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Response to Comment Request; National Science Foundation Proposal/Award Information—NSF Proposal and Award Policies and Procedures Guide, OMB Approval Number: 3145-0058, dated April 13, 2022

Proposed inclusion of a new supplement doc: Plan for Safe and Inclusive Field/Vessel/Aircraft Research (PSI-FVAR)

We are eight professionals who have dedicated a large part of our careers in leadership roles working to make teaching and learning in the field a positive, safe and inclusive experience for students. We hail from professional organizations, research coordination networks, higher education institutions, and nonprofit organizations in the environmental sciences. While not presenting organizational or institutional positions on the PSI-FVAR, this letter presents a consensus among the eight of us based on our deep experience in this arena, and the conversation we facilitated in a Water Cooler Chat on the topic hosted by the Ecological Society of America and the Undergraduate Field Experiences Research Network on June 6 2022 and attended by 98 individuals.

We are heartened that the National Science Foundation is taking an important step in ensuring safe and inclusive research and educational environments. Fieldwork, from urban field sites to the most remote field sites in Antarctica or on vessels in the middle of the ocean, is critical for the scientific enterprise across a broad array of NSF-funded disciplines and critical for training the next generation of scientists and scientifically-literate public. Just as critical is that everyone has a research and/or education experience that is safe and inclusive.

We wholeheartedly support the proposed addition of a plan for safe and inclusive field/vessel/aircraft research to NSF proposals that conduct research in the field. A body of literature has identified potential risks to safety in field environments, including sexual and other types of identity-based harassment, microaggressions, sexism, racism, homophobia, transphobia, ableism and discrimination based on religion, citizenship status, or other protected categories that create unsafe learning and working environments (e.g., Clancy et al. 2014; Pickrell 2020; Olcott and Downen 2020). These behaviors can come from members of a research team, others outside of the research team participating in research-related activities, or non-research related members of the public. Assessments of the potential risks and their impacts on all members of the research team need to be conducted and protocols put into place to reduce risk of harm and support people if harm does occur. We agree with NSF that the creation and implementation of a plan ahead of the fieldwork is critical.

For example, research on sexual harassment ([Nelson et al. 2017](#)) found that clearly identified, communicated and enforced rules with consequences lead to more positive field experiences, whereas the most negative and unsafe experiences occurred in field environments without rules and responses to violations. The [National Academies of Sciences 2018 report](#) on sexual harassment concluded that its role as a barrier to equitable participation in academic science, engineering, and medicine “will be more effectively addressed in higher education if the standards of behavior are also upheld in off-campus environments such as collaborative research and field sites.”

We recommend the following considerations in improving the proposed PSI-FVAR supplement and processes associated with it before it is adopted. Again, these recommendations reflect our own thinking but also reflect the ideas that surfaced during and after the June 6 2022 Water Cooler Chat mentioned earlier.

Accountability

It is critical that the policy be enacted, but equally important is ensuring accountability. Possible starting point actions regarding accountability include:

- The plan presented in the PSI-FVAR supplement should be a living document. Involving everyone, from undergraduate student participants and graduate student field instructors to Principal Investigators, in developing and maintaining the plan improves both communication and accountability.
- The proposed plan should make the expectations for each person in the team clear and explain in detail how the plan will be communicated and upheld.
- The proposed plan should provide a mechanism for assessing its effectiveness and for members of the research team to provide feedback confidentially and in a timely fashion.
- NSF reporting mechanisms may be one way to support accountability. In the same way that annual reports are required to provide progress in meeting project goals, they also could include a description of how the PSI-FVAR plan was implemented over the reporting period. Any issues that came up in the living safety plan could be explained, including the steps taken to address them. Whatever reporting mechanisms are decided, they should be broadly shared with the community at the time the new policy is announced, in order to increase confidence in the effectiveness of the policy.
- Proposal reviewers may need guidance on what constitutes appropriate and effective plans for safe and inclusive fieldwork. Such guidance should be grounded in evidence-based research. It is critical that reporting and accountability does not increase the burden on the most vulnerable. Intentional plans should be expected to allow for reporting and for supporting (e.g., [Holland et al. 2021](#)) and reduce the potential for retaliation. Reporting unsafe or exclusionary field practices should not result in loss of funding or opportunity.

Comprehensive

The new policy should encourage and support field research teams to take an explicit and comprehensive view of workplace climate. Identity-based harassment, discrimination and aggressions, including those based on race and ethnicity, gender identity, sexual orientation, ability, religion, citizenship and immigrant status), should be recognized specifically. Plans for safe and inclusive fieldwork also should include language about accessibility. Effective plans recognize disproportionate

risk for different people, and include specific language on the role of identity. There is a rich body of literature on suggested practices and guidelines that field research programs should consider for a range of identities beyond gender (e.g., Anadu et al. 2022; Amon et al., 2022; Stokes et al., 2019; Demery & Pipkin, 2021; Coon et al. 2022).

Integrated

It is important to emphasize that the PSI-FVAR policy is intended to highlight how actions to ensure the safety of all team members, especially those most vulnerable because of their identity or position in the organizational hierarchy, are incorporated into the proposed work. In other words, the proposed plan for safe and inclusive fieldwork should be integral to the rest of the proposed work, and not just a checklist on the side. We propose the following as initial actions regarding integration:

- The proposed plan should be integral to the proposed fieldwork; - rather than a rigid checklist, it should be an actionable, integrated framework.
- The proposed plan should be aligned with the goals and scope of the project and project team (and what is likely to be most needed for the context of the proposed work).
- The plan should be a living document that is relevant, addressing time and place, making changes as needed with input from everyone involved.

Evidence-based Training

Training is important for raising awareness and providing tools, yet it can often be undertaken with little consideration for its relevance to the proposed work or for its effectiveness. Training should be integrated into the proposed work and not treated as something to check off a list as part of the supplement document. Possible starting point actions regarding training include:

- The PSI-FVAR plan should identify the type and approach of training and its relevance to the proposed work as well as who in the research team will participate. In most cases we expect that all participants will receive training in safe and inclusive fieldwork practices.
- NSF should provide criteria for effective training so that proposals can indicate how they meet those criteria in their plans, especially given research that shows how trainings that do not use evidence-based practices may be counter effective (NASEM 2018).
- NSF should provide salient references and other resources to help PIs find, evaluate and utilize evidence-based training approaches and practitioners.

NSF's role

NSF should embrace their role in funding the highest quality proposals with comprehensive and integrated plans. Access to funding is not enough, however. NSF needs to provide resources - to support training and under-resourced institutions and to provide clarity for the entire process, including clear criteria for reviewers. We encourage NSF to continue funding programs that study the effectiveness of different practices to improve safety, inclusion and accessibility at field locations. NSF can play a pivotal role in achieving the goals of the new PSI-FVAR policy by:

- Communicating about the new policy broadly, and providing on-going support to the community for its implementation via webinars, workshops at professional association meetings and on-line resources.

- Assuring that the plans for safe and inclusive fieldwork responding to the PSI-FVAR supplement are reviewed with clear and transparent criteria, and that PIs receive constructive feedback from panels and program officers.
- Provide funding within project budgets for the time and expertise required to implement an effective plan (e.g., training expenses, etc.).
- Develop resources and other strategies that can help small and under-resourced institutions develop and implement effective plans by tapping into community resources.
- Develop clear guidelines for reporting about the plan in annual and final reports.
- Provide funding for research projects to study the effectiveness of different practices to improve safety, accessibility and inclusion in fieldwork.

Open pathways for communication

We encourage NSF to develop open pathways for communication with universities and colleges, field stations, marine labs and other institutions about these new guidelines. We are concerned that universities and colleges, especially those with few resources, may be deterred and could choose not to support field research if they begin to see it as too risky. NSF needs to emphasize the importance of safe, inclusive and accessible field research for training and for the scientific enterprise.

It is our hope that this new policy will include mechanisms for adaptation; that policies and procedures be revisited periodically and be modified in response to public feedback and that data be collected on their effectiveness.

Thank you for your consideration.

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Literature Cited

Amon, D.J., Z. Filander, L. Harris, H. Harden-Davies. (2022). Safe working environments are key to improving inclusion in open-ocean, deep-ocean, and high-seas science, *Marine Policy*, Volume 137, 104947, <https://doi.org/10.1016/j.marpol.2021.104947>.

Anadu, J., Ali, H., & Jackson, C. (2020). *Ten Steps to Protect BIPOC Scholars in the Field*. Eos. <https://doi.org/10.1029/2020EO150525>

Clancy, K. B. H., et al. (2014), Survey of academic field experiences (SAFE): Trainees report harassment and assault, *PloS One*, 9(7), e102172, <https://doi.org/10.1371/journal.pone.0102172>.

Coon, J. J., Alexander, N., Smith, E. M., Spellman, M., Klimasmith, I. M., Allen-Custodio, L. T., ... Morrow, L. K. (2022). Best practices for LGBTQ+ inclusion during ecological fieldwork: Considering safety, cis/heteronormativity, and structural barriers. <https://doi.org/10.32942/osf.io/kav6m>

Demery, A. J. C. & Pipkin, M.A. (2021). Safe fieldwork strategies for at-risk individuals, their supervisors and institutions. *Nature Ecology and Evolution* 5, 5-9.

Holland, K.J., E.Q. Hutchison, C.E. Ahrens, M. G. Torres.
2021. Reporting is not supporting: Why mandatory supporting, not mandatory reporting, must guide university sexual misconduct policies. *PNAS*, vol 118 No. 52
<https://doi.org/10.1073/pnas.2116515118>

National Academies of Sciences, Engineering and Medicine. (2018). *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, D.C.: The National Academies Press. <https://doi.org/10.17226/24994>.

Nelson, R. G., Rutherford, J. N., Hinde, K., & Clancy, K. B. H. (2017). Signaling safety: Characterizing fieldwork experiences and their implications for career trajectories. *American Anthropologist* 119(4), 710-722.

Olcott, A. N., Downen, M. R. (2020), The challenges of fieldwork for LGBTQ+ geoscientists, *Eos*, 101, <https://doi.org/10.1029/2020EO148200>. Published on 28 August 2020.

Pickrell, J. (2020). Scientists push against barriers to diversity in the field sciences. Science doi: 10.1126/science.caredit.abb6887

Stokes, A., Feig, A.D., Atchison, C.L. & Gilley, B. (2019). Making geoscience fieldwork inclusive and accessible for students with disabilities. *Geosphere* 15: 1809-1825.

Relevant resources

ADVANCEGeo In the Field resources: https://serc.carleton.edu/advancegeo/resources/field_work.html

Cronin, M.R., Alonzo, S.H., Adamczak, S.K. *et al.* Anti-racist interventions to transform ecology, evolution and conservation biology departments. *Nat Ecol Evol* 5, 1213–1223 (2021).
<https://doi.org/10.1038/s41559-021-01522-z>

Kelly, Anne, & Yarincik, Kristen. (2021). Report of the Workshop to Promote Safety in Field Sciences. Workshop to Promote Safety in Field Sciences (SIFS), Virtual. Zenodo.
<https://doi.org/10.5281/zenodo.5604956>

Flowers, S. K., O’Connell, K., & McDermott, V. M. (2021). Crafting Field Station and Marine Lab Communities for Undergraduate Diversity, Equity, and Inclusion. *The Bulletin of the Ecological Society of America*, 102(4), e01908. <https://doi.org/10.1002/bes2.1908>

Morales, N., O’Connell, K. B., McNulty, S., Berkowitz, A., Bowser, G., Giamellaro, M., & Miriti, M. N. (2020). Promoting inclusion in ecological field experiences: Examining and overcoming barriers to a professional rite of passage. *The Bulletin of the Ecological Society of America*, 101(4), e01742.
<https://doi.org/10.1002/bes2.1742>

Ramírez-Castañeda, V., Westeen, E. P., Frederick, J., Amini, S., Wait, D., Achmadi, A. S., ... Tarvin, R. D. (2022, February 4). A set of principles and practical suggestions for equitable fieldwork in biology.
<https://doi.org/10.32942/osf.io/uszd7>

Sloan, V., & Haacker, R. (Eds.). GEO REU Handbook: A Guide for Running Inclusive and Engaging Geoscience Research Internship Programs (1st ed.).