

Report of the Workshop to Promote Safety in Field Sciences



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Introduction

Harassment is pervasive in the academic workplace, especially in STEM-related fields. It undermines professional and educational attainment, diminishes mental and physical health, damages research integrity, and often results in the victims switching careers to avoid field work or leaving academia altogether, which represents a failure on the part of science to provide the safe and inclusive space that everyone deserves and, thus, a costly loss of talent and value to science. While universities are beginning to adopt better strategies to prevent and respond to sexual harassment, remote research brings additional challenges. Participants in field science already face acute safety concerns related to the remoteness of the field site or platform, and the isolated nature of field science is shown to exacerbate the risks of sexual harassment. Longstanding cultures of “Vegas rules,” an attitude where “what happens in the field, stays in the field” (i.e., should be kept private amongst the people who were there), in many field research environments encourage harassment and bullying. Small group settings can amplify toxic climates and interpersonal power imbalances. Deeply-ingrained male-dominant cultures and histories prevail in most field settings. This, combined with persistent and significant gender imbalances (especially in leadership), can perpetuate toxic environments. Isolation and unfamiliar environments can both empower harassers towards more extreme behavior, and limit targets’ ability to seek safety and assistance. Physical distance from home institutions, as well as multi-institutional teams, lead to a lack of comprehensive policies, oversight, and reporting. Intersectional minoritized identities and associated societal biases can compound these impacts, and lead to decreased support and response.¹ There are often multiple institutions bearing responsibility for those participants and the field site or platform, leading to a challenging environment for addressing and handling incidents of sexual and gender-based harassment.

The natural sciences are particularly impacted as a result of work in isolated research locations, such as field camps or on oceanographic vessels,² and that is why the [Workshop to Promote Safety in Field Sciences³](#) (SIFS) focused on these disciplines, including the Earth, ocean, atmospheric, and ecological sciences. The SIFS workshop was organized by California State University Desert Studies and the Consortium for Ocean Leadership and was held March 24–26, 2021.⁴ The workshop discussed the special problems of remote research settings in harassment prevention, target support, and incident response, and identified best practices, recommendations, and resources needed to improve prevention, reporting, and response to incidents of harassment at remote field sites. Workshop participants included both scientists across the natural science disciplines and social scientists with expertise in the causes and impacts of sexual harassment. Participation was intentionally broad and interdisciplinary to: 1) open a dialogue between sexual harassment experts and the field research community to identify and develop best practices and recommendations; 2) begin to build coordination and encourage consistency in policy setting and enforcement across field stations and oceanographic platforms; 3) develop recommendations for improved prevention of, reporting of, and response to incidents of sexual harassment instances occurring at remote field locations; and 4) promote a safe culture for scientists conducting research at remote field stations and on oceanographic vessels. The workshop utilized the National Academies of Science, Engineering, and Medicine’s (NASEM) definition of sexual harassment⁵ and a set of shared operating principles to guide participants in discussions.⁶

1 Armstrong, E. A., M. Gleckman-Krut, and L. Johnson (2018). Silence, Power, and Inequality: An Intersectional Approach to Sexual Violence. *Annual Review of Sociology* 44(1): 99–122. <https://doi.org/10.1146/annurev-soc-073117-041410>

2 Clancy, K.B.H., R.G. Nelson, J.N. Rutherford, and K. Hinde (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>; Gewin, V. (2015). Social Behaviour: Indecent Advances. *Nature* 519(7542): 251–53. <https://doi.org/10.1038/nj7542-251>; O’Hern, J. “I’ve Faced Sexual Assault, Harassment and Discrimination as a Female Scientist. My Complaints Were Dismissed.” *Washington Post*. September 11, 2015; Anonymous. “Sexual Harassment Must Not Be Kept under Wraps.” *Nature* 529, no. 7586 (January 20, 2016): 257–57. <https://doi.org/10.1038/529257a>

3 <https://oceanleadership.org/field-science-safety-workshop/>

4 See Appendix A for agenda

5 National Academies of Sciences, Engineering, and Medicine (2018). *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24994>. See page 19.

6 Appendix B

Recommendations

About the Recommendations

The recommendations resulting from the SIFS workshop aim to improve four major factors affecting field safety: culture change (at home institutions and in the field); accountability; policy development; and reporting procedures. Each one of these factors plays a critical role in the prevention of and response to sexual and gender-based harassment, yet all factors intersect and must be addressed synchronously. The recommendations focus on improving experiences for field participants of all backgrounds and identities.

In developing the recommendations, workshop participants considered a variety of audiences including university leadership, field practitioners and leaders, funding agencies (private and public), government agencies, professional societies, and community organizations, though not all recommendations will be relevant for all audiences.

The recommendations represent a starting point, and we hope that the report will inspire and guide different audiences and actors in field science in implementing some or all of these recommendations, and to do so in a collaborative, community-based way. While the recommendations detailed in this report are all actionable, some will require additional research, resources, and collaborative effort to be implemented. All require leadership, dedicated staff time, and institutional buy-in. The report identifies additional prerequisites needed to advance each recommendation and estimates difficulty based on resources (of varying types) needed from home universities and institutions to better achieve safety goals and monitor progress over time; definitions related to these resource needs are included in Appendix C. Recommendations noted as “difficult” should not be overlooked or delayed simply by virtue of being challenging to undertake, as many of the more difficult actions will yield the highest impact. Some of these recommendations may already be implemented or in the process of being implemented by individual organizations or advancing through the work of grassroots groups. Coordination and consistency will be key, in these instances, to widespread science community adoption and culture change.

1. Culture Change

Even with policies in place to address sexual and gender-based harassment at colleges and universities, such as Title IX, members of underrepresented groups (e.g., women, BIPOC, members of the LGBTQ+ community) continue to experience harassment because such policies do not address the root causes of harassment or workplace culture. A consensus study report recently released by the National Academies of Sciences, Engineering, and Medicine⁷ concluded that the work environment, often hostile, is the single most important factor in determining whether sexual harassment is likely to occur. Many factors contribute to creating this hostile environment and more frequent incidents of sexual harassment, including a male-dominated leadership and workforce common in jobs that are considered atypical for women.⁸

We need to recognize inherent power imbalances within academia and the greater research community, and the need for substantial buy-in from stakeholders to dismantle, then intentionally restructure, this system — focusing on a top-down approach — in order to ensure diversity, equity, access, inclusion, and justice. Greater diversity within, for example, a research program, cannot be achieved if it operates within a larger system that primarily benefits a dominant culture and incentivizes maintaining the status quo. By acknowledging common truths, we, as a global research community, can start to move beyond symbolic recruitment of minoritized individuals, and towards implementing structures and practices that mitigate barriers to entry and successful long-term engagement, sustainability/proper support, and advancement of underrepresented and/or marginalized people in a reimaged system developed for meaningful, healthy inclusion versus symbolic tokenization.

⁷ National Academies of Sciences, Engineering, and Medicine (2018). *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24994>

⁸ Erdreich, B.L., B.S. Slavet, and A.C. Amador (1995). Sexual Harassment in the Federal Workplace: Trends, Progress and Continuing Challenges. A Report to the President and the Congress of the United States by the U.S. Merit Systems Protection Board; Fitzgerald, L.F., F. Drasgow, C.L. Hulin, M.J. Gelfand, and V.J. Magley (1997). Antecedents and Consequences of Sexual Harassment in Organizations: A Test of an Integrated Model. *Journal of Applied Psychology* 82(4): 578–589. <https://doi.org/10.1037/0021-9010.82.4.578>; Berdahl, J.L. (2007). The Sexual Harassment of Upity Women. *Journal of Applied Psychology* 92(2): 425–437. <https://doi.org/10.1037/0021-9010.92.2.425>; Willness, C.R., P. Steel, and K. Lee (2007). A Meta-Analysis of the Antecedents and Consequences of Workplace Sexual Harassment. *Personnel Psychology* 60(1): 127–62. <https://doi.org/10.1111/j.1744-6570.2007.00067.x>; Schneider, K.T., J.B. Pryor, and L.F. Fitzgerald (2011). Sexual Harassment Research in the United States. Essay. In *Bullying and Harassment in the Workplace*, edited by S. Einarsen, H. Hoel, D. Zapf, and C. L. Cooper, 2nd ed., 245–266. Boca Raton, FL: CRC Press.

In addition to changing the institutional hierarchies and practices, the everyday workplace climate must be improved for all individuals. While workplace culture is the deep written and unwritten rules and practices of a workplace, workplace climate is how the experience of the workplace is perceived by its participants on a day-to-day basis. Equity in hiring and promotion is essential, but true equity goes beyond participant demographics. Workplaces must be perceived as safe, healthy, and productive by all members of the community.

The recommendations below support improvement to both climate and culture that promote and sustain diversity, equity, inclusion, justice (DEIJ), and access and safety for all. The current climate of field science is exclusionary, which has led to participation in field science that does not reflect society as a whole. Everyone has the right to feel welcomed and to safely access field stations and participate in field science. These recommendations represent a set of tools and actions that may help institutions foster work environments that better support teams and individuals. This is a range of practices and tools that can be implemented by a wide variety of program support staff and administrators, team leaders, managers, field coordinators, institutions, and organizations.

1.1 Establish foundational principles for ensuring diversity, equity, inclusion, and justice in fieldwork. Continuously evaluate and evolve foundational principles to ensure all voices are heard.

Explicit and clear principles (e.g., Appendix B) provide a foundation for discussion about issues surrounding DEIJ in STEM, so that we all share some common understanding of the systemic barriers in our organizations, disciplines, and society before engaging in dialogue to solve problems related to inequities. These principles need regular re-evaluation and updating to reflect current findings from evidence-based social science research and understanding of the sources of inequities and our institutions' roles in promoting safe and inclusive environments.

Timeframe: Short-term

Responsible institution(s): All (government/funding agencies, universities, professional societies/community organizations, field practitioners)

Difficulty/investment: Easy

References and appendices: Appendix B

1.2 Actively work toward culture change in the understanding and valuing of equity, diversity, inclusion, and justice initiatives.

Everyone deserves to participate in science free from harassment, hostility, and violence. Increasing representation will not, on its own, bring the benefits of a diverse workforce (e.g., increased workplace safety, greater application of the work, increased innovation and impact). Institutions must have leadership willing to learn and reshape power structures and build trust in order to create cultures where every individual feels equally seen, heard, developed, and engaged. This could be accomplished in part with trainings or forums that build understanding of how systems of privilege and oppression operate in the wider organizational culture and provide opportunities to learn from one another.

Time Frame: Long-term

Prerequisites: Foundational principles (see recommendation 1.1)

Responsible institution(s): All

Difficulty/investment: Moderate

References and appendices: Ely and Thomas 2020;⁹ Starck et al. 2021¹⁰

⁹ Ely, R.J. and D.A. Thomas. Getting serious about diversity: Enough already with the business case. *Harvard Business Review* (Nov/Dec 2020); <https://hbr.org/2020/11/getting-serious-about-diversity-enough-already-with-the-business-case>

¹⁰ Starck, J.G., S. Sinclair, and J.N. Shelton (2021). How university diversity rationales inform student preferences and outcomes. *PNAS*, 118(16): e2013833118.

1.3 Bring diversity and equity scholars, from across disciplines, into the community to help build lasting, meaningful practices for sustaining diverse, inclusive, and equitable environments.

While existing diversity literature should be recognized and drawn from, there is a need to bring diversity scholars and experts directly into the scientific community and compensate them appropriately for their work. Work in psychology, education, sociology, organizational leadership, and more may be underutilized in the domains of natural science. These disciplines bring important perspectives to DEIj work, that may otherwise be missed, to support meaningful diversity initiatives and support structures (and avoid “tokenism”). A first step would be to identify scholar groups and “connectors” that can help bring together diverse disciplines.

Time frame: Mid-term

Prerequisites: Social science expertise

Responsible institution(s): All

Difficulty/investment: Moderate, requires funding

1.4 Project, program, and institutional goals must include personal safety and a healthy workplace climate.

Institutionalizing goals for safety and a workplace climate that is positive and supportive of all will create the need for concrete actions, initiatives, and metrics to reach those goals, as well as for evaluating and reporting progress.

Time frame: Short-term

Responsible institution(s): All

Difficulty/investment: Moderate, requires funding

1.5 Funders and institutions should emphasize that project goals are not restricted to scientific objectives.

Emphasizing that project goals should ensure safety and a safety-reinforcing climate will incentivize reporting (informal or formal) of incidents and issues, and address reluctance to report due to perceived impact on the science mission or operations. Proposal reviewers, program officers, and project leads should not demand more scientific output in a manner that sacrifices safety, equity, or inclusion.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Easy

1.6 Establish expectations for continued assessment and evaluation of fieldwork conditions by meeting with participants before, during, and after field work.

Conducting formal or informal debriefs with participants can be a helpful tool to promote communication and awareness, whether in individual or group settings. Rather than waiting for complaints to come up the ladder, these scheduled check-ins with all participants should be part of the process before, during, and after field work. These check-ins can focus on both positive and negative experiences and help to identify the barriers that participants face within their work environment. Anonymized data should be collected to monitor ongoing issues and program efficacy. Supervisors, station or ship administrators, etc. should be trained to reach out directly to participants for status checks, including those not directly in their chain-of-command.

Time frame: Mid-term

Prerequisites: Requires trained supervisors and PIs

Responsible institution(s): Universities, field practitioners, government/funding agencies

Difficulty/investment: Moderate

References and appendices: Hill et al. 2021¹¹

1.7 Normalize and implement giving and receiving constructive feedback as part of regular conversations.

Regular open and constructive feedback can help to identify and respond to issues early, before they become severe. If these conversations are part of the normal workplace, all parties will be less likely to view these conversations as punitive or targeted. Develop ways to normalize constructive criticism in pre-project planning conversations, onboarding, staff meetings, and more.

Time frame: Long-term

Prerequisites: Supervisory training

Responsible institution(s): Universities, direct supervisors of field practitioners

Difficulty/investment: Moderate

1.8 Conduct Community Readiness Assessments in advance of field trainings to assess a crew's awareness of harassment and safety issues.

As defined by the University of Kansas' Center for Community Health and Development, "[community readiness](#)" describes the degree to which a community is ready to take action on an issue. If the community isn't prepared to take on new information (e.g., field safety, culture, harassment, etc.), then it will not be effective. Therefore, a Community Readiness Assessment is a vital pre-training tool that can help training staff tailor curriculum to that community and maximize impact. Ensure that training staff, including contractors, includes a program evaluation component in their curriculum.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings for field staff

Difficulty/investment: Moderate

References and appendices: The University of Kansas Community Toolbox¹²

¹¹ Hill, A., M. Jacquemart, A. Gold, and K. Tiampo (2021). Changing the Culture of Fieldwork in the Geosciences. *Eos* 102. <https://doi.org/10.1029/2021eo158013>

¹² "Community Readiness." Community Toolbox. University of Kansas, n.d. <https://ctb.ku.edu/en/table-of-contents/overview/models-for-community-health-and-development/community-readiness/main>

1.9 Conduct scenario-based risk assessment and safety trainings that involve discussions and include both staff and scientists prior to going into the field.

Field site staff and scientists must understand the risks specific to the particular scientific mission, including interpersonal safety. Conduct risk assessments for field environments and research teams. Project leaders, staff, and participants should work through potential emergency scenarios before traveling to the field. Identify individual obligations, including reporting and resources for witnesses of misconduct or emergency incidents.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings for field staff

Difficulty/investment: Moderate

References and appendices: Anadu et al. 2020;¹³ Greene et al. 2021;¹⁴ Demery and Pipkin 2021¹⁵

1.10 Foster more human/interpersonal conversations in trainings.

Standalone training videos are not ideal, lacking context or guidance throughout the viewing process. We cannot assume that people are understanding, cognizant, or empathetic to field work harassment. Adding a more personal element to field training that includes personal communication and human connection can better facilitate and translate the significance of field safety. This may include an explanation of what a safe field/vessel culture looks like, and how serious leaders take videos, training, and protocols. For example, this interpersonal dialogue is needed between the crew and captain or the marine technician of the vessel (individual responsible for working with the science party and crew directly and providing orientation and anti-harassment policies). Discussions like this can help set the tone for the culture. Post-training discussions and surveys should be implemented to gauge effectiveness of training.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Moderate

References and appendices: Carnes et al. 2015¹⁶

1.11 Conduct safety trainings strategically; do not group them with other types of training.

Field safety training should be embedded into broader culture-change efforts. They are best offered in manageable “doses.” For example, offer initial training of foundational messages pre-field work, followed by additional sessions throughout the field time or right before field assignments. These practices will help avoid training burnout.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Easy

¹³ Anadu, J., H. Ali, and C. Jackson (2020). Ten steps to protect BIPOC scholars in the field. *Eos* 101: <https://doi.org/10.1029/2020EO150525>

¹⁴ Greene, S.E., G.S. Antell, J. Atterby, et al. (2021). Safety and Belonging in the Field: A Checklist for Educators. *EarthArXiv*, August 19, 2021. <https://doi.org/10.31223/x53p6h> (in preprint at the time of this report)

¹⁵ Demery, A.J.C., and M.A. Pipkin (2021). Safe fieldwork strategies for at-risk individuals, their supervisors and institutions. *Nat Ecol Evol* 5, 5–9. <https://doi.org/10.1038/s41559-020-01328-5>

¹⁶ Carnes, M., P.G. Devine, L.B. Manwell, et al. (2015). Effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Acad Med* 90(2): 221-230. doi: [10.1097/ACM.0000000000000552](https://doi.org/10.1097/ACM.0000000000000552)

1.12 Conduct bystander intervention training for staff and scientists.

Bystander or upstander intervention, which calls on individuals to engage in prosocial helping behavior by intervening when they witness inappropriate or harmful behaviors or actions, is one approach recommended by the 2018 NASEM report for reducing the prevalence and mitigating the negative impact of these behaviors when they occur. Bystander intervention training, such as provided by *ADVANCEGeo*,¹⁷ *GreenDot*,¹⁸ and *Building a Better FieldWork Future*¹⁹ can be transformative for field culture. These trainings teach field participants to prevent and respond to incidents in the moment and set expectations for acceptable behavior.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Easy

Difficulty/investment: Moderate, may require funding

1.13 Employ transformative justice services from outside, expert facilitators and the people from historically excluded communities who do this work.

Transformative justice is a framework and approach for responding to violence, harm, and abuse that seeks to respond to violence without creating more violence, and to reduce harm by making things right together. Transformative justice not only addresses the current incident so that the person(s) harmed feel safe and harm is repaired, but also changes the conditions such that similar future incidents are less likely to occur. This process is best managed by an independent or third-party transformative/restorative justice facilitator. Even if such services are available at an institution, the person(s) harmed may have concern over the facilitator's (real or perceived) interest or responsibility to the institution in the outcomes of the process. Transformative justice services are offered by nonprofits or other types of small businesses, but they cost money. Institutions and funding agencies should have dedicated money or flexible and expedited grant processes available to support outside services for transformative justice.

Time frame: Long-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult, requires funding

1.14 Offer commendations at all levels for work that advances equity, diversity, inclusion, justice, and safety in the field.

The current culture around DEIJ work is often negative and reactive. Creating a positive, proactive culture can help normalize the importance of this work, recognize individuals who are making a difference, and change the tone of the conversation around this topic. Long-term, this may make it easier and more comfortable for individuals and groups to discuss DEIJ work and to give constructive criticism (i.e., call in rather than call out). Ideally, awards and commendations should become as prestigious as recognition for scientific accomplishment (see also recommendation 2.7).

Time frame: Long-term

Prerequisites: Criteria for recognition (i.e., parallel criteria for scientific recognition)

Responsible institution(s): All

Difficulty/investment: Moderate

¹⁷ ADVANCEGeo. Science and Education Resource Center. <https://serc.carleton.edu/advancegeo/index.html>

¹⁸ Nanook Diversity and Action Center. "Four-Hour Green Dot Bystander Training." UAF Green Dot. University of Alaska Fairbanks, n.d. <https://greendot.alaska.edu/trainings/>

¹⁹ Building a Better Fieldwork Future: <https://fieldworkfuture.ucsc.edu/>

1.15 Require diversity, equity, inclusion, and justice statements in the hiring process along with CVs and cover letters.

Require DEIJ statements in the hiring process, which may include demonstrating concrete DEIJ related actions or responses to targeted questions about culture and core values. Require attestations to upholding project/program/institute Code of Conduct by all staff, students, PIs, and other participants. Develop criteria for evaluation.

Time frame: Short-term

Prerequisites: Criteria for evaluating these statements

Responsible institution(s): Universities (HR, departments)

Difficulty/investment: Easy

References and appendices: Example resources to guide crafting DEIJ statements²⁰

1.16 Develop and populate an online inventory of university policies of tenure and promotion and hiring practices that include contributions and scholarship in DEIJ, inclusive mentoring, teaching, research, and leadership.

Best practices for including DEIJ in hiring, tenure, and promotion need to be consolidated and disseminated to institutions. A home for this inventory will need to be identified. As there is currently large variability within and between institutions, this would provide progressive examples to universities of all sizes and potentially lead to institutional peer-pressure if institutions with recognized value on DEIJ leads to stronger talent recruitment.

Time frame: Mid-term

Prerequisites: Can be initiated immediately once responsible party identified

Responsible institution(s): Professional societies/community organizations, universities, government/funding agencies

Difficulty/investment: Moderate, will take modest financial resources to establish and maintain

1.17 Continue to support working groups, workshops, and other projects to build diversity, equity, inclusion, justice, accessibility, and safety in fieldwork.

This workshop is one of many activities happening across the STEM fields aimed at increasing safety and diversity and improving culture. Building a continuum between activities so that they naturally build on one another to advance these common goals is important; unfortunately, funding and resources for these activities and collaboration between them are scarce. Continued activities led by working groups and additional convenings may include drafting best practices for ensuring diversity, developing principles, evaluating and improving practices and principles by engaging with the larger community, and developing standardized methods to evaluate strategies, programs, trainings, etc.

Time frame: Long-term

Responsible institution(s): Government/funding agencies, universities, professional societies/community organizations

Difficulty/investment: Moderate, may require funding

²⁰ The Campus/Times Higher Education: <https://www.timeshighereducation.com/campus/diversity-statements-what-avoid-and-what-include/>; J.E.D.I. Collaborative: <https://jedicollaborative.com/eventwebinar/crafting-a-jedi-statement/>

2. Accountability

The NASEM report on Sexual Harassment of Women²¹ identified organizational climate — shared perceptions within an organization — as the most important factor in determining whether sexual harassment is likely to occur in a work setting. Our workshop participants identified a need for greater accountability, mainly at the institution or university leadership level, to support positive field climate and, therefore, drive behavioral and cultural change in field science communities. Accountability relates to many of the recommendations around culture change and policy development; clear policies are part of accountability, as is transparent and effective response to incidents of harassment, including enforcement of policies, support of targets of harassment, and consistent consequences for perpetrators. Leadership structures matter; leaders must demonstrate a top-down commitment to preventing harassment and supporting targets. Environments perceived as more permissive of sexual harassment can lead to greater occurrences of harassment and a reluctance by targets to report. Funding agencies and other external groups can play a role in accountability, as well, by developing and enforcing policies for institutions to share findings of harassment (e.g., NSF's 2018 policy on Sexual Harassment, Other Forms of Harassment, or Sexual Assault²²).

Some of the recommendations in this report call for providing different pathways for reporting, which is important in ensuring targets of harassment have a way to record or report what happened in a way that makes them feel comfortable. However, institutions should take care that individuals are properly trained and that different pathways for reporting are held to the appropriate levels of accountability.

The following recommendations illustrate how funding entities, institutions, and PIs can work together towards greater accountability when it comes to sexual and gender harassment.

2.1 Demonstrate a commitment to preventing and responding to all reports of harassment, discriminatory behaviors, bullying, and intimidating behavior.

Behavior does not have to rise to the level of illegality for it to be harmful to team members and team missions. Do not rely solely on the narrow scope of Title IX to address these issues, especially in multi-institutional settings. When possible, address issues before they meet the criteria of “severe and pervasive.” Address all issues of harassment and discrimination, whether they are targeted at sex and gender or not. Finally, ensure that your policies address all parties involved in a project, whether they are outside vendors, university students, agency scientists, or even the public.

Time frame: Mid-term

Prerequisites: Clear anti-harassment and anti-discrimination policies

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate; will take resources to follow through

References and appendices: NASEM 2018²³

²¹ National Academies of Sciences, Engineering, and Medicine (2018). *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24994>

²² https://www.nsf.gov/od/oerc/term_and_condition.jsp

²³ National Academies of Sciences, Engineering, and Medicine (2018). *Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine*. Washington, DC: The National Academies Press. doi: <https://doi.org/10.17226/24994>

2.2 Hold PIs and institutional/university leadership accountable for creating safe, equitable, and inclusive work environments.

Principal Investigators (PIs) and Chief Scientists (CSs) have a responsibility for safety of all types as it relates to project success. Establishing safety as an institutional priority and empowering PIs with the responsibility to create, promote, and ensure safe environments will contribute to greater accountability. Implementing some of the recommendations in this report can support PIs/CSs in upholding institutional policies and ensuring safety and inclusivity, for example developing a safety plan, developing and utilizing a pre-expedition checklist focused on safety, conducting trainings, and ensuring access to information and communication. This can be incentivized through promotion and tenure where a commitment to culture-positive contributions are valued and considered. It can also be incentivized by funding agencies, for example, by making a safety plan a mandatory, reviewed component of proposals. NSF's inclusion of "broader impacts" plans has had a positive effect on outreach and engagement in science; similarly, inclusion of safety plans against which PIs will need to report success can have a positive effect on field safety and accountability.

Time frame: Mid-term

Prerequisites: Institutional readiness to incentivize accountability for safety

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

2.3 Produce a pre-expedition checklist tool designed for harassment prevention and response planning.

A pre-expedition checklist can be an effective resource for PIs and other field station / ship leaders in harassment prevention planning and accountability. Such a checklist should cover items such as codes of conduct, policies (e.g., alcohol and drugs, privacy, pregnancy), training, reporting mechanisms, and resources and would ensure field participants are adequately prepared and knowledgeable about proper planning, prevention, and response practices before entering the field. The checklist should be publicly available so that field participants can download and use it. The workshop produced a draft checklist (available as Appendix D) applicable to field practitioners across disciplines. Further work will be done to complete and refine this checklist, including review from diverse groups to ensure inclusivity. Once completed, versions can be developed for specific purposes (e.g., ship-based research) and could become standard tools for inclusion in field safety plans (see recommendation 3.15).

Time frame: Short-term

Prerequisites: Code of Conduct; safety and anti-harassment policies

Responsible institution(s): Universities, professional societies/community organizations

Difficulty/investment: Easy

References and appendices: Appendix D; see also Greene et al. 2021²⁴

2.4 Publish and enforce a defined list of potential consequences for perpetrators of harassment.

Develop a defined list of consequences for different levels of infractions, and make it known to all participants. A clear set of consequences for different levels of infractions will 1) encourage reporting by affirming that an incident deserves investigation; 2) make the consequences more transparent to offenders; 3) potentially deter behaviors; and 4) provide support to reporters and responding staff.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Easy to develop, moderate to enforce

²⁴ Greene, S.E., G.S. Antell, J. Atterby, et al. (2021). Safety and Belonging in the Field: A Checklist for Educators. *EarthArXiv*, August 19, 2021. <https://doi.org/10.31223/x53p6h> (in preprint at the time of this report)

2.5 Create and enforce consequences for institutions that do not take action following misconduct offenses.

Institutions should be held accountable for responding to and taking action to address incidents of harassment. This could be achieved via external inquiries or investigations led by third parties (e.g., funding entities or agencies), which avoids the pitfalls of institutions investigating themselves. For example, if a death or serious injury takes place at a field station or on a vessel, the funding agency participates in or leads the investigation. A similar approach should be taken for harassment, discrimination, or assault investigations.

Time frame: Mid-term

Prerequisites: Clear anti-harassment policies

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

2.6 Develop and share metrics for ‘DEIJ accreditation’ at field sites.

Create metrics for DEIJ best practices at field stations, ocean vessels, and other research platforms. Metrics can include quality of codes of conduct, reporting mechanisms, response structures, safe and gender-inclusive facilities and policies, inclusive and accessible data collection work plans and schedules, etc. Encourage routine self-assessment, and include assessments in funding proposals, routine safety inspections, and other similar reviews. Third-party evaluators, such as professional societies, can conduct these accreditation reviews.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies, research platforms

Difficulty/investment: Moderate

2.7 Develop and embed metrics for DEIJ into metrics of evaluation of scholarship.

Individuals' promotion of safe and inclusive practices should be embedded in hiring, promotion, and tenure processes. As DEIJ related policies are put into place, they should be evaluated for their effectiveness in reaching the diversity goals and objectives of the institutions. Metrics for evaluation will need to be identified, and these metrics themselves should be evaluated and refined so that they impact decision making and outcomes. Include education on the appropriate use and misuse of metrics used to evaluate scholarship. For example, impact factors are generally based on subscribership (which is based on generalist content for a field) and should not be used to evaluate the quality of an individual paper or scholar. Consider the full contribution of the scholar to the field, including their support of DEIJ practices and their conduct as a colleague and mentor. Priorities in hiring, promotion, and funding shape the priorities of the field, and define what work is valued.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3. Policy Development

In the field research environment, with its additional risks and lack of resources, there are far fewer and less clear policies and enforcement regulations in place than in a traditional research setting. Data from Clancy et al.²⁵ show that 64% of respondents had personally experienced sexual harassment at field sites, and only 20% encountered sexual harassment policies at these field locations. To effectively address and prevent sexual harassment in the field, rules, and policies around harassment — and the consequences for noncompliance — must be clear,²⁶ and the policies should be tailored to the field research environment.

Institutional policies must be updated to reflect the values of safe and inclusive workplaces. Policies must provide structural support for targets of harassment, incentivize better behaviors and practices, and prescribe consequences for misconduct. Institutional policies should promote the cultural change needed to prevent and respond to harassment; these policies should address the widespread and harmful harassing behaviors that fall short of the extreme and rarer cases of criminal behavior. These policies should also be target-centered by supporting the safety and careers of the targets of harassment, in addition to addressing the misconduct of harassers. Policy development must go beyond the written word and include the development of the institutional structures to support these policies, through funding, oversight, reporting structures, and trainings.

The policy recommendations here can largely be implemented at all institutional levels, from small field crews to university systems. The recommendations fall within several major themes: 1) ensuring policies protect those harmed by misconduct and center their needs following incidents of harassment, 2) addressing harassment within existing safety policies and training infrastructure, 3) making available multiple and clearly-defined pathways for reporting and responding to harassment in the field, 4) incentivizing safe and inclusive work, 5) coordinating harassment prevention and response across multi-institutional field situations, and 6) assessing and evaluating harassment prevention and response programs.

3.1 Reconceptualize harassment as a health and safety issue and research integrity issue.

Harassment and discrimination are a health and safety issue and should be included in existing safety planning, trainings, policies, and incident reporting and response. Safety plans should be required by all relevant institutions, such as funders and universities, before fieldwork is approved. Include harassment as violations of scientific ethics policies (e.g., American Geophysical Union²⁷).

Time frame: Long-term

Prerequisites: Existing health and safety programs

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3.2 Involve participants in policy development.

Involving field research participants in the development of policies and codes of conduct can better tailor them to the individual field sites, participants, and project/program goals, as well as encourage broad support from the team at all levels of seniority.

Time frame: Short- to long-term

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Moderate

²⁵ Clancy, K.B.H., R.G. Nelson, J.N. Rutherford, and K. Hinde (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>

²⁶ Nelson, R.G., J.N. Rutherford, K. Hinde, and K.B. Clancy (2017). Signaling Safety: Characterizing Fieldwork Experiences and Their Implications for Career Trajectories. *American Anthropologist* 119(4): 710–22. <https://doi.org/10.1111/aman.12929>

²⁷ <https://www.agu.org/~media/Files/Publications/Scientific-Integrity-and-Professional-Ethics.pdf>

3.3 Include transformative justice and trauma-informed practice considerations in policies.

Transformative justice addresses the current incident, so that the person(s) harmed is safe, and also works to change the conditions such that similar future incidents are less likely to occur. Examples of transformative justice in practice include the University of Washington's Bias Incident Advisory Committee and Bias Incident Reporting Tool²⁸ and the Center for Restorative Justice at the University of San Diego.²⁹ Trauma-informed practices identify and limit potential triggers to reduce the retraumatization of victims and protect their mental and emotional health (see, for example, Education Northwest's Guide for Trauma-Informed Practices for Postsecondary Education³⁰). Experts in transformative justice and trauma-informed practices should be included in policy development and in considering how it should be applied in the field or academic setting.³¹

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3.4 Ensure that existing processes are centered on persons who were harmed and repairing that harm.

Investigations should center on protecting the targets of harassment, and remedying any harms, and shift focus away from protecting institutional liability. This can be accomplished by including transformative justice and trauma-informed practice considerations in policies, through consultation with expert facilitators in those fields.³²

Time frame: Long-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: High

References and appendices: e.g., *Introduction to Restorative Justice*;³³ *Transforming Harm: Experiments in Accountability*,³⁴ *Reporting Bias Incidents*³⁵

3.5 Identify multiple alternative teammates that can be approached with concerns, outside of the project leadership, ship captain, or field manager. Designate trained peer liaisons to respond to questions or concerns.

Especially in the remote settings of research vessels and field camps, identification of several people, of various genders and levels of seniority, who can serve as approachable points of contact for concerns and/or reporting is essential. People are often more comfortable talking to people of the same gender or level of hierarchy. Therefore, multiple liaisons (including peers, multiple genders, and at various levels of power hierarchies) should be identified to support participant questions and should represent both the science and staff sides of field research. These liaisons can be on- or off-site, but should be accessible and properly trained to respond, answer questions, and prepare documentation. Include options that do not feed to the Title IX office, including private, no-questions-asked access for reaching resources elsewhere.

Time frame: Mid-term

Prerequisites: Designated points of contact must receive response training.

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Moderate

References and appendices: The USGS Peer Support Worker program³⁶ is one template.

28 <https://www.washington.edu/bias/>

29 <https://www.sandiego.edu/soles/restorative-justice/>

30 <https://educationnorthwest.org/sites/default/files/resources/trauma-informed-practices-postsecondary-508.pdf>

31 See Recommendation 1.13

32 See Recommendations 1.13 and 3.3

33 Barnard Center for Research on Women: <https://www.youtube.com/watch?v=F8E1LDeiGBU&t=10s>

34 Barnard Center for Research on Women: <https://www.youtube.com/watch?v=tOX6MdSDC4w>

35 University of Washington: <https://www.washington.edu/bias/>

36 <https://www.usgs.gov/about/organization/science-support/human-capital/peer-support-workers>

3.6 Develop standardized methods to evaluate best practices, trainings, etc.

Often, training programs are put into place with little monitoring of their effectiveness. Training programs should build evaluation into their structures, working with their customers and constituents and engaging experts in program evaluation to define and establish an evaluation effort based on metrics that can be monitored and used to inform revision to programs and practices. Evaluation must be properly funded to collect reliable data to inform continuous program improvement.

Time frame: Long-term

Prerequisites: Program evaluation experts

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate, requires dedicated funding

3.7 Develop safety-first, situation-based codes of conduct.

Situation-specific codes of conduct should be developed to protect participant safety and the academic mission. These codes of conduct should clearly articulate individual misconduct that deteriorates the academic environment and prevents successful collaboration and an effective team dynamic. Codes of conduct must include the particular issue of the role of academic power dynamics in enabling harassment. A situation-specific code of conduct with consequences can help to navigate issues where Title IX is not applicable or effective.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Moderate

3.8 Consider situation-specific tools that may be available to address harassment in the field.

PIs and field leadership should research and consider employing options for responding to incidents in the field that may be available in specific situations or when Title IX will not apply. For example, maritime law may be applicable in ship-based research scenarios and offer a more agile process and options for responding to certain incidents in the field.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Easy

3.9 Report any field participant to all relevant oversight institutions if a code of conduct violation or investigation is brought against them.

Field research often involves multiple institutions with unclear jurisdictions in cases of misconduct. In cases of reported harassment, assault, or other misconduct, reports and any investigation findings should be shared with home institutions and funders of alleged perpetrators, in addition to the notifying institutions hosting the research. Field participants should be made aware of and agree to this policy prior to fieldwork, and the privacy of all parties should be protected to the greatest extent possible.

Time frame: Short-term

Prerequisites: Appropriate institutional contacts for participants

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Easy

3.10 Devote staff support to handling reports and complaints in the field.

Dedicated personnel should be identified to receive complaints, investigate, and take timely action to reports of harassment in the field. Devoting trained staff to this endeavor allows effective response. In addition, these staff should also maintain reports to identify repeated or pervasive behavior. In cases where it may not be feasible to have such a staff person at the research site (e.g., a berth space on a ship), offsite (i.e., shore-based or university-based) staff are an option, but they must be reachable anytime by all participants by a communication device (such as a satellite phone) with full privacy and unrestricted access.

Time frame: Mid-term

Prerequisites: Staff training, communication devices

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

3.11 Funding agencies should develop, publicize, and enforce policies for the handling of and response to incidents in the field.

Funding agencies should have clear policies that emphasize a broader value system beyond science output, encourage reporting, and reduce the barriers to and negative impacts of reporting. Policies can emphasize the myriad costs that result from incidents of harassment, such as harms to staff and facilities, and lost opportunity for science. Policies should also emphasize consequences for individuals, such as the outcome of future funding proposals. Some agencies have developed policies that begin to accomplish this recommendation, but further steps can build on policies for handling other types of incidents in the field. For example, NSF investigates causes of death or injury at field stations or on ships regardless of who the immediate employer is, but NSF does not presently participate in harassment or Title IX investigations.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

References and appendices: NSF Office of Equity and Civil Rights;³⁷ NOAA Sexual Assault and Sexual Harassment Prevention and Response Policy³⁸

3.12 Identify and promote all available options for reporting incidents.

Depending on the situation, there may be one or several institutional entities that can respond to an incident. However, even if there is only one institutional entity that can respond, having multiple points of contact for reporting is necessary (see recommendation 3.5). These reporting resources should be made available to all participants in advance of going into the field, including an electronic format that participants can access any time in privacy, such as on phones or computers. Communication devices, such as satellite phones, and private spaces should be made available without restriction for phone calls and conversations around reporting.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

³⁷ <https://www.nsf.gov/od/oecr/harassment.jsp>

³⁸ <https://www.noaa.gov/organization/administration/nao-202-1106-noaa-sexual-assault-and-sexual-harassment-prevention-and>

3.13 Designate dual or multiple mentors/advisors (mentoring committees).

In order to reduce the power of any single supervisor/mentor, a minimum of two advisors should be assigned to any advisee. This is especially applicable for early career individuals (e.g., grad students, postdocs, assistant professors, etc.). Departmental “bridge” funding should be available to support students/postdocs if they need to switch mentors/advisors so that personal financial risk is not a barrier to reporting.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

References and appendices: NASEM’s Report Brief on Interventions for Preventing Sexual Harassment³⁹

3.14 Ensure communications tools are available to all team members at all times.

Remote field work can make external communication challenging when cellular service and internet are limited. Reliable communication tools, such as satellite phones, should be accessible by anyone at any time, without a gatekeeper, for use in privacy.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3.15 Develop community-based resources

Resource and knowledge-sharing across institutions helps to develop and disseminate best practices in preventing and responding to harassment. Scientific research itself is collaborative and cross-institutional, and anti-harassment practices should be no different. Some examples:

- Community-based codes of conduct with enforceable consequences for violation (e.g., suspension, participation bans, repatriation) can be helpful for building consistency that improves prevention, response, and scientific culture.
- Common resources for investigation of harassment.
- Cross-institutional sharing of harassment reports can mitigate the “pass the harasser” problem.
- Common checklists (e.g., Appendix D) or audits to evaluate institutional practices for preventing and responding to harassment should be conducted regularly by third parties.
- Groups that may be able to influence cross-institutional jurisdiction: American Geophysical Union Ethics and Equity Center, University National Oceanographic Laboratory System (UNOLS), Consortium for Ocean Leadership (COL), NASEM’s Action Collaborative, National Association of Marine Laboratories (NAML), Organization of Biological Field Stations (OBFS), or relevant professional societies. Funding agencies, such as NSF, might also play a role in this.

Time frame: Long-term

Responsible institution(s): Universities, government/funding agencies, professional societies/community organizations

Difficulty/investment: Difficult

References and appendices: Appendix D; see also Greene et al. 2021⁴⁰

³⁹ <https://www.nap.edu/resource/24994/Interventions%20for%20Preventing%20Sexual%20Harassment%20final.pdf>

⁴⁰ Greene, S.E., G.S. Antell, J. Atterby, et al. (2021). Safety and Belonging in the Field: A Checklist for Educators. *EarthArXiv*, August 19, 2021. <https://doi.org/10.31223/x53p6h> (in preprint at the time of this report)

3.16 Establish universal policies across umbrella organizations.

Establish universal policies that can apply to the large societies/agencies that govern field work (i.e., UNOLS, OBFS, etc.). These should include pre-, during, and post-expedition policies. Many research sites are multi-institutional in participation and/or governance, and researchers frequently move between institutions. However, gaps in institutional jurisdiction and information-sharing allow perpetrators of harmful conduct to move on to new institutions or worksites without consequence (known as “Pass the Harasser”). Universal policies can include common codes of conduct and shared consequences between organizations, such as denial of future participation, funding, or hiring. Research platforms’ practices can be certified by societies or agencies.

Time frame: Long-term

Responsible institution(s): Universities, government/funding agencies, professional societies/community organizations

Difficulty/investment: Difficult

3.17 Integrate trainings on the value of DEIJ work into the processes of on-boarding, annual reviews, promotion, and tenure.

Integrating DEIJ trainings into various stages of career advancement, including undergraduate students, will signal that the organization takes DEIJ work seriously and better support individuals already doing DEIJ work at that organization. Such trainings should educate on the value of DEIJ, the various ways bias infiltrates the system, and practices to overcome bias.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

References and appendices: Settles et al. 2020⁴¹

3.18 Compensate and award diversity work at campus level and society levels through funding and awards.

DEIJ work is often executed as an “invisible” service or labor by individuals donating their own time, money, and/or energy on top of their funded and evaluated work. This places a disproportionate burden on those faculty and staff committed to improving DEIJ at their institutions and ensures slower progress. Diversity work should be recognized and supported financially by institutions and societies to adequately compensate dedicated staff, incentivize more DEIJ-related work, and show a serious commitment on behalf of the organization.

Time frame: Long-term

Prerequisites: Criteria to guide awards/recognition

Responsible institution(s): Universities, government/funding agencies, professional societies/community organizations

Difficulty/investment: Difficult

⁴¹ Settles, I. H., M.K. Jones, N.T. Buchanan, and K. Dotson (2020). Epistemic exclusion: Scholar(ly) devaluation that marginalizes faculty of color. *Journal of Diversity in Higher Education*. Advance online publication. <https://doi.org/10.1037/dhe0000174>

3.19 Require contributions to diversity, equity, inclusion, and justice in employment evaluation and promotion qualifications, including tenure and promotion (teaching, research, service, and outreach).

DEIJ work could be elevated as a pillar of an individual's overall contributions and qualifications for hiring, promotion, or tenure achievement. Some policies may include:

- Providing guidance to tenure committees at the university level to reframe diversity/DEIJ service as leadership in tenure and promotion policies.
- Providing guidance for letter writers to evaluate a dossier in context of contributions to DEIJ.
- Providing guidance to hiring and tenure committees at the university level to understand individual candidates in the context of their department, for example, considering variety in teaching loads, research facilities, etc.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

References and appendices: e.g., UW-Madison Physical Sciences division⁴²

3.20 Include DEIJ statements and plans in annual appraisals and annual project reports.

Many institutions have incorporated COVID-19 impact statements or plans into annual appraisals and reports. Statements on diversity levels, efforts, and the impacts of DEIJ work should similarly be reported.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Easy

3.21 Develop and embed metrics for DEIJ into metrics of evaluation of scholarship.

Individuals' promotion of safe and inclusive practices should be embedded in hiring, promotion, and tenure processes. Metrics for evaluation will need to be identified, and these metrics themselves should be evaluated and refined so that they impact decision making and outcomes. Include education on the appropriate use and misuse of metrics to evaluate scholarship. For example, impact factors are generally based on subscribership, which is based on generalist content for a field, and should not be used to evaluate the quality of an individual paper or scholar. Consider the full contribution of the scholar to the field, including their support of DEIJ practices and their conduct as a colleague and mentor. Priorities in hiring, promotion, and funding shape the priorities of the field, and define what work is valued.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

⁴² UW-Madison Physical Sciences Division, Recommendations for Guidelines for Tenure and Promotion: Scholarly Activity That Enhances the Wisconsin Idea: https://d808bmy3b6p21.cloudfront.net/wp-content/uploads/sites/50/2021/01/DEI-Recommendations_for_TP.pdf

3.22 Develop best-practice guidelines for trainings.

There are many different types of training and groups who offer them. A set of community-endorsed best practice guidelines could help institutions, field stations, etc. in identifying and selecting the right options for them. Undertaking this will require funding to support research and convening and may be done in collaboration with established groups undertaking this work (e.g., ADVANCEGeo). Best practices should incorporate the following:

- Trainings should be tailored to the specific field situation and include harassment prevention and response. While part of a comprehensive safety training plan, these should not be embedded within traditional safety training modules (see recommendations 1.9 and 1.10).
- Monitoring metrics and evaluation should be built into training from the beginning; if contracting a group to conduct trainings, be sure they have an evaluation component.
- Strive to reduce training “burnout.” Conduct initial foundational training before field work and then continue throughout the field time or right before field assignments.
- Build discussion into the training. Standalone videos are not ideal and require context and dialogue to be most effective. As field participants and supervisors experience the trainings regularly — and may sometimes opt out because of that — a facilitated dialogue between the field teams and new science party would support team building and shared expectations of conduct.
- Consider translating training materials for international participants and non-native English speakers to avoid language barriers.

Time frame: Mid-term

Prerequisites: Program evaluation needs a dedicated research team, or partnership with one such as AdvanceGEO

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3.23 Funding agencies should require a field safety and training plan as part of grant applications.

Funding agencies often require plans for science accessibility concerns, including data management and broader impacts, as a way to emphasize the importance of these activities in scientific research. Incidents of harassment and assault should be treated as a safety issue. Requiring a plan for field safety training as part of a grant application will reinforce the importance of safe and respectful field environments.

Time frame: Short-term

Responsible institution(s): Government/funding agencies

Difficulty/investment: Moderate

4. Reporting

Incident reporting is a critical piece of harassment prevention and response. Reporting mechanisms for targets of harassment in academia are byzantine, ineffective, or nonexistent. Victims may not always recognize discrimination or may refrain from reporting discriminatory behavior for a variety of reasons, including fear of repercussions, a lack of awareness or clarity of how to report, ambiguity of rules, or dissatisfaction with results.⁴³ Reporting may be complicated because the research station or vessel may be owned and operated by a different institution from the victim's and the perpetrator's, with different policies and practices. Reporting in remote research situations is especially challenging due to the multi-institutional work sites, remote locations, small team sizes, unclear behavior expectations, and interpersonal power dynamics, among other factors.⁴⁴

Effective reporting mechanisms allow victims to seek justice and enable necessary consequences for perpetrators. Reporting also allows evaluation of institutional efforts to prevent harassment and provide justice, and to refine practices and policies to better serve the community. The recommendations below aim to improve and diversify mechanisms for reporting to better support targets.

4.1 Clearly develop and communicate options for reporting.

Depending on the situation, there may be one or several institutional entities that can act, and everyone should know their available options for their particular situation. When an incident occurs, it is important that targets or witnesses have privacy and access to reporting resources in place. Participants should have reviewed these resources in advance of the campaign and have access to policies and support mechanisms available on hand. Examples include flyers in private spaces, such as quarters or restrooms, and electronic copies of resource lists that are accessible on personal devices. When multiple institutions are represented on a project, institutional reporting/responding contacts should be listed for all institutions. Third-party services outside these institutions, such as local crisis centers and national helplines, should also be included. Reporting information should also include the types of responses expected and/or services offered, such as whether the party is a mandatory reporter, a confidential advocate, a crisis counselor, or another type of responder.

Time frame: Short-term

Prerequisites: Clear resources and documentation, collaboration/agreements across institutions

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

4.2 Designate a diverse set of people to report to in the field.

Designate multiple people to report to while in the field, including multiple genders of people, BIPOC, junior scientists, senior scientists, and/or mentors. People are often more comfortable talking to people of similar identities or of the same level of hierarchy. Having a number of options for reporters increases the likelihood that someone shares identities with an appointed reporter and feels more comfortable coming forward. All reporters should get training on their responsibilities, and how to handle a variety of situations. Options that do not feed to the Title IX office should be included, such as third-parties, and non-mandatory reporters (see recommendation 3.5).

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult

⁴³ Clancy, K.B.H., R.G. Nelson, J.N. Rutherford, and K. Hinde (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>; Nelson, R.G., J.N. Rutherford, K. Hinde, and K.B. Clancy (2017). Signaling Safety: Characterizing Fieldwork Experiences and Their Implications for Career Trajectories. *American Anthropologist* 119(4): 710–22. <https://doi.org/10.1111/aman.12929>

⁴⁴ Nelson, R.G., J.N. Rutherford, K. Hinde, and K.B. Clancy (2017). Signaling Safety: Characterizing Fieldwork Experiences and Their Implications for Career Trajectories. *American Anthropologist* 119(4): 710–22. <https://doi.org/10.1111/aman.12929>

4.3 Develop reporting for minor transgressions.

Individual minor transgressions may not warrant a Title IX investigation, but they demonstrate detrimental behavior when aggregated. This allows issues to be raised that can be addressed without formal repercussions. A system to report minor/medium transgressions that do not lead to a Title IX investigation could enable corrections for an individual (especially if the incidents were unintentional) and establish a paper trail while protecting the victim from retaliation. Utilize third-party databases such as Callisto⁴⁵ which can record incidents of all magnitudes and identify serial harassers.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

4.4 Make communication devices and emergency transportation available to all staff.

Workers in remote and isolated environments need unrestricted and private access to communication devices, and access to transportation when possible. For example, a satellite phone should be available to anyone who needs it, without a gatekeeper or check-out procedure. The user must be able to use this device in privacy, should they need to make a confidential report or request for help. Where possible, all staff should have free access to transportation or a transportation fund to get themselves to safety if necessary.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Moderate

4.5 Develop a field climate survey.

To identify systemic problems and provide an internal mechanism for action and improvement, a field survey/assessment should be developed. The survey should be developed by or in collaboration with experts in designing workplace climate surveys and use validated tools to ensure reliable and useful data. The survey can be anonymous. This is not an ideal tool for reporting specific incidents but can be a way to report climate and culture related concerns ranging from individual behaviors to more systemic problems and support long-term assessment of a field station, platform, or program. (This recommendation is complementary to recommendation 1.6, which recommends open exchange and dialogue as a way to identify these concerns.)

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies, field practitioners

Difficulty/investment: Moderate

⁴⁵ <https://www.mycallisto.org/>

Recommendations on Trainings (Consolidated from Above)

The following are a list of recommendations designed to promote more effective trainings. These recommendations may be implemented by universities, government agencies, and other institutions/groups that require or promote training in their community. Some recommendations may require recruitment of external resources or specialists; others require relatively little investment.

1.7 Normalize and implement giving and receiving constructive feedback as part of regular conversations.

Regular open and constructive feedback can help to identify and respond to issues early, before they become severe. If these conversations are part of the normal workplace, all parties will be less likely to view these conversations as punitive or targeted. Develop ways to normalize constructive criticism in pre-project planning conversations, onboarding, staff meetings, and more.

Time frame: Long-term

Prerequisites: Supervisory training

Responsible institution(s): Universities, direct supervisors of field practitioners

Difficulty/investment: Moderate

1.8 Conduct Community Readiness Assessments in advance of field trainings to assess a crew's awareness of harassment and safety issues.

As defined by the University of Kansas' Center for Community Health and Development, "[community readiness](#)" describes the degree to which a community is ready to take action on an issue. If the community isn't prepared to take on new information (e.g., field safety, culture, harassment, etc.), then it will not be effective. Therefore, a Community Readiness Assessment is a vital pre-training tool that can help training staff tailor curriculum to that community and maximize impact. Ensure that training staff, including contractors, includes a program evaluation component in their curriculum.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings for field staff

Difficulty/investment: Moderate

References and appendices: The University of Kansas Community Toolbox⁴⁶

1.9 Conduct scenario-based risk assessment and safety trainings that involve discussions and include both staff and scientists prior to going into the field.

Field site staff and scientists must understand the risks specific to the particular scientific mission, including interpersonal safety. Conduct risk assessments for field environments and research teams. Project leaders, staff, and participants should work through potential emergency scenarios before traveling to the field. Identify individual obligations, including reporting and resources for witnesses of misconduct or emergency incidents.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings for field staff

Difficulty/investment: Moderate

References and appendices: Anadu et al. 2020;⁴⁷ Greene et al. 2021;⁴⁸ Demery and Pipkin 2021⁴⁹

⁴⁶ "Community Readiness." Community Toolbox. University of Kansas, n.d. <https://ctb.ku.edu/en/table-of-contents/overview/models-for-community-health-and-development/community-readiness/main>

⁴⁷ Anadu, J., H. Ali, and C. Jackson (2020). Ten steps to protect BIPOC scholars in the field. *Eos* 101: <https://doi.org/10.1029/2020EO150525>

⁴⁸ Greene, S.E., G.S. Antell, J. Atterby, et al. (2021). Safety and Belonging in the Field: A Checklist for Educators. *EarthArXiv*, August 19, 2021. <https://doi.org/10.31223/x53p6h> (in preprint at the time of this report)

⁴⁹ Demery, A.J.C., and M.A. Pipkin (2021). Safe fieldwork strategies for at-risk individuals, their supervisors and institutions. *Nat Ecol Evol* 5, 5–9. <https://doi.org/10.1038/s41559-020-01328-5>

1.10 Foster more human/interpersonal conversations in trainings.

Standalone training videos are not ideal without context or guidance throughout the viewing process. We cannot assume that people are understanding, cognizant, or empathetic to field work harassment. Adding a more personal element to field training that includes personal communication and human connection can better facilitate and translate the significance of field safety. This may include an explanation of what a safe field/vessel culture looks like, and how serious leaders take videos, training, and protocols. For example, this interpersonal dialogue is needed between the crew and captain or the marine technician of the vessel (individual responsible for working with the science party and crew directly and providing orientation and anti-harassment policies). Discussions like this can help set the tone for the culture. Post-training discussions and surveys should be implemented to gauge effectiveness of training.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Moderate

References and appendices: Carnes et al. 2015⁵⁰

1.11 Conduct safety trainings strategically; do not group them with other types of training.

Field safety training should be embedded into broader culture-change efforts. They are best offered in manageable “doses.” For example, offer initial training of foundational messages pre-field work, followed by additional sessions throughout the field time or right before field assignments. These practices will help avoid training burnout.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Easy

1.12 Conduct bystander intervention training for staff and scientists.

Bystander or upstander intervention, which calls on individuals to engage in prosocial helping behavior by intervening when they witness inappropriate or harmful behaviors or actions is one approach recommended by the 2018 NASEM report for reducing the prevalence and mitigating the negative impact of these behaviors when they occur. Bystander intervention training, such as provided by *ADVANCEGeo*,⁵¹ *GreenDot*,⁵² and *Building a Better FieldWork Future*⁵³ can be transformative for field culture. These trainings teach field participants to prevent and respond to incidents in the moment and set expectations for acceptable behavior.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies that facilitate trainings

Difficulty/investment: Easy

Difficulty/investment: Moderate, may require funding

⁵⁰ Carnes, M., P.G. Devine, L.B. Manwell, et al. (2015). Effect of an intervention to break the gender bias habit for faculty at one institution: a cluster randomized, controlled trial. *Acad Med* 90(2): 221-230. doi: [10.1097/ACM.0000000000000552](https://doi.org/10.1097/ACM.0000000000000552)

⁵¹ ADVANCEGeo. Science and Education Resource Center. <https://serc.carleton.edu/advancegeo/index.html>

⁵² Nanook Diversity and Action Center. “Four-Hour Green Dot Bystander Training.” UAF Green Dot. University of Alaska Fairbanks , n.d. <https://greendot.alaska.edu/trainings/>

⁵³ Building a Better Fieldwork Future: <https://fieldworkfuture.ucsc.edu/>

3.17 Integrate trainings on the value of DEIJ work into the processes of on-boarding, annual reviews, promotion, and tenure.

Integrating DEIJ trainings into various stages of career advancement, including undergraduate students, will signal that the organization takes DEIJ work seriously and better support individuals already doing DEIJ work at that organization. Such trainings should educate on the value of DEIJ, the various ways bias infiltrates the system, and practices to overcome bias.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

References and appendices: Settles et al. (2020)⁵⁴

3.22 Develop best-practice guidelines for trainings.

There are many different types of training and groups who offer them. A set of community-endorsed best practice guidelines could help institutions, field stations, etc. in identifying and selecting the right options for them. Undertaking this will require funding to support research and convening and may be done in collaboration with established groups undertaking this work (e.g., ADVANCEGeo). Best practices should incorporate the following:

- Trainings should be tailored to the specific field situation and include harassment prevention and response. While part of a comprehensive safety training plan, these should not be embedded within traditional safety training modules (see recommendations 1.9 and 1.10).
- Monitoring metrics and evaluation should be built into training from the beginning; if contracting a group to conduct trainings, be sure they have an evaluation component.
- Strive to reduce training “burnout.” Conduct initial foundational training before field work and then continue throughout the field time or right before field assignments.
- Build discussion into the training. Standalone videos are not ideal and require context and dialogue to be most effective. As field participants and supervisors experience the trainings regularly -- and may sometimes opt out because of that -- a facilitated dialogue between the field teams and new science party would support team building and shared expectations of conduct.
- Consider translating training materials for international participants and non-native English speakers to avoid language barriers.

Time frame: Mid-term

Prerequisites: Program evaluation needs a dedicated research team, or partnership with one such as AdvanceGEO

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

⁵⁴ Settles, I. H., M.K. Jones, N.T. Buchanan, and K. Dotson (2020). Epistemic exclusion: Scholar(ly) devaluation that marginalizes faculty of color. *Journal of Diversity in Higher Education*. Advance online publication. <https://doi.org/10.1037/dhe0000174>

Recommendations Related to DEIJ (Consolidated from Above)

The following are a list of recommendations around improving diversity, equity, inclusion, and justice. While DEIJ efforts may not directly result in improved safety in field science, these efforts are required to change and improve the culture and climate of field sciences that will ultimately benefit the safety of our work. Some recommendations may require recruitment of external resources or specialists; others require relatively little investment.

1.1 Establish foundational principles for ensuring diversity, equity, inclusion, and justice in fieldwork. Continuously evaluate and evolve foundational principles to ensure all voices are heard.

Explicit and clear principles (e.g., Appendix B) provide a foundation for discussion about issues surrounding DEIJ in STEM, so that we all share some common understanding of the systemic barriers in our organizations, disciplines, and society before engaging in dialogue to solve problems related to inequities. These principles need regular re-evaluation and updating to reflect current findings from evidence-based social science research and understanding of the sources of inequities and our institutions' roles in promoting safe and inclusive environments.

Timeframe: Short-term

Responsible institution(s): All (agencies, universities, professional societies/community organizations, field practitioners)

Difficulty/investment: Easy

References and appendices: Appendix B

1.2 Actively work toward culture change in the understanding and valuing of equity, diversity, inclusion, and justice initiatives.

Everyone deserves to participate in science free from harassment, racism, and hostility. Increasing representation will not, on its own, bring the benefits of a diverse workforce (e.g., increased workplace safety, greater application of the work, increased innovation and impact). Institutions must have leadership willing to learn and reshape power structures and build trust in order to create cultures where every individual feels equally seen, heard, developed, and engaged. This could be accomplished in part with trainings or forums that build understanding of how systems of privilege and oppression operate in the wider organizational culture and provide opportunities to learn from one another.

Time Frame: Long-term

Prerequisites: Foundational principles (see recommendation 1.1)

Responsible institution(s): All

Difficulty/investment: Moderate

References and appendices: Ely and Thomas 2020;⁵⁵ Starck et al. 2021⁵⁶

⁵⁵ Ely, R.J. and D.A. Thomas. Getting serious about diversity: Enough already with the business case. *Harvard Business Review* (Nov/Dec 2020); <https://hbr.org/2020/11/getting-serious-about-diversity-enough-already-with-the-business-case>

⁵⁶ Starck, J.G., S. Sinclair, and J.N. Shelton (2021). How university diversity rationales inform student preferences and outcomes. *PNAS*, 118(16): e2013833118.

1.3 Bring diversity and equity scholars, from across disciplines, into the community to help build lasting, meaningful practices for sustaining diverse, inclusive, and equitable environments.

While existing diversity literature should be recognized and drawn from, there is a need to bring diversity scholars and experts directly into the scientific community and compensate them appropriately for their work. Work in psychology, education, sociology, organizational leadership, and more may be underutilized in the domains of natural science. These disciplines bring important perspectives to DEIJ work that may otherwise be missed to support meaningful diversity initiatives and support structures (and avoid “tokenism”). A first step would be to identify scholar groups and “connectors” that can help bring together diverse disciplines.

Time frame: Mid-term

Prerequisites: Social scientist experts

Responsible institution(s): All

Difficulty/investment: Moderate, requires funding

1.13 Employ transformative justice services from outside, expert facilitators and the people from historically excluded communities who do this work.

Transformative justice is a framework and approach for responding to violence, harm, and abuse that seeks to respond to violence without creating more violence and to reduce harm by making things right together. Transformative justice not only addresses the current incident so that the person(s) harmed feel safe and harm is repaired, but also changes the conditions such that similar future incidents are less likely to occur. This process is best managed by an independent or third-party transformative/restorative justice facilitator. Even if such services are available at an institution, the person(s) harmed may have concern over the facilitator’s (real or perceived) interest or responsibility to the institution in the outcomes of the process. Transformative justice services are offered by nonprofits or other types of small businesses, but they cost money. Institutions and funding agencies should have dedicated money or flexible and expedited grant processes available to support outside services for transformative justice.

Time frame: Long-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Difficult, requires funding

1.14 Offer commendations at all levels for work that advances equity, diversity, inclusion, justice, and safety in the field.

The current culture around DEIJ work is often negative and reactive. Creating a positive, proactive culture can help normalize the importance of this work, recognize individuals who are making a difference, and change the tone of the conversation around this topic. Long-term, this may make it easier and more comfortable for individuals and groups to discuss DEIJ work and to give constructive criticism (i.e., call in rather than call out). Ideally, awards and commendations should become as prestigious as recognition for scientific accomplishment (see also recommendation 2.7).

Time frame: Long-term

Prerequisites: Criteria for recognition (i.e., parallel criteria for scientific recognition)

Responsible institution(s): All

Difficulty/investment: Moderate

1.15 Require diversity, equity, and inclusion statements in the hiring process along with CVs and cover letters.

Require DEIJ statements in the hiring process, which may include demonstrating concrete DEIJ related actions or responses to targeted questions about culture and core values. Require attestations to upholding project/program/institute Code of Conduct by all staff, students, PIs, and other participants. Develop criteria for evaluation.

Time frame: Short-term

Prerequisites: Criteria for evaluating these statements

Responsible institution(s): Universities (HR, departments)

Difficulty/investment: Easy

References and appendices: Example resources to guide crafting DEIJ statements⁵⁷

1.16 Develop and populate an online inventory of university policies of tenure and promotion and hiring practices that include contributions and scholarship in DEIJ, inclusive mentoring, teaching, research, and leadership.

Best practices for including DEIJ in hiring, tenure, and promotion need to be consolidated and disseminated to institutions. A home for this inventory will need to be identified. As there is currently large variability within and between institutions, this would provide progressive examples to universities of all sizes and potentially lead to institutional peer-pressure if institutions with recognized value on DEIJ leads to stronger talent recruitment.

Time frame: Mid-term

Prerequisites: Can be initiated immediately once responsible party identified

Responsible institution(s): Professional societies/community organizations, universities, government/funding agencies

Difficulty/investment: Moderate, will take modest financial resources to establish and maintain

2.6 Develop and share metrics for ‘DEIJ accreditation’ at field sites.

Create metrics for DEIJ best practices at field stations, ocean vessels, and other research platforms. Metrics can include quality of codes of conduct, reporting mechanisms, response structures, safe and gender-inclusive facilities and policies, inclusive and accessible data collection work plans and schedules, etc. Encourage routine self-assessment, and include assessments in funding proposals, routine safety inspections, and other similar reviews. Third-party evaluators, such as professional societies, can conduct these accreditation reviews.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies, research platforms

Difficulty/investment: Moderate

⁵⁷ The Campus/Times Higher Education: <https://www.timeshighereducation.com/campus/diversity-statements-what-avoid-and-what-include>; J.E.D.I. Collaborative: <https://jedicollaborative.com/eventwebinar/crafting-a-jedi-statement/>

2.7 Develop and embed metrics for DEIJ into metrics of evaluation of scholarship.

Individuals' promotion of safe and inclusive practices should be embedded in hiring, promotion, and tenure processes. As DEIJ related policies are put into place, they should be evaluated for their effectiveness in reaching the diversity goals and objectives of the institutions. Metrics for evaluation will need to be identified, and these metrics themselves should be evaluated and refined so that they impact decision making and outcomes. Include education on the appropriate use and misuse of metrics used to evaluate scholarship. For example, impact factors are generally based on subscribership (which is based on generalist content for a field) and should not be used to evaluate the quality of an individual paper or scholar. Consider the full contribution of the scholar to the field, including their support of DEIJ practices and their conduct as a colleague and mentor. Priorities in hiring, promotion, and funding shape the priorities of the field, and define what work is valued.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

3.17 Integrate trainings on the value of DEIJ work into the processes of on-boarding, annual reviews, promotion, and tenure.

Integrating DEIJ trainings into various stages of career advancement, including undergraduate students, will signal that the organization takes DEIJ work seriously and better support individuals already doing DEIJ work at that organization. Such trainings should educate on the value of DEIJ, the various ways bias infiltrates the system, and practices to overcome bias.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

References and appendices: Settles et al. (2020)⁵⁸

3.18 Compensate and award diversity work at campus level and society levels through funding and awards.

DEIJ work is often executed as an “invisible” service or labor by individuals donating their own time, money, and/or energy on top of their funded and evaluated work. This places a disproportionate burden on those faculty and staff committed to improving DEIJ at their institutions and ensures slower progress. Diversity work should be recognized and supported financially by institutions and societies to adequately compensate dedicated staff, incentivize more DEIJ-related work, and show a serious commitment on behalf of the organization.

Time frame: Long-term

Prerequisites: Criteria to guide awards/recognition

Responsible institution(s): Universities, government/funding agencies, professional societies/community organizations

Difficulty/investment: Difficult

⁵⁸ Settles, I. H., M.K. Jones, N.T. Buchanan, and K. Dotson (2020). Epistemic exclusion: Scholar(ly) devaluation that marginalizes faculty of color. *Journal of Diversity in Higher Education*. Advance online publication. <https://doi.org/10.1037/dhe0000174>

3.19 Require contributions to diversity, equity, inclusion, and justice in employment evaluation and promotion qualifications, including tenure and promotion (teaching, research, service, and outreach).

DEIJ work could be elevated as a pillar of an individual's overall contributions and qualifications for hiring, promotion, or tenure achievement. Some policies may include:

- Providing guidance to tenure committees at the university level to reframe diversity/DEIJ service as leadership in tenure and promotion policies.
- Providing guidance for letter writers to evaluate a dossier in context of contributions to DEIJ.
- Providing guidance to hiring and tenure committees at the university level to understand individual candidates in the context of their department, for example, considering variety in teaching loads, research facilities, etc.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

References and appendices: e.g., UW-Madison Physical Sciences division⁵⁹

3.20 Include DEIJ statements and plans in annual appraisals and annual project reports.

Many institutions have incorporated COVID-19 impact statements or plans into annual appraisals and reports. Statements on diversity levels, efforts, and the impacts of DEIJ work should similarly be reported.

Time frame: Short-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Easy

3.21 Develop and embed metrics for DEIJ into metrics of evaluation of scholarship.

Individuals' promotion of safe and inclusive practices should be embedded in hiring, promotion, and tenure processes. Metrics for evaluation will need to be identified, and these metrics themselves should be evaluated and refined so that they impact decision making and outcomes. Include education on the appropriate use and misuse of metrics used to evaluate scholarship. For example, impact factors are generally based on subscribership, which is based on generalist content for a field, and should not be used to evaluate the quality of an individual paper or scholar. Consider the full contribution of the scholar to the field, including their support of DEIJ practices and their conduct as a colleague and mentor. Priorities in hiring, promotion, and funding shape the priorities of the field, and define what work is valued.

Time frame: Mid-term

Responsible institution(s): Universities, government/funding agencies

Difficulty/investment: Moderate

⁵⁹ UW-Madison Physical Sciences Division, Recommendations for Guidelines for Tenure and Promotion: Scholarly Activity That Enhances the Wisconsin Idea: https://d808bmy3b6p21.cloudfront.net/wp-content/uploads/sites/50/2021/01/DEI-Recommendations_for_TP.pdf

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We would like to recognize the Advisory Committee members who provided their invaluable insight and expertise to guiding the workshop planning; the success of this event was largely because of their continuous support over many months. Finally, we would like to thank the workshop participants whose ideas, expertise, experiences, research, and initiatives informed and shaped the recommendations in this report. Appendix E contains a list of Advisory Committee members and workshop participants.

Appendix A: Workshop Agenda

ALL TIMES LISTED IN EASTERN DAYLIGHT TIME

*Break schedule is approximate

Wednesday, March 24, 2021

1:00 pm Workshop Convenes

- Welcome — Kristen Yarincik/Anne Kelly
- Introductions and purpose — All
- Shared values and expectations — elizaBeth Simpson (Facilitator)
- Presentation on role of science climate in harassment prevention — Kate Clancy
- Presentation of the unique problems of harassment in remote/isolated field work with Toolik Field Station as a case study — Brie Van Dam
- Q & A on case study & climate presentations — elizaBeth Simpson (Facilitator)

3:00 pm Break (20min)*

- Defining the scope and goals of the workshop — elizaBeth Simpson (Facilitator)
- Presentation on specific experiences of women of color in fieldwork and STEM — Danielle Dickens
- Presentation on specific experiences of LGBTQ+ individuals in fieldwork and STEM — Alison Olcott/ Matt Downen
- Q & A on specific experiences of women of color and LGBTQ+ individuals
- Final remarks — Anne Kelly
- Working group meet-up

5:00 pm Day 1 Adjourns

Thursday, March 25, 2021

1:00 pm Day 2 Convenes

- Welcome — Kristen Yarincik/Anne Kelly
- Presentation on recent (2020) changes to Title IX — Alexandra Tracy-Ramirez
- Q & A and discussion of Title IX
- Introduction to working group process

2:00 pm Break (10 min)*

2:10 pm Working Group Sessions (to be held concurrently)

- Working Group 1 — Prevention and climate practices — Ramón Barthelemy (Moderator)
- Working Group 2 — Reporting & institutional obligations — NiCole Buchanan (Moderator)
- Working Group 3 — Monitoring and sustainability practices (across levels) — Carolyn Brinkworth (Moderator)

3:45 pm Break for all groups (20 min)*

4:05 pm Full Group Reconvenes

- Status reports from working groups
- Final remarks — Anne Kelly
- Working group meet-up

5:00 pm Day 2 Adjourns

Friday, March 26, 2021

1:00 pm Day 3 Convenes

- Welcome — Kristen Yarincik/Anne Kelly
- Working Groups continued — elizaBeth Simpson (Moderator)

3:20 pm Break (20 min)*

- Integration & next steps — elizaBeth Simpson (Facilitator)
- Concluding remarks — Anne Kelly

5:00 pm Workshop Adjourns

For more workshop information and resources, please visit: <https://oceanleadership.org/field-science-safety-workshop/>

Appendix B: Shared Workshop Operating Premises

- Academia has the 2nd highest rate of sexual harassment across all sectors (58%) ([NASEM Report 2018](#))
- Field participants experience a higher rate of sexual harassment (64%) ([Clancy et al. 2014](#)); this may vary by field:
 - E.g., recent survey of marine sciences: 78% experienced sexual harassment, with fieldwork setting being the most prevalent location of occurrence ([Women in Ocean Science Report](#))
- Environments that are majority men and/or have male-dominated leadership have more frequent incidents of sexual harassment for women ([NASEM Report 2018](#))
- 95% of harassment can't be adjudicated because it doesn't fall under current legal structures
- Socio-historical cultural exclusion of women/femmes and BIPOC (e.g. prevalence of white male bodies) enables a climate of harassing behavior
- Trans women are women
- Interpersonal and Structural Racism exist
- Sexual harassment is/includes (see <https://www.nap.edu/visualizations/sexual-harassment-iceberg>):
 - Gender harassment (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender)
 - Unwanted sexual attention
 - Sexual coercion
 - “Double jeopardy/triple threat” experiences including:
 - > Impacts for BIPOC women ([Clancy et al. 2017](#))
 - > Impacts for LGBTQ+ people ([Olcott & Downen 2020](#))

Appendix C: Definitions

Sexual harassment: is/includes (see <https://www.nap.edu/visualizations/sexual-harassment-iceberg>):

- Gender harassment (verbal and nonverbal behaviors that convey hostility, objectification, exclusion, or second-class status about members of one gender)
- Unwanted sexual attention
- Sexual coercion
- “Double jeopardy/triple threat” experiences including:
 - Impacts for BIPOC women ([Clancy et al. 2017](#))
 - Impacts for LGBTQ+ people ([Olcott & Downen 2020](#))

Time frame: Estimates within what time-frame the recommendation might be accomplished, or at least be meaningfully underway.

- “Short-term”: Recommendation may be done by leveraging existing resources. Recommendation could likely be implemented within 1-6 months if allotted the small amount of effort required.
- “Mid-term”: Recommendation may require additional institutional resources or organization that involve coordination and staff time. Recommendation may be implemented within 6-18 months.
- “Long-term”: Recommendation may require significant coordination between internal and external resources or personnel. At least one year of dedication is expected before meaningful changes are seen.
- “Ongoing”: A standing institutional commitment and effort is required in perpetuity. Recommendation may also work to promote culture change, work that must be a consistent force over time.

Difficulty/investment: Estimates how much effort or resources may be required to implement the recommendation. Institutional barriers to action may need to be removed or overcome, such as existing policies and practices, lack of funding, and institutional culture.

- “Easy”: Recommendation could likely be implemented through existing organizational structures, including existing staff. Few to no institutional barriers (e.g., new policies to be developed/approved; HR processes; legal review/counsel; other bureaucratic processes and challenges) expected.
- “Moderate”: Recommendation may require additional institutional resources, new organization, etc. Institutional barriers may or may not be encountered.
- “Difficult/High”: Recommendation may almost certainly require additional funding, resources, and/or staff time. The idea may be fairly straightforward, yet likely to encounter significant institutional barriers, need legal consultation, etc. Investment has potential for high impact and results.

Prerequisites: Identifies activities, processes, or structures that should be completed or in place before the recommendation can be implemented.

Responsible Institution(s): Identifies institution or organization types that have important roles or responsibilities to implement the recommendation. This might include university leadership, funding agencies (private and public), field practitioners and leaders, professional societies and community organizations, and government agencies.

References and appendices: Identifies resources or definitions that may be helpful in understanding or implementing the recommendation.

Appendix D: Pre-Expedition Checklist

A pre-expedition checklist can be an effective resource for PIs and other field station / ship leaders in harassment prevention planning and accountability. Such a checklist will ensure field participants are adequately prepared and knowledgeable about proper planning and prevention practices before entering the field. The template below is a draft checklist, which should be further refined and tailored to specific field site, station, or platform needs.

Category	Checklist Item	Responsibility	Resources & Examples	Resource Link
Code of Conduct	Create a Code of Conduct that includes shared norms and values, including acknowledgement of challenges for multiple gender identity, sexual orientation, race, ethnicity, religion, and other identity groups	Leadership	Code of Conduct for Toolik Field Station Other examples at ADVANCEGeo resources page	https://ou-webserver01.alaska.edu/toolik/handbook/policies.php https://serc.carleton.edu/advancegeo/resources/codes_conduct.html
	Include discipline for infringing on Code of Conduct	Leadership	ADVANCEGeo Sample Codes of Conduct; ADVANCEGeo also offers writing codes of conduct training	https://serc.carleton.edu/advancegeo/resources/codes_conduct.html
	Include expectations for international and/or external participants	Leadership	NSF Office of Polar Programs US Antarctic Program 2016	https://www.nsf.gov/geo/opp/documents/policy/polar_coc.pdf
	Ensure all participants read, understand, and sign Code of Conduct	Everyone	Indiana University Geologic Field Station Code of Conduct	https://iugfs.indiana.edu/documents/admittance-forms-g429.pdf
Prevention Policies	Establish a sexual misconduct policy that clearly defines harassment and assault	Leadership	University of Alaska Fairbanks - Toolik Field Station Sexual Misconduct Policy	https://fieldworkfuture.ucsc.edu/assets/files/Toolik-FieldStationSexualMisconduct_Policy.pdf
	Establish and communicate alcohol and drug policy	Leadership	UCSD Scripps vessel alcohol policy	https://scripps.ucsd.edu/ships/alcohol-and-illegal-drugs-zero-tolerance
	Establish and communicate pregnancy and lactation policy	Leadership		
	Communicate and understand policies for privacy, hygiene, switching sleeping quarters	Everyone		
Pre-field training	Complete required institutional harassment training	Everyone	University Title IX trainings	
	Ensure external participants have completed host institution trainings	Leadership		
	Complete interactive, scenario-based, trauma-informed bystander intervention and/or violence prevention training	Everyone	Green Dot Bystander Training	https://greendot.tamu.edu/strategy/
			ADVANCEGeo Bystander and Workplace Training; Writing a Code of Conduct Training	https://serc.carleton.edu/advancegeo/workshops/index.html
			UCSC Building a Better Fieldwork Future Bystander Training	https://fieldworkfuture.ucsc.edu/
			FISST Training, The Fieldwork Initiative	http://fieldworkinitiative.org/the-fisst-training/
	Complete implicit bias/intersectionality training	Everyone	Harvard Racial Bias in Scientific Fields Resource List	https://projects.iq.harvard.edu/antiracismresources/science

Reporting	Establish accessible reporting channel, including access to confidential support via phone or internet. Identify whether reporting channel is 24/7, confidential, etc.	Leadership	Know your Title IX report FAQs	https://www.knowyourix.org/legal-action/taking-legal-action-title-ix/
			RAINN Reporting to Law Enforcement	rainn.org/articles/reporting-law-enforcement
	Identify and communicate mandated reporters or responsible employees who are required to report to institution	Everyone	University of California FAQ on responsible employees	https://sexualviolence.universityofcalifornia.edu/faq/responsible-employee.html
	Identify chain of command - e.g., where do reports go when they are made?	Leadership	Preventing Harassment in Fieldwork Situations Report from the University of Washington's Respect and Equality in Fieldwork (REIF) 2017 Committee	http://psc.apl.washington.edu/HLD/REIF/RespectandEqualityinFieldwork_RecommendationsandReportUW_Jan2018.pdf
Identify potential threats	Identify extent of health insurance coverage for all members (e.g., is emergency counselling available?)	Leadership		
	Identify identity-based potential threats and/or risks in your geographic location (including identities not obvious)	Leadership	World laws pertaining to LGBTQ+ relationships and expression	https://en.wikipedia.org/wiki/File:World_laws_pertaining_to_homosexual_relationships_and_expression.svg
			Safe fieldwork strategies for at-risk individuals, their supervisors and institutions	https://www.nature.com/articles/s4159-020-01328-5?proof=t
Availability of resources	Ensure the following are communicated and available to all participants: 1) sexual misconduct policy, 2) Code of Conduct, 3) policies for alcohol, drugs, pregnancy, lactation, privacy, hygiene, etc, 3) confidential reporting channels, 4) emergency resources, 5) counseling and victim advocacy services	Leadership		
Where to go with questions or if you need help	Identify who and where participants should go with questions about any of the above checklist items.	Leadership		

Appendix E: Workshop Advisory Committee and Participants

Advisory Committee

Ramón Barthelemy, University of Utah
Carolyn Brinkworth, University Corporation for Atmospheric Research
NiCole Buchanan, Michigan State University
Kate Clancy, University of Illinois
Annette DeSilva, University of Rhode Island
Danielle Dickens, Spelman College
Mary Anne Holmes, University of Nebraska-Lincoln
Erika Marin-Spiotta, University of Wisconsin-Madison
Roberta Marinelli, Oregon State University
Heather Metcalf, ADVANCE Resource and Coordination Network

Participants

Abby Ackerman, Consortium for Ocean Leadership
Asmeret Asefaw Berhe, University of California Merced
Estella Atekwana, University of Delaware
Arielle Baker, National Academies of Sciences, Engineering, and Medicine
Kathi Benjamin, Woods Hole Oceanographic Institution
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