

Directorate for Biological Sciences National Science Foundation

Response to the Committee of Visitors Report Division of Environmental Biology (FY2019-2022)

The Directorate for Biological Sciences (BIO) and the Division of Environmental Biology (DEB) express their sincere appreciation to the members of the 2023 Committee of Visitors (COV) for their hard work in evaluating DEB merit review processes, portfolio characteristics, and portfolio management practices during fiscal years 2019-2022. This comprehensive report reflects the thorough engagement and deep interest of the COV members in the Division's programs and the welfare of the science communities served by these programs.

This document contains the BIO responses to specific recommendations made by the Committee in its report.

Section I Recommendations:

Questions about the quality and effectiveness of the program's use of merit review process.

Recommendation 1. We recommend greater clarity from the NSF regarding the importance of Broader Impacts (BI) as communicated to the community; particularly as regards how BI are assessed relative to IM in making funding decisions. Further, we recommend that DEB enhance its communication to PIs as how best to incorporate costs of BI activities in proposal budgets. We think this is especially important for newer investigators and/or PIs that have not served on review panels.

Response: The view of the NSF and BIO is that the Intellectual Merit (IM) and Broader Impacts (BI) are equally important review criteria. As per the [PAPPG](#), "Both criteria are to be given full consideration during the review and decision-making processes; each criterion is necessary but neither, by itself, is sufficient. Therefore, proposers must fully address both criteria." (Chapter III.A.2). As for communication to PIs about budgetary considerations, DEB hosted a Virtual Office Hours (VOH) event on writing budgets in February of 2023 and another on Broader Impacts in June of 2023; slides and recaps of VOH webinars are posted on the DEB blog for reference by the PI community. DEB often revisits important VOH topics and can consider revisiting these topics in the future. Program Officers continue to make themselves available to answer any questions from the PI community.

Recommendation 2. Ad hoc reviewer training (e.g., office hours, a recorded webinar) could potentially benefit DEB programs and should be offered to the extent practical. The feedback that Principal Investigators (PIs) receive from more evaluative and substantive reviews and Panel Summaries will benefit both the scientific community and the NSF staff by making the review process and subsequent funding decisions more transparent. The COV believes that one relatively easy way to accomplish this would be to consistently provide detailed reviewer guidelines within review templates.

Response: BIO agrees that substantive and evaluative feedback is important for PIs, and we strive to provide ample guidance to ad hoc reviewers and panelists. All ad hoc requests from DEB are accompanied by a sample review template with guidance on how to evaluate the Intellectual Merit and Broader Impacts, as well as link to the NSF video titled "[The Art and Science of Reviewing Proposals](#)" that offers additional tips and guidance for reviewers. We believe these tools provide the reviewer with detailed, consistent guidelines for how to conduct an ad hoc review. That said, we could consider using the VOH mechanism to explain best practices for ad hoc reviewers.

Recommendation 3. To the extent that information within the Review Analysis can be shared with proposers via a PO Comment, this can serve as a mechanism for alleviating concerns when proposals are declined and could ultimately provide investigators with information that may be important for improving and resubmitting a declined proposal. The COV encourages POs to consider using the PO comment as a mechanism for increased transparency on how proposals are evaluated, and consequent funding decisions are made. It would be helpful to PIs if NSF could provide additional guidance for how to interpret panel feedback when awards are declined for funding. By providing this information in a standardized and transparent fashion, such a mechanism can improve communication between POs and PIs.

Response: BIO values being as transparent with the scientific community as possible and believes that sending a clear message to the investigators is an important part of that transparency. BIO will continue to follow NSF guidelines and provide transparent information to the scientific community about the panel recommendation and reviews.

The use of PO Comments has increased recently, especially with proposals that are declined, and each of those PO Comments include language that states, "If after reviewing the individual reviews and the panel summary(ies) the investigators have questions or would like any additional information regarding their proposal, they should feel free to contact the program". Program Officers continue to make themselves available to answer questions from the PI community.

Recommendation 4.

- a. We recommend DEB continue its serious evaluation of the benefits of in-person meetings versus the cost of workload to staff and cost (in dollars) of hosting in-person panels and other events. The COV was not provided with a cost analysis per se but the budgetary implications of in-person versus virtual appear obvious.

- b. NSF should carefully consider impacts to staff operations (many of whom are still working remotely) as in-person events are rolled out.
- c. We recommend a thoughtful balance of virtual and in-person panels allowing for more efficient proposal processing and network-building (in-person) while also increasing accessibility of panel service (virtual).

Response:

- a. BIO is continuing to evaluate the costs and benefits of hosting in-person meetings, including the monetary costs and the effect on workload. At the time of this COV meeting, DEB had only hosted a single merit review panel in-person over 3 years' time. As we convene more in-person review panels, we'll have a better opportunity to compare in-person and virtual meetings.
- b. As NSF telework policies adapt to the post-pandemic environment, fewer employees will be working fully remotely as described by the Chief Operating Officer in subcommittee testimony in September 2023: <https://oversight.house.gov/wp-content/uploads/2023/09/House-Oversight-Telework-Hearing-Testimony-NSF.pdf>. BIO will continue to explore all available options for meeting the NSF mission and taking into consideration the effects of in-person meetings on staff and operations where possible.
- c. As BIO convenes more in-person panels, we will continue to assess virtual and in-person panels to balance demands for greater efficiencies in proposal processing, network-building, and panel accessibility. NSF is also examining whether virtual panels support its efforts to broaden participation, as described in OIG Report No. 22-6-003 on Remote Versus In-Person Merit Review Panels: <https://oig.nsf.gov/sites/default/files/reports/2022-01/22-6-003-Merit-Review-Remote-v-Person-Panels.pdf>.

Section II Recommendations:

Questions concerning the selection of reviewers.

Recommendation 5. The COV recommends an updated analysis of how the co-review process affects the selection of reviewers – both ad hoc and on the panel. Specifically, the COV suggests that more transparency in illustrating the decision-making process to co-review (as well as the co-review process itself) is warranted. An evaluation of the process could address questions such as: Is it more difficult to find reviewers for co-reviews, especially when the content of a given proposal bridges across different fields and/or disciplines? Are co-reviewed proposals more likely to be positively assessed, and if so, are they more likely to be funded?

Response: While BIO regularly monitors the success rates of multiple types of proposals, including those that are co-reviewed, the previous in-depth co-review analysis in DEB was completed in 2016 and several major changes have occurred since then. A new analysis of co-reviews might provide useful information on how recent

programmatic changes—such as the end of pre-proposals, the transition to no-deadlines for most core programs, and inception of programs, like Integrative Research in Biology, that require co-reviews—have influenced the co-review process.

Recommendation 6. The COV recommends that DEB (and more broadly NSF) develop specific guidance to support international reviewers, so they are better equipped to understand the NSF review process and meet those expectations. This will strengthen the quality and diversity of ad hoc reviews. We also suggest that DEB consider such questions as: What is the distribution of international reviewers within programs, especially within the pool of ad hoc reviewers for a given panel? Does the proportion of international reviewers differ between ad hoc experts and panelists? How can international reviewers be better supported? Science is an international endeavor, and the NSF review process should reflect this.

Response: The use of international reviewers varies across programs in BIO (and NSF). Across the BIO Directorate, international panelists are not very common outside of specialized programs with international partners (e.g., EEID and BoCP), in part due to issues with the cost of travel for in-person panels and time zone differences for virtual panels. Also, non-US citizens are not eligible to receive any stipend for panel service. The use of international ad hoc reviewers is at the discretion of the Program Officers, given the need for specific scientific expertise. International panelists and ad hoc reviewers receive the same guidance provided to any other panelist or ad hoc reviewer.

Recommendation 7. To further streamline the process [of recognizing and resolving conflicts of interest], the COV recommends that DEB ensure that the COA worksheet is in the same format as the NSF individual COI, so it is not burdensome for submitters to create the DEB-specific COA worksheet.

Response: All of BIO's solicitations follow the PAPPG guidance on the Collaborators and Other Affiliations (COA) document. In the past, we have requested an additional document that listed all the personnel associated with a proposal, but that is no longer part of the solicitation.

Recommendation 8. The COV recommends that DEB explore ways of increasing participation by gathering demographic data from reviewers (both ad hoc and panel) to better allow DEB to assess reviewer diversity. Panelists could be reminded of the importance of this information and to update their information as part of the "Meeting Sign In." Reviewers could also be required to opt-out of reporting their demographic information (rather than opt-in), an approach successfully used with PIs to increase their contribution of demographic data.

Response: BIO appreciates and agrees with the COV on the importance of broadening diverse participation among ad hoc and panel reviewers. BIO's current practice is for the Division Director, and Deputy Division Director to review panel composition to ensure diversity of demographic factors, including investigators from groups under-represented in science, gender, career stage, types of organizations, and geographic location. BIO will continue to carefully monitor the compositions of reviewer pools, to encourage POs to

remind panelists to update their reviewer profiles at the beginning of panel, and to bolster strategies for increasing interest in NSF service.

Additionally, as part of NSF's new single ID process, reviewers are required to update their reviewer profile information. These profiles are now entirely self-managed. With this change, reviewers are required to opt-out of providing demographic information. DEB recently released a blog post to remind reviewers about this new process and how to perform the required updates ([here](#)).

Recommendation 9. The DEB might consider a post-panel process to review the diversity of ad hoc reviewers. NSF could work with the Office of Management and Budget (OMB) to broaden the concept of 'gender' with options beyond "Male or Female" on the personnel information sheet in FastLane.

Response: BIO appreciates the COV's recommendation to include options for individuals who don't identify as male or female. As part of the previously mentioned NSF's single ID update, there has been another option added to reviewer profiles. This new option is "Unspecified, or another gender identity". Reviewers may also opt out of providing any information in this field by selecting "Do not wish to provide".

Recommendation 10. The COV recommends that DEB perform additional analyses on reviewer selection data that normalize reviewer participation by grants submitted (geographically, institution type) and partition between ad hoc and panel reviewers.

Response: BIO will take this recommendation under advisement and continue to monitor the panelist and ad hoc reviewer participants to strive for diverse representation of our community, both geographically and by institution type.

Recommendation 11. The COV recommends that DEB track data on recruitment and diversity of reviewers in virtual, hybrid, or in-person review panels across core and specialty programs to determine the impact of these different review panel mechanisms on reviewer participation and diversity, especially in terms of whether it represents the applicant community.

Response: Panel diversity is paramount in BIO. We will continue to include demographic summaries of each panelist and their institution as part of the panel selection and approval process. We will continue to recruit and host panelists from a variety of backgrounds and continue to monitor how panel formats may or may not impact our recruitment efforts.

Section III Recommendations:

Questions concerning the management of the program under review.

Recommendation 12. Continue to assess the impacts of the transition to no-deadline proposal submissions—including determination of any differential effects across the diversity of DEB's science community at both the institutional and individual levels — while considering expansion of this practice to other DEB funding elements.

Response: BIO will continue to monitor the impacts of the transition from a deadline to no-deadline submission model, using metrics established by the BIO Advisory Committee.

Recommendation 13. To whatever degree possible, greater consistency is needed in NSF's communication with staff about future plans regarding panel formats, remote work, and other issues that impact future planning of critical day-to-day operations. This may include reassessing the balance of in-person, virtual, and hybrid panels until there is greater clarity on the "new normal" for NSF operations and broader logistical support has been re-established within the headquarters building. DEB should be aware that the loss of catering services places a considerable burden on staff when panels are either hybrid or in-person and this should be taken into consideration when weighing the advantages and disadvantages of panel meeting modalities.

Response: While BIO appreciates this recommendation, NSF's decisions, and the communication of those decisions to staff, are often outside of BIO's control. As mentioned in the response to COV Recommendation 4, BIO intends to work closely with all stakeholders as we thoughtfully move forward to re-incorporate the use of in-person meetings to support NSF's mission.

Recommendation 14. The COV recommends that DEB carefully monitor the money flow into other BIO divisions with an eye towards maintaining parity.

Response: The decisions regarding allocation of funds to individual BIO Divisions are made at the BIO Directorate level. All Divisions within BIO are provided with information on the budget for each Division every year.

Recommendation 15. The COV recommends that the Best Practices Group continues to improve processes and procedures within DEB and share these developments with other NSF programs as appropriate.

Response: BIO appreciates the importance of the Best Practices Group in standardizing and improving processes and procedures among the clusters and programs across the Division. This group will continue its important work and look for new ways to share these practices with other programs within and outside of BIO through coordination with other relevant working groups.

Recommendation 16. With the recent increase in special programs and special program funding, it is important that DEB review how monetary and time budgets are divided between

core and special programs. It would be good for the next COV to have a clearer understanding of how special programs are created and funded, which is a potential mechanism for their assessment in the future. We recommend that the division consistently and thoughtfully assess the balance between special programs and core programs, considering pressing societal, scientific, and community needs as well as the impacts of inflation on the costs of doing science. DEB should be vigilant in maintaining a strong focus on basic discovery-driven scientific priorities.

Response: BIO appreciates this recommendation and will remain vigilant in assessing the time and monetary balance between core and special programs. Like all Divisions in BIO, DEB reviews overall workload every year, and during this review, special programs are evaluated for effectiveness, value, and workload.

Recommendation 17. When self-studies are prepared for future COVs, DEB should explain the reasons for any change in relative funding allocations to core programs and describe the process by which the decision was made. In particular, future self-studies should address how DEB balances its commitment to ensuring that clusters do not become sub-disciplinary silos with its commitment to supporting strong disciplinary communities that are often identified with one of the research clusters.

Response: This is useful feedback. DEB programs are strongly engaged in efforts to 'reintegrate' across the subdisciplines of biology through the Integrative Research in Biology (IntBIO) program, which has recently become a special track in the BIO core solicitations. In the next COV self-study, we should be able to provide information on how well the IntBIO track is supporting disciplinary communities in DEB and other BIO Divisions.

Recommendation 18. DEB should develop an approach to enhance research in environmental biology at regional public universities, MSIs, and HBCUs, including participation in GRANTED and BRC-BIO consistent with NSF's commitment to scientific leadership and excellence. DEB should also ensure that it takes full advantage of any funding available through CHIPS to enhance support for research in environmental biology at regional public universities.

Response: Enhancing research in environmental biology at regional public universities, MSIs and HBCUs is a BIO priority. We are developing strategies to implement in 2024. This effort is responsive to the CHIPS and Science Act that calls for the expansion of geographic and institutional diversity in research through increases in the percentage of NSF funds for key research and STEM activities and for research infrastructure in support of institutions and researchers in EPSCoR jurisdictions.

Recommendation 19. DEB should think strategically about ways in which collaboration and cooperation with TIP can enhance the quality and impact of DEB science and can contribute to NSF-wide strategic goals. In doing so, DEB should carefully consider the impact on science supported by existing DEB programs associated with any reallocation of effort or funding.

Response: As TIP is entering its second year of existence and just finding its feet, both BIO and TIP are exploring ways to cooperate, including through joint funding. For example, we are looking to develop funding opportunities that support the bioeconomy, as that is a priority research area led by the BIO Directorate, and it is also of high interest for TIP.

Recommendation 20. The NSF publication repository may not yet be extensive enough for identifying innovative or transformative research, and the text mining tools may not yet be sophisticated enough to support analyses of the type envisioned in the 2019 COV report. Nonetheless, DEB should monitor the status of both the repository and the text mining tools and use them to explore the factors associated with innovative or transformative funded proposals when the data and tools are. The explosive advances in generative AI may make the difficult problem of recognizing "innovation" or "transformation" substantially less difficult in the near future.

Response: NSF is currently investigating and developing multiple tools for exploring the data collected during the grant application and award process. Over the last several years, there has been an explosion of new tools, dashboards, and analyses across the NSF with the purpose of better understanding and serving our community as well as providing the best quality information to leadership. BIO continues to actively pursue and contribute to these initiatives while recognizing that the certain types of data collected during the merit review process must be protected.

Section IV Recommendations: Questions about Portfolio.

Recommendation 21. We recommend that DEB continue to fund work that bridges cultural and societal needs in special programs while building upon discovery science that is the heart of the DEB core, particularly in the areas of biodiversity and responses to and perceptions of climate change. This is consistent with OMB recommendations for addressing societal needs, the biodiversity crisis, and building a diverse future workforce in the sciences.

Response: BIO agrees with this recommendation, and we will continue to fund interdisciplinary science that bridges cultural and societal needs while still supporting the discovery-driven science supported by the DEB core program areas.

Recommendation 22. Maintain awareness of postdoctoral salary and graduate student stipend equity in DEB relative to other NSF programs and divisions.

Response: BIO is aware of the changing landscape in graduate student and postdoctoral scholar compensation and agrees that change is needed. BIO does not dictate what PIs

request on grants to support graduate students or postdoctoral fellows in their labs, but we do believe in ensuring that these workers receive living wages.

Recommendation 23. DEB should pay close attention to developing programs in other directorates and institutions to look for synergies and co-funding opportunities. The rollout of TIP appears to offer a particularly promising environment for synergies between DEB's core strengths in discovery-driven science with potential societal benefits in mind.

Response: We are constantly looking for co-funding opportunities both within NSF (e.g., GEO, TIP), with other agencies (e.g., NIH, USDA), and with private funding (e.g., Paul G. Allen Family Foundation); and we will continue to vigorously pursue all opportunities for co-funding.

Recommendation 24. DEB should continue the outstanding job it is doing in seeking and supporting opportunities to co-review and co-manage proposals across the diverse portfolio of the NSF.

Response: BIO appreciates the committee's recognition of the Program Officers' hard work in seeking out and obtaining a diverse set of reviews and funding sources for interdisciplinary proposals and awards. Clusters and programs will continue to consult their colleagues to provide the best possible service to our community.

Recommendation 25. Continue to fund grants from states traditionally underrepresented in research and maintain current strong relationships with EPSCoR Program Officers and programs to find ways to co-review and co-fund projects from these states. Explore ways to further support the PIs and institutions within these states to create cultures of research and support increased grant submissions from institutions traditionally underrepresented among NSF proposal submissions, including mechanisms such as the GRANTED solicitation.

Response: BIO will continue to closely manage our research portfolios, which include awards to institutions and states without traditionally strong NSF funding records. In consultation with Program Officers from EPSCoR and other programs at NSF, we will continue to seek out ways to co-review and co-fund these projects and to provide targeted outreach to PIs from institutions that have been underserved by NSF. Such strategies should help us meet the goals of the CHIPS and Science Act, which calls for NSF to increase the percentage of funds granted to institutions in EPSCoR jurisdictions.

Recommendation 26. DEB is encouraged to work with institutions and PIs at institutions currently under-represented in the DEB portfolio, particularly at MSIs, to help develop recommendations on topics such as teaching release time, infrastructure, budget development, and post-award support for grant applications and awards. DEB has the potential to help create a culture of NSF proposal submissions and research at these institutions and should take all sensible measures for achieving this goal.

Response: Expanding funding to underrepresented groups and institutions remains a priority for BIO. We are increasing our outreach activities and looking at new strategies to best reach these communities.

Recommendation 27. Continue to encourage emerging PIs to consult Program Officers throughout the development of proposals and to discuss the review process and any resulting reviews.

Response: BIO encourages all PIs to communicate with Program Officers early and often when developing proposals. We will continue to encourage PIs to reach out with questions about the review process and resulting reviews.

Recommendation 28. We recommend increased training around the inclusion of traditional supplemental funding opportunities in original proposals, perhaps in workshops or DEB office hours. A particular focus of this training should emphasize to PIs at R1s that they can maximize their Broader Impacts by being inclusive of K-14 and regional public institutions. PIs should be encouraged to increase the educational component in all grants, not just those specialized in teaching.

Response: Information about educational opportunities, such as REUs, is included in all BIO core solicitations, whereby we encourage inclusion of these activities in original proposals, as feasible. That said, since unforeseen opportunities can arise throughout all stages of an award, we will continue to communicate annually with current awardees about opportunities for supplemental funding. We will also consider additional strategies—such as Virtual Office Hours and blog posts—to help PIs understand all their options for funding educational activities.

Recommendation 29. The COV recommends that rates of proposal submission and award be calculated as a percentage of all proposals submitted or awarded respectively. This approach provides a clearer view of whether women and/or minority-led proposal are being funded at rates proportional to their representation among DEB proposals submitted.

Response: BIO appreciates this feedback on how data are presented in the Self-Study Report, and we will take this under advisement in the preparation for our next COV.

Recommendation 30. Maintaining "state of the art infrastructure" and training the future workforce is difficult when universities that primarily serve underrepresented populations are increasingly faced with economic challenges. Thus, the COV recommends that DEB continue its course of prioritizing funding to MSIs. This is an investment that will pay dividends in both scientific and societal gains.

Response: BIO will continue to monitor our funding of underrepresented groups and minority-serving institutions.

Section V Recommendations: Other Topics.

Recommendation 31. We suggest the development of alternative award mechanisms that will allow graduate students to apply for funds without the disproportionate administrative burden entailed by the DDIG program. Possibilities include competitively funding block grants to institutions or to professional societies rather than individual graduate students, starting a program akin to REUs but for graduate students, or using abbreviated panel evaluations similar to those for the NSF GRFP. We urge DEB to consider that the disappearance of the single NSF funding mechanism for independent graduate student research has been a tremendous loss to the next generation of DEB scientists.

Response: The decision by BIO to end the DDIG solicitation was difficult, but in the face of high workload, it was a necessary course of action. The NSF will continue supporting graduate research training through the Graduate Research Fellowship Program (GRFP) and the NSF Research Traineeship Program (NRT). BIO leadership continues to be open to hearing from the community about ideas for supporting and funding graduate level research that maintains our gold standard review process while effectively managing workload.

Recommendation 32. The COV notes that there is often a burden on under-represented groups who are called on often due to historically based low numbers in efforts to diversify reviewer pools and panels. As efforts to diversify reviewer pools continue, and this burden persists, we recommend paying ad hoc reviewers as well as panelists to compensate for this issue (and to help recruit reviewers in general).

Response: BIO appreciates the COV's concern and suggested possible solution on this topic. Unfortunately, the rules and regulations governing compensation rates for panelists, and the lack of compensation for ad hoc reviewers, are set by NSF policy.

Recommendation 33. The COV recommends that DEB ensure that leaders and program officers provide substantive, evaluative responses to questions in sections III and IV using summary data provided by DEB staff.

Response: BIO thanks the COV for the feedback on the COV Self-Study Report. BIO and DEB strive to provide substantive and evaluative responses to all the COV questions, considering quantitative and qualitative data provided by staff. Realizing that questions often arise during a COV meeting that are beyond the scope of our data, we will take this recommendation into consideration when preparing for our next COV.

Recommendation 34. The COV recommends that NSF study the merits of virtual versus hybrid or in-person panels (described in detail in Section I-7), especially with an eye toward maximizing diversity, equity, and inclusion of participants while also considering the economic and collegial

aspects of panel modalities. We anticipate that some mix of the two panel settings will ultimately serve the DEB best as it moves towards a "new normal" post-pandemic.

Response: See response to Recommendation 13.

Recommendation 35. We recommend that NSF provide as much advance notice as possible of any intention to require staff members to return to in-person work, either for particular events or long-term. In addition, we encourage the NSF administration to work with local representatives of the American Federation of Governmental Employees and any other relevant bargaining units to ensure work practices that protect staff members' welfare.

Response: The NSF administration works closely with AFGE Local 3403 on all workforce-related matters. BIO and DEB strive to provide timely information to staff and to maintain open communications on any activity that affects their work.

Recommendation 36. We recommend that the pre-meeting orientation focus on operational topics in addition to Conflicts of Interest (COIs). Though COIs are critical to the NSF's high standards of unbiased assessment, the orientation could also provide more explicit directions about the purpose of reading the jackets, any expectations for collecting and sharing information from them, how writing section assignments will be communicated to the panelists, and other operational details directly relevant to the report structure. This could be accomplished via a longer orientation session and/or additional meetings. It might also be productive to choose a member of the current COV (2023, in this case) to chair the subsequent COV (2027, presumably).

Response: BIO appreciates that the COV process is complex and will investigate how to make the pre-meeting orientation more constructive and accessible for future COVs.

Recommendation 37. We also recommend a different structure and timing for meeting with DEB program officers. There was a surprisingly large number of DEB POs present, and while the COV appreciated the sense of involvement and investment that this enthusiastic representation communicated, the committee nonetheless found it difficult to attempt a group conversation with such a large group within a one-hour timeframe and in a virtual setting. If future COVs will also be held virtually, we recommend smaller breakout groups with a few POs (perhaps from different programs) with a few COV members (from different fields). Regarding timing, it would be more productive to meet with DEB program officers later in the COV – perhaps the afternoon of Day 2 when the COV has a better sense of emerging issues and questions. We also suggest that COV meetings might be more productive in an in-person setting which could entail more flexible movement and communication among section groups.

Response: BIO agrees that there is a tremendous opportunity to restructure the COV agenda, including the allotted time for meeting with Program Officers and the number of participants in the meetings. Furthermore, in planning for our next COV, we will

investigate options for hosting an in-person meeting to allow for more flexible movement and communication among groups.