



# National Oceanic and Atmospheric Administration

Science Council

## NOAA SCIENCE COUNCIL MEETING

May 16th, 2023

10:30 AM to 12:30 PM EST

Google Meet

### MEETING MINUTES

#### ATTENDEES

##### *Executive*

Sarah Kapnick, Chair  
Saiontoni Sarkar, Exec Sec  
Celina Harris, Exec Sec  
Isha Renta, Exec Sec

##### *Principal*

Mitch Goldberg, NESDIS  
Gary Matlock, OAR  
Kristen Koch, NMFS  
Mary Culvers, NOS (alternative)  
Stephan Smith, NWS  
Randall TeBeest, OMAO

##### *Advisory*

Cynthia Decker, Scientific Integrity Committee and NOAA Science Advisory Board Executive Director  
Gary Matlock, LOTMC and RDEC Chair  
Alison Krepp, Social Science Committee Co-Chair  
Deirdre Clarkin, Libraries Advisory Committee Chair  
Natasha White, Office of Education Liaison  
Kelly Goodwin, NOAA S&T Chair  
Kelly Wright, TPO Liaison

##### *Other Attendees*

Jolie Harrison, NMFS  
Abigail Arnold, OAR  
Alexandra Neal, OAR  
Fiona Horsfall, OAR  
Ann-Marie Gnall, NESDIS  
Dan Karlson, HQ  
Douglas Rao, NESDIS  
Jessica Morgan, NESDIS  
Larry Alade, NMFS  
Laura Dwyer, NOS  
Laura Newcomb, OAR  
Megan Deehan, OAR  
Michael Liddel, NMFS  
Mitch Goldberg, NESDIS  
Rebecca Reese, HQ  
Rebecca Vanhoeck, HQ  
Roxie Allison-Holman, GC  
Terence Lynch, OAR  
Victoria Luu, OAR  
Andrew Peck, OAR  
Ishrat Jabin, OAR  
Julie Price, NESDIS  
Kim Valentine, NOS  
Rakhi Kasat, HQ  
Geoff Dipre, HQ  
Jim Jenkins, OAR  
Annette Hollingshead, OAR  
Debbie Sinmao, OFA  
Jason Gedamke, NMFS  
Rob Redmon, NESDIS  
Elizabeth McLanahan, HQ  
Eric Kihn, NESDIS

## **APPROVAL OF MINUTES AND REVIEW OF ACTION ITEMS**

Notify Exec Sec at [science.council.execsec@noaa.gov](mailto:science.council.execsec@noaa.gov) within two weeks of the following meeting if any changes to the minutes are needed. Minutes from the April 18 NOAA Science Council meeting were **approved**.

## **CHAIR ANNOUNCEMENTS:**

- The Chair deferred the floor to the Science Advisory Board Executive Director for an announcement on the solicitation for the members of the NOAA Science Advisory Board.

## **MINUTES**

- Consider the April Science Council meeting minutes **accepted**.

## **ACTION ITEM REVIEW**

- The Exec Sec reviewed all current action items.

**BRIEFINGS:** Briefing materials are available in the Science Council Meetings 2023 folder on Google Drive.

**NAS Board on Atmospheric Sciences and Climate Briefing:** Amanda Staudt and Steven Stichter  
*Informational*

BASC has three standing bodies that are engaging with different parts of the government, a variety of consensus studies, and a handful of workshops. There is information about all of these activities in the provided slide deck, but those that focus on NOAA interests were highlighted.

Standing Bodies: (1) Standing Committee to support the USGCRP with oversight from BASC and the Board on Environmental Change and Society. They met in April of this year and focused their meeting on climate scenarios and collaboration approaches for the National Nature Assessment (NNA). (2) Climate Security Roundtable that has been in place for about a year. It is a congressionally mandated body that supports the Climate Security Advisory Council and they have quarterly meetings (four meetings a year) and two workshops a year by mandate. Since the last update, they hosted a workshop on South Asia, they hosted earlier in May on Central America, and will be hosting an Urban Systems one later this year. (3) Roundtable on Macroeconomics and Climate-Related Risks and Opportunities was established by request from the Council of Economic Advisors (White House). Their first workshop on Incorporating Climate into Macroeconomic Modeling will be held in mid June. Their next workshop, not yet scheduled, will focus on tipping points and incorporation of nonlinear climate models into macroeconomic models.

Current Studies: (1) Modernizing Probable Maximum Precipitation (PMP) Estimation, sponsored by NOAA. A 24-month consensus study that was started prior to last year's Precipitation Act, but they are mandated under that as well. PMP approach has not been updated in approximately 50 years and does not include impacts of climate change. They will be characterizing uncertainty and impacts for their upcoming study and intend to have a study released to NOAA by June of 2024. (2) Development of a Framework for Evaluating Global Greenhouse Gas Emissions Information for Decision Making. Initiated last May and released in October. Objective was to provide guidance to agencies on tracking GHG monitoring.

Workshops: (1) Next Generation Earth System Science. A report was generated in 2021 (requested from NSF) on how to improve work on complex interconnected processes between natural and social processes. They are now holding workshops to help apply the approaches suggested in the report. The first was held in January and proceedings are being drafted. They will hold the second on Climate Intervention in late June and the third will be in the Fall about Human Migration and Climate Change. (2) GHGEmissions from Wildfire, Monitoring, Modeling and Management. Request from Environmental Defense Fund. No formal recommendations will be made, but will help bring communities together. The potential for wildfires and the GHG from those is the

driving force behind this workshop. (3) Advancing Risk Communications. Upcoming and just approved in the past few weeks. Came from discussion from the last BASC meeting where the National Hurricane Center was invited to speak. The hope is this will build and deepen on those conversations. Anticipated Fall 2023.

Activities in Development: (1) Follow-up to 2016 study on extreme event attribution in the context of climate change. They gauged interest last year and found that given advances it would be useful to reinvestigate this area. Looking at the attribution of impacts from extreme weather events. They have discussed this with a few NOAA folks and welcome thoughts on how to make this useful and are soliciting sponsorship for this project. (2) Studying how to bring non government entities into the dialogue with government entities to advance climate services. There is an option to use this to support the USGCRP. (3) A consensus study on Evaluation Strategy for National Climate Assessments (NCA) - how to understand which stakeholder groups are using reports and tools, how to measure that, and methodological framework and design that would make sense. GCRP would be able to use this report to decide how they will move forward with implementation.

Polar Research Board: Recently released a public-friendly booklet on scientific research in the Antarctic region. They have a guidance report in progress for NSF and are developing a dialogue series to bring in stakeholders who have not yet been engaged in polar research.

Upcoming initiative: Climate Crossroads, an effort that will help pull together the expertise across the Academies. They plan to establish a new advisory committee, launch a legislative fellows program (9 month training period for current congressional staff with curriculum based on current NAS studies to help teach how climate change touches on a variety of issues), host summer partners convening, and co-develop transdisciplinary activities. They will have a weekly newsletter that folks can sign up for that will provide information on all the climate activities across the academies.

#### *Discussion*

NWS expressed gratitude for the update and emphasized how significant the research is in relation to NOAA's research portfolios with emphasis on modeling related to macroeconomic and tipping points. NESDIS echoed the sentiments and further added that NOAA should continue to highlight and be attentive to how NAS BASC's activities and recommendations impact our related activities with emphasis on assessing GHG emissions from wildfires as a common theme for both NESDIS and NAS BASC.

#### **Anthropogenic Underwater Noise:** Rakhi Kasat and Leila Hatch \_\_\_\_\_

*Informational/Decisional*

The objective of this briefing was to orient the SC with a tasker that will be sent out following the May meeting. The goal is that in June, the OIA will request that the Chief Scientist provide concurrence on the decision and the Chair has asked the Science Council to provide scientific review as the Council supporting the Chief Scientist. From the NOAA perspective, this memo addresses the gap of NOAA being the lead agency responsible for reducing or eliminating the impacts of underwater noise for marine protected species and their habitat. The memo helps to align with international momentum and given the strong scientific consensus it is important that NOAA can have a memo to provide a clear statement in the interagency space for DoS to provide in the international space. The memo was developed through 3 bodies of review to ensure that the policy and legal implications have been fully analyzed, in addition to the interagency and international components. They are requesting a review on the science component now from the Science Council, bearing in mind that they have received review from the AA level already. They will include 3 attachments with a request for SC to focus on the first two attachments. The request specifically for comments and concurrence on the evaluation of UWN as anthropogenic pollution based on the UN Convention on the Law of the Seas for defining anthropogenic pollution and the scientific consensus of UWN meeting that definition.

Scientific background: Animals use sound to survive and reproduce and underwater sound is the most efficient method of transmitting information. The roles of sound across species is diverse - communication for biologically critical functions, echolocation for guiding prey hunting and migration, hearing for detecting prey

and predators and habitat awareness (this is the primary means of communication in lowlight environments). Underwater in today's ocean, there is a lot of sound energy from human activities. The frequencies humans are introducing overlap with the frequencies animals are using for their biological function. Impacts can vary based on duration, frequency, and volume of the noise. A sampling of recent references on these linkages are provided in addition to the memo. They focused on vessel noise specifically over a range of impacts observed in this sampling. How extreme the impacts (reduction of impacts) and response needs to be, will depend on the threatened state of the mammal. More recent work has focused on physiological response and the quantity of reporting is increasing rapidly as the need for additional research becomes more apparent. NOAA already had an agency-wide vision for addressing ocean noise through its Ocean Noise Strategy Roadmap (2016-2026 guidance).

### *Discussion*

Questions on the legal ramifications were raised, with directive given to review attachment 3 of the Action sent via email following the meeting. The science council is being asked specifically to review the scientific aspects of the memo, and legal clearance will be provided by the Office of General Counsel. It was pointed out that NOAA has been addressing noise in permits and authorization for 20+ years, and has historically acknowledged the deleterious effects. This led to questions on why the memo is needed now. OIA highlighted that momentum at the international scale has pushed the need for a clear response. This memo should provide the opportunity to provide that clarity and is a natural progress of the work in underwater noise that has been done historically. Given that there is no direct legal implication if NOAA affirms the science of anthropogenic underwater noise as pollution under the Law of the Sea Convention definition, it would be useful in international space to have this well articulated. There haven't been changes in Law of the Sea Convention definitions, and NOAA has no other memos on similar pollution under Law of the Sea Convention.

### **NCAI and NAIEC Ethical AI Conversation: Rob Redmon & Ben Richards**

#### *Informational*

This briefing highlighted how, as a society, this is a critical disruptive moment for ethical AI usage. Recent focus on generative AI tools indicate the need for thoughtful development and approach as most people are now using AI, potentially without recognizing it. The White House responsible AI statement, commitment from leading AI developers, and OMB intent to draft policy on USG AI usage all indicate the pressing urgency for discussing AI and its ethical use now. Negative and positive examples of AI usages and the impacts of those usages were discussed. There are currently hundreds of known NOAA AI use cases across the LOs without guidance across the agency. Given the high number of use cases (particularly in the realm of image analysis): finding a way to instruct research staff on appropriate and ethical use of tools is a good way forward. The tools can be used for good, but a lot can go wrong if training data is not representative. Additionally, beyond our control, generative AI can falsely represent NOAA data. AI ethical practices need to be considered from concept to deployment to ensure scientific integrity. Additional guidance may be needed to ensure that the agency-wide guidance is adequate in its breadth to ensure that we are using AI responsibly.

Six recommendations from the committee: continued senior leadership investment, considering formation of Ethical AI Focus Group to draft guidances, requirements, and best practices (would require broader participation), update to Scientific Integrity Policy (NAO 202-735D-2), workforce training on responsible and ethical AI, NCAI-hosted success stories, attend and support upcoming CIO AI workshop discussions. They also suggested that NOAA can reference how publishers are developing their AI policies and see if NOAA can leverage those guidelines. The main risks of AI usage revolve around privacy and equitability. They are recommending that users do not use AI as a replacement search engine, to avoid using AI for final text on products without substantial input and revisions, and to not input sensitive data (because it can be reused for future training data). With caution, the tools can be used in "incognito mode" to prevent data retention, to

draft initial text or code for editing, to conduct brainstorming sessions, and to always provide disclosure and source verification to consumers of the work.

*Discussion*

Members raised the potential for new predatory publishing practices arising from AI development, with new definitions potentially being needed for plagiarism, fabrication, and falsification. Especially with respect to where it is unintentional in cases of using generative AI for coding purposes. The current version of NOAA’s scientific integrity NAO, undergoing review, includes some discussion on AI, but it was noted that this may need to be updated as it is likely not comprehensive and may need additional context. It was noted that EPA has banned ChatGPT for official use for the time being.

**BIL/IRA Science Funding Overview:** Renee Stone

*Informational*

The materials and content from this briefing are subject to confidentiality restrictions. Please reach out to the NOAA Science Council Executive Secretariat at [science.council.execsec@noaa.gov](mailto:science.council.execsec@noaa.gov) for the minutes from this discussion. The Science Council principal and advisory members will conduct a virtual review of this CI Prospectus.

**ANNOUNCEMENTS**

- The next NOAA Science Council meeting is on **June 20th 2023, at 10:30am - 12:30pm ET**

**ACTION ITEMS**

**Science Council: This spreadsheet lists all current open action items currently assigned to the Council. Additional information for each entry can be found in the original email assigning this task. If you have any questions, please email [science.council.execsec@noaa.gov](mailto:science.council.execsec@noaa.gov).**

Date Assigned	Subject Line	Assigned To	Due Date	Status
20220531	State of the Science Factsheet on Emerging Technologies	S&T Synergy Committee	March 29	Initial SC review closed.
20220510-01	Cooperative Research Committee ToR	Group of SC principals and advisory members	TBD	The group is following up on the motion proposed by Gary Matlock at the May Science 2022 Council meeting
20220830	Science Council ToR	SC/NEP	TBD	Approved by NEP, awaiting NEC review
20221104-2	SoS Fact Sheet - Drought	NIIDIS	TBD	Working on updating first draft
20221107	SoS Fact Sheet - Tornadoes	NSSL/NWS	May 26	Initial SC review closed. Authors revising.
20230414	MOU/MOA NAO Revision Task Force	SC	TBD	Task Force membership established; first meeting 06/08/2023
20230517	Review of Anthropogenic Underwater Noise as Pollution	SC	May 30	In review.

	Action-Decision Memo			
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