

**68th Meeting of the NOAA Science Advisory Board
22-23 July 2020**

Location: Webinar

Presentations for this meeting have been posted on the Science Advisory Board (SAB) website:
<https://www.sab.noaa.gov/SABMeetings.aspx>

Advisory Board Members Present:

Mr. John Kreider, President, Kreider Consulting LLC (Chair); Dr. Michael J. Donahue, Vice President and Director, Water Resources and Environmental Services, AECOM; Dr. Robert L. Grossman, Frederick H. Rawson Professor and Jim and Karen Frank Director, Center for Data Intensive Science, University of Chicago; Dr. Everette Joseph, Director, National Center for Atmospheric Research (NCAR); Dr. Eugenia Kalnay, Distinguished University Professor, Department of Atmospheric and Oceanic Science, University of Maryland; Mr. M. Christopher Lenhardt, Domain Scientist, Renaissance Computing Institution; Dr. Ruth Perry, Marine Scientist and Regulatory Policy Specialist, Shell Exploration and Production Company; Dr. Denise Reed, Professor Gratis, Pontchartrain Institute for Environmental Sciences, University of New Orleans; Dr. Robert B. Rheault, Executive Director, East Coast Shellfish Growers Association; Ms. P. Lynn Scarlett, Chief External Affairs Officer, The Nature Conservancy; Dr. Martin Storksdieck, Director, STEM Research Center and Professor, College of Education and School of Public Policy, Oregon State University; Dr. Elizabeth Weatherhead, Senior Scientist and Fellow, Jupiter Intelligence; and Mr. Robert S. Winokur, Consultant (ret. NOAA, Navy)

NOAA Representatives Present:

Dr. Neil Jacobs, Assistant Secretary of Commerce for Environmental Observation and Prediction, performing the duties of Under Secretary of Commerce for Oceans and Atmosphere; RDML (ret. USN) Timothy Gallaudet, PhD, Assistant Secretary of Commerce for Oceans and Atmosphere and Deputy NOAA Administrator; Dr. Gary Matlock, Deputy Assistant Administrator for Science, Oceanic, and Atmospheric Research; Mr. Craig McLean, Assistant Administrator for Oceanic and Atmospheric Research and performing the duties of NOAA Chief Scientist; Dr. Steven Thur, Director, National Centers for Coastal Ocean Sciences, National Ocean Services; Dr. Mitch Goldberg, Chief Program Scientist, Joint Polar-orbiting Satellite System; Dr. Cisco Werner, Director of Scientific Programs and Chief Science Advisor, National Marine Fisheries Service; Ms. Mary Erickson, Deputy Director, National Weather Service; Dr. Louis Uccellini, Assistant Administrator for Weather Service and Director, National Weather Service; Mr. John Murphy, Chief Operating Officer, National Weather Service; and Dr. Stephen Volz, Assistant Administrator for Satellite and Information Services

Staff for the Science Advisory Board Present:

Dr. Cynthia J. Decker, Executive Director and Designated Federal Officer; Ms. Courtney Edwards; and Ms. Caren Madsen

July 22, 2020

Opening Statement of the Chair

John Kreider, Kreider Consulting and Chair, NOAA SAB

John Kreider opened the meeting by thanking the attendees for being present and explained that the purpose of the meeting is for NOAA leadership to interface and understand their current work and priorities. The format of the video call was explained. Mr. Kreider, Cynthia Decker and the current presenter would be visible throughout the meeting in video boxes while Courtney Edwards would take messages from SAB members, working group chairs, or NOAA line office reps and add them to the discussion as questions and comments arise. Mr. Kreider then took roll call.

SAB Consent Calendar

John Kreider, Kreider Consulting and Chair, NOAA SAB.

The Consent Calendar for this meeting included the April 2020 SAB Meeting Minutes, the Working Group Status Reports, and the Approval for New Members for EISWG.

After time was presented for discussion, Mike Donahue motioned for approval of all three items. Martin Storksdieck seconded the motion, which was then approved by unanimous vote.

NOAA Update

RDML Timothy Gallaudet (USN, ret.), Assistant Secretary of Commerce for Oceans and Atmosphere

Summary

RDML Gallaudet first noted that the EPIC (Earth Prediction Innovation Center) request for proposals was still out so it would not be possible to comment on that. Following this, the areas where NOAA has been succeeding despite the pandemic were highlighted. The expansion of flood mapping in Texas with the help of the Weather Service was one area where progress had been made. A press release on the Fairmont research supercomputer was also successful with upgrades to it earning it the rank of 88th most powerful supercomputer in the world.

Incident Meteorologists from the Weather Service have been doing good work to respond to wildfires; Weather Service as a whole had responded well in the pandemic, continuing to put out warnings for rip currents, landslides and tornados. The Weather Service also helped the Navy fight a ship fire by giving them information on the wind that had been making it difficult to fight while they continued to put out air quality advisories in the region. The Hurricane Center is also

standing ready to monitor storms and has released its Hurricane Outlook for this season. The Caribbean program with the Atlantic Oceanographic and Meteorological Laboratory (AOML) and the Navy have deployed 11 gliders to guide hurricane forecasts in the region. NOAA has also partnered with Maersk to get observations from their almost 300 commercial ships. The Hazards Simplification Program in the Weather Service has been working to simplify the system of weather advisories it uses.

The National Centers for Environmental Information (NCEI) has been supporting the Department of Homeland Security (DHS) on testing surfaces and temperatures where COVID-19 can survive. NOAA's COSMIC-2 Satellites were launched which provide radio occultation data when it is not available from commercial aircraft. The commercial weather data pilot program was announced to be operational. NOAA recently announced saving about 720 million in program life cycle costs for the Joint Polar-orbiting Satellite System (JPSS). The Search And Rescue Satellite Aided Tracking (SARSAT) System set a new record of 421 lives saved through transmitting emergency beacons; additionally some leadership changes are being made in that program.

RDML Gallaudet then described the progress made in the Blue Economy focus area. NOAA has established a subcommittee under the OEAB, Ocean Exploration Advisory Board, on Blue Economy. NOAA is also establishing a Blue Economy executive committee under the NOAA Ocean and Coastal Council. The business development side of the Blue Economy is going to develop a five-year plan on how to better help business participate in the blue economy. Developing ocean science and technology (S&T) is a big part of that Blue Economy goal. Also the Integrated Ocean Observing System (IOOS) is conducting the Ocean Enterprise Study on the value of ocean observation with Blue Economy. The study will act as a baseline as NOAA moves forward with the Blue Economy plan. NOAA is also working to fulfill the Presidential Memorandum on the Blue Economy by putting together a national strategy for ocean exploration and mapping along with a strategy for mapping the shoreline of Alaska, and has developed recommendations for how to make the ocean exploration permitting process more efficient and faster. RDML Gallaudet also listed some of the partnered organizations that have been helping NOAA with mapping: Schmidt Ocean Institute, Vulcan Ocean Infinity, OceanX, and Caladan Oceanic. Biogeochemical-Argo floats are being deployed, which helps with ocean observations, one of the five pillars of Blue economy.

Another pillar of Blue Economy is marine transportation where NOAA is developing better precision navigation by gathering more weather data and developing system to integrate that data with navigation systems. Another success has been the expansion of the Physical Oceanographic Real-Time System (PORTS) program. The system has been enhanced at Cape Cod, New York, New Jersey, Port of Houston, Corpus Christi and Mobile Bay. The program has installed three new PORTS at Valdez, Alaska; Portsmouth, NH; and Kings Bay, GA.

RDML Gallaudet then discussed the setbacks that NOAA has experienced as well due to the pandemic. One setback was that the National Spatial Reference System Modernization Plan was unable to complete the needed gravity surveys. Another setback is that NOAA has had to cancel a number of stock assessment surveys. However Sildrones and the gliders mentioned previously

are helping to mitigate this gap in data collection. Good news in the area of seafood includes more activity on the seafood part of the NOAA website and moving forward on establishing a Seafood Trade Task Force per Presidential executive order on aquaculture.

Electronic monitoring and artificial intelligence (AI) use will be important for marine mammal monitoring especially with the requirement for observers now being waived due to COVID-19. Evan Howell is the new NOAA Fisheries S&T Office director. He will be working to improve electronic monitoring technologies.

Other good news includes good press on West Coast whale rescues, collaboration on wind energy development data use, and a partnership with the Alaska Fisheries Science Center and commercial fisherman which has allowed data from commercial fishing ships to be used for better assessment of fish stocks. One goal for the future is to develop more of these partnerships, in fishing and other parts of the Blue Economy such as ocean observation.

Next RDML Gallaudet discussed progress made in recreation and tourism, another pillar of the Blue Economy. The final rule to expand the Flower Garden Banks National Marine Sanctuary is moving forward. NOAA is also setting up a rule establishing the Wisconsin Shipwreck National Marine Sanctuary in Lake Michigan, which now has the support of the Governor of Wisconsin. Another private partnership is also helping with the tourism pillar of Blue Economy, this one with The National Marine Manufacturers Association, which has volunteered to create a series of videos for the sanctuaries with help from Stellwagen Bank NMS. The importance of private partnerships is once again highlighted.

Other areas of success were then expanded upon. The Marine Debris Program has become a partner of the Global Ghost Fishing Initiative which works to remove derelict fishing gear. Additionally, the HAB (harmful algae bloom) forecast and response effort has advanced and a Lake Erie HAB forecast has been established. The National Centers for Coastal Ocean Science (NCCOS) has developed a nano-bubble generator that can be used to suppress HAB development.

RDML Gallaudet next discussed coastal resilience, another pillar of the Blue Economy. 30 million or more in grants for coastal resilience have been announced with National Fish and Wildlife Foundation (NFWF), another example of how partnerships are fostering success.

Five science and technology strategies have been released and implementation plans are being developed for them. They are unmanned systems, artificial intelligence, 'omics, data, and cloud computing. Implementing these will be done with five-year plans with certain milestones to hit on the way. A Science and Technology Synergy Team under the NOAA Research Council has been established to ensure the teams for all these new strategies are working together, part of OneNOAA behavior. Some examples of applications of these strategies already being used are using robotics, AI and 'omics in coral restoration, using drones to check tuna in the northeast, using unmanned aerial systems (UAS) to map shoreline, preparing datasets for AI development, and cytobots to characterize HABs.

Discussion

Dr. Betsy Weatherhead asked for more information regarding evaluation of private sector radio occultation data conducted by NOAA and how they would be moving forward with acquiring further testing. RDML Gallaudet confirms that they are acquiring additional testing but cannot say which company or companies will be providing it. Dr. Weatherhead explained that she asked because the radio occultation data is very useful to the climate community

Then Dr. Ruth Perry asked what areas there are where NOAA is hoping to improve over the rest of the current year and in coming years. RDML Gallaudet responded that finishing what they have started is one important priority with programs such as EPIC, the NOAA Satellite Observing System Architecture (NSOSA), the Seafood Executive Order, and continuing the National Strategy for Ocean Mapping, Exploration and Characterization. RDML Gallaudet also explained that continuing to develop partnerships with other organizations will be a priority. One area of critical concern is combating the stony coral tissue loss disease in Florida to prevent its spread. Expanding international cooperation on ocean debris is another area that could be improved as well as work on HABs. Expanding the use of social science is something that also needs to be done. Dr. Perry discussed the work being done on marine debris with NOAA and industry, generally asking what the opportunities are where industry can help NOAA achieve goals.

Mr. Kreider asked what is being done to develop aquaculture in Blue Economy and what NOAA will be doing to assist. RDML Gallaudet noted that they have hired a new director of aquaculture and fisheries, Danielle Blacklock. In order to develop aquaculture NOAA has streamlined the permitting process and is advancing the science while also working with regional partners to advance their aquaculture development.

After answering questions, RDML Gallaudet continued to describe NOAA's recent interagency work. At OSTP, work is being done on space, weather, S&T, and natural disaster resilience. NOAA is also working on water in the west per a Presidential memorandum on that. The NOAA National Integrated Drought Information System (NIDIS) is front and center, along with the National Water Center. Additional interagency work is being done with the Committee for the Marine Transportation System, which does work on precision navigation charting and weather. These various interagency efforts have helped NOAA gain a reputation for being a good partner. NOAA has also joined the National Space-Based Positioning, Navigation, and Timing (PNT) Executive Committee. NOAA also has a big presence on the National Ocean Policy Committee, as well as the Ocean Resources Management and Ocean Science and Technology Subcommittees. RDML Gallaudet also explained that he has joined the National Invasive Species Council to focus on the stony coral tissue loss disease and lionfish in the Gulf in Florida. NOAA's other interagency work includes participation in the Committee on Advancing Meteorological Service, the Committee on STEM Education, a select committee under the NSTC on AI, the Interagency Arctic Research Policy Committee and working with the Navy on the impact of sea level rise on planning for naval installations. The National Climate Assessment is also underway. NOAA is also working to develop an MOU with DHS's directorate to move forward with NOAA priorities like illegal fishing and maritime domain awareness. NOAA is working with Navy to work together implementing the Commercial Engagement Through Ocean

Technology (CENOTE) Act. Additional interagency partnerships have been made with the Coast Guard, including on the Seafood Executive Order.

There has also been interagency work done on international issues. RDML Gallaudet has been working with the National Security Council on the Indo-Pacific region to help use soft power to keep the US as a preferred partner in the region instead of China. The Arctic Council has been working with the White House to soon release a new national strategy in the Arctic region. NOAA is also partnering with American Samoa and Palau to establish sister sanctuaries, which also play a role in reducing China's influence. Partnering with Palau is also great for coral reef conservation and countering illegal fishing in the Pacific. Further international efforts include the Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAIC) campaign which partnered with a German ship to do Arctic research. The Atlantic Tradewind Ocean Atmosphere Mesoscale Interaction Campaign (ATOMIC) is looking at cloud physics in Barbados.

RDML Gallaudet then listed NOAA's new academic partners with new cooperative institutes: the University of Miami, University of California at San Diego, and University of Washington. New initiatives within NOAA are also included in the update. These include sexual assault and sexual harassment (SASH) prevention, leadership development programs, and mentoring programs. NOAA's response to COVID19 was also described as keeping people safe and continuing to move forward despite losses like fishery surveys. NOAA has also held several listening sessions to address concerns of racism and is working to eliminate racism while advancing diversity and inclusion. There is also work being done surrounding research security against China by putting policies regarding access that foreign nationals have to NOAA facilities. The recommendations to NOAA in a National Academy of Public Administration (NAPA) Report in response to a scientific integrity allegation also is also being addressed and NOAA wants to move forward and improve as an agency.

Discussion

Mr. Kreider asked for any key lessons learned when it comes to establishing partnerships. RDML Gallaudet responded that it should be understood that some partnerships are going to be more successful than others and that a level of adaptability is important when it comes to finding good partners. Mr. Kreider then asked if there were any comments on Seabed 2030 and RDML Gallaudet's role in that. He responded that NOAA's Ocean Decadal Vision is well aligned with the UN Decade of Ocean Science plan. He noted, however, mapping of US EEZ is the highest priority. Mr. Kreider also stated he commends the efforts to get the Saildrones running while the fleet is sidelined due to COVID. RDML Gallaudet pointed out that Charlie Alexander has done great work to get that program running. Charlie had dozens of projects planned to adapt to COVID19 restrictions and only four of them were chosen. RDML Gallaudet notes this as an area they could use help, being more agile in regard to acquisition regulations and appropriations.

Review of the Draft 2020 Report to the United States Congress from the Environmental Information Services Working Group (EISWG)

Brad Colman and John Snow, Co-Chairs of the EISWG

Summary

Dr. Colman began by thanking the group for allowing them to present. He noted that this is a briefing to request the approval of the EISWG annual Report to Congress. In this talk he will review the 2019 and 2020 reports and also look ahead to 2021.

First Dr. Colman discussed EISWG membership and points out that they currently have 18 members. He noted that the members are diverse across the domains important to the Weather Act including climate scientists, oceanographers, water scientists and many others. They will be losing five members this year and adding eight, bringing the total numbers of members to 21 which should increase domain representation and overall capacity with the hope to have multiple task groups working on different NOAA reports. Dr. Colman also noted that Dr. Snow will be leaving as Co-Chair at the end of the calendar year and EISWG will propose a replacement. Some other topics noted before moving on to the report to Congress include collaboration with Climate Working Group, further development of EPIC, putting together a taskforce for the Subseasonal to Seasonal (S2S) report from NOAA, and a task team working on the Hurricane Forecast Improvement Program report from a year ago.

Dr. Colman then moved on to the Report to Congress. He explained that part of EISWG's role under the Weather Act is to keep track of NOAA's progress regarding the goals of the Weather Act and to report back to SAB any findings or recommendations that they had for NOAA and then reporting to Congress on how well NOAA responds to their recommendations. After three years, they now have all of the pieces in place to complete this process. The EISWG plan is to gather information to leverage the 40 reports from NOAA that are called for in the Weather Act to keep track of NOAA's progress. In 2019 they went forward with this plan and while NOAA was responsive in presenting materials for reports, there were hurdles and processes that those reports had to go through so making good time was a challenge. In the 2019 report, the SAB called out the Observing System Simulation Experiments (OSSE) and since OSSE is important to the Weather Act, they prepared a report last year. They also presented their review of the NOAA Tornado Warning Improvement and Extension Program (TWIEP) plan. As EPIC began to emerge as a high priority last summer, EISWG had presented recommendations on that. In December 2019, NOAA responded to the OSSE report, the TWIEP plan review, and recommendations on EPIC. Dr. Colman expressed appreciation to NOAA for responding to those as it is an important part of the feedback process. NOAA leadership meetings with the working group led to open, high level discussion on the contents of the report and the feedback was very helpful. Dr. Colman then moved on to the 2020 report. He covered the approach to the reporting process for 2020. Once the WG gathers information, it forms a task group led by one of the members. The team then prepares the report and submits it to EISWG, the SAB and then Congress. NOAA then has the chance to review the report and attach an addendum with its response to the Report.

The 2020 report contains information on the reports produced that year, the recommendations received from NOAA and the reports the EISWG intends to support next year. Dr. Colman and Dr. Snow noted that receipt of the NOAA reports under the Weather Act takes a long time since EISWG must wait until the reports have been delivered to Congress before EISWG can review. This makes the process slow and difficult. Having EISWG members designated as special government employees would allow them earlier access to the reports to respond in a timely manner. Nevertheless, EISWG is appreciative of NOAA's responses and looks forward to future responses.

Discussion

Mr. Kreider recognized Dr. Jacobs as having joined the meeting. Dr. Jacobs remarked that he would like to discuss EPIC further with the SAB once the blackout phase is over. Mr. Kreider opened the discussion by reminding the group that this is a decisional item. The SAB has the option to approve the EISWG report as is, ask EISWG to make changes, or insert comments into the draft transmittal letter to the NOAA administrator. Mr. Kreider also reminded them that within 30 days of receiving the report from the SAB, NOAA leadership is required to transmit it to Congress.

Dr. Uccellini asked what kind of feedback Dr. Colman has received from Congress regarding the reports. Dr. Colman responded that they are not receiving feedback directly from Congress but they are looking forward to feedback from the NOAA leadership team. Dr. Neil Jacobs noted that the agency is currently getting some Congressional feedback in the way of conversations that come up at meeting but nothing written. The feedback at these meetings has been positive and members want to know how they can help. Dr. Colman noted that the feedback in meetings is great and they should work to keep those meetings frequent and that they should report back if they hear anything from Congress. Dr. Jacobs said that there is a lot of interest in the TWIEP Program and how the S2S modeling aspect is bundled into the unified forecasting System (UFS) and how they manage the different timescales in forecasting. Dr. Colman then pointed out that waiting for the official S2S report to be provided is another example of the system slowing down EISWG's ability to do its job. Mr. Kreider then noted RDML Gallaudet's comment about moving more quickly and the potential for making EISWG members special government employees. The SAB Executive Director, Cynthia Decker, said that the process is very time intensive and requires a lot of information on the individuals seeking the status. Mr. Kreider asked if they have any other potential solutions to the problems impacting EISWG's timeliness. Dr. Colman responded that working with NOAA liaisons to find the right people to talk to, to stay informed on NOAA's progress and priorities. This liaison approach to gathering information is more time and resource intensive according to Dr. Colman, but if the SGE option is not available, then working with liaisons is the best option. Dr. Uccellini continued to note how difficult it would truly be for a review panel to keep up with all developments to report on them quickly. Dr. Uccellini suggested that reviewing reports should perhaps not be the only measure of success for EISWG and that being able to interact with issues as they evolve; he asked how the WG stays up to date. Dr. Snow responded by giving the example of EPIC as a case where

they enough available information to move quickly. They had access to information partly because they had access to workshops and public forums where they could stay updated. Dr. Colman pointed out that they have a team working on the HFIP report and that will be available more quickly than their other reports due to the ability to gather information more effectively. Dr. Uccellini asked if that is the first report EISWG has done on HFIP. Dr. Colman and Dr. Snow confirmed that it was the first official formal report they have done for HFIP but that they have been given briefings and provided comments before. Dr. Decker noted that the SAB produced a report on hurricane intensity research some years ago. Dr. Uccellini pointed out that the baseline growth for HFIP has been phenomenal over the past ten years, focusing on their long term growth. Dr. Colman said that he will take the feedback to the HFIP team.

Dr. Weatherhead pointed out that this broader community is frustrated by feeling like they are outside of the EPIC process and can't get updates on progress, asking if the conversation will open up soon. Dr. Jacobs described a wiki that is used for keeping people updated on UFS and suggested that a wiki for the broader community could be a solution. Dr. Weatherhead also suggested holding a virtual town hall to keep people in the loop, noting again that people want to help but are frustrated by feeling like they are kept outside of the process. Dr. Jacobs voiced support for the idea but noted it might be difficult due to many people's busy schedules. Dr. Snow then said that once the contract is publicly announced it would be a good time to do more public events, noting that the silence required by the procurement process may create the feeling of frustration that not much is going on. Dr. Jacobs agreed that the blackout period does have the unintended consequence of making the external community feel that NOAA is excluding them. Dr. Jacobs also pointed out that they must be very careful answering questions during this period because if a protest is filed it could delay things even further. Wrapping up, Dr. Jacob supported the idea of a town hall Dr. Uccellini echoed the concern that a protest being filed would add an additional year to the process. Dr. Uccellini asked Dr. Jacobs for more information about how students are using the model. Dr. Jacobs responded that primarily undergraduate and graduate students were using it successfully and even some high school students. The number of downloads was a couple of thousand while they were expecting only around 100. This has been great for engagement with the academic community. However Dr. Jacobs also noted concern about an overflow of input from external contributions which is why a system like EPIC is needed. Mr. Kreider returned the conversation to the blackout on communications for the EPIC contract. Mr. Kreider suggested that it should be obvious that they can't talk during this process and asked Dr. Weatherhead if people are frustrated because they don't understand that and asked if previously suggested methods are being used such as the GitHub wiki. Dr. Weatherhead responded that she did not know if people are using GitHub but that people are feeling frustrated because they don't know if the holdups are for constructive reasons and that rumors spreading about the process are sapping enthusiasm and that the community engagement that they want to have is not there presently. Dr. Uccellini responded that people are very happy with interactions they are having that were not available before and that should be taken as a sign that enthusiasm is there. Mr. Kreider then thanked everyone for the feedback.

Mr. Kreider then turned the conversation back to the decision on the EISWG report and reiterated the options. Dr. Weatherhead suggested they transmit with a comment of strong

support. Mr. Kreider agreed on sending it forward to avoid delays but asked if there was some comment that SAB should make about becoming more agile as had been discussed. Dr. Colman suggested that EISWG could add more explicit language on the topic of becoming more agile directly into the report. Mr. Winokur, SAB liaison to the EISWG, approved of having EISWG make the changes. Mr. Rheault expressed concern with a potential delay in returning it for comments. Dr. Colman responded that it would be edited specifically to include the concerns with information gathering and alternatives to create more engagement in the process. Dr. Decker then suggested that the action should be to approve the report pending those changes that EISWG will make. Mr. Kreider expressed support for the idea and then asked if there was a motion to approve if there were not more question. Mr. Winokur motioned to approve and was seconded by Dr. Grossman. Mr. Kreider asked if there were any votes opposed. There were none and the report was accepted with changes to be provided by EISWG within a week.

Dr. Uccellini noted that article 4 of the Weather Act, which includes the Integrated Decision Support System (IDSS), has been improving the Weather Service warning system and that the emergency management community expressed similar sentiment. Given this, Dr. Uccellini asked for EISWG to focus more on the social science aspect of the Weather Act in the future. Dr. Colman responded that one topic at the upcoming meeting will be the hazard simplification process and that he recently sat in on the partners' seminar that gets back to the previous point of better information gathering. Dr. Uccellini responded that the IDSS is now getting to the point that it is being accepted as a fundamental part of the job and written into weather forecast station duty manuals. Dr. Uccellini suggested that technology is getting to a point that could be connected with the user community, which is an important part of the Weather Act that should be remembered. Dr. Colman and Dr. Snow agreed they would raise this to the EISWG.

Update on Working Group Processes and Strategies

John Kreider, Kreider Consulting and Chair, NOAA SAB

Summary

Mr. Kreider introduced this topic, starting with a progress report produced since the April meeting. This report calls for a look at working group processes and strategies with the end goal of increasing the effectiveness of the groups. Mr. Kreider gave some background on the working groups and explained that they contain many world class scientists and work with a wide pool of the expertise within NOAA. The working groups add value but more value could be created by letting the groups interact with each other to share best practices and discuss common obstacles. The Working Group Co-Chairs (Climate, Data Archive and Access Requirements, Environmental Information Services, and Ecosystem Sciences and Management) and their SAB Liaisons met on June 23 and discussed how they could foster common processes and how the SAB could help working groups do a better job. After that they discussed the purpose of the working groups, what is going well for them, and what barriers they face. They agreed they all have good relationships with NOAA and that the SAB liaisons have been very helpful. Overall the groups all felt that when given a specific task and it is clear what they are being asked to do,

there are good results. However the groups also struggled with delayed response times to their recommendations from NOAA and access to information. Mr. Kreider also noted that there has been a high turnover rate recently on the working groups and SAB due to people reaching the ends of their terms, leading to many new members. All the groups noted that onboarding for new members should be improved. Another issue is putting succession plans into place for Co-Chairs. One recommendation that came out of the meeting was for there to be more time for working groups to interact with SAB members. They noted that the transition to online meetings in 2020 has led to the loss of informal hallway or lunch meetings. More time with SAB members could mitigate this impact. The group agreed to hold a two-hour meeting three times a year with the same participants. Other actions included a review of case studies of previous working groups to find lessons learned, creation of an “onboarding” webpage for new members that would highlight key reports from each working group, and development of succession plan for working group co-chairs and SAB liaisons to ensure experience is retained. The overall conclusion was that the meeting was very helpful in allowing the working groups to understand each other better.

Discussion

Dr. Donahue commented to say that the actions addressed the obstacles and that the actions should improve the benefits they see from working groups. Dr. Castellini then added that the time they had with the other working groups was a major benefit, reiterating that it helps make up for the more flexible schedule with more informal time they had at the in person meetings. Dr. Jahn said that DAARWG has been meeting with line offices to understand how their expertise and engagement can be useful in a relatively quick turnaround environment. Dr. Rob Johnston (ESMWG) added that they really like the idea for a webpage, highlighting certain working group reports and providing key background for new members to preserve institutional knowledge. Dr. Johnston also asked if the SAB presentation for new members would be given by the co-chairs. Mr. Kreider responded that having the co-chairs give the introduction and explain the working groups is a great idea. Dr. Decker said there is a SAB 101 presentation for new members, which could be used to create a similar working groups 101 presentation. Dr. Johnston then said that a chance for the working group chairs to address SAB on everything they know would also be great. Dr. Joellen Russell (CWG) expressed appreciation to NOAA and the SAB for their success in getting information out there and working to help the working groups. Dr. Uccellini and Dr. Jacobs also joined in to express approval and appreciation for the work being done.

Tsunami Science and Technology Advisory Panel (TSTAP) Update

Mike Angove, Tsunami Program Lead, NOAA National Weather Service

Mr. Kreider introduced Mike Angove. Mr. Angove began by explaining that the TSTAP is not officially established yet, most activity has been really looking at identifying the members of the panel. The TSTAP was established in the Weather Act as an advisory group to look at the tsunami program and make recommendations. Mr. Angove announced good results from working with the Ocean Studies Board and other groups on previous tsunami work; there is no

resistance to what TSTAP is trying to do. So far NOAA and the SAB have approved the Terms of Reference and set up a nominations group. The nominations team created a list of potential members. There is also guidance in the legislation they have followed about what types of people to bring in from academia and state agencies. Mr. Angove said they have a strong relationship with the states. Some of the potential candidates will bring up difficult topics, but that is the right input needed. There is also a stipulation for TSTAP to have a USGS liaison which Mr. Angove also supports; a liaison will help to identify and respond better to potential tsunami-causing earthquakes. Mr. Angove continued and explained that they will have to work rapidly on a report due to Congress by December 2021 but that he thinks the work will be worth the effort. Mr. Angove then opened time for discussion.

Discussion

Dr. Decker noted the SAB Office and Chair are still working to determine a liaison for EISWG to TSTAP. Dr. Colman responded that two members from the EISWG would fill the role: Tom Altshuler and Jonathan Porter.

Public Comments

No public comments were provided.

Adjourn

The meeting was adjourned at 4:25 p.m. for the day.

Thursday, July 23, 2020

Opening Statement of the Chair

John Kreider, Chair of the SAB

John Kreider welcomed everyone and thanked them for their active participation yesterday. He then took roll call.

SAB Work Plan and NOAA Priorities: Update from the SAB Subcommittee on NOAA Priorities and Initial Task Recommendations

John Kreider, Kreider Consulting and Chair, NOAA SAB

Mr. Kreider referenced the first item on the agenda - an update on selecting topics for study by the SAB. He reminded everyone of the discussion at the April meeting and the new approaches they were taking. He proceeded with his presentation of where they are with regards to the new topics and the selection process. He summarized what happened at the April meeting: liaisons for each NOAA S&T focus area were identified, an approach and criteria to select priority topics was developed, and next steps to down select from the list of topics was identified.

Mr. Kreider continued to summarize the April meeting and where they have gone. He gave some background about the goal to be responsive to NOAA leadership and a request for urgency in 2020, as well as maintaining focus on priority long term issues. They are going to continue ongoing studies of the working groups. 14 potential long-term topics were identified, and a SAB subcommittee was formed to evaluate and report back at this meeting.

He then transitioned to talking about the liaisons for the focus area teams. He listed the six focus areas and their liaisons. After discussion among the SAB members and working group co-chairs, the list of liaisons to the focus areas is as follows:

AI

Molly Jahn, DAARWG; Eugenia Kalnay, SAB; Bob Grossman, SAB

Cloud Computing

Chelle Gentemann and Molly Jahn, DAARWG

Data

Chelle Gentemann and Molly Jahn, DAARWG; Chris Lenhardt, SAB

'Omics

Mike Castellini and Rob Johnston, ESMWG

UxS

Ocean Exploration and Advisory Board; Bob Winokur, SAB; Ruth Perry, SAB

Citizen Science

Martin Storksdieck, SAB; ESMWG

Mr. Kreider noted that citizen science is now the sixth focus area

Dr. Storksdieck mentioned he had a meeting with the Citizen Science Group already and gave them some feedback.

Mr. Kreider then addressed the approach for the priority long-term topics, based on the discussion at the SAB meeting in April where they came up with 14 potential topics from a variety of sources including; NOAA Priorities, observations from the meeting, SAB working groups, topics from previous 2019 meetings, and NOAA AAs. He then brought up a slide with each of the priority long-term topics. He reminded everyone of the subcommittee, which included himself, Chris Lenhardt, Ruth Perry, Betsy Weatherhead and Bob Winokur; support was provided by Cynthia Decker, Courtney Edwards, and Caren Madsen. The goal of the subcommittee was to focus on selection criteria rather than ranking topics. Mr. Kreider discussed the selection approach, which involved evaluating potential topics on four independent

dimensions including value, impact, transformation, and fit to NOAA/SAB. He then clarified which each dimension qualified.

Value:

Does the topic add value; value to society, contribution to global health, predictability of Earth environment, value to the country, value to NOAA, value to R2X, value to innovation.

Impact:

Does the topic have broad impact? Avoid topics that are very narrow, and instead find topics with strategic impact across multiple line offices, multiple programs, or management of resources or communications.

Transformational:

Does the topic have potential to be transformational? It could be transformational in a technical sense, in strategy, organization, management of resources, or communication.

Fit to NOAA/SAB:

Is the topic the best fit for NOAA and is SAB the best group to undertake it? It's important to know when to say no to things better done by others, consider partnerships and ensure alignment with NOAA R&D.

Other aspects to consider include national priorities, prominence of impact, NOAA leadership preferences, making sure there is a SAB champion and a NOAA liaison who are interested in the topic

Mr. Kreider explained how the subcommittee ranked the topics. He demonstrated the results by showing examples of the bubble chart after the subcommittee members voted on the 14 topics using the four dimensions. The subcommittee members all found the approach to selecting the final topics to be both workable and valuable. The graph can be altered by changing the values of the axis and then adjusting the value for the size and color of the bubbles. Bigger or bluer bubbles equals higher votes in a particular dimension. Referring to the working session, he covers that everyone agreed after seeing the approach that the topics needed to be fleshed out and described before people could be expected to vote on them. He noted this was a pilot approach to see if the criteria and voting on the topics would work. Based on these results, Mr. Kreider recommended the below schedule for assigning members to forming a half page description of each topic and the moving forward:

August 7: Submit descriptions

August 10: Circulate drafts for review by the SAB, NOAA leadership, and the working group chairs.

Week of August 24: Hold a meeting to discuss and clarify the topics for understanding

By September 11: The SAB members and working group chairs would score the topics and submit results.

By September 18: Results compiled and distributed

Week of either September 21 or September 28: Schedule SAB meeting with NOAA to decide on final selection of these topics, roughly 3-4.

Mr. Kreider finished his presentation and opened up the meeting to discussion.

Discussion

Dr. Weatherhead supported the ideas that the topics need to be fleshed out before the group can vote on them. She noted the topic of climate observations may be more about climate science overall. Mr. Kreider agreed with her and asked for additional feedback. When asked about how the NOAA folks felt about the approach, Mr. Craig McLean responded. He felt the approach offered guidance to balance the discussion.

Dr. Uccellini also responded and explained that while he likes the approach, he feels the topics as is are maybe a little narrow and could be combined to make them bigger projects that could include more teams, with NOAA as the leaders. The example he provided was Earth System Modeling which he says is too narrow and could include more than S&T, but also prediction and predictability. A similar mission is being spearheaded in an inter-agency effort being led by Kelvin Droegemeier, the Director of the Office of Science and Technology Policy (OSTP). He reiterates that NOAA is expected to be in a leadership position with this project among multiple agencies. In response, Mr. Kreider added the full Earth Science Prediction and Predictability to the list as a 15th topic.

Dr. Perry agreed with the previous point that SAB should avoid projects already being studied by other agencies so NOAA doesn't have to reinvent the wheel. Knowing if a topic falls into a bigger effort already happening might affect the rankings. Perhaps add another dimension such as priorities of the OSTP might increase the chances of picking topics that fall within the larger picture of what is already happening across the federal government and would allow NOAA to put resources towards other projects and take a leadership role.

In a change of subject, Bob Rheault mentioned that he likes the approach but thinks the timeline is too long and could be compressed. He suggested a more rapid timeline such that work on selected topics could start before Thanksgiving. After further discussion, Kreider agreed to revise the schedule to move the SAB meeting up in September.

In response to a question from Dr. Storksdieck, Mr. Kreider reviewed the approach and suggested the descriptions should answer the following questions: What is the key question to be

answered, why is it important, what are key aspects of the scope, and what are the boundaries or limits to the scope. Dr. Stroksdieck agrees with these items to be included. Mr. Kreider explained that the representative from SAB and the representative from NOAA for each topic should both have an interest and expertise on the topic they are defining so they can adjust the scope so it becomes actionable.

Gary Matlock suggested SAB look to the vision areas that NOAA finalized a few months ago as their expression of R&D for the next seven years. Mr. Kreider agreed and said the SAB would compare the 15 topics to the R&D vision areas and see if anything is missing.

Dr. Uccellini suggests that the 15th topic should be revised to Earth system prediction and predictability to match OSTP language. He suggested that the Earth System Modeling topic be combined with the new topic 15, Earth system prediction and predictability. Possibly there are other topics that belong together creating larger subjects as well and the SAB should consider that. The SAB agreed to combine those two topics into one, Earth System Prediction and Predictability.

Assigning Advocates/ Liaisons

With no further comments or discussion, Mr. Kreider led a discussion to identify representatives from SAB and NOAA for each of the topics. These individuals will take charge in drafting the brief topic descriptions. He listed off the topics and people volunteered as written below.

Coastal Resilience:

Mike Donahue
Denise Reed
Lynn Scarlett
Mark Osler, NOS

Partnership Strategies:

Betsy Weatherhead
Ruth Perry
Craig McLean, OAR

Climate Observation:

Betsy Weatherhead
Craig McLean, OAR
Joellen Russell, CWG

Space Weather:

Eugenia Kalnay
Betsy Weatherhead
Louis Uccellini, NWS

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Phil Murtaugh, NWS (not on call)
Jenny Meehan, NWS (not on call)
Elsayed Talaat, NWS (not on call)

Noise Observations in Marine Sanctuaries:

Bob Winokur
Ruth Perry
John Armor, NOS (not on call)

5G:

Betsy Weatherhead
Eugenia Kalnay
Mitch Goldberg, NESDIS
Zach Goldstein, CIO (not on call)

Long Term Focus:

(Includes a look at the NOAA R&D vision areas)
John Kreider
Gary Matlock, OAR
Steve Volz, NESDIS (not on call)

Continuous Improvement:

Chris Lenhardt
John Kreider
Bob Grossman
Craig McLean, OAR
Tony Wilhelm, OAR (not on call)

Innovation Enhancement:

Bob Grossman
Ko Barrett, OAR (not on call)

Rapidly Changing Marine Environment:

John Kreider
Ruth Perry
Mike Castellini, ESMWG
Joellen Russell, CWG
Cisco Werner, NOAA

Complex Systems:

(Permitting as a barrier)
Martin Storksdieck
Lynn Scarlett

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Joellen Russell, CWG
Craig McLean, NOAA OAR
John Cortinas, OAR (not on call)
Charlie Stock, OAR (not on call)

R&D and Risk Management:

Robert Rheault
Joellen Russell, CWG
Gary Matlock, NOAA
Cisco Werner, NOAA

Social Science:

Kirsten Dow, CWG
Martin Storksdieck
Lynn Scarlett
Betsy Weatherhead
Jennifer Sprague NOAA (not on call)
Doug Hildebrand, NWS
Douglas Lipton, NMFS (not on call)
Gina Eosco, OAR
Monica Grasso, NOAA Chief Economist (not on call)

Earth System Predication and Predictability:

Betsy Weatherhead
Eugenia Kalnay
Joellen Russel, CWG
Louis Uccellini, ANWS
Nate Mantua, OAR (not on call)
Ko Barrett, OAR (not on call)
Wayne Higgins, OAR (not on call)
John Dunne, OAR (not on call)
Brian Gross, NWS (not on call)

With all groups assigned, Mr. Kreider thank everyone for volunteering. He asked if anyone felt there was a large gap in the list that could be filled with an additional topic. There were none identified. The SAB and writing teams agree to leave the due date for the half page descriptions for each topic at August 7th due to the amount of coordination required for some of the groups.

Mr. Kreider introduced the next topic upon return to the meeting. It was a presentation by Wayne Higgins.

NOAA Response to the Climate Working Group Review of the Climate Program Office Climate and Global Change Post-Doctoral Program

Wayne Higgins, Director of the Climate Program Office, NOAA OAR

Summary

Dr. Higgins began with a review of the topic. In the fall of 2018, NOAA OAR Climate Program Office requested the CWG to review its Global Change Post-Doctoral Program. This review was presented to SAB in February of 2019 and transmitted to NOAA in March. This presentation is NOAA's response to that review.

The presentation covered an update on the Climate and Global Change Post-doctoral Program, as well as some recent activities that were informed by the Climate Working Group's review, as well as some details on NOAA's specific response to the review. The program was founded in 1990 by the former Director of the NOAA Climate Program Office, Mike Hall. About 10% of applicants are accepted. The review found there is a clear, positive impact of the post-doctoral experience on career trajectory.

He briefly went over the process the Climate Working Group went through to evaluate the program. The report covered recommendations on the quality, relevance and performance of the program.

Top Comments

- Working group saw this as an excellent program promoting NOAA's mission and prestige, both nationally and internationally. It serves the nation and society by supporting the advancement particularly of predictions within the earth system and in line with NOAA's mission.
- The program fosters the development of the next generation of Earth system and climate science leaders and the program is building the kind of nimble and interdisciplinary community that is required to address the number of the emerging issues in weather, water and climate.

Key Recommendations and Follow Up

Restore the number of post-docs back to 8-10 per year, as opposed to the four post-docs they were funding at the time of the review (due to budget restrictions).

- Response: The number of post-docs has been restored to eight for fiscal year 2020 and the intention is to continue at that level as budget allows

Increase interactions between NOAA and the program

- Response: This is being taken very seriously resulting in increased interaction, clearer communication of NOAA's priorities as well as gaps and opportunities in the program solicitation. They have included topics as focus areas for discussion in the biannual

Summer Institute. They are now requiring Fellows to describe specific, planned NOAA interactions in their research proposals. All actions are intended to increase the Fellow's interactions with NOAA. They are pursuing new opportunities for the Fellows to communicate their research and particularly their accomplishments to the NOAA community through opportunities like the OneNOAA Science Seminars. CPO plans to share more of the work happening at NOAA, OAR, and CPO during the meetings of the American Geophysical Union (AGU) and the American Meteorological Society (AMS) luncheons and during the Fellows' onboarding process. Another opportunity for increased interactions was the 2019 Summer Institute. This was held in Steamboat Springs, Colorado and the topic was climate science in the age of realized climate change. A couple of Climate Program Office staff attended the Institute, gave talks, and facilitated discussions around advancing these interactions and engagement.

Enhance Diversity and Inclusion, both related to the fellows themselves and the host institutions sponsoring the fellows.

- Response: Diversity and inclusion training has been added to the Climate and Global Change Steering Committee meeting; this committee is ultimately responsible for selecting the Fellows. They have also added criteria for considering diversity and inclusion during the selection process itself.

Incorporate ongoing and well-maintained metrics.

- Response: Working with the Cooperative Program for the Advancement of Earth System Sciences (CPAESS), the program has developed several metrics that are being updated annually and that align with NOAA's Climate and Global Change Fellowship application process.

Finally, the review report suggested looking into some alternative funding models, and made a few suggestions. The program will investigate those, but at this time plans to use the yearly budget as allowed to fund at least eight fellows a year for as long as possible.

Discussion

Dr. Russell, who served as the Chair of the review panel, noted her approval of the program and her happiness to see NOAA working so hard to foster young talent and protect the future interests on NOAA. Dr. Castellini asked if Dr. Higgins had interacted at all with the National Academy Post-Doctoral Program that works with placing post-docs in federal labs around the country. Dr. Higgins states he was not aware of an interaction, but would welcome it. He and Dr. Higgins agreed that there could be some partnership and beneficial communication there.

Dr. Storksdieck asked Dr. Higgins if he has had any problems from NOAA trying to justify why they should be funding a post-doc program when those types of programs are difficult to continuously fund. Dr. Higgins mentioned that he reminds people that this program is about

building talent for the future and creating a network of younger scientists who will continue on with the work and mission of NOAA. The Climate Working Group's analysis helped to illustrate that even more strongly and strengthen their position on the budget. Mr. McLean added that the budget has been significantly cut by Congress, so they sometimes are less than transparent about where the money is going, and which programs are being cut, so as to avoid too much controversy in Congress.

Betsy Weatherhead proposed the SAB draft a recommendation letter about the program, and volunteered to write the first draft. Bob Rheault seconds the motion.

SAB members raised concerns about this, including that writing this letter will set a precedent. It is not clear why this program should get special treatment; and if they write letters about everything reviewed, their opinion will garner less weight. Ultimately the SAB decided to handle the situation by having the minutes indicate the enthusiasm of the SAB regarding this program, and that the SAB would simply refer back to the original letter on the subject in its approval of NOAA's response. Mr. Kreider gave a final thanks for Dr. Higgins, and then moved to the next meeting topic.

Decision-making Under Deep Uncertainty: Update from the Ecosystems Science Management Working Group

Mike Castellini and Rob Johnston, Co-Chairs, ESMWG

Summary

Dr. Mike Castellini started the presentation with some background about the report. At the July 2019 meeting the SAB had discussed with the ESMWG Co-Chairs some possible topics the ESMWG may want to approach. The top topic with the greatest feedback from SAB was decision-making under deep uncertainty due to its crossing several disciplines, and due to the uncertainty that they were facing with climate change as well as with many of the other environmental topics. Dr. Lisa Wainger is the lead person on the report, her strengths lying in risk analysis and decision-making.

At the December 2019 SAB meeting, the WG provided a format of what the report would look like. At the April 2020 SAB meeting, the ESMWG provided an update. Since then ESMWG held a virtual meeting in May 2020 and selected a team of experts to work on this. On July 14-15, 2020, they had their first team meeting with both NOAA people and experts in the field of uncertainty decision-making. Additional update at today's meeting targeting a submission date based on SAB's model of rapid response, very late this year, or early 2021.

Dr. Rob Johnston presented and overview of the topic.

DMDU (Decision-Making Under Deep Uncertainty)

What it is:

A powerful set of tools for helping stakeholders, decision-makers, agencies etc., consider and use various types of uncertainty analysis, particularly when probabilities are unclear. At its core, a type of decision science. These tools help you explore possible futures and identifying futures that succeed under a broad range of plausible outcomes, vulnerability assessment.

What is it not:

It is not a magic black box that takes all the variables and optimizes and gives a decision even though there's deep uncertainty.

Approaches:

Robust decision making, dynamic adapted policy pathways, decision scaling, engineering options analysis.

Commonalities:

Extensive stakeholder engagement; focus on plausible outcomes rather than trying to figure out what the probability density functions are, what do stakeholders think are plausible vs. not plausible; Performance metrics, what do different people care about; The use of high-powered sensitivity analysis or exploratory models.

Tradeoffs and Vulnerabilities:

When do systems fail? Can you come up with robust strategies that meet a lot of goals and that prevent failure under a wide range of plausible outcomes. The goal is for sequential adaptive decisions and not just one decision, scalable change. Pricey, and takes time (months even a year).

Side Note: Management Strategy Evaluations in fisheries would be very similar to DMDU. Part of the report is to help people understand how this approach is different and similar to what NMFS is doing and how it can assist NOAA in the future.

Usefulness:

It will be most helpful for high stakes decisions with a lot of stakeholders, a lot of impact, complex decisions with multiple tradeoffs. Useful when there are a lot of performance metrics, a lot of relationships to account for, a lot of uncertainty that is poorly understood, many possible decision options, probabilities are poorly characterized, stakeholders don't agree.

Goal of the report:

The goal is to get NOAA off the mark, start the journey, point people in the right direction. The focus is on coastal planning, coastal resilience, and fisheries because those are some of the applications with the heaviest overlap with the ESMWG's focus on ecosystems. Background on DMDU, the opportunities and barriers, what types of decisions might and might not benefit, and some recommendations for moving forward.

Dr. Castellini and Dr. Johnston then welcomed questions from the SAB members.

Discussion

Dr. Weatherhead thanked the presenters and noted this could be useful to her and her team at work. They have had difficulty translating the uncertainty and complexity of climate change to major businesses who need to make decisions under great uncertainty. She sees parallels and differences, but ultimately, her clients don't like flat statements but prefer probabilities and options. They need someone who really understands that complexity to acknowledge that when it comes to making decisions. Dr. Reed adds that she would like to help with the report where possible. She feels NOAA is struggling with exploratory modeling due to the large number of stakeholders and a desire to see a lot of different possible outcomes. This forces the analysis to be simplified. Due to this, she loves the emphasis on the DMDU to have nimble modeling so you can run thousands of scenarios easily once it's been built. That the relative simplicity of the modeling and uncertainties is compensated for the ability to explore other kinds of uncertainty and driving forces through the multiple scenarios, and gives the benefit of being able to explore all of the output that comes from the many simulations with the stakeholders.

The discussion concluded and Mr. Kreider thanked Dr. Castellini and Dr. Johnston for the presentation.

Review of the Northern Gulf Institute Cooperative Institute

Denise Reed, SAB member and Chair of the Review Panel

Summary

Dr. Reed opened by stating the presentation will cover who was on the review panel, a little bit of background on the CI and the Northern Gulf Institute (NGI) and cover the themes.

There is a specific structure used for the review of the Cooperative Institute (CI) by the SAB and NOAA. Going into this review there was guidance on the kind of questions to be asked and a way in which the Cooperative Institute must provide information to the review panel. The structure includes information on strategic plan, science review, education and outreach, and science management.

Members of the Review Panel:

Denise Reed, SAB

Rich Fulford, Environmental Protection Agency

Ben Kirkman, University of Miami

Jane Smith, Army Corps of Engineers

LaDon Swann, Mississippi-Alabama Sea Grant Consortium

NGI Point of Contact:

Robert Moorhead, Director of NGI

This was the first CI review conducted virtually and was held May 11- 12, 2020. The Northern Gulf Institute (NGI) was established in 2016. It is a consortium of the multiple institutions with the primary being the University of Southern Mississippi. The primary location of the NGI is Stennis Space Center in southern Mississippi. The name Northern Gulf came from the interest in the northern gulf in 2006 following hurricane Katrina, but the new NGI covers the whole Gulf of Mexico.

Themes the NGI is focused on:

Coastal Hazards

Ecosystem Management

Climate Change and Climate Variability Effects on Regional Ecosystems

Effective and Efficient Data Management Systems Supporting a Data-driven Economy

The Vision of the NGI:

“To provide research-driven transformations in regional ecosystem-based management that enables managers and communities to improve the resilience and health of ecosystems that will sustain the economies of people in the Gulf of Mexico. The science must be top-quality, credible, reliable and respected to be validated through peer review, yet it should be timely so it can inform policy and decisions in weather, climate, hydrology, and coastal issues.”

Part of the review involves how well are they doing on that vision. The reviewers felt the research and activities that NGI is doing closely ties to that vision. NGI also works cooperatively with the NOAA NESDIS National Centers for Environmental Information (NCEI). The two groups have a cooperative agreement thanks to their proximity. The cooperation has helped improve the data science aspect of NGI which the review reflected on positively.

Recommendations from the Review:

The review panel felt that NGI was there simply to serve NOAA and do what they were told. They felt this limited the NGI's ability to use its leadership and expertise to generate ideas and be more proactive.

The strategic plan of the NGI and any CI in general is to generate science that is going to be used. They found that the NGI is doing a great job with that, citing metrics like peer-reviewed publication citations, peer reviews, and others

The panel felt the NGI, as well as other CIs, need to focus on other metrics as well, especially those that reflect how the science is being used and how it moves from research to operations. This is something they felt should be supported internally from NOAA.

The panel felt the scientific work of NGI is strong and linked to the NOAA mission. NGI is poised to contribute to the NOAA S&T focus areas. NGI is able to both support NOAA's operational needs and try new things.

The review panel thinks NGI should focus more attention on the Climate and Climate Variability research theme, possibly by seeing how new projects that come in can be woven into that.

NGI is doing very good work with ecosystems and the review panel thought NGI should try to tie some of that work to what NOAA is doing in ecosystem-based management. They think the tools the NGI is developing and their purview into the Gulf of Mexico could be helpful.

The review panel thought there was good education and outreach, especially with underserved communities in Alabama and Louisiana. The panel feels they could be running and recording more metrics on the work that they are doing in education and outreach to show how it's working and what is the impact.

With its location advantage to certain stakeholders who are already using NOAA products, the panel felt NGI could increase its engagement with these stakeholders, discovering their priority needs and send that up to NOAA as needed.

The last topic for review was science management. NGI has a single director and three associate directors, all with different backgrounds. The panel thought this was a good model for leadership and succession planning.

The panel commends the NGI focus on diversity and inclusion. They feel that although the CI is somewhat limited to what it can accomplish in this area, based on the university partners, they should still do what they can.

Rating

Finally, the review panel rated the NGI Outstanding. They demonstrated achievement on their agreed goals and continue to be a resource that could enhance NOAA's abilities and is a great asset to the agency.

Discussion

Denise Reed opened the floor to discussion. She noted that some other members of the panel were on the call and should speak up whenever they think it is appropriate. She asked the NGI Director Robert Moorhead to say a few words. He thanked the review panel and emphasized that they are taking all the recommendations very seriously and look forward to meeting with them face to face as COVID19 allows. Mr. Kreider reminded the group that this is a decision item for the SAB, so he encourages questions and comments.

Dr. Weatherhead asked for more clarification on what the NGI's community outreach and engagement looked like. Dr. Reed specified that it included a lot of K-12 and public events, curriculum development with the Mississippi Department of Education, running of booths at fairs. It's about solid information and education on disasters, hazards, and ecosystems so the general public and K-12 are more prepared to handle these events and to understand what is happening. Dr. Reed also mentioned the role NGI has played in convening other organizations around important conversations in bring people together.

Dr. Decker asked about their experience doing the review under Covid conditions and not being able to physically visit the facilities when NGI was located. Dr. Reed said the review panel did think what might have been missing by not being in person. Because nothing could be discussed or explained in side-bar conversations, the presentations by default had to be more thorough and thought out. Ultimately, she feels they did very well given the circumstances.

Mr. Kreider concluded the session on this report and asked about next steps. As a decision item, Dr. Decker explained the SAB either needs to accept the report as is, accept with revisions, accept with comments in a letter, or reject the report.

Dr. Weatherhead moved to accept the report as is. Mr. Lenhardt seconded the movement. No one opposed. The report will be transmitted to NOAA.

Mr. Kreider expressed his desire to get some follow up from NOAA on the report. Dr. Decker suggested this request be directed to the Cooperative Institute Program Office. Some of the recommendations could potentially be applicable to CIs beyond the NGI and possibly reflect some best practices that could be put into motion., There is some agreement from NOAA on behalf of Mr. McLean that the recommendations can be discussed at the annual CI Directors Meeting as far as continuing to perfect a set of metrics and best practices that are specific, but also open enough to apply to varied work all of the CIs are doing.

Plans for Next Meeting

Mr. John Kreider, Chair of SAB, Dr. Cynthia Decker, SAB Executive Director

Mr. Kreider laid out the final topic for the meeting which was to establish plans for the next meeting. The next official meeting is October 27-28, 2020, but the SAB is planning some additional meetings in August and September.

The first interim meeting will be a working session in late August, and then a public meeting in late September to pick the final work plan topics.

The plan now is for the October meeting to be virtual as well.

Review of Actions:

- The SAB approved the consent calendar:

- Approved the slate of eight new EISWG nominees, the EISWG will include the new members in its activities and SAB will work with the Chair to send letters to them.
- The SAB approved the draft EISWG report to Congress pending addition of some changes to the language. Once the EISWG has amended it, the SAB Chair will transmit the report to NOAA and NOAA will transmit it to Congress.
- The EISWG will consider how to provide recommendations on language in the Weather Act, Title IV on social sciences.
- The SAB agreed with the approach for identifying long-term topics. The SAB and NOAA will first develop descriptions of the topics, followed by ranking by the SAB and a plan for moving forward by Fall of 2020.
- SAB will reflect in the minutes a strong endorsement of the CPO Post-Doc program and the letter sent to NOAA in March 2019 after the Post-Doc review.
- The SAB accepts the report on the review of the NGI and will transmit it to NOAA.

RDML Gallaudet thanked the SAB for its hard work. Mr. Kreider thanked everyone for their time and asked Dr. Decker to close the meeting.

Adjourn

At 4:45 p.m. the 68th meeting of the Science Advisory Board was adjourned.