Protocols committee: Graduate students Ted Present and Ellen Leask, postdoc Katherine de Kleer, staff member Jen Shechet, and professors Joann Stock, Jess Adkins, and Victoria Orphan (committee Chair)

Protocols committee Charge by chairperson J. Grotzinger on October 24th, 2017:

The committee should consider the procedures, practices, customs (protocols) of GPS field trips and laboratory settings, regarding the safety, welfare and personal comfort of participants. Field trips include observational astronomy, cruises at sea, and terrestrial mapping. Field trips associated with GPS classes should be considered as well as those associated with sponsored research. The central task is to review our various programs, determine if patterns are observed in protocols associated with conduct and behavior that are likely to cause the typical attendee discomfort. Are there recommendations to be made for how these field trips and laboratories could be improved, including implementation of new protocols and/or modification of existing protocols? The committee should meet as regularly as is required, ideally reporting out to the GPS Division Chair by the end of 2017. To provide input to stimulate and focus internal discussion, the committee should conduct interviews with various subgroups of our community including students, postdocs and faculty, as well as staff that are involved in laboratory and field settings.

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The committee found that sexual harassment is occurring in GPS. This behavior is perceived differently by men and women and differently by one's professional appointment (students vs. post-docs vs. faculty). Fortunately there are several concrete steps that can work to improve the situation. We have the following five specific recommendations that are then followed by a detailed report on the types of data, research, and interactions that led to these conclusions.

Specific recommendations:

• *Advertise GPS's Position*. Publicize a clear statement about zero tolerance of harassment. Post GPS policies on sexual harassment and bullying and expected professional behavior within the Division and in field/lab settings. This should also include a clear definition of harassment and bullying and information about resources available and where to find them. This should be readily accessible from the Division website as well as posted in all of the GPS buildings. GPS bathrooms and outside the Division office may be good locations for accessing this information.

• *Make reporting easy and confidential*. Similar to our assigned safety officers for each building, create a confidential liaison position for fielding concerns/ reports of harassment. This should include training for select personnel within the Division on options available for handling reports of harassment. Designated people should be identified as trained, confidential sources. Post who these people are and how to contact them.

• *Provide quality leadership training.* Develop customized education and training within GPS that fits our specific needs and is not just a sexual harassment 'canned' program. Examples include the mentor training program on campus and management training programs more generally. Hannah Song from the CCD is willing to work with members in our Division to develop appropriate programming and training that best meets the needs of GPS. Training should not be limited to supervisors, but must include TA's and might generally benefit many members of the Division.

•*Create a GPS culture that deals openly with harassment issues.* Create opportunities for open dialog within GPS. A town hall format was suggested. This would allow open discussion of 'what if' questions (i.e. what if the aggressor is my advisor? How to ensure this won't impact my career? How to handle social situations with students/ postdocs and bias in treatment of female/ male lab members? etc. We suggest approaching the Title IX officer about the possibility of holding and advertising monthly/ bi-monthly office hours within the Division (for example in the Arms building first floor hallway next to the mail room). We believe having locally hosted office hours will lower the barriers and activation energy for interacting with the Title IX officer and increase familiarity with this office and its scope.

•*Publicize the consequences for violating the GPS policy.* The committee recommends the Division clarify and publicize its own set of specific policies for misbehavior (by GPS members and people who GPS members interact with in field/conference/lab settings), and inform our community of what the expectations are and consequences if they are violated.

I. History of the committee
The Protocols committee was formed on October 24th 2017 and assigned the task of researching the risks for harassment in our field and laboratory programs and to report recommendations to the Chairperson at the end of 2017. After the initial committee meeting, the deadline was extended in order to solicit input from the GPS community, assess the extent and nature of harassing behaviors in GPS, and to develop specific recommendations for mitigating harassment risks and further improve the culture in our Division. The protocols committee met several times over the past year to discuss the scope of the committee charge, assess current practices within GPS, and develop mechanisms to gather information from the GPS community at large. The committee focused primarily on our field-based research and teaching activities, but also broadly considered general practices within the Division pertaining to increasing awareness and minimizing the potential for harassment and bullying among our community members.
To gain a better understanding of the resources available on campus and mechanisms used at other institutions, the committee researched strategies and programming available online, read relevant literature and reports, talked with people at other universities to learn about their policies, organized a meeting with Caltech's Title IV coordinator, Felicia Hunt, and discussed possible programs and training options with Caltech's Diversity coordinator Hanna Song. The committee also solicited feedback from the GPS community through email, in person interviews,

and through an anonymous online questionnaire to gain a better understanding of the potential sources and extent of harassment experienced by members of our Division.

II. Summary of findings:

Gender based harassment is a damaging and pervasive experience for many scientific academics, especially women. Recent government and academic reports have demonstrated that harassment includes any unwelcome conduct that is hostile or creates an offensive work environment (e.g. EEOC 2016; https://www.eeoc.gov/laws/types/sex.cfm). This committee has found that such unwelcome conduct occurs in our Division, and further efforts to create a safe and comfortable work environment are necessary. The committee solicited feedback from members of the Division during in person interviews, email, and through an online questionnaire. 53 members of the Division responded to our online questionnaire, with nearly equal participation by men and women in our Division, including faculty, graduate and undergraduate students, postdocs, and staff. Of those responding, 23 members of the Division reported experiencing harassment during their careers. All were women or chose not to list their gender. No men responding to the question had personally experienced harassment; however, a few had reported witnessing harassment. The responses pointed to a gender-based discrepancy in the perception of whether harassment is a problem in the Division. Over three quarters of women responding to the questionnaire indicated they had experienced gender-based or sexual harassment at Caltech and other institutions with over a third of these women specifically reporting harassment at Caltech (**Figure 1**). The opinion of some men in the Division is that our current training is adequate, reporting that they've never witnessed harassment, while the majority of women indicated that additional resources and new policies were needed. In addition to the online questionnaire, multiple in person interviews and email discussions with students, postdocs, faculty and staff were also conducted. Responses from these interviews largely mirrored the sentiments expressed anonymously online. Experiences of gender-based professional bias and mistreatment were commonly reported in the interviews.
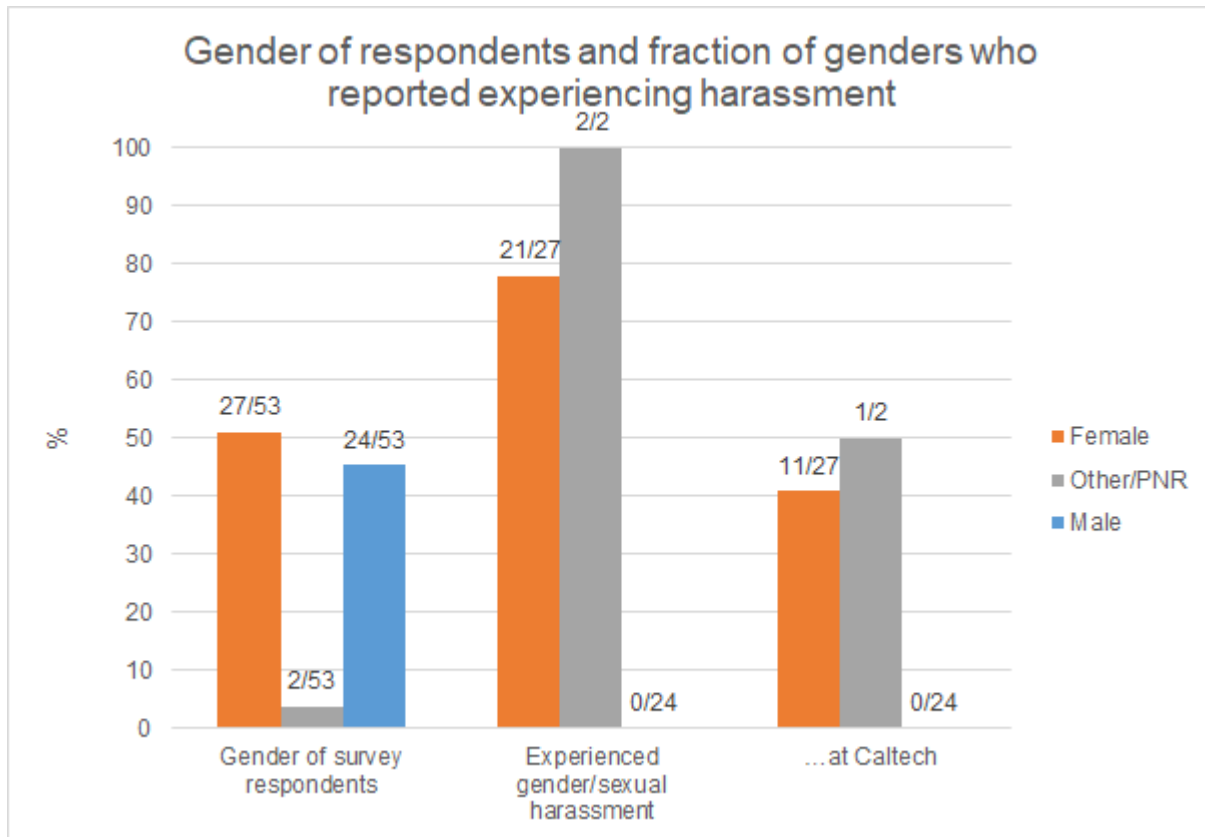
FIGURE 1: Fraction of respondents who were each gender, and fraction of respondents of each gender who reported experiencing harassment anywhere or at Caltech. PNR = prefer not to state.

These incidents have the potential to negatively impact productivity and the well being of members in our Division and development of new policies are warranted. We reference the findings from a recent study by the National Academy of Sciences that these 'gray area' incidents/ microaggressions are frequently as damaging to the victim as overt sexual harassment (National Academies of Sciences, Engineering, and Medicine. Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine. Washington, D.C.: National Academies Press, 2018). This NAS report and taped press briefing are available online and represent a valuable resource detailing the pervasiveness and impact of harassment in academic institutions as well as outlining specific recommendations that universities can implement to minimize the potential for harassment. Specific recommendations and findings that the Protocols committee found particularly relevant for GPS include:

Recommendation #1a, page 180: training to build a culture of safety and respect.
Finding #2, p. 163: provide leadership training as appropriate for people in charge of major projects.
Finding #3, p. 163-164 and p. 176: Modify our organizational structures to produce a culture that values civility, diversity, inclusion, and respect.
Finding #4, p. 164 and p. 177: Reducing hierarchical power structures.

Finding #5, p. 164: Options for formal and informal reporting.
Finding #7, p. 165 and 177-178, Transparency and accountability.
Finding #10, p. 166. Assessing progress in reducing sexual harassment.
Finding #13, Referring to Professional Society policies on harassment.

The committee has developed a series of recommendations in this report that incorporate these findings in addition to suggested policies that are tailored for the GPS Division.

Where is harassment occurring?
Of the incidents reported to have occurred at Caltech, the plurality were associated with course field trips (**Figure 3**). These were reported as incidents occurring both between peers and between supervisor and peer. Additional respondents noted incidents occurring in lab or office settings within the GPS Division perpetrated by both peers and supervisors, as well as during field research. Comments from male respondents on the survey indicate a need to educate the community on the full range and definitions of gender based harassment. Providing training and access to information about what does and does not constitute harassment will help minimize confusion and enhance awareness within the Division.
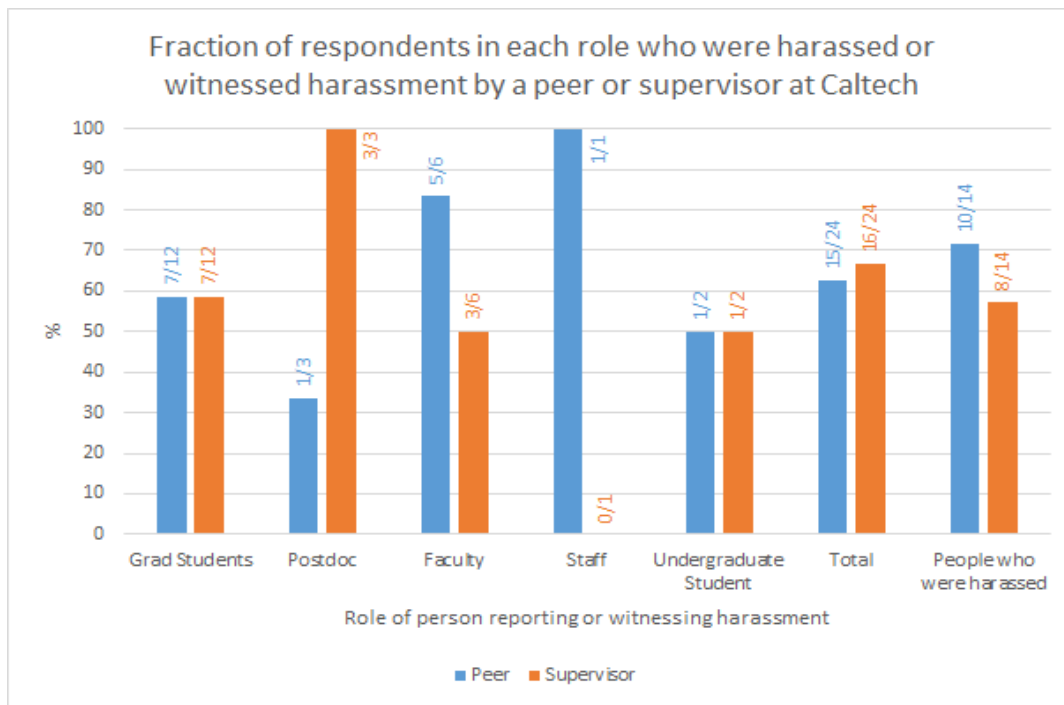

FIGURE 2: Fraction of respondents in each role who reported being harassed or witnessed harassment, and who at Caltech perpetrated the harassment. 24 people responded. Of these respondents, 14 reported experiencing harassment first-hand at Caltech. The harassment at Caltech was perpetrated by a peer in 10 of the cases, and by a supervisor in 8 of the cases. Some respondents reported more than one incident of harassment. The distribution of respondents above included 12 grad students, 3 postdocs, 6 faculty, 1 staff, and 2 undergraduates.

In the online questionnaire, we asked specifically about experiences that occurred while employed by Caltech (to distinguish from experiences prior to their time in the Division). Twenty-four of the 53 total respondents answered this question and the findings are compiled in **Figure 2**, where data is categorized by position within GPS Division (student, postdoc, faculty, staff). Twenty people additionally provided information about the location where harassment was experienced or witnessed (**Figure 3**). Responses from members of the GPS community revealed experiencing or witnessing harassment in laboratory settings (most common for graduate students, 45% respondents) followed by 36% reporting harassment during GPS sponsored/class field trips (n=11 graduate students total); faculty reported harassment most frequently during conferences (60%, n=5), while the two undergraduates responding to this question reported harassment during class and research-based field trips.
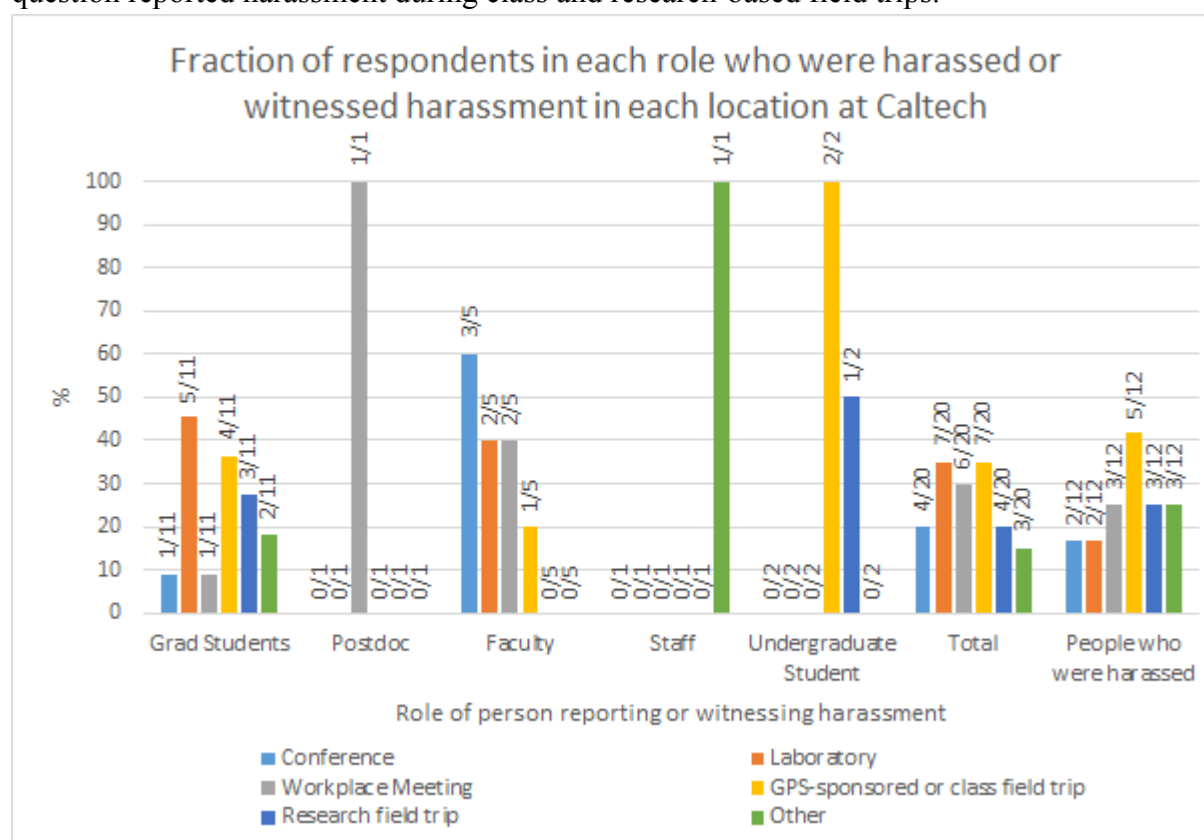

FIGURE 3: Percent of respondents who reported witnessing or being harassed in different settings associated with their Caltech role. There were 20 respondents, of which 12 reported being harassed. 11 graduate students, 1 postdoc, 5 faculty, 1 staff member, and 2 undergraduates responded to where they witnessed harassment or were harassed. "Other" includes subtly everywhere, on a work project, and at a social event.

Unique concerns for graduate students, postdocs, staff, and faculty

While developing policies and actions to increase awareness and safeguard against harassment in the GPS Division, the Protocols committee recommends that the chair take into consideration the potentially unique circumstances and concerns faced by our postdocs, staff, students and faculty.

For example:
- There is a gray area surrounding what is appropriate behavior because many postdocs are neither directly supervising nor directly supervised. Postdocs may see both faculty and grad students as peers; because there is no clear power relationship, there is higher risk for inadvertently making someone uncomfortable. In particular, postdocs may see grad students as peers since they were students recently, while students look up to postdocs, creating an imbalance in how the relationship is perceived by both parties.
- Many postdocs only have personal interactions with a single faculty member (unlike grad students, who have taken classes and have worked with at least two advisors). This means that if they have a problem with their advisor, postdocs have less resources available, in particular asking for advice if they don't immediately want to file a formal complaint. Postdocs supported by a faculty grant are also directly reliant on a single person for their position at Caltech.
- GPS has many postdocs and graduate students coming from different cultures where the norms for behavior may be very different. It may take some time for them to internalize and recalibrate to the US standards for acceptable behavior. Incoming postdocs and students should be referred to Caltech's code of conduct & sexual harassment policy. Faculty should also be encouraged to discuss expectations one on one with incoming postdocs and students.
- For postdocs and graduate students with young children, there are a host of logistical and financial difficulties associated with travel for conferences and fieldwork.
- Members of GPS Staff, like postdocs, can fall into a gray area in terms of power structure between their direct supervisors and overseeing others. Like postdocs, many staff interact with a single faculty member who is responsible for their employment at Caltech. This can limit options for seeking advice and may represent a deterrent for reporting harassment. Unlike postdocs and students, who each have Division and campus-wide programs, we currently lack infrastructure and resources for supporting staff and ensuring that their voices are heard.
- Faculty are not trained managers and would benefit from easy access to information and resources (for example management or leadership training) to help them effectively and appropriately supervise diverse students, postdocs, and staff within their groups.

Potential for harassment during field trips and offsite research:
Sexual harassment was reported to occur on GPS field trips and was the most commonly reported situation where harassment was either experienced or witnessed firsthand by members within GPS. Of the field experiences, most were associated with class-based field trips (42%),

where multiple undergraduate students, graduate students, and faculty experienced or witnessed harassment. Note: this number may be an underestimate based on in person accounts and given the relatively low number of people responding to the survey. Both graduate and undergraduate students also reported experiencing or witnessing harassment during research-based field trips (25%). This harassment was perpetrated by both peers and in some cases, supervisors of the victims.

Beyond experiencing sexual harassment, GPS community members expressed concern about fieldwork culture and awareness of women's needs. These concerns included accessibility of restroom facilities and hygiene materials, unprofessional and hazing behaviors, and poor communication and awareness regarding the health and safety conditions experienced during fieldwork. These issues are not unique to GPS, and reflect those documented in scientific surveys of researchers performing fieldwork (e.g., Clancy et al., 2014; Clancy et al., 2017; Gluckman, 2018), which highlights the need to implement policies that prevent uncomfortable and harassing situations and detect instances of improper conduct immediately and privately.

Fieldwork, as practiced by GPS, exhibits numerous risk factors for harassment identified by the U.S. Equal Employment Opportunity Commission (EEOC, Feldblum & Lipnic, 2016). The majority of the 12 risk factors are particularly prevalent during GPS class or research fieldwork, so the risk factors are reproduced verbatim from the U.S. EEOC report at the end of this report **(Appendix).** We recommend that trip leaders and participants alike should reflect on how their trips may be risky, and how they might mitigate common risk factors.

III. Recommendations for policy implementation relating to field trips:

The GPS Division has not yet implemented policies and procedures that prevent uncomfortable and harassing situations from occurring in field and laboratory settings. Many of the suggested policies and procedures outlined below are based on requests by GPS community members. Similar procedures have also been outlined in published government documents and education literature (e.g., Feldblum & Lipnic, 2016; Gluckman, 2018). It is clear that GPS must update its policies and procedures to ensure the safety and comfort of its community members. Once these policies are developed, it will be important for the Division to visibly and actively communicate and disseminate information about the harassment policy and consequences. A plan to assuage concerns about retaliation should also be developed.

- o Implementing a written <u>Code of Conduct</u> for professional behavior on field trips. Sexual harassment is not limited to sexual assault, and indeed harassment that is not assault (e.g. bullying and micro-aggressions) has been found to be as damaging to victims and is far more common (NAS Committee on the Impacts of Sexual Harassment, 2018). The GPS Code of Conduct should also include definitions of various types of harassment and examples to clarify what constitutes harassment. There must be no "gray area," even after scientific work is

done (e.g., "around the campfire"). Emphasize in writing that participants on a field trip are in a professional, Caltech work setting and subject to its honor code and the GPS code of conduct. Professional geologic societies, such as the American Geophysical Union (2017), have developed Codes of Conduct that may guide construction of one for GPS.

o   Requiring trip leaders and participants to acknowledge, by signing a written statement, that field work exhibits many risk factors for harassment and these will be taken seriously should improper conduct be reported. We suggest a one-page code of conduct and signed acknowledgement be integrated as a part of the standard safety form signed before each trip. Implementing such a practice encourages reflection of harassment risk factors and has been shown to proactively prevent unwelcome behavior

o   Open communication between trip leaders and students is important for decreasing the potential for misunderstandings before they escalate into major problems. Trip leaders cannot anticipate all possible problems or concerns, but can often make accommodations if brought to their attention. Course participants should be encouraged to communicate proactively with their professor, teaching assistant, or class ombudsperson about specific needs or concerns, recognizing that this is for personal and group safety in field situations.

o   Educating and requiring that trip leadership set the tone and appropriate culture in the field. GPS Division TA's, PI's, and faculty leading trips have all been mentioned as perpetrators of harassment in interviews and in the online questionnaire. Field behavior must meaningfully respect the Code of Conduct to be effective and the Division must be perceived as prioritizing these policies and willing to follow through should problems arise. To facilitate awareness and education on this topic, we suggest the Division support workshops in leadership that include civility / bystander training for all people in supervisory roles (see appendix for information on civility training programs). This may help field trip leaders and participants have a more successful class or research trip while simultaneously minimizing harassing behaviors.

o   Emphasize the importance of cooperation and collegiality. We can include this specifically as a component of grading in GPS Division field courses (such as the "esprit-de-corps" part of the grade in the 2018 versions of Ge120a and Ge120b). We need to explain to the students why this is part of the grading system, because it is new to some of them, and they resent having to be graded on this.

Specific recommendations while in the field

- o Provide important information and contact numbers/methods to trip participants. This information should additionally be available in the first aid kit in each vehicle and posted online in a known and easily accessed location. Information distribution should be routine and accessible. We recommend distributing this information when GPS staff collect and update emergency contact information prior to all trips. Information should include the Code of Conduct, and encourage reflection of risk factors for harassment so that both leaders and participants can proactively look for ways to mitigate them. Participants should be asked to sign the form indicating that they have read and agree to the code of conduct. This information should include resources—both in GPS and at Caltech—for victims of harassment to safely report harassment both during the trip or after the trip has ended.
- o Risky behaviors, such as alcohol consumption, should be monitored to ensure professional conduct at all times.
- o Implementing awareness and resources for hygiene and bathroom facilities. Ensure that appropriate bathroom facilities are available to meet the needs of all trip participants, and that the availability of privacy and of bathroom facilities is clear prior to the trip so that participants may prepare.
- o Ensure that participants, for example new field geologists, have the appropriate information and resources to plan bathroom and hygiene in the field.
- o Include women's hygiene products in the First Aid kits available in each field vehicle, and inform women of the available materials; ensure these materials are maintained.
- o Where possible, increase the number of women who lead field trips (professors and TA's). In the field, leadership should be inclusive about creating opportunities for students to expand their skill sets regardless of their gender or previous camping experience. Duties should be equally shared among participants (e.g. campfire construction, cooking, dishwashing, driving off road). Opportunities for training in driving off-road and 4WD should be offered to all the students who are qualified, so they can become more comfortable with these aspects of field work.
- o Designation of a safe chain of command and reporting mechanisms. For example, nominate an ombudsperson at the start of the field trip; this person must be provided with information on how to handle complaints effectively and anonymously. The ombudsperson should be elected by trip participants preferably without the trip leaders' knowledge. Because any participant may become an ombudsperson, all participants should be trained by GPS on

appropriate conduct and responsibilities. Hanna Song is a useful resource for developing customized in person training/ programming for GPS.

- o GPS should encourage and enable Bystander Intervention training for GPS members
- o Isolation of field trip participants should be avoided or minimized. The ability to "check in" with people back home should be routinely encouraged and enabled with available technology, such as satellite phones or beacons.
- o After trips, a regular process for anonymous complaints or observations should be enacted. For example, the trip ombudsperson could proactively seek out anonymous comments on an index card about any incidents that made participants feel uncomfortable. Complaints should be reviewed and followed up on through one of the available channels within or outside of the Division.

IV. Other locations

As mentioned above for our field programs and classes, conducting research at sea, astronomical observing, and research in the Division laboratories have inherent risks for harassment. Many of the recommendations listed above for GPS field programs and following a code of conduct are also relevant for these locations.

A. Research at sea: There have been positive changes in shipboard culture between the crew and science team in the past few years that have improved working conditions for women onboard UNOLS supported and private research vessels (e.g. R/V *Falkor* run by the Schmidt Ocean Institute). Proactive steps range from posting of visible signs and pamphlets about harassment available on the ship that include a statement of a zero tolerance policy regarding harassment and who to contact should an incident occur (**Appendix**), a statement on the institutional web site with additional resource information, and implementing a requirement to watch a short online video on harassment and bullying and sign an acknowledgement form prior to boarding the research vessel. ("Say No To Harassment, Say No To Bullying" https://www.youtube.com/watch?v=sqA_JuE32cc&feature=youtu.be)

B. Astronomical Observing: Telescope observing runs involve several distinct "risk factors". Observing often involves travel to remote locations, frequently international, where there is little or no cell phone service; it typically takes place at night when the active observers are the only people around (sometimes the only people in an entire building or facility); and it frequently involves extended one-on-one situations between a student and a faculty or postdoc advisor. These elements have overlap with the risk factors for field trips except that since observing trips often involve small numbers of people, there may not be a group lead or even a third party present to report a problem to. As in the case of field work, isolation should be minimized and the ability to "check in" with people back home should be enabled with available technology. There should be clearly specified channels for filing complaints after returning from a trip.

C. Laboratory environment: Many of the laboratories in the GPS Division are home to students, postdocs, staff, and visitors who come from diverse backgrounds. Cultural differences can result in differing views on appropriate behavior and sensitivity levels. Early training to inform all incoming GPS members about the code of conduct and expectations within the Division is recommended. Advisors should be aware of potential power imbalances between members of the lab and provide information about resources available should problems arise (as discussed above). Unlike field courses or classroom settings, research groups do not have a designated ombudsperson and lab members should be provided with an outlet for discussing their concerns that is independent of, or in addition to, their immediate supervisor. Working late at night and in smaller spaces with only one exit can lead to isolation and increase the risk of harassment arising.

V. Special considerations of potential for harassment at conferences

Potential issues associated with harassment at conferences fall into three categories:

- Travel and lodging, including room-sharing and spending extended one-on-one time (e.g. in travel) with another individual.
- Behavior of other conference attendees at the conference itself.
- Behavior of other conference attendees at after-hours social events.

Conference situations are complicated by the fact that many attendees will not be affiliated with Caltech or another US institution, so Caltech may not have the authority to act on others' misconduct.

What is being done to address harassment at conferences?

Conferences need a clear written harassment policy that does three things: (1) defines what behavior is acceptable in a clear enough way that the question of "was it harassment?" can be answered without the organizer having to make a controversial judgment call in the moment; (2) defines what a participant should do if they feel they have been harassed; and (3) defines how the organizer will respond to complaints. This policy should be available online and easy to find.

Many of the large conferences already have such policies, and attendees should familiarize themselves with these policies (a direct link to relevant conference policies, i.e. AGU, on our website would be useful). Caltech/GPS's written policy for the appropriate behavior of Caltech/GPS employees should have a clause specifying that this policy also applies to external work-related activities such as conferences. Many conferences also now have designated individuals who are trained to assist attendees who believe they have experienced harassment or feel unsafe; these individuals are identified by shirts or pins so they are easily recognized.

Recommendations for offsite conferences
- For conferences or workshops without a sexual harassment policy, there should be a procedure & written policy for how a GPS student/postdoc can respond and who to contact if they feel they are being harassed during the event.
- The aspect of an external conference most directly under the control of GPS members is travel and lodging, which may be decided by the faculty advisor. Travel and lodging should be arranged in such a way to ensure that all participants are comfortable with the arrangements, and to enable other arrangements if needed.

Specific recommendations:
- Never require two people to share a hotel room if either is uncomfortable doing so, even if there is no power differential.
- Never require two people to spend extended time in a one-on-one situation (e.g. long car trip to a conference location), if either is uncomfortable doing so.
- Advisors should be proactive in confirming that all parties involved are comfortable with travel and housing arrangements and be willing to make other arrangements if necessary.
- Set up a fund to enable lodging adjustments in cases when someone feels unsafe or uncomfortable with the current arrangement, when financial resources are a limiting factor.
- Create a system of oversight so that resources for adjusting accommodations are not abused. For example, require people requesting lodging or transportation adjustments to submit a (confidential) paragraph with their reasoning.

Recommendations for conferences hosted by or within GPS
GPS should have a written sexual harassment policy for conferences and workshops hosted on campus. This should include a code of conduct, a guide for reporting incidents, and a guide for the local host to respond to incidents.

- Have a clearly designated person that participants should report unwanted behavior to and specify how that person can be reached during the conference.
- The guidelines for responding to incidents need to be specific and clear in order to take the burden of decision for determining the consequences of an action off of the local host. This is particularly important if the host is early-career and fears career consequences, or belongs to a group that the harasser has been targeting with comments or actions.
- For on-campus conference hosts, make available a list of suggestions for facilitating a safe and inclusive event. Possible examples:
- Encourage early-career attendees to participate in discussions and ask questions.
- Be aware of biases and how they affect who is called on for questions, who is being invited to speak, etc.

- If official or unofficial conference activities will go into the evening or involve alcohol, make sure student and postdoc participants are aware of options for getting back to their lodging.
- Ask attendees if they have family-related needs and accommodate as much as possible (e.g. if attendees need to pick up kids from school, don't put the most important talk at 4:45pm).
- Be able to point attendees to lactation rooms and gender-neutral bathrooms:
  - § http://hr.caltech.edu/worklife/family/lactation_rooms
  - § http://diversitycenter.caltech.edu/documents/145-caltech_bathroom_map_2018.pdf

VI. Creating a network for resources and incident reporting within the Division

Increasing awareness and prevention of all forms of harassment should be prioritized by the GPS Division. In the online questionnaire, respondents were asked about to whom would they be comfortable reporting incidents of harassment (**Figure 4**). Responses varied depending on position within GPS. Most faculty indicated they were comfortable reporting problems to the Division chairperson, while staff members favored reporting to peers or directly to the Title IX office. Graduate students similarly reported feeling most comfortable reporting to their peers or the Title IX office, while the postdocs favored reporting to faculty, the Division chair, staff, peers and campus security. The 2 GPS undergraduates viewed the Title IX office, GPS staff, and faculty as equally viable options for reporting.
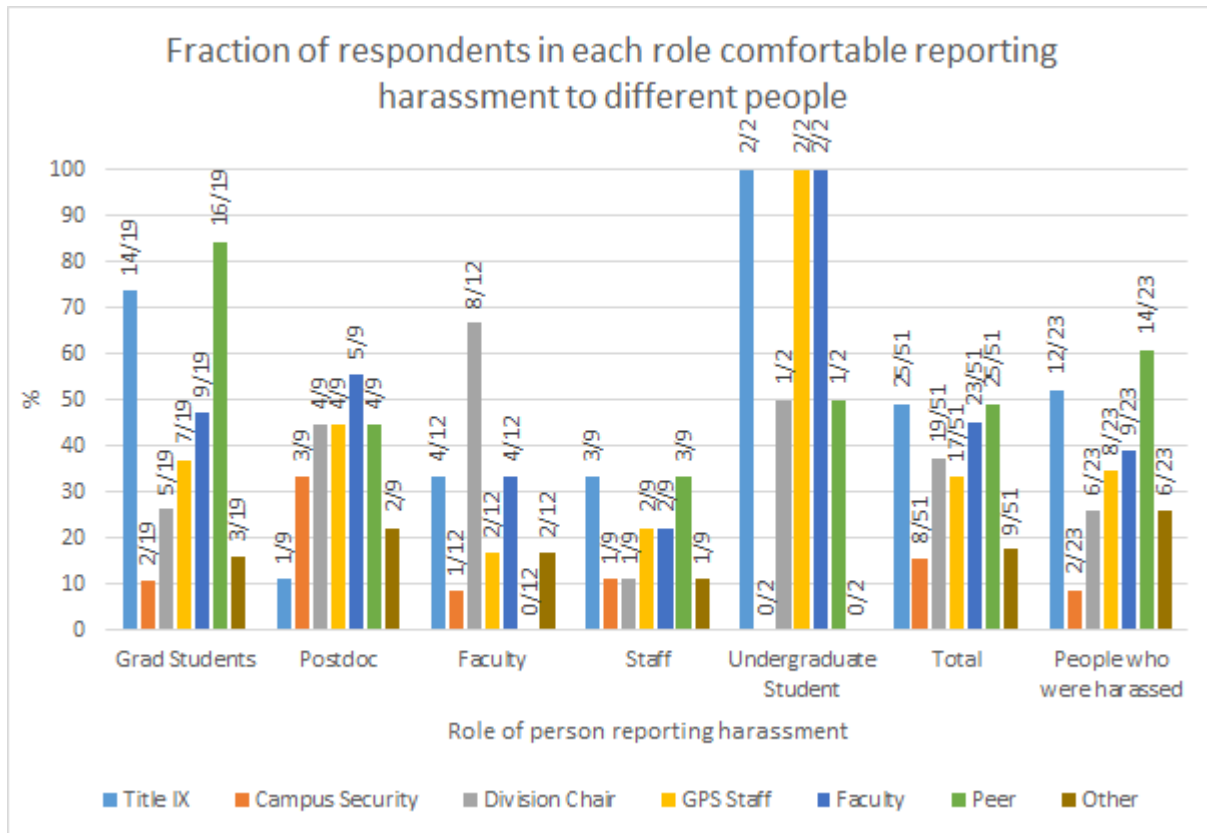
FIGURE 4: Fraction of respondents of each role who witnessed or reported harassment that would feel comfortable reporting their experience with different people. There were 51 responses from graduate students (n=19), postdocs (n=9), faculty (n=12), Staff (n=9) and undergraduates (n=2) who witnessed or reported harassment at Caltech; 23 of these respondents were harassed at Caltech. "Other" includes reporting to nobody, confronting the perpetrator, the police, a counselor, a significant other, or another Caltech office.

Based on this information, the committee recommends development of a reporting infrastructure and appropriate resources within the Division. While many of the students and staff indicated they would feel comfortable reporting directly to the Title IX office, a number of respondents to the questionnaire and during in person interviews suggested they did not fully understand the role and responsibilities of the Title IX office. There appeared to be a lack of understanding about what happens after the Title IX office makes a report of its findings. The Division should help to coordinate meetings with the Title IX officer encouraging open discussion about the process of reporting, dispelling rumors about the Title IX office prioritizing the liability of the university over the interests of the victim, and outlining clear policies about how the GPS Division will protect its members against retaliation should an incident of harassment arise.

Summary

The 2018 NAS report on sexual harassment in academia highlighted a series of findings and recommendations to minimize harassment behavior. We have used these findings as a framework for developing specific recommendations for the GPS Division. We believe that the Division should first and foremost develop and publicize a clear statement about a zero tolerance policy on harassment, explain the expected code of conduct, and state the potential consequences for violating these policies. This represents an important step in emphasizing the Division's commitment to creating a safe and equitable working environment, and will enhance transparency and accountability. There are a number of programs from which the GPS Division could model policies going forward (for example policies developed by AGU) and we have provided links to relevant websites and other resource materials in the appendix.

The Division should additionally develop and publicize mechanisms for both formal and informal reporting. Specific recommendations outlined in this report include the designation of an ombudsperson for field trips and creating a confidential liaison position for fielding concerns/ reports of harassment within each building. Designated people should be identified as trained, confidential sources. While the Caltech faculty and supervisors are required to complete an online harassment training every 2 years, our postdocs and students serving as TA's do not have a similar requirement. Training for teaching assistants should be conducted annually and civility/ sensitivity training should be included. We emphasize that having access to customized training programs that cover leadership, bystander, and/or civility training as well as open town hall discussions would benefit all members in GPS and contribute to enhancing an inclusive culture in our Division. As a final comment we emphasize that a major barrier to harassment reporting is the hierarchical structure of Caltech and academics generally. It is important to create a structure that allows for confidential reporting to a person that does not supervise a victim, but does have power to act.

REFERENCES:

American Geophysical Union. "AGU Scientific Integrity and Professional Ethics," August 2017. https://ethics.agu.org/files/2013/03/Scientific-Integrity-and-Professional-Ethics.pdf.

Clancy, Kathryn B. H., Robin G. Nelson, Julienne N. Rutherford, and Katie Hinde. "Survey of Academic Field Experiences (SAFE): Trainees Report Harassment and Assault." PLOS ONE 9, no. 7 (July 16, 2014): e102172. https://doi.org/10.1371/journal.pone.0102172.

Clancy, Kathryn B. H., Katharine M. N. Lee, Erica M. Rodgers, and Christina Richey. "Double jeopardy in astronomy and planetary science: Women of color face greater risks of gendered and racial harassment." Journal of Geophysical Research: Planets 122, no. 7 (July 1, 2017): 1610–23. https://doi.org/10.1002/2017JE005256.

Committee on the Impacts of Sexual Harassment in Academic Science, Engineering, and Medicine, Committee on Women in Science, Engineering, and Medicine, Policy and Global Affairs, and National Academies of Sciences, Engineering, and Medicine. Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine. Washington, D.C.: National Academies Press, 2018. https://doi.org/10.17226/24994.

Feldblum, Chai R., and Victoria A. Lipnic. "Select Task Force on the Study of Harassment in the Workplace." U.S. EQUAL EMPLOYMENT OPPORTUNITY COMMISSION, June 2016. https://www.eeoc.gov/eeoc/task_force/harassment/report.cfm.

Gluckman, Nell. "Field Sites Are Harassment Hell. Here's How to Improve Them." The Chronicle of Higher Education, July 15, 2018. https://www.chronicle.com/article/Field-Sites-Are-Harassment/243914.

Nakhai, Beth Alpert. "How to Avoid Gender-Based Hostility During Fieldwork." The Chronicle of Higher Education, July 15, 2018. https://www.chronicle.com/article/How-to-Avoid-Gender-Based/243912.

Appendices:

Additional online resources
Shipboard conduct: information about harassment and bullying.
20 minute video by the European Transport Workers' Federations and European Community Shipowners' Association and funded by the European Commission
"Say No To Harassment, Say No To Bullying"
https://www.youtube.com/watch?v=sqA_JuE32cc&feature=youtu.be

The recent position statement by GSA Council is found here:
https://www.geosociety.org/GSA/Science_Policy/Position_Statements/Current_Statements/gsa/positions/position26.aspx

GSA field safety rules are found here:
https://www.geosociety.org/documents/GSA/about/GSA_FieldSafety-Conduct.pdf

GSA events code of conduct is found here:
https://www.geosociety.org/GSA/Events/EventConductCode/GSA/Events/Conduct.aspx

AGU meeting code of conduct: https://fallmeeting.agu.org/2018/agu-meetings-code-of-conduct/

Complete report of recommendations from the NAS report can be found here:
https://www.nap.edu/read/24994/chapter/2#2

Web resources summarizing results of NAS report from 500 women scientists:
https://500womenscientists.org/nas-summary/#what-is-sexual-harassment
https://500womenscientists.org/nas-summary/#how-harassment-harms-women

Selected definitions of harassment:
- U.S. Equal Employment Opportunity Commission (2016)
  - "Offensive conduct may include, but is not limited to, offensive jokes, slurs, epithets or name calling, physical assaults or threats, intimidation, ridicule or mockery, insults

or put-downs, offensive objects or pictures, and interference with work performance. Harassment can occur in a variety of circumstances, including, but not limited to, the following:

- The harasser can be the victim's supervisor, a supervisor in another area, an agent of the employer, a co-worker, or a non-employee.
- The victim does not have to be the person harassed, but can be anyone affected by the offensive conduct.
- Unlawful harassment may occur without economic injury to, or discharge of, the victim."
    - "Harassment is unwelcome conduct that is based on race, color, religion, sex (including pregnancy), national origin, age (40 or older), disability or genetic information."
- National Academies *Sexual Harassment of Women* report (2018) uses the U.S. EEOC definition above and clarifies that it is a subset of discrimination that encompasses some behaviors that may rise to illegality if they create a "hostile environment." However, the report concludes that even non-illegal behaviors are equally damaging to victims.
- US. Dept. of Education's Office of Civil Rights Revised Title IX Guidelines (2001) indicate that gender-based harassment, including that predicated on sex-stereotyping, is covered by Title IX if it is sufficiently serious to deny or limit a student's ability to participate in or benefit from the program, but specifically decline to define gender-based harassment in favor or referring to prior Court rulings.

What is a civility training program?

Civility training programs typically cover diversity awareness, cultural sensitivity, and workplace etiquette. For example, one civility training program describes their goals as "Providing tools and information for participants to learn how to identify, prevent and respond to any workplace incivility situations. These may be seemingly insignificant comments, behaviors and workplace practices that may be construed as insensitive, discourteous or inappropriate by certain groups. Civility coaching is more than just training in professional conduct. Civility coaching teaches employees about self-awareness, personal integrity, professional ethics, communication skills and interpersonal psychology".

Risk Factors for Harassment reproduced from the U.S. EEOC Report (2016)
(==highlighted== where particularly applicable to GPS)

Risk Factor	Risk Factor Indicator	Why This is a Risk Factor for Harassment	Risk Factor-Specific Strategies to Reduce Harassment
==Homogenous workforce==	==Historic lack of diversity in the workplace== Currently only one minority in a work group (e.g., team, department, location)	Employees in the minority can feel isolated and may actually be, or at least appear to be, vulnerable to pressure from others. Employees in the majority might feel threatened by those they perceive as "different" or "other," or might simply be uncomfortable around others who are not like them.	==Increase diversity at all levels of the workforce, with particular attention to work groups with low diversity==. Pay attention to relations among and within work groups
Workplaces where some ==employees do not conform to workplace norms==	=="Rough and tumble" or single sex- dominated workplace cultures Remarks, jokes, or banter that are crude, "raunchy," or demeaning==	==Employees may be viewed as weak== or susceptible to abuse. ==Abusive remarks or humor== may promote workplace norms that devalue certain types of individuals.	==Proactively and intentionally create a culture of civility and respect== with the involvement of the highest levels of leadership. Pay attention to relations among and within work groups.
==Cultural and language differences in the workplace==	Arrival of new employees with different cultures or nationalities Segregation of employees with different cultures or nationalities	Different cultural backgrounds may make employees less aware of laws and workplace norms. Employees who do not speak English may not know their rights and may be more subject to exploitation. Language and linguistic characteristics can play a role in harassment.	==Ensure that culturally diverse employees understand laws, workplace norms, and policies.== Increase diversity in culturally segregated workforces. ==Pay attention to relations among and within work groups==.

Coarsened Social Discourse Outside the Workplace	Increasingly heated discussion of current events occurring outside the workplace	Coarsened social discourse that is happening outside a workplace may make harassment inside the workplace more likely or perceived as more acceptable.	Proactively identify current events-national and local- that are likely to be discussed in the workplace. Remind the workforce of the types of conduct that are unacceptable in the workplace.
Young workforces	Significant number of teenage and young adult employees	Employees in their first or second jobs may be less aware of laws and workplace norms. Young employees may lack the self confidence to resist unwelcome overtures or challenge conduct that makes them uncomfortable. Young employees may be more susceptible to being taken advantage of by coworkers or superiors, particularly those who may be older and more established in their positions. Young employees may be more likely to engage in harassment because they lack the maturity to understand or care about consequences.	Provide targeted outreach about harassment in high schools and colleges. Provide orientation to all new employees with emphasis on the employer's desire to hear about all complaints of unwelcome conduct. Provide training on how to be a good supervisor when youth are promoted to supervisory positions.
Workplaces with "high value" employees	Employees with high value (actual or perceived) to the employer, e.g., the "rainmaking" partner or the prized, grant-winning researcher	Management is often reluctant to jeopardize high value employee's economic value to the employer. High value employees may perceive themselves as exempt from workplace rules or immune from consequences of their misconduct	Apply workplace rules uniformly, regardless of rank or value to the employer. If a high-value employee is discharged for misconduct, consider publicizing that fact (unless there is a good reason not to).

Workplaces with significant power disparities	Low-ranking employees in organizational hierarchy. Employees holding positions usually subject to the direction of others, e.g., administrative support staff, nurses, janitors, etc. Gendered power disparities (e.g., most of the low-ranking employees are female)	Supervisors feel emboldened to exploit low-ranking employees. Low-ranking employees are less likely to understand complaint channels (language or education/training insufficiencies). Undocumented workers may be especially vulnerable to exploitation or the fear of retaliation.	Apply workplace rules uniformly, regardless of rank or value to the employer. Pay attention to relations among and within work groups with significant power disparities.
Workplaces that rely on customer service or client satisfaction	Compensation directly tied to customer satisfaction or client service	Fear of losing a sale or tip may compel employees to tolerate inappropriate or harassing behavior.	Be wary of a "customer is always right" mentality in terms of application to unwelcome conduct.
Workplaces where work is monotonous or tasks are low intensity	Employees are not actively engaged or "have time on their hands" Repetitive work	Harassing behavior may become a way to vent frustration or avoid boredom.	Consider varying or restructuring job duties or workload to reduce monotony or boredom. Pay attention to relations among and within work groups with monotonous or lowintensity tasks.
Isolated workplaces	Physically isolated workplaces Employees work alone or have few opportunities to interact with others	Harassers have easy access to their targets. There are no witnesses.	Consider restructuring work environments and schedules to eliminate isolated conditions. Ensure that workers in isolated work environments understand complaint procedures. Create opportunities for isolated workers to connect with each other (e.g., in person, online) to share concerns.

Workplaces that tolerate or encourage alcohol consumption	Alcohol consumption during and around work hours.	Alcohol reduces social inhibitions and impairs judgment.	Train co-workers to intervene appropriately if they observe alcohol-induced misconduct. Remind managers about their responsibility if they see harassment, including at events where alcohol is consumed. Intervene promptly when customers or clients who have consumed too much alcohol act inappropriately.
Decentralized workplaces	Corporate offices far removed physically and/or organizationally from front-line employees or first-line supervisors	Managers may feel (or may actually be) unaccountable for their behavior and may act outside the bounds of workplace rules. Managers may be unaware of how to address harassment issues and may be reluctant to call headquarters for direction.	Ensure that compliance training reaches all levels of the organization, regardless of how geographically dispersed workplaces may be. Ensure that compliance training for area managers includes their responsibility for sites under their jurisdiction Develop systems for employees in geographically diverse locations to connect and communicate.

Example informational pamphlets on harrassment at sea from WHOI and Schmidt Ocean Institute attached.