



National Science Foundation  
Directorate for Biological Sciences

**Advisory Committee (AC)  
September 2022 Meeting Minutes  
September 13-14, 2022  
Hybrid Meeting**

**BIO AC Members in Attendance:**

|                          |                               |                              |
|--------------------------|-------------------------------|------------------------------|
| Dr. Michael Ibba (Chair) | Dr. Gretchen North            | Dr. Erich Grotewold          |
| Dr. Thomas Daniel        | Dr. Maria Pellegrini          | Dr. C. Robertson McClung     |
| Dr. Kennedy S. Wekesa    | Dr. Henry L. Bart Jr.         | Dr. Scott R. Santos          |
| Dr. Suzanne Barbour      | Dr. B. Gail McLean (Sept. 13) | Dr. Maria Uriarte (Sept. 14) |

**Tuesday, September 13, 2022**

Dr. Joanne Tornow, Assistant Director (AD) for Biological Sciences (BIO), convened the meeting at 10:01 AM EDT by welcoming the AC members, NSF staff, and guests.

Ms. Montona Futrell-Griggs, Staff Associate for the Office of the Assistant Director for BIO, reminded attendants of the FACA rules and NSF virtual public meeting policies.

Dr. Michael Ibba, AC Chair, provided hybrid meeting instructions and opened it up for introductions.

The AC unanimously approved the minutes of the April 2022 Meeting minutes without changes.

**BIO Update – Joanne Tornow, Assistant Director for Biological Sciences**

Dr. Tornow provided an update on BIO activities since the previous meeting. Topics included recent staff changes, legislative and executive updates, and key BIO accomplishment highlights. Dr. Tornow outlined plans for the meeting to focus on the NSF Strategic Plan. Drs. Tornow and Simon Malcomber answered questions from the AC on how the CHIPS and Science Act addresses biological collections and workforce development, particularly in how BIO is responding to the Agency Priority Goal around Broadening Participation as well as leveraging aspects of the Act.

**NSF's New Strategic Plan for Fiscal Years 2022–2026 – Steve Meacham, Section Head, Integrative Activities, Office of Integrative Activities**

Dr. Meacham gave an overview of the 2022-26 NSF strategic plan. Before going into the details of the strategic plan, Dr. Meacham reviewed NSF's mission, vision, and core values as well as the opportunities and grand challenges that give context to research and innovation. The plan consists of four strategic goals, each of which has two objectives associated with it. Drs. Meacham and Tornow answered questions about the opportunities and challenges of cultivating the global science and engineering community; grant opportunities for professional societies; the diversity of the NSF workforce may help influence diversity goals in granted institutions and individuals; and ensuring effective STEM at all levels starting from elementary and middle school and support for mid-career advancement for underrepresented individuals.

**NSF Strategic Goal 1, Agency Priority Goal, and Relevant BIO Programs – *Casonya Johnson, Deputy Division Director of Molecular and Cellular Biosciences and James Deshler, Deputy Division Director of the Division of Biological Infrastructure***

Dr. Johnson outlined the NSF-wide effort to reach the “missing millions,” specifically with the agency priority goal (APG) to increase the number and proportion of proposals received from underrepresented individuals and institutions. Dr. Deshler gave a brief overview of specific programs within BIO that are aligned with this APG. Working groups have been set up in every division that include rotators to achieve goals across the entire directorate. He then introduced program directors to discuss these specific programs in more detail.

Dr. Bianca Garner highlighted the key elements and the strategic goals of the Building Research Capacity of New Faculty in Biology (BRC-BIO) program. She also described BRC-BIO working group outreach efforts; the distribution of institutions in the first round of awards, which show non-R1 institutions are being reached; and awards that include undergraduate student researchers. Dr. Daniel Marenda outlined the Postdoctoral Research Fellowships in Biology (PRFB) program and how PRFB seeks to broaden participation of groups underrepresented in Biology. Of the 25-30 awards per year, 65% are made to individuals from groups traditionally underrepresented in the biological sciences. He highlighted a few young scientists supported by PRFB. Dr. John Barthell described the goals and key elements of the Research and Mentoring for Postbaccalaureates in Biological Sciences (RaMP) program, which involves increasing the success of undergraduates by enabling their access to research experiences as post baccalaureates. 12 awards have been made to date, which include 104 institutions and 277 PIs and mentors.

The AC members asked questions about how to target outreach to states where it is needed; how teaching load is managed for awarded PIs; how the programs are administered by the working group to ensure implementation across BIO; and how to help ensure that funded individuals continue to be successful after grants end.

**NSF's Broadening Participation Goals: BIO's progress – *Casonya Johnson, Deputy Division Director of Molecular and Cellular Biosciences and JD Swanson Program Director for the EPSCoR Program***

Dr. Johnson provided a snapshot of BIO's status in terms of progress toward the APG. She walked through graphs that illustrate BIO submissions from underrepresented individuals and Minority Serving Institutions (MSI) for 2020-22. Dr. Johnson stated that BIO will continue to evaluate submission trends to be able to target areas that may not be increasing as much as desired.

Dr. Swanson summarized EPSCoR's mission and history while emphasizing that engaging with EPSCoR states presents NSF with a way to engage the missing millions. He described a section of the CHIPS and Science Act that discusses expanding geographic distribution of NSF funding, with a target of 20% of NSF funding going to EPSCoR states by 2025. Dr. Swanson presented graphs of 2020-2022 investments in EPSCoR states that showed current funding is approximately 12.5%.

**Committee for Equal Opportunity in Science and Engineering (CEOSE) Report – Suzanne Barbour, BIO AC's liaison to the Committee for Equal Opportunity in Science and Engineering (CEOSE)**

Dr. Barbour described recent CEOSE activities including the release of a new report called "Envisioning the Future of EPSCoR." First, she outlined the DCL that initiated a visioning process to better understand the future of EPSCoR. A subcommittee was charged to guide the visioning process with two motivating questions: what does available evidence say about the effectiveness of the EPSCoR program, and given that knowledge, what novel strategies or changes should be made. The overall summary is that EPSCoR is doing quite well, with a few gaps. The resulting recommendations were framed around economic development, infrastructure, education and workforce development, and broadening participation. Drs. Barbour and Swanson fielded questions about EPSCoR funding and how infrastructure needs may be different in non-R1 institutions. Discussions included guiding strategic infrastructure investments to focus on cyberinfrastructure and grant administration support in beneficial areas.

**NSF Strategic Goal 2: BIO Mid-Career Awards – Leslie Rissler, Acting Division Director of Division of Environmental Biology; Kathryn Dickson, Program Director, BIO/Division of Integrated Organismal Systems (IOS); Richard Cyr, Program Director, BIO/Molecular and Cellular Biosciences (MCB)**

Dr. Rissler outlined NSF Strategic Goal 2: Discover by Creating New Knowledge, which contains two primary objectives – 1) ideas people and infrastructure and 2) enhance research capability. She provided the motivations that went into creating the mid-career programs and described the origin and history of these programs. Dr. Dickson, Dr. Cyr, and Dr. Rissler summarized the mid-career programs and highlighted awards in IOS, MCB, and DEB. Dr. Rissler also detailed the gender distribution of MCA awardees and answered questions about finer demographic details and full professor eligibility at primarily undergraduate institutions but not MSI. BIO AC members discussed strategic outreach mechanisms to garner more interest from the research community in these programs.

**Preparation for visit with Office of the Director (OD) leadership – *Michael Ibba, AC Chair***

Dr. Ibba led the discussion on talking points for the meeting with OD leadership. Topics were based on the day's discussions, and roles as discussion leads were assigned.

Dr. Tornow adjourned the meeting at approximately 5 PM EDT.

**Wednesday, September 14, 2022**

Dr. Tornow reconvened the meeting at approximately 10 AM EDT.

**Strategic Goal 3: Part 1, Use-inspired Research Examples – *Sam Scheiner, Program Director in the Division of Environmental Biology and Joanna Shisler, Program Director in Integrative Organismal Systems***

Dr. Scheiner summarized NSF Strategic Goal 3 – Impact society by translating knowledge into solutions and Emerging Infectious Diseases, a metaprogram supported by several core programs as well as special programs. Dr. Scheiner described the Ecology and Evolution of Infection Diseases (EEID) special program, which enabled a robust response to COVID-19. He also outlined how NSF used CARES act and other monies to respond to COVID-19 via RAPID awards and an example of these awards. Dr. Shisler outlined the Predictive Intelligence for Pandemic Prevention (PIPP) program, which involves convergence research across NSF and looks at early-stage pandemic prediction. She presented examples of the 26 interdisciplinary projects funded in PIPP. Drs. Scheiner and Shisler fielded questions about how technologies with commercial value fit into these programs, interfaces with the National Ecological Observatory Network, computational laboratory opportunities associated with the programs, and how PIPP projects interface with international collaborators or issues.

**Presentations on International Activities and Partnerships – *Brent Miller, Acting Deputy Head of NSF's Office International Science and Engineering (OISE) and Simon Malcomber, Deputy AD in BIO***

Dr. Miller outlined OISE's vision and how it aligns with NSF-wide priorities for advancing international science. He then gave an example of OISE Global Centers awards and further emphasized the role of partnerships in OISE's vision. Dr. Malcomber elaborated on how international partnerships benefit NSF and BIO. He described international partnerships within BIO and outlined the factors considered for international partnerships. Drs. Miller and Malcomber answered questions about how to expand the range of international partnerships, an example of partnership between BIO and a non-governmental organization, and pandemic prevention as a good candidate for international partnerships.

**MCB and IOS COV Report Outs – *Rob McClung, MCB COV, and Scott Santos, IOS COV***

Dr. McClung summarized the MCB COV Report as very positive overall. Division morale was seen as very high, and performance has been great. He identified areas for improvement: 1) merit review for broader impacts; 2) attention to the impacts of inflation on salaries and project budgets; 3) analysis of the impacts of no deadlines and reduced submissions to know who is missing or disproportionately impacted and why; and 4) exploring approaches for improved workforce development.

Dr. Santos summarized the IOS COV Report, which was also strong. The IOS COV had similar questions about demographics and noted the lack of data made it difficult to draw full conclusions. Overall, the merit review process was felt to be strong and fair across IOS, noting the ability to pivot to mitigate COVID-19 impacts. The COV felt management seemed to be doing a good job, and IOS retreats were recognized as a good way to manage division issues. One of the big concerns identified was that Broader Impacts were difficult to review and evaluate. The COV report included suggestions for how to encourage the community to provide demographics. There appeared to be no impacts from the transition to no deadlines. IOS seemed to have good partnerships and good multidisciplinary interactions across the agency. Overall, the staff and leadership of IOS was working well toward completing the agency's mission.

In response to a question about the differing impacts from the elimination of deadlines between MCB and IOS, Drs. Santos and Eleknovich noted that IOS had a decline in submissions initially, but the submissions have rebounded subsequently. AC members noted that there seems to be a recurring theme that reviews for Broader Impacts have confusion associated with them. There was some discussion about the cost of science going up and the erosion of purchasing power. In response to questions about impact on different demographic groups, Dr. Cone noted there didn't seem to be an impact on the demographics of submissions by the elimination of deadlines and that NSF is attempting to improve demographic data by changing the way it is collected.

The MCB COV Report was approved unanimously without edit.

The IOS COV Report was approved unanimously without edit.

### **Meeting with OD Leadership – *Sethuraman Panchanathan, NSF Director and Karen Marrongelle, Chief Operating Officer***

Dr. Panchanathan thanked Dr. Tornow for her service to NSF and detailed his current visit to the White House to discuss biotechnology and bioinfrastructure. He emphasized the importance of the U.S. staying at the forefront of Biology and tapping into the full diversity of the workforce to do so.

The AC provided updates on their earlier discussions, including the potential disproportionate impact of the pandemic on students from groups underrepresented in STEM and institutions that serve them; workforce diversity, equity, inclusion, and accessibility both inside and outside of NSF as they relate to connecting Strategic Goals 1 and 4; the impact of high inflation on purchasing power and the willingness of students to remain on the STEM track; equalizing investments across EPSCoR institutions depending on the needs of an institution; GRANTED as a good strategy to help

MSIs develop sponsored research infrastructure; the potential to expand MCA to all of NSF; opportunities for BIO to advance use-inspired research; how to expand the range of international partners; and broader impacts plans.

Dr. Panchanathan responded first by pointing out that NSF's executive team reflects the diversity that NSF is aiming for across the foundation. He emphasized work on Capitol Hill to ensure adequate funding for the efforts and his understanding of the value of grant office infrastructure at institutions. Regarding EPSCoR, even though there are concerns about percentages allocated in the CHIPS and Science Act, support of research in these states needs to be increased and it shouldn't be seen as a competition with other science budget. He stated MCA is exciting, and other parts of the agency are looking at similar mechanisms, which is an example of how successful efforts spread. Regarding disproportionate effects of COVID-19, NSF continues to focus funds on addressing the issue and is looking at it very carefully. Dr. Panchanathan said he strongly believes in use-inspired research which is why NSF launched TIP and thinks the CHIPS and Science Act will help NSF move in this direction as well. He highlighted meetings with international ministers that contribute to the development of international partnerships where NSF can leverage common interests. He finished by emphasizing that AC input is being heard and is taken seriously. Dr. Marrongelle added comments about ensuring fundamental laboratory resources for undergraduates and mentioned that Dr. James Moore, the new EDU AD, would be a good connection.

### **Recap and Discussion of Topics for Spring 2023 Meeting – *Michael Ibba, AC Chair***

Dr. Ibba invited discussion from the AC on high points of the meeting and ideas for topics for discussion at next or future meetings. Dr. Ibba noted that one item for next time will be discussion of responses to the two COV reports. Other topics for consideration included more information about EPSCoR collaborations and long-term effect of the pandemic on EPSCoR states; more information on partnerships especially relating to non-governmental organizations; clarification and elaboration on the relationship between TIP and other directorates; BIO-LEAPS and RAMP updates; joint meeting with another AC at some point on the topic of use-inspired work and other cross overs; and how graduate education is evolving in NSF's perspective.

Dr. Tornow adjourned the meeting at 2:02pm EDT.