

1 **Title:** Know Before You Go: A community-derived approach to planning for and preventing  
2 sexual harassment at oceanographic field sites

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16

## 17 **Abstract**

18 Sexual harassment is a pervasive problem on oceanographic research vessels and while  
19 conducting fieldwork in general. A variety of factors contribute to inadequate protection against  
20 sexual harassment, such as poor training in prevention, support, and response; the remoteness  
21 of field sites; academic hierarchies that reinforce uneven power dynamics that extend to  
22 fieldwork; and multi-institutional teams with distinct policies or reporting structures that can lead  
23 to confusion in reporting and responding to incidents in the field. In compromising individuals'  
24 physical and mental health, sexual harassment can negatively affect research expeditions. For  
25 example, harassed individuals may decide to refrain from working on complicated team-based  
26 tasks, which can be a safety issue. A broader concern is that sexual harassment deters talented  
27 people from pursuing or maintaining employment in ocean science. Harassment must be treated  
28 with the same gravity as research misconduct and safety policy infringements. When planning a  
29 research expedition, science team leaders are responsible for the safety of their team and other  
30 colleagues aboard and would benefit from resources aimed at helping team leadership create a  
31 plan to ensure safety and inclusivity. To address this resource gap and support consistent  
32 safety preparedness, 18 participants in the Workshop to Promote Field Safety in Ocean  
33 Sciences, convened by the Consortium for Ocean Leadership and held May 17-18, 2022, in  
34 Washington, D.C., developed a checklist for use by scientific leaders and others to assist in  
35 planning for participant safety and to prevent harassment the field. The checklist specifies the  
36 timing of, and who is responsible for, specific actions that should be taken to improve safety  
37 while conducting fieldwork, whether on a research vessel or on land. It also provides additional  
38 resources and suggestions for leaders on how to amend the checklist to address their specific  
39 fieldwork situations.

## 40 **Background**

41 Fieldwork can be a training ground for students, a requirement for earning a degree in  
42 geoscience, and a deciding factor in recruiting and retaining individuals to the field. Shafer et al.  
43 (2022) analyzed geoscience job postings and found that over 60% of Earth science job postings  
44 aimed at bachelor's-level graduates listed "field skills" as a desired qualification and was the  
45 second-most prevalent qualification of the 34 skills the study examined across over 1,000  
46 unique job postings. It follows that broad access to and positive experiences in fieldwork can

47 lead to better recruitment and retention in the field (Nelson et al., 2017; NASEM, 2018; Marín-  
48 Spiotta et al., 2020).

49 Environments that promote, normalize, or deal ineffectively with sexual and other forms of  
50 harassment are unsafe for researchers and staff, and can negatively impact both mental and  
51 physical health of those who experience harassment as well as bystanders (Armstrong et al.,  
52 2018; Marín-Spiotta et al., 2020). Sexual harassment includes gender-based harassment (e.g.,  
53 threats, slurs, lewd comments and images, promoting stereotypes, demonstrating bias and  
54 discrimination, or other hateful conduct), unwanted sexual attention, and sexual coercion. It is  
55 not limited to those who identify as women and can also be the result of perceived sexual  
56 orientation and gender identity. Physical distance from an individual's home institution, paired  
57 with the power imbalances inherent to the hierarchical nature of academia and STEM  
58 leadership that is historically dominated by white men, can create or amplify a hostile or  
59 dangerous climate for people with marginalized genders or other marginalized identities (Marín-  
60 Spiotta et al., 2020; Kelly and Yarincik, 2022). In particular, people whose identities intersect  
61 multiple marginalized groups are at higher risk for harassment (National Academies of  
62 Sciences, Engineering, and Medicine, 2018) and can experience both racial and sexual  
63 harassment simultaneously or experience racially motivated sexual harassment (Armstrong et  
64 al., 2018). Given the lack of diversity in geosciences in the United States (e.g., Bernard and  
65 Cooperdock, 2018), ensuring that people at all career stages are protected from racial-, ethnic-,  
66 gender-, or ability-based harassment is crucial to creating a more diverse and equitable field.

67 Sexual harassment in ocean science is pervasive. According to a recent report by the  
68 organization Women in Ocean Science (2021), 78% of surveyed females have experienced  
69 sexual harassment in their workplace or learning environment, with fieldwork representing the  
70 most common location for such experiences. Individual perceptions (regardless of legal  
71 definitions) of what constitutes harassment and bullying might vary, with some defending

72 behavior as, for example, universally difficult personalities or cultural overcorrection (e.g.,  
73 Harris, 2022). Ultimately, everyone deserves to be treated with respect in their workplace or  
74 learning environment, and a climate of respect has been found to lead to reductions in identity-  
75 based harassment (Robotham and Cortina, 2021).

76 Due to the many factors that can contribute to an “unsafe” field site, which range from personal-  
77 to institutional-level concerns, there is no single solution to making field sites safer from sexual  
78 harassment. Instead, ensuring field safety requires multiple policies and best practices that  
79 cover a wide range of topics, time scales, and levels of responsibility. Broadly speaking, the  
80 three dimensions of safety that need to be addressed at field sites are harassment prevention,  
81 support for those that experience harassment, and response to incidents.

82 Current policies and social norms at many institutions are insufficient for ensuring inclusive and  
83 harassment-free environments (National Academies of Sciences, Engineering, and Medicine,  
84 2018). In the field, ensuring participant safety also suffers from this isolating culture and a lack  
85 of clear and enforced policies and is compounded by an environment with multi-institutional —  
86 and sometimes multinational — teams and field sites with multiple jurisdictions that often  
87 complicate the question of responsibility when it comes to addressing instances of harassment  
88 or assault (Kelly & Yarincik, 2022). To remedy this, institutions and vessel operators must create  
89 and routinely update policies for prevention, support, and response. Critically, once such  
90 policies exist, institutions must consistently communicate and enforce them. As many in the  
91 literature have noted, even when codes of conduct and reporting mechanisms exist, they cannot  
92 be effective if not properly communicated to all working at a field site or if those in positions of  
93 authority are not familiar enough with policies to assist targets of harassment when reporting  
94 (Clancy et al., 2014; Nelson et al., 2017; Steinhardt, 2018). Likewise, of individuals who report  
95 their harassment or assault, few report being satisfied with the outcomes of reporting (Clancy et  
96 al., 2014) which can, and has, led to underreporting of incidents of harassment.

97 While ensuring the safety and culture of a field expedition may ultimately fall on those in charge,  
98 for example chief scientists, principal investigators (PIs) and other field team leaders, all  
99 participants have a role to play. Those who witness harassment have a critical role in  
100 demonstrating positive culture and lack of tolerance for such behavior if they intervene in the  
101 moment or report the behavior as appropriate, and bystander training should become a  
102 normalized part of the field experience (Kelly & Yarincik, 2022).

### 103 **Developing a Safety Checklist**

104 The Workshop to Promote Field Safety in Ocean Sciences, convened by the Consortium for  
105 Ocean Leadership, was a follow-on event to the 2021 Workshop to Promote Safety in Field  
106 Sciences, which aimed to build a safer and more inclusive field culture for participants of all  
107 backgrounds and identities, offering a set of broad recommendations to inspire and guide  
108 different audiences and actors in field science to address harassment in a collaborative,  
109 community-based way. The ocean-focused Workshop used the *Report of the Workshop to*  
110 *Promote Safety in Field Sciences* (Kelly and Yarincik, 2022) as a foundational document to  
111 guide the development of recommended actions specific to the ocean science community and  
112 ocean science field platforms. Participants represented a variety of career stages and sectors of  
113 expertise, including but not limited to academic and federal seagoing scientists, UNOLS  
114 members, private research vessel operators, and others interested in promoting safety and  
115 inclusion, to reflect a broad range of experiences and reduce bias when crafting  
116 recommendations. The Workshop operated on the premise that, in addition to being research  
117 misconduct, harassment and assault are health and safety hazards and should accordingly be  
118 taken as seriously as other health and safety hazards on research vessels and other field  
119 stations or platforms.

120 Workshop participants recommended potential actions and a vessel safety checklist to provide  
121 specific and realistic steps that managers, policy makers, and field team leaders in the ocean

122 sciences community can implement immediately to improve policies and processes related to  
123 safety, positively impacting the culture of ocean science. The checklist (Table 1) is intended as  
124 a resource for chief scientists, PIs, and field team leaders as they prepare for fieldwork. By  
125 following the structure and timeline often used for scientific and logistical planning, the checklist  
126 aims to integrate safety into pre-, during, and post-cruise activities by outlining how and when to  
127 implement practices for preventing harassment, supporting targets of harassment, and  
128 encouraging reporting of incidents. The framework is intended to be flexible enough to allow  
129 institutions or individuals to amend the list as necessary for their unique purposes or as they  
130 learn new best practices: Implementation of the checklist should be treated as an iterative  
131 process that evolves with feedback and experience to better serve the community's goals.

### 132 **The Safety Checklist: Responsibility, Conduct, and Policies**

133 When it comes to safety at sea, all bear some responsibility for keeping themselves and their  
134 colleagues safe, not just those in leadership roles. However, in planning this checklist (Table 1),  
135 workshop participants envisioned it as a resource for chief scientists and PIs to intentionally  
136 plan for safety from harassment and bullying ahead of time, as early as proposal development.  
137 The National Science Foundation, in particular its Directorate for Geosciences, has recently  
138 announced that several solicitations will require the submission of a plan for safe and inclusive  
139 work environments, pointing to the importance that funding agencies are beginning to put on  
140 harassment as a safety issue. The checklist is not exhaustive and should instead be viewed as  
141 the starting point for PIs, chief scientists, and organizations engaging with safety planning.

142 The items serve to ensure that critical communications and policies related to safety planning  
143 are not overlooked, including creating individual codes of conduct that represents the shared  
144 values of the field team and organizations involved in each expedition; identifying mandatory  
145 reporters and additional trained resource providers (Kelly & Yarincik, 2022); clarifying multi-  
146 institutional roles and responsibilities that can confuse reporting of and response to sexual

147 harassment (Kelly and Yarincik, 2022); and thinking through traditions that may not feel  
148 inclusive to those new to sea-going research, such as milestone ceremonies (University  
149 National Oceanographic Laboratories System (UNOLS) and Maintaining an Environment of  
150 Respect Aboard Ships (MERAS) committee, 2019). One common theme throughout the  
151 checklist is clear, consistent, and two-way communication with the science team who will be  
152 onboard.

153 The safety checklist (Table 1) is divided based on when the action needs to take place relative  
154 to the research expedition to ensure that appropriate actions are taken at appropriate times. Not  
155 all expeditions will have the same planning timelines. The PI or chief scientist should have the  
156 responsibility of managing the safety checklist and plan to ensure that each action takes place.  
157 Table 2 directs the PI or chief scientist to resources available to support the recommended  
158 safety planning and preparation actions in the checklist.

## 159 **Conclusion**

160 As is true for almost every other aspect of working in the field, preparation is the key to success.  
161 Having a plan in place to prevent sexual harassment, support targets, and respond to incidents  
162 on a ship is both key to the short-term goal of completing field research and the long-term goal  
163 of preventing attrition of talented scientists, among other objectives. It is important for teams  
164 going into the field to implement policies, trainings, and other measures that make participants  
165 safer from sexual harassment.

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<b>Checklist to Promote Field Safety for Chief Scientists, Principal Investigators and Field Team Leads</b>		
<b>Timeline relative to mobilization for the cruise of field program</b>	<b>Checklist Item</b>	<b>Category</b>
Ideally at least one week prior to pre-cruise meeting or 6 months prior to the cruise	Identify and review the ship's or hosting institution's code of conduct.	Code of Conduct
	Identify and review the sexual misconduct policy. It should clearly define harassment and assault.	Prevention
	Identify and review the alcohol and drug policy.	Prevention
	Identify and review pregnancy and nursing policy	Prevention
	Identify who will be the ship's reporting contacts and 1-2 additional POCs in the science party to act as additional resource persons	Trained Support & Reporting
	Ensure the science party has resources for and undertakes trainings on conflict resolution, bystander intervention, and reporting	Trained Support & Reporting
	Integrate agenda items on safety at sea at all pre-cruise meetings, all email communications should include aspects related to Safety at Sea as well as logistics and science aspects	Communication
	Identify resources that are available to you through your own institution, including those on advising and reporting in remote field situations	Prevention
At the pre-cruise meeting or initial planning meeting with operators	Ask any questions about the existing institutional code of conduct; if one does not exist inquire about adopting one for the cruise (e.g., from NSF)	Code of Conduct
	Ask any questions about the sexual misconduct policy, alcohol and drug policy, and pregnancy/nursing policy to the ship operators. If policies do not exist inquire about establishing one. (See below if the ship does not establish policies.)	Prevention
	Clarify and share policies for privacy, hygiene, sleeping quarters assignment or changes mid-cruise	Prevention
Immediately following the pre-cruise meeting follow up with science party members	If the ship does not have formal and complete codes of conduct and policies, adopt a code of conduct as a starting place for discussion with the Science Party	Code of Conduct
	Communicate policies for sexual harassment, alcohol and drugs, pregnancy and nursing, and any cruise-specific details like milestone ceremonies if relevant	Communication
	Communicate policies for privacy, hygiene, and science party berthing assignments	Communication

	Identify potential safety concerns particular to the specific science group prior to going out into the field	Prevention
One to two weeks prior to the cruise	Ask that each science party member watch the UNOLS "Shipboard Civility - Fostering a Respectful Work Environment" videos	Prevention
	Hold a virtual meeting with the science party to meet one another, go over ship life questions, introduce resource persons, and review code of conduct expectations; consider adding time for a discussion on the UNOLS Shipboard Civility videos	Module and Code of Conduct
During the cruise	Make sure safety at sea is on the agenda during the initial safety meeting on site	Communication
	Introduce the ship reporters and the science party POCs; if possible, post contact information in main lab and other areas frequented by participants (e.g., they ship's galley or field station canteen)	Trained Support & Reporting
	Plan on weekly check-ins on safety and environmental climate, these could be coupled to weekly drills	Maintaining a safe environment
After the cruise	Send an email requesting informal feedback on cruise environment; could be set up anonymously via Google forms or Qualtrics, should be done before your submission of post cruise assessment	Trained Support & Reporting
	Notify all participants that they are able to submit a formal post-cruise assessment (specific to UNOLS)	Trained Support & Reporting
	Send an email reminding participants of resources, including reporting avenues	Trained Support & Reporting

173 [caption] Table 1. *Checklist to Promote Field Safety for Chief Scientists, Principal Investigators*  
174 *and Field Team Leads*. The checklist is organized by three categories: When the action needs  
175 to occur, what the action is, and what dimension of preventing or responding to harassment it  
176 addresses.

177

Resources available to support the safety planning and preparation actions		
Category	Resources & Examples	Resource Link

<b>General Safety &amp; Inclusion Resources</b>	Building a Better Fieldwork Future (BBFF) resources page	<a href="https://fieldworkfuture.ucsc.edu/">https://fieldworkfuture.ucsc.edu/</a>
	ADVANCEGeo Partnership community resources page	<a href="https://serc.carleton.edu/advancegeo/resources/index.html">https://serc.carleton.edu/advancegeo/resources/index.html</a>
<b>Code of Conduct</b>	Toolik Field Station Code of Conduct: Example that includes shared norms and values, including acknowledgement of challenges for multiple gender identity, sexual orientation, race, ethnicity, religion, and other identity groups.	<a href="https://ou-webserver01.alaska.edu/toolik/handbook/policies.php">https://ou-webserver01.alaska.edu/toolik/handbook/policies.php</a>
	ADVANCEGeo Sample Codes of Conduct: Example for including disciplinary responses to infringing on Code of Conduct.	<a href="https://serc.carleton.edu/advancegeo/resources/codes_conduct.html">https://serc.carleton.edu/advancegeo/resources/codes_conduct.html</a>
	UNOLS Code of Conduct	<a href="https://www.unols.org/sites/default/files/MERAS_Code_of_Conduct_23June2022.pdf">https://www.unols.org/sites/default/files/MERAS_Code_of_Conduct_23June2022.pdf</a>
	NSF Office of Polar Programs US Antarctic Program 2016: Example that includes expectations for international and/or external participants.	<a href="https://www.nsf.gov/geo/opp/documents/policy/polar_coc.pdf">https://www.nsf.gov/geo/opp/documents/policy/polar_coc.pdf</a>
	Indiana University Geologic Field Station Code of Conduct: Includes an example of signed acknowledgement by all participants that they've read and understand the Code of Conduct.	<a href="https://iugfs.indiana.edu/documents/admittance-forms-g429.pdf">https://iugfs.indiana.edu/documents/admittance-forms-g429.pdf</a>
<b>Prevention Policies</b>	Sexual Misconduct Policy (Toolik Field Station)	<a href="https://fieldworkfuture.ucsc.edu/assets/files/Toolik-FieldStationSexual_Misconduct_Policy.pdf">https://fieldworkfuture.ucsc.edu/assets/files/Toolik-FieldStationSexual_Misconduct_Policy.pdf</a>
	Vessel alcohol policy (UCSD Scripps Institution of Oceanography)	<a href="https://scripps.ucsd.edu/ships/alcohol-and-illegal-drugs-zero-tolerance">https://scripps.ucsd.edu/ships/alcohol-and-illegal-drugs-zero-tolerance</a>
	Preventing Harassment in Fieldwork Situations (Report from the University of Washington's Respect and Equality in Fieldwork (REIF) 2017 Committee)	<a href="http://psc.apl.washington.edu/HLD/REIF/RespectandEqualityinFieldwork_RecommendationsandReportUW_Jan2018.pdf">http://psc.apl.washington.edu/HLD/REIF/RespectandEqualityinFieldwork_RecommendationsandReportUW_Jan2018.pdf</a>
	Research Vessel Safety Standards (UNOLS)	<a href="https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf">https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf</a>
	Pregnancy and lactation policy (UCSD Scripps Institution of Oceanography)	<a href="https://scripps.ucsd.edu/ships/policies-and-procedures/pregnancy-sea">https://scripps.ucsd.edu/ships/policies-and-procedures/pregnancy-sea</a>
	Milestone Ceremonies Policy (UNOLS)	<a href="https://www.unols.org/sites/default/files/MERAS_Milestone_Ceremonies_White_Paper_final_011019.pdf">https://www.unols.org/sites/default/files/MERAS_Milestone_Ceremonies_White_Paper_final_011019.pdf</a>

	Harassment Prevention (UNOLS Research Vessel Safety Standards, Appendix E): communicates sexual harassment prevention	<a href="https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf">https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf</a>
<b>Pre-Field Training</b>	Preemptive Intervention and Trauma Mitigation Training (FIEST Training, The Fieldwork Initiative)	<a href="https://fieldworkinitiative.org/the-fiest-training/">https://fieldworkinitiative.org/the-fiest-training/</a>
	Bystander Training (Green Dot)	<a href="https://greendot.tamu.edu/strategy/">https://greendot.tamu.edu/strategy/</a>
	Bystander Training (UCSC Building a Better Fieldwork Future Bystander Training)	<a href="https://fieldworkfuture.ucsc.edu/">https://fieldworkfuture.ucsc.edu/</a>
	Safety Training for Science Parties (UNOLS Research Vessel Safety Standards, Appendix G): communicates policies for, e.g., privacy, hygiene, switching sleeping quarters	<a href="https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf">https://www.unols.org/sites/default/files/RVSS_11-Master_Copy_Nov_2021.pdf</a>
	Personal Behavior and Individual Safety (UNOLS Research Vessel Safety Standards, Chapter 6)	<a href="https://www.unols.org/sites/default/files/RVSS_11thEd-12Nov2021.pdf">https://www.unols.org/sites/default/files/RVSS_11thEd-12Nov2021.pdf</a>
	Civility Training (UNOLS Shipboard Civility, Modules I and II)	<a href="https://www.unols.org/shipboard-civility">https://www.unols.org/shipboard-civility</a>
	Civility Training (UNOLS Companion Guide for Shipboard Civility Modules I & II Videos)	<a href="https://www.unols.org/sites/default/files/ShipboardCivilityDiscussionGuide_2022April.pdf">https://www.unols.org/sites/default/files/ShipboardCivilityDiscussionGuide_2022April.pdf</a>
	Racial / Intersectionality Bias Training (Harvard Racial Bias in Scientific Fields Resource List)	<a href="https://projects.iq.harvard.edu/antiracismresources/science">https://projects.iq.harvard.edu/antiracismresources/science</a>
<b>Reporting</b>	Title IX Reporting FAQs	<a href="https://www.knowyourix.org/legal-action/taking-legal-action-title-ix/#:~:text=Title%20IX%20complaints%20are%20generally%20submit%20online%2C%20either%20through%20the,or%20not%2C%20by%20snail%20mail.">https://www.knowyourix.org/legal-action/taking-legal-action-title-ix/#:~:text=Title%20IX%20complaints%20are%20generally%20submit%20online%2C%20either%20through%20the,or%20not%2C%20by%20snail%20mail.</a>
	Reporting to Law Enforcement (RAINN)	<a href="http://rainn.org/articles/reporting-law-enforcement">rainn.org/articles/reporting-law-enforcement</a>
	Information on Responsible Employees & Mandated Reporters (University of California FAQ on responsible employees)	<a href="https://sexualviolence.universityofcalifornia.edu/faq/responsible-employee.html">https://sexualviolence.universityofcalifornia.edu/faq/responsible-employee.html</a>
	Clarifying reporting resources (Report from the University of Washington's Respect and Equality in Fieldwork (REIF) 2017 Committee - section 3.2.2)	<a href="http://psc.apl.washington.edu/HLD/REIF/RespectandEqualityinFieldwork_RecommendationsandReportUW_Jan2018.pdf">http://psc.apl.washington.edu/HLD/REIF/RespectandEqualityinFieldwork_RecommendationsandReportUW_Jan2018.pdf</a>
	UNOLS Shipboard Civility, Module III	<a href="https://www.unols.org/shipboard-civility">https://www.unols.org/shipboard-civility</a>

<b>Identifying Potential Threats</b>	World laws pertaining to LGBTQI+ relationships and expression	<a href="https://en.wikipedia.org/wiki/File:World_laws_pertaining_to_homosexual_relationships_and_expression.svg">https://en.wikipedia.org/wiki/File:World_laws_pertaining_to_homosexual_relationships_and_expression.svg</a>
	Safe fieldwork strategies for at-risk individuals, their supervisors and institutions	<a href="https://www.nature.com/articles/s41559-020-01328-5?proof=t">https://www.nature.com/articles/s41559-020-01328-5?proof=t</a>
<b>Assessment</b>	Post-Cruise Survey (UNOLS Post Cruise Assessment Report Form)	<a href="https://strs.unols.org/public/di_u_pre_pcar.aspx">https://strs.unols.org/public/di_u_pre_pcar.aspx</a>

178 [caption] Table 2. *Resources available to support the safety planning and preparation actions.*

179 This list is not inclusive of all existing and developing resources to support field safety planning

180 and preparation but is a starting point to help build knowledge and capacity for actions identified

181 in Table 1.

182

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