 2013](#)" where discussions on subtopic three took place. The group may use the materials from the 2014 panel discussion to address subtopic three.

Discussion

Ben Friedman said the three SAB short-term topics are important topics for NOAA and agreed with focusing on the VoI at the October SAB meeting. During recent coverage of Hurricane Harvey, many news outlets mentioned disaster preparedness and relief efforts provided by the Federal Emergency Management Agency (FEMA), emergency managers, and first responders. Surprisingly, the efforts of the National Weather Service (NWS) and NOAA were not mentioned. It is important for the public to know where information is coming from and for NOAA to get the recognition it deserves.

Eugenia Kalnay agreed. Hurricane Harvey gives NOAA the opportunity to show how much the NWS has improved its forecasting capabilities. She suggested running a reanalysis of the Hurricane Harvey forecast with 1990s data and technology to show the difference in the quality of information.

Richard Moss said subtopic two is very important. The framing of subtopic two could be broadened to include understanding the use of scientific information in decision making and how it is integrated with other information. He volunteered to help elaborate on the idea and identify speakers. Lynn Scarlett thought this would be helpful.

Lynn Scarlett asked members if they agreed with the idea of broadening subtopic two. Denise Reed said there is great interest in the VoI topic. The SAB may be selective in how it tackles the subject matter. She suggested having the session be as relevant to NOAA information as possible; while there may be some new knowledge, it is the SAB's job to make the knowledge

relevant to NOAA and its mission. Possible areas of interest for subtopic two include fisheries or coastal management.

Cisco Werner said, with respect to the reanalysis approach, the National Marine Fisheries Service (NMFS) has invested in management strategy evaluations addressing how to use information in making decisions and translating them into economic value. Doug Lipton, the NMFS chief economist, has a good presentation on the value of data in stock assessments and how that translates into the economic value. He suggested Dr. Lipton provide that presentation to the SAB. NOAA could get feedback from the SAB to see if they are going in the right direction with the assessments.

Lynn Scarlett said the SAB has a two-tiered decision to make. One decision is whether to move ahead with the currently proposed presenters for the session. Another decision is whether to address all three subtopics of the VoI at the October SAB meeting. Bob Winokur agreed with having the October meeting focus on the first two subtopics of the VoI and to have NOAA speakers as well as external speakers. Richard Moss suggested including a NOAA Regional Integrated Sciences and Assessments (RISA) speaker to the panel as the NOAA RISAs have been leaders in showing the value of NOAA climate information. Michael Donahue said all three topics are interrelated and should be handled at the same time. He asked about the end product of the session. Can this be covered in a final way at the next meeting as NOAA is likely to have a new Administrator and new topics by then? Lynn Scarlett said the plan is for the SAB to produce a short summary of the session and its suggestions for NOAA. The purpose of the session is not a definitive report; it is to illuminate new observations and opportunities for further knowledge building and disciplinary linkages and areas for additional inquiry. Bob Winokur said an outcome of the proposed session could also be a well-defined task to a working group to do a more developed study. It gives a working group a top-down task from the SAB.

Ben Friedman said the value of the SAB is that the board is filled with smart scientists who understand NOAA and are able to provide objective suggestions/recommendations for how NOAA can improve.

Lynn Scarlett motioned to move forward with the first two subtopics. Bob Winokur motioned to move forward and Denise Reed seconded the motion. The motion passed unanimously

Discussion of Data from the Review of SAB Working Groups and Next Steps

Lynn Scarlett, The Nature Conservancy and Chair, NOAA SAB

Benjamin Friedman, Deputy Under Secretary for Operations Performing the duties of Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator.

Standing Working Group Chairs

Summary

Lynn Scarlett presented the results of a review of SAB working groups. When the SAB Subcommittee Concept of Operations (ConOps) was revised in early 2017, it included a requirement to review standing working groups every two years in conjunction with the renewal of the SAB charter. This first review was conducted through questionnaires sent to NOAA liaisons, Chairs and SAB liaisons for each working group. Questions covered impact of reports, whether the respondent thought reports were fully considered by the SAB or NOAA, whether the group should continue and whether changes are needed in the group's Terms of Reference (TOR). The groups reviewed were: Climate Working Group (CWG); Data Archive and Access Requirements Working Group (DAARWG); Ecosystem Sciences and Management Working Group (ESMWG); and Environmental Information Services Working Group (EISWG). The results of the review were that all standing working groups were recommended for continuance; with some changes recommended to TORs for CWG, DAARWG, and the EISWG. Since the EISWG is now mandated under the Weather Research and Forecasting Innovation Act of 2017, the question of continuance is not applicable to this group.

The next steps are for the SAB to consider the report and to send recommendations to NOAA for final action on: continuation of groups, changes made to the TOR and any other recommendations as appropriate. After NOAA approval, notifications will be sent to groups, with proposed changes to TORs due to the SAB in six months.

Discussion

Bob Winokur said on best practices, this also relate to how the SAB operates, including top-down guidance and verbal reports along with quad charts at meetings. If working group chairs come to the meeting, they deserve a few minutes each to speak on what their groups do. Lynn Scarlett said the SAB should leave some flexibility between the current practice of consideration of quad charts with no discussion and discussion only; may want to have discussion at some meetings but not at all meetings. The SAB began inviting Chairs to meetings to participate in discussions; the SAB has not invited them only to give presentations.

Bob Winokur said the SAB could provide guidance while the working groups are developing reports rather than wait until the reports are submitted for approval. Lynn Scarlett said she would like the SAB to consider the working group chairs participation in meetings as valuable but leave flexibility on how it occurs. Sometimes the SAB may highlight a group on a specific topic; other times short presentations by all and perhaps for some meetings just quad charts.

Denise Reed said the SAB should provide support for planning across working groups to discuss synergies and priorities; she likes the idea of flexibility in meetings on working group discussion but quad charts eliminate any discussions.

Richard Moss said he served on the Climate Working Group. He noted that earlier they produced more reports and evolved to providing more informal advice. He wanted to know if the working groups need to be preparing reports that are more formal. What are the mechanisms for interactions with working groups - the SAB plans synergies and should be clear on direction. Cynthia Decker said any advice from the groups to NOAA has to come through the SAB which provides it to NOAA. The easiest way to do it is for reports or meeting minutes to the SAB.

Chris Lenhardt, DAARWG Chair, said on flow of information in this context, that one way to do it is to make use of the SAB liaisons, although the DAARWG has had a mixed success of SAB liaisons. DAARWG members were looking for ways to share information and they would have done it through the SAB liaison if there had been one. Another way is to use cross working group synergies.

Denise Reed said SAB should be engaging on issues with working groups and having more interactions. She argued against just delegating topics to the working groups, and instead being more nimble on how they work on the SAB. Having the working groups do a deeper dive on topics and still be engaged with the SAB should be done on a case-by-case basis.

Lynn Scarlett said the decision to be made now is a bounded one - whether the SAB accepts the report with recommendations on continuance and TORs to be updated- and what recommendations does the SAB send to NOAA. Cynthia Decker said the decision is to send the report and recommendations on continuance and changes to TOR. Bob Winokur made the motion to accept the report; Jean May-Brett seconded and the motion passed unanimously.

Action— The SAB transmits the report with recommendations for action to NOAA for approval.

Weather Research and Forecasting Innovation Act of 2017

Mary Erickson, Deputy Director, National Weather Service

Summary

Mary Erickson provided an informational briefing on the Weather Research and Forecasting Innovation Act (WRFIA) of 2017 and the implication of the Act on NOAA. A summary of the WRFIA NOAA provisions can viewed [here](#).

Section 101 of the Act is directed towards the NOAA Weather Mission. It also reauthorizes several NOAA programs such as the US Weather Research Program (USWRP), Hurricane Forecast Improvement Project (HFIP), and Tornado Research. Section 201 addresses the improvement of sub-seasonal –to-seasonal (S2S) forecasts. Section 301 of the Act addresses weather satellite and data innovation. Section 401 addresses federal weather coordination. Section 501 of the Act addresses tsunami warning, education, and research.

Observing Capabilities

Observing system planning ensures NOAA scientists have the tools needed for everything from research to decision support.

- The WRFIA directs NOAA to:
 - prioritize observation data requirements necessary to ensure weather forecasting capabilities to protect life and property to the maximum extent practicable;
 - evaluate observing systems, data, and information needed to meet those requirements using various techniques;
 - identify data gaps in observing capabilities; and
 - determine a range of options to address those gaps identified in (3)

- The WRFIA directs OAR to undertake Observing System Simulation Experiments (OSSE) before:
 - acquisition of major government-owned or government-leased operational geostationary or polar-orbiting observing systems with a lifecycle cost of more than \$500 million
 - purchase of any major new commercially provided data with a lifecycle cost of more than \$500 million

Commercial Satellite Data

The WRFIA solidifies the importance of continued satellite development and commercial data. The Act also identified a range of both short and long-term environmental observations management requirements.

- Short-term management of environmental observations:
 - Microsatellite constellations
 - Integrate ocean observation system data
 - Identify degradation of existing monitoring and observation capabilities
 - Future satellite systems and data; Section 301(b) of the WRFIA calls for NOAA to enter into a new study on future satellite data needs with the National Academy of Sciences
 - Authorizes appropriations of \$1M out of the National Environmental Satellite, Data, and Information Service (NESDIS) appropriations for each of fiscal years 2018 through 2019
 - Commercial Weather Data (CDWP)
 - Strategy to procure commercial weather data (Commercial Weather Data Pilot Program)
 - Authority for agreements
 - Pilot contracts
 - Authorization of appropriations: \$6M each of FY17-FY20
 - Authority for future commercial data acquisition

Impact-Based Decision Support

The Act emphasizes the increase of NOAA's impact-based decision support services by codifying the roles of Warning Coordination Meteorologists and Warning Forecast Offices.

Research to Operations

The Act requires NOAA to prioritize weather research to improve data, modeling, computing, forecasts and warnings for the protection of life and property and the enhancement of the national economy.

Connection to NOAA Initiatives

The Act connects to several NOAA initiatives (S2S, HFIP, etc.) and to the National Weather Services' commitment to providing decision support services.

Discussion

Richard Moss noted that the Act placed an emphasis on the topic of impact-based decision support in social science. There is a field of evaluation researchers working on decision support in the social sciences. Is there interest from NOAA in working with evaluation researchers to identify data collection opportunities for analysis to help judge the effectiveness of projects related to impact-based decision support? Mary Erickson stated NOAA has been working on this topic in a limited role. Gary Matlock mentioned that the NOAA Office of Oceanic and Atmospheric Research (OAR) and National Weather Service (NWS) have been working to provide more funding for this issue. In FY 15 OAR received an addition of \$3M to its base weather budget to increase the transition of research into applications. With the additional funds OAR was able to incorporate decision support into forecasts to be more responsive and increasing use of probabilistic forecasts. Also, there was an increase in the FY 17 budget for a joint technology transfer initiative to better transition decision support tools from research to operations. Richard Moss suggested OAR update the SAB on these efforts at a future meeting.

Public Comment

There was no public comment.

Actions

The SAB will move forward in planning for October meeting on Value of Information. Richard Moss will suggest speakers to Cynthia Decker including a speaker from the Regional Integrated Sciences and Assessment program; Cisco Werner suggested Douglas Lipton from NMFS as a speaker.

The meeting was adjourned at 3:48 PM.