

National Science Foundation
Directorate for Biological Sciences

Advisory Committee Meeting
September 20-21, 2018
Room 2210

Summary Minutes

BIO Advisory Committee Members in Attendance:

Dr. Dominic Poccia (Chair)	Dr. Barbara Beltz	Dr. Carla Cáceres
Dr. Benjamin Garcia	Dr. Susan Gregurick	Dr. Richard Kuhn
Dr. Lucinda McDade	Dr. Gretchen North	Dr. Diane Pataki

BIO Advisory Committee Members Attending via Teleconference:

Dr. Jeannine Cavender-Bares

Thursday, September 20, 2018

Dr. Dominic Poccia, Advisory Committee Chair, convened the meeting at 8:45 AM by welcoming the Advisory Committee (AC) members, National Science Foundation (NSF) staff and guests.

Dr. Alan Tessier, Deputy Assistant Director for the Biological Sciences, reviewed the Advisory Committee Charter and the Federal Advisory Committee Act, and provided a brief orientation for new AC members. Dr. Poccia requested introductions, provided an overview of AC meeting objectives and scope, and reviewed the meeting agenda.

BIO Directorate Update – *Dr. Joanne Tornow, Acting Assistant Director for Biological Sciences*

Dr. Joanne Tornow, Acting Assistant Director for Biological Sciences, provided an update on the state of the BIO Directorate. Topics covered included BIO senior leadership changes, a budget update, BIO highlights from the end of FY 2018, FY 2019 solicitations, BIO's involvement in the 10 Big Ideas and an update on the National Ecological Observatory Network (NEON). Following Dr. Tornow's update, AC members asked Dr. Tornow about the transition to a no-deadline submission process for BIO core programs, including proposal submission limits for PIs and co-PIs.

Advisory Committee for Environmental Research and Education (AC-ERE) Update – *Dr. Diane Pataki, AC Liaison to AC-ERE*

Dr. Diane Pataki, BIO AC liaison to the AC-ERE, provided background on the AC-ERE's history and function and highlighted key issues addressed by recent AC-ERE publications. Dr. Pataki also provided the AC information on a recent Dear Colleague Letter seeking community input on possible environmental research and education directions to further advance national security and economic competitiveness.

Committee on Equal Opportunities in Science and Engineering (CEOSE) Update – Dr. Suzanne Barbour, AC Liaison to NSF CEOSE

Dr. Suzanne Barbour, BIO AC liaison to the NSF Committee on Equal Opportunities in Science and Engineering (CEOSE), reminded the AC of the CEOSE charge, and provided an update on recent activities, including recommendations on broadening participation for Principal Investigators, Institutions and NSF. She outlined CEOSE's future plans, including building inclusive communities and building Broadening Participation into all of the 10 Big Ideas.

Committee of Visitors (COV) Reports – Dr. Carla Cáceres, AC Liaison to the MCB COV; Dr. Susan Gregurick, AC Liaison to the IOS COV

Dr. Carla Cáceres, AC Liaison to the MCB Committee of Visitors (COV), and Dr. Susan Gregurick, AC Liaison to the IOS COV, presented summaries of the COVs' recent reports to assess the merit review processes and practices of the preceding three to four years. The AC voted unanimously in favor of approving the MCB COV report at 11:33 AM. The AC voted unanimously in favor of approving the IOS COV report at 11:55 AM.

NEON Investigator Panel and Q&A – Dr. Stephanie Hampton, Division Director, Division of Environmental Biology

Dr. Stephanie Hampton introduced the NEON investigators participating in the panel:

- Dr. Cayelan Carey, Assistant Professor, Virginia Polytechnic Institute and State University Department of Biological Sciences
- Dr. Ankur Desai, Professor, University of Wisconsin-Madison Department of Atmospheric and Oceanic Sciences (present via teleconference)
- Dr. Rob Guralnick, Associate Curator of Biodiversity Informatics, University of Florida Department of Natural History and the Florida Museum of Natural History
- Dr. Michael Kaspari, Professor, University of Oklahoma Department of Biology (present via teleconference)
- Dr. Ethan White, Associate Professor, University of Florida Department of Wildlife Ecology and Conservation

Dr. Hampton informed the AC members that the purpose of this panel was to provide the AC with an opportunity to speak with NEON users now that the project is nearing the end of its transition from construction to operations. The panel introduced AC members to current innovative NEON-enabled projects and described the ways in which the community is already using NEON data and infrastructure for research, training, and outreach.

NEON User Engagement Discussion – Dr. Stephanie Hampton, Division Director, Division of Environmental Biology

The AC discussed NEON's strategic external engagement with the research community. Dr. Hampton reviewed the discussion at the Spring 2018 AC meeting during which the AC decided to form a subcommittee on NEON User Engagement. She reminded the AC that the subcommittee's intended purpose as identified at that meeting is to provide the community with an opportunity to interact with NEON, and to provide NSF with independent advice on structuring external NEON User Groups,

existing and planned community engagement activities, and ways to expand the usefulness of NEON to other disciplines.

Dr. Hampton provided the AC with the draft NEON User Engagement Subcommittee charge, and requested the AC advise on any clarifications and/or modifications to the subcommittee's charge and composition. Dr. Barbour recommended the subcommittee include a member who has expertise in broadening participation. Dr. Cavender-Bares suggested the charge be revised to include definitions of "user group" and "user community." Dr. Gretchen North suggested the charge include an educational component addressing both K-12 and undergraduate education. The AC voted unanimously to adopt the draft subcommittee charge with the proposed changes at 2:51 PM.

Big Ideas Update – *Dr. Joanne Tornow, Acting Assistant Director for Biological Sciences*

Dr. Tornow provided the AC with an update on the early steps of BIO investment in the 10 Big Ideas and requested the AC's advice on future activities related to the Understanding the Rules of Life Big Idea and on BIO's role in the other research Big Ideas.

Dr. Theresa Good, Deputy Division Director for the Division of Molecular and Cellular Biosciences, and Dr. Poccia provided an overview of the Understanding the Rules of Life Big Idea, explained its primary goals, and updated the AC on current related BIO activities, including the Understanding the Rules of Life: Epigenetics and the Understanding the Rules of Life: Synthetic Cell Ideas Lab solicitations.

Dr. Gretchen North, AC Member, and Dr. Lucinda McDade, AC Member, provided an overview on the Navigating the New Arctic Big Idea. Dr. McDade presented the new realities in the changing arctic, and described the impacts on global and local environments, cultures, society and human and ecosystem health. Dr. North described the opportunities for the BIO Directorate in this area of investigation, including microbial research; research into population processes, ecosystem processes and ecological theory; and collaborations with other government agencies, social scientists, and the conservation community.

Dr. Barbara Beltz, AC Member, and Dr. Gregurick provided an overview of the Harnessing the Data Revolution Big Idea and identified several types of investments the BIO community might need in this area. These included investments in forecasting/development and use of models, uncertainty reporting, model sharing, and training.

Dr. Benjamin Garcia, AC Member, and Dr. Richard Kuhn, AC Member, provided an overview of the Quantum Leap Big Idea. They identified several potential priority areas for BIO investment in quantum biology, including computational biology, optogenetics, and biological macromolecules and action at a distance. They emphasized that BIO participation in this Big Idea and investment in quantum biology will require extensive collaboration between the biological sciences community and other scientific disciplines.

Dr. Poccia adjourned the meeting for the day at 4:31 PM.

Friday, September 21, 2018

Dr. Poccia reconvened the meeting at 8:30 AM.

Reunification of BIO & Biology: Integration Institutes – Dr. Alan Tessier, Deputy Assistant Director for Biological Sciences

Dr. Alan Tessier, Deputy Assistant Director for Biological Sciences, introduced the reunification of biology as a goal of the BIO Directorate, and suggested Integration Institutes as a mechanism for accomplishing that goal. He requested the AC's insight on which science and training opportunities they believe are ready for that type of investment. The AC emphasized the need to engage the community directly in identifying the focus of the institutes.

Reunification of Biology: Graduate Education/Training – Dr. Carla Cáceres, AC Member

Dr. Cáceres summarized key points of the National Academy of Sciences Graduate STEM Education for the 21st Century report for the AC and led a discussion around changes to graduate education and training necessary to reach a unified biology. Key discussion topics included the culture change needed to better support and train students, particularly those not intending to pursue an academic career; considerations for training students in team-based, convergent science; the mechanisms by which BIO should support students and workforce development; and ways to track the quality of training.

NSF's Policy on Sexual Harassment – Rhonda Davis, Office Head, NSF Office of Diversity and Inclusion (ODI); Robert Cosgrove, Compliance Program Manager, NSF Office of Diversity and Inclusion; Jean Feldman, Head, Policy Office, NSF Office of Budget, Finance and Award Management.

Dr. Tornow introduced Rhonda Davis, Office Head of the NSF Office of Diversity and Inclusion (ODI), Robert Cosgrove, ODI Compliance Program Manager, and Jean Feldman, Head of the Policy Office in the NSF Office of Budget, Finance and Award Management. Mr. Cosgrove announced that NSF has published a term and condition that requires awardee organizations to report findings and determinations of sexual harassment, and NSF has established a secure online portal for submitting harassment notifications. They provided a general overview on NSF's policies on harassment, including the new term and condition, additions to the draft 2019 PAPPG, Title IX compliance reviews, and harassment complaint reporting.

Preparation for Director's Visit

The BIO AC identified priority topics for discussion for the Director's visit. Dr. Poccia assigned AC members to lead discussions on specific topics of interest.

Director's Visit – Dr. France Córdoba, Director, NSF; Brian Stone, Chief of Staff, NSF

Dr. Tornow introduced NSF Director, Dr. France Córdoba and NSF Chief of Staff, Mr. Brian Stone. Dr. Córdoba thanked the AC for their service and updated the AC on the state of the agency. This included an overview of the NSF budget, priorities as identified in the White House Office of Management and

Budget and Office of Science and Technology Policy Research and Development memo, efforts to address the nation's workforce needs, the all-agency effort on quantum information science, and NSF's activities around the upcoming G7 meeting. The AC updated the Director on their conversations at this meeting, including BIO involvement in the big ideas, NEON, the reunification of BIO, opportunities for training in team science, and broadening participation. Dr. Córdova thanked Dr. Poccia for his service and presented him with a certificate in recognition of his last meeting as AC chair.

Wrap-up and Action Items – *Dr. Dominic Poccia, AC Chair*

Dr. Tornow requested the AC consider topics of interest for the next AC, including any other directorates or offices at NSF that they would like to present at the next meeting.

Dr. Poccia adjourned the meeting at 12:24 PM.