U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
HEARING CHARTER

Building a Safer Antarctic Research Environment

Tuesday, December 6, 2022
10:00 am – 12:00 pm ET
2318 Rayburn House Office Building and Online via Zoom

PURPOSE

The purpose of this hearing is to discuss the findings of a recent report on sexual harassment and assault in Antarctica. The hearing will also examine the unique characteristics of remote research sites, including those managed by contractors, changes that have been made since the publication of the report, and additional steps that must be taken to protect those conducting and supporting the valuable research in Antarctica and other remote research sites.

WITNESSES

- **Dr. Karen Marrongelle**, Chief Operating Officer, National Science Foundation
- **Ms. Kathleen Naeher**, Chief Operating Officer of the Civil Group, Leidos
- **Dr. Angela V. Olinto**, Dean of the Physical Sciences Division and Albert A. Michelson Distinguished Service Professor, University of Chicago
- **Dr. Anne Kelly**, Deputy Director, The Nature Conservancy Alaska Chapter

KEY QUESTIONS

1. Why does the National Science Foundation (NSF) support scientific research in Antarctica?
2. What are the characteristics (facilities, participating institutions and personnel, working conditions, and organizational structure) of the U.S. Antarctic Program (USAP)?
3. What are the findings and recommendations of the Sexual Assault/Harassment Prevention and Response (SAHPR) report?
4. What steps has NSF and the prime contractor taken since the report was released? How do they plan to address the concerns raised in the SAHPR report?
5. What are the unique challenges for preventing and addressing sexual harassment and assault at other remote and contractor managed research environments? How can funding agencies apply lessons learned from the USAP to ensure the safety of researchers and support personnel at these sites?

BACKGROUND

Importance of Antarctic Science

All United States scientific research activities are managed by the National Science Foundation's (NSF) United States Arctic Program (USAP).[1] The goals of the USAP are to "understand the Antarctic and its associated ecosystems; to understand the region's effects on, and responses to, global processes such as climate; and to use Antarctica's unique features for scientific research that cannot be done elsewhere."[2] Antarctica offers a unique environment to answer research questions that cannot be studied anywhere else on the globe, across diverse disciplines including astronomy, earth science, glaciology, and oceanography.

In 2011, the National Academies of Sciences, Engineering, and Medicine (NASEM) issued a report on the research conducted in Antarctica that would be the most important over the next 20 years.[3] The NASEM committee highlighted a number of critical research questions, including:

- What is the role of Antarctica and the Southern Ocean in the global climate system?
- What role has Antarctica played in changing the planet in the past?
- What can the geologic records preserved in Antarctica and the Southern Ocean reveal about past and future climates?
- What can the Antarctic platform reveal about the interactions between Earth and the space environments?
- How did the universe begin, what is it made of, and what determines its evolution?

A decade after the release of this report, and with a decade to go on the NASEM committee's charge, these questions are as pertinent as ever, and research teams descend on the Antarctic each astral summer to shed light on the origins of the universe and the future of a changing planet. The Antarctic Ice Sheet has formed over millions of years, trapping pockets of air as it froze, and scientists drill into it to examine gases and particles in order to reconstruct climate models from hundreds of thousands of years ago.[4] Species thriving on the continent and in the Southern Ocean offer insight into evolutionary adaptation in extreme environments, which can contribute to our understanding of human health pathologies. The dark skies and cold, dry air offer the best observing site on earth, and the continent is the richest source of meteorites on the planet.[5] Antarctica's harsh environment makes conducting research on the ice difficult but rewarding for scientists and for the entire scientific enterprise.

[1] https://www.nsf.gov/news/news_summ.jsp?cntn_id=102869
[2] https://www.nsf.gov/news/news_summ.jsp?cntn_id=102869
[3] https://nap.nationalacademies.org/download/13169
[4] https://www.asoc.org/learn/climate-science-in-antarctica/
[5] https://ui.adsabs.harvard.edu/abs/2010A%26ARv..18..417B/abstract

The Makeup of the Antarctic Research Environment

NSF operates three Antarctic research stations year-round. McMurdo Station is the largest, with most research activities based out of the station and serving as a landing spot for research teams arriving on the continent. The Amundsen-Scott South Pole Station (SPS) is located at the geographic South Pole, 841 miles away from McMurdo, and largely houses astronomy and astrophysics work. Palmer Station is located on an island, isolated from the other stations, and is a base for marine biology and oceanography. Outside these three sites, research teams are located on field sites around the continent and on research vessels. Icebreakers, research vessels, and N.Y. Air National Guard aircraft facilitate transportation and support to and on the continent.

The population in Antarctica comprises three primary groups – Antarctic Support Contractors (ASC), which includes employees from lead contractor Leidos as well as a number of subcontractors; grantees, who are Principal Investigators (PIs), researchers, and graduate students funded by federal science agencies; and military personnel from the Air National Guard, Air Force, and Naval Informational Warfare Center.[6] The total number of individuals on the ice varies throughout the year, with a summer peak of approximately 1,600 and a winter peak of approximately 370. A majority of individuals on the ice throughout the year are contractors, ranging from 68-89 percent from winter to summer, followed by grantees at approximately 16-7 percent. Department of Defense (DOD) personnel comprise approximately 9 percent of the summer population and approximately 2 percent of the winter population. About 800 of the individuals per year are scientists or supporting scientific teams. Women comprise a significant minority – about 30 percent – of the 3,500 Americans on the ice each year.

Leidos has been the prime contractor for the USAP since 2016 via a merger with Lockheed Martin.[7] Leidos employees do not conduct science in Antarctica; rather, the company manages on-ice operations, logistics, information technology, and site maintenance, through direct employment and through subcontractors.[8] Leidos is responsible for on-ice infrastructure and modernization, including dormitories and telecommunication access.

While NSF manages all research operations in Antarctica, other U.S. federal science agencies have a presence on the ice. The National Oceanic and Atmospheric Administration (NOAA) conducts climate monitoring on the continent, studying greenhouse gases, surface radiation, and ozone. The National Aeronautics and Space Administration (NASA) facilitates the use of research balloons and polar-orbiting spacecraft. And the U.S. Geological Survey (USGS) supports mapping, satellite imaging, and geodesy activity.[9]

DOD plays a role in supporting the logistical functions of the USAP, as requested by NSF. As per the Antarctic Treaty of 1959, Antarctica may only be used for peaceful purposes, therefore the military presence on-ice supports the scientific operations managed by NSF. The Secretary of the Air Force serves as the Executive Agent, and DOD presence includes personnel from the Air

[6] https://www.nsf.gov/geo/opp/documents/USAP%20SAHPR%20Report.pdf
[7] https://www.leidos.com/insights/50th-anniversary-role-making-antarctic-research-possible
[8] https://www.leidos.com/capabilities/mission-operations/antarctic-support-contract
[9] https://www.usap.gov/aboutusapparticipants/?m=1#ScienceSupportOrganizations

National Guard, Air Force, and Naval Information Warfare Center.[10] The military primarily provides transport to and within the continent of personnel and materials by air, land, and sea. DOD is also responsible for maintaining order and disciplining service members, who are subject to the Uniform Code of Military Justice along with the Polar Code of Conduct to which all USAP participants are subject.[11]

Sexual Assault/Harassment Prevention and Response (SAHPR) Report

In April 2021, the NSF Office of Polar Programs (OPP) contracted with subject matter experts at Leading and Dynamic Services and Solutions (LDSS) to examine sexual harassment and sexual assault in the USAP community and make recommendations for next steps. The resulting *Sexual Assault/Harassment Prevention and Response (SAHPR)* report was made public in August 2022.[12]

The assessment consisted of surveys, focus groups, and interviews of USAP community members. The LDSS team sought to capture the full diversity of experiences by engaging individuals across demographics, roles, and locations.[13]

The SAHPR report identifies sexual harassment, assault, and stalking as problems in the USAP. The LDSS team found that the USAP community is motivated to engage and that there are early indications of progress. However, the team advised that additional steps must be taken to address shortcomings in the reporting process and cultural problems present across the scientific environment and exacerbated by the unique and extreme circumstances in Antarctica.

Perceptions of the USAP environment presented in the report are divided by gender, age, income level, and status. Women, younger individuals, and individuals with lower incomes and employment status were more likely to see sexual harassment and assault as a problem. Men, older individuals, and individuals with prestigious positions were less likely to see those issues as a problem. In terms of location, respondents shared concerns about sexual harassment and assault across all USAP sites but identified McMurdo station as the location of greatest concern.

The LDSS team found that current prevention and response systems at NSF are inadequate. NSF does not have sufficient systems in place to ensure it is informed of incidents of sexual harassment and assault in the USAP. Multijurisdictional enforcement mechanisms (across different agencies, universities, contractors and subcontractors, and the military) create gaps that hinder NSF's oversight. Staffing, funding, and policies dedicated to the prevention of sexual harassment and assault are nearly absent. The content and delivery of sexual harassment training are inadequate.

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[10] https://www.jcs.mil/Portals/36/Documents/Doctrine/Interorganizational_Documents/doe_mou_nat_sci_found2007.pdf

[11] https://www.nsf.gov/geo/opp/documents/USAP%20SAHPR%20Report.pdf

[12] https://nsf.gov/news/news_summ.jsp?cntn_id=305782&org=OPP

[13] The LDSS team noted that the military segment of the USAP community was underrepresented in their assessment due to military members not being made available for focus groups and a delay in the military's approval for distributing the survey.

The findings point to significant mistrust of USAP leadership[14] and ASC Human Resources (HR) departments. More than one fourth of survey respondents reported not believing or not knowing if their employer cares if they are safe. Community members believe that inadequate hiring practices result in contractors hiring and retaining personnel who have committed sexual assault or harassment. ASC workers told LDSS they were discouraged from reporting their experiences by their HR department and raised concerns that HR departments are "dismissing, minimizing, shaming, and blaming victims who report sexual harassment and sexual assault." A number of interviewees also believe their HR departments retaliate against those making reports and those raising awareness of harassment and assault on-ice.

The LDSS team provided recommendations and a detailed implementation plan for improving prevention and response mechanisms. Recommendations included:

Response	Increase opportunities for community feedback and engagement.
	Establish a Coordinated Community Response Team.
	Integrate more robust support mechanisms for victims.
	Establish a communication plan.
	Increase community education efforts.
	Restructure policies, protocols, and oversight mechanisms.
Prevention	Develop a communication strategy.
	Provide a toolkit of prevention resources for leaders.
	Allocate funding to prevention infrastructure, including prevention staffing.
	Develop prevention policies.
	Establish a prevention collaborative body.
	Increase prevention education opportunities.

Addressing the SAHPR Report

The SAHPR report's recommendations fall to both NSF and the ASC. Committee staff have had meetings with both entities to discuss what steps have been taken since the publication of the report, and what changes are planned to ensure the USAP's policies and culture create a safer on-ice environment. In order to facilitate a path forward, LDSS has entered into a new contract with NSF to prepare a follow-on climate survey and to identify how the ASC contract can better serve as leverage to ensure the prime contractor has the responsibility of creating a safe workplace environment.

[14] In SAHPR report findings, the term "leadership" is denoted by "higher status", "organization/institution/company who employs USAP participants", "NSF", and "People with more power or influence".

In September, NSF modified its ASC contract in response to the report. NSF reaffirmed the ASC's responsibility to promote an ethical culture, respond to reports of sexual harassment, and oversee subcontractors' adherence to these responsibilities. Furthermore, the ASC is now required to screen potential employees for any disciplinary action taken against them for incidents of sexual harassment or assault, and to not deploy anyone with findings against them. Any individuals who violate the Polar Code of Conduct will not be redeployed without consent of the Contracting Officer, and anyone removed from the ice due to sexual harassment or assault is barred from returning to the ice for three years. The current ASC contract expires in March 2025, and NSF is working with LDSS to identify whether additional changes should be made in the next iteration of the contract. The NSF Inspector General is also performing an inspection of NSF's Sexual Harassment and Assault Prevention and Response, focusing on USAP. The objectives of this inspection are to determine what measures NSF has taken or is developing for sexual harassment and assault prevention and reporting; provide NSF with information on practices other federal agencies have employed to address this issue; and determine if NSF's measures are effective.[15]

In its conversation with Committee staff, Leidos spoke about steps it has taken to address physical security concerns, including improved dormitory infrastructure and expanding use of satellite phones. The contractor is in the process of expanding training and refocusing human resources, including ensuring a designated victim advocate will be present on-ice. Leidos representatives disputed the descriptions in the report of retaliatory behavior against accusers and activists and told Committee staff that they are working to change this perception.

Addressing Challenges in Other Remote Research Sites

Sexual harassment and assault are not unique to Antarctica. A landmark consensus study by the National Academies of Sciences, Engineering, and Medicine (NASEM) found that sexual harassment is pervasive in academic science, engineering, and medicine.[16] The report outlined three forms of sexual harassment – gender harassment, unwanted sexual attention, and sexual coercion. For researchers and students, experiences of sexual harassment have negative consequences for their wellbeing and their careers.

The report outlined factors that contribute to the prevalence of sexual harassment in the sciences, including a *perceived tolerance* for inappropriate behavior; the *male-dominated environment*, particularly in positions of authority; *hierarchical power structures* that concentrate power in a single person who has an outsized impact on a subordinate's future success; *isolating environments* in which faculty and trainees spend considerable time; a *culture of symbolic compliance with Title IX*[17] *and Title VII*[18] wherein institutions prioritize implementing policies

[15] https://oig.nsf.gov/sites/default/files/publications/2022-11/FY%202023%20Annual%20Audit%20Workplan_0.pdf
[16] https://nap.nationalacademies.org/catalog/24994/sexual-harassment-of-women-climate-culture-and-consequences-in-academic
[17] Title IX of the Education Amendments of 1972 protects people from discrimination based on sex in education programs or activities that receive federal financial assistance. https://www2.ed.gov/about/offices/list/ocr/docs/tix_dis.html
[18] Title VII of the Civil Rights Act of 1964 prohibits employment discrimination based on race, color, religion, sex and national origin. https://www.eeoc.gov/statutes/title-vii-civil-rights-act-1964

that adhere to legal requirements rather than seeking to reduce or eliminate sexual harassment; and *uninformed leadership* unwilling to take bold and aggressive measures.

Field research is an important part of scientific scholarship, but it is also an environment that can present increased risks for sexual harassment. The NASEM report highlighted a survey of academic field experiences that identified several characteristics of field-site environments and the sexual harassment that occurs: (1) there was a lack of awareness regarding codes of conduct and sexual harassment policies, with few respondents being aware of available reporting mechanisms; (2) the targets of sexually harassing behavior in field sites were primarily women trainees; and (3) perpetrators varied between men and women—when women were harassed, perpetrators were primarily senior to the trainees; however, when men were harassed, it was typically by a peer.[19] It is not generally understood how university policies for standards of conduct are applied in unique and challenging environments where researchers and students are isolated from campus.

NSF has indicated that it plans to apply lessons learned from the USAP to improve prevention and response strategies at other remote research sites it supports. In 2021, researchers gathered for the NSF-sponsored *Promoting Safety in Field Science (PSIFS)* workshop to "discuss unique challenges in harassment prevention, target support, and incident response at remote research settings." The resulting report provided best practices and recommendations for improving prevention and response mechanisms at a broad range of field research sites.[20]

The PSIFS report focused on improving culture, accountability, policy, and reporting. The recommendations were closely aligned with those in the SAHPR report, and included treating harassment as a safety issue, improving the content and delivery of anti-harassment training, providing multiple avenues for reporting, facilitating collaborative responses to inter-jurisdictional incidents, making communication devices available for all participants, and conducting climate surveys.

Committee Action

Committee action on sexual harassment in the sciences began in October 2017 with letters from then-Chairman Smith and then-Ranking Member Johnson to Boston University regarding Title IX complaints filed against a prominent geology professor, Dr. David Marchant, who allegedly physically and verbally harassed multiple women during field work in Antarctica in the late 1990s. Dr. Marchant was a recipient of over $5.4 million in awards from the National Science Foundation (NSF), National Oceanic and Atmospheric Administration (NOAA), and the National Aeronautics and Space Administration (NASA). In April 2019, Dr. Marchant was fired from Boston University, following an appeal by Dr. Marchant of the University's November 2017 findings supporting the accusations against him.

In early 2018, the Committee sent several more letters to additional universities and to funding agencies regarding other cases that had been published in the press. The Committee also

[19] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4100871/
[20] https://zenodo.org/record/5841983#.Y4gTv33MLQY

requested a GAO analysis of Federal science agencies' policies, resources, and intra- and inter-agency communication regarding reports of sexual harassment among grant recipients.

This is the third hearing the Committee has held on the issue since February 2018. Legislation sponsored by Chairwoman Johnson and Ranking Member Lucas, the *Combating Sexual Harassment in Science Act,* was first introduced in January 2019 and was enacted as part of the *Chips and Science Act* in August 2022. The bill:

- supports research into the factors contributing to and the consequences of sexual harassment in the scientific workforce;
- directs the Office of Science and Technology Policy to issue sexual harassment policy guidelines for research agencies, with a focus on leveraging research funding to incentivize and facilitate culture change at awardee institutions;
- convenes an Interagency Working Group to coordinate Federal research agency efforts;
- directs NASEM to issue an updated responsible conduct in research guide to establish standards of professional conduct in science that address the issue of sexual harassment;
- directs NASEM to conduct a follow-up study to their 2018 report to assess the progress of efforts to combat sexual harassment;
- directs GAO to assess Federal research agency implementation of OSTP policy guidance;
- authorizes $32.5 million for NSF to carry out the Act.

Federal science agency activity mandated by this legislation does encompass federal contract-holders, as well as grantees and those entering cooperative agreements. However, the findings in the SAHPR report indicate there may be unique implementation difficulties when it comes to contractors. For example, the employee-employer contract may contain terms that conflict or interfere with agency-mandated information sharing related to personnel matters.