

Office of Audits Annual Work Plan Fiscal Year 2020

NATIONAL SCIENCE FOUNDATION
OFFICE OF INSPECTOR GENERAL



October 31, 2019



AT A GLANCE

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WHY WE CREATED THIS WORK PLAN

The *Inspector General Act of 1978*, as amended, authorizes an Office of Inspector General for the National Science Foundation. By statute, we conduct and supervise independent audits and investigations relating to agency programs and operations and recommend policies that promote effectiveness and efficiency and prevent and detect fraud, waste, and abuse. This work plan lists our required and planned discretionary projects for fiscal year 2020. However, we may modify the plan to address high priority issues that may arise or to respond to requests from Congress or other stakeholders.

WHAT AUDITS WE HAVE PLANNED

Required projects in the FY 2020 Audit Work Plan include:

- Audit of NSF's financial statements;
- Audit of NSF's information security program;
- Assessment of NSF's compliance with the *Improper Payments Elimination and Recovery Act*;
- Audit of NSF's use of its motor vehicle fleet; and
- Risk assessment to determine if we need to audit NSF's grant closeout process.

Planned discretionary topics and ongoing discretionary audits include:

- Government-Owned Equipment Purchased on NSF Awards
- Established Program to Stimulate Competitive Research (EPSCoR) Award Oversight
- Two EPSCoR Award Recipients' Incurred Costs
- Evaluation and Assessment Capability Section's Contracted Evaluations
- Process for Evaluating the Operations and Maintenance Proposal for the Ocean Observatories Initiative
- Oversight of the United States Antarctic Program's Antarctic Infrastructure Modernization for Science Project
- Divestment of NSF's Major Facilities
- Mid-Scale Projects
- Use of In-House Conference Space

In addition, we will conduct audits of NSF award recipients, as well as reviews of the quality of single audits. We also will monitor projects as potential future audits.

FOR FURTHER INFORMATION, PLEASE CONTACT US AT OIGPUBLICAFFAIRS@NSF.GOV.



About the Office of Inspector General

The *Inspector General Act*, as amended in 1988, authorizes an independent Office of Inspector General for the National Science Foundation.

Our work is divided into two functional areas:

- 1) audits, which assess the functionality of systems, determine compliance with financial standards and grant requirements, and identify ways to improve systems and operations; and
- 2) investigations, which address allegations of serious wrongdoing, such as violations of criminal or civil law or fabrication of data and plagiarism in NSF-funded research.

We conduct audits mandated by legislation, as well as discretionary, risk-based audits of NSF's contracts, cooperative agreements, and grants to universities and other institutions. We also conduct internal audits of NSF's programs to identify ways to improve systems and operations. These audits help ensure that financial, administrative, and programmatic activities are conducted economically, effectively, and in compliance with applicable laws, rules, and regulations.

Required Projects

We oversee the audits of NSF's annual financial statements and NSF's compliance with the *Federal Information Security Modernization Act of 2014* (FISMA, Pub. L. No. 113-283). We will also assess NSF's compliance with the *Improper Payments Elimination and Recovery Act of 2010* (IPERA, Pub. L. No. 111-204, as amended) and audit NSF's use of its vehicle fleet, which the U.S. Senate requested.¹ In addition, in accordance with the *Grants Oversight and New Efficiency Act* (GONE Act, Pub. L. No. 114-117), we will assess whether we need to audit NSF's grant closeout process.

Discretionary Audits

Our discretionary audit plan is flexible, and we may need to modify it to address high priority issues that arise during the year or to respond to requests from Congress or other stakeholders. In our planned audits, we will focus both internally on NSF management and externally on how award recipients, including institutions and researchers, use those funds. Based on risk, we have selected the following discretionary audits for FY 2020, some of which are already in progress.

Government-Owned Equipment (GOE) Purchased on NSF Awards (*in progress*)

NSF fulfills its mission mainly by issuing awards to fund specific research and equipment in basic science to individual researchers and small teams of researchers at U.S. colleges and universities, research centers, and facilities. NSF award terms and conditions state whether NSF or the recipient will

¹ Senate Report 115-139, *Federal Vehicle Fleet Management*, July 27, 2017



own equipment purchased with award funds. During this audit, we will assess NSF's controls for ensuring that it can account for equipment it owns, including identifying, monitoring, and disposing it.



Figure 1. The HIAPER (High-Performance Instrumented Airborne Platform for Environmental Research), a modified Gulfstream-V aircraft owned by NSF and operated and maintained by NCAR. *Credit: © UCAR, by Clay Lacy Astrovision / Chad Slattery, licensed under a Creative Commons Attribution-Non-Commercial 4.0 International License, via OpenSky.*

Established Program to Stimulate Competitive Research (EPSCoR) Award Oversight and Audits of Costs Claimed by Two EPSCoR Award Recipients (*in progress*)

NSF provides Research Infrastructure Improvement awards to targeted jurisdictions through its EPSCoR program. EPSCoR's mission is to develop research competitiveness in these jurisdictions by strengthening science, technology, engineering, and math (STEM) capability and capacity so that they may become recognized contributors to national and global STEM research. We plan to assess whether NSF is ensuring award recipients comply with NSF and Federal requirements in the administration of EPSCoR awards. We have also initiated audits of costs claimed by two EPSCoR award recipients to determine if costs claimed on these awards were allowable, allocable, reasonable, and in conformity with NSF award terms and conditions and applicable Federal requirements.



Evaluation and Assessment Capability (EAC) Section’s Contracted Evaluations *(in progress)*

The purpose of EAC, which is in NSF’s Office of Integrative Activities, is to provide NSF with centralized support and resources for data collection, analytics, and the design of evaluation studies and surveys. These activities should enable NSF to evaluate the impacts of its investments more consistently, to make more data-driven decisions, and to establish a culture of evidence-based planning and policy-making. EAC uses its resources and evaluation/monitoring contracts in collaboration with lead-directorates of the programs to conduct evaluations. We will determine if EAC ensures evaluation contracts are planned, monitored, and closed according to best practices and its contracted evaluations are used for policy decision-making and planning.

Process for Evaluating the Operations and Maintenance Proposal for the Ocean Observatories Initiative *(in progress)*

In September 2018, NSF awarded a \$120 million cooperative agreement to Woods Hole Oceanographic Institution (WHOI) for operating the Ocean Observatories Initiative (OOI). Due to budget constraints, NSF capped the major facility award at \$44 million per year for each year of the 5-year agreement. We will determine whether NSF has taken steps to ensure that WHOI’s proposed cost containment measures are achievable, allowing OOI to function within the proposed budget.

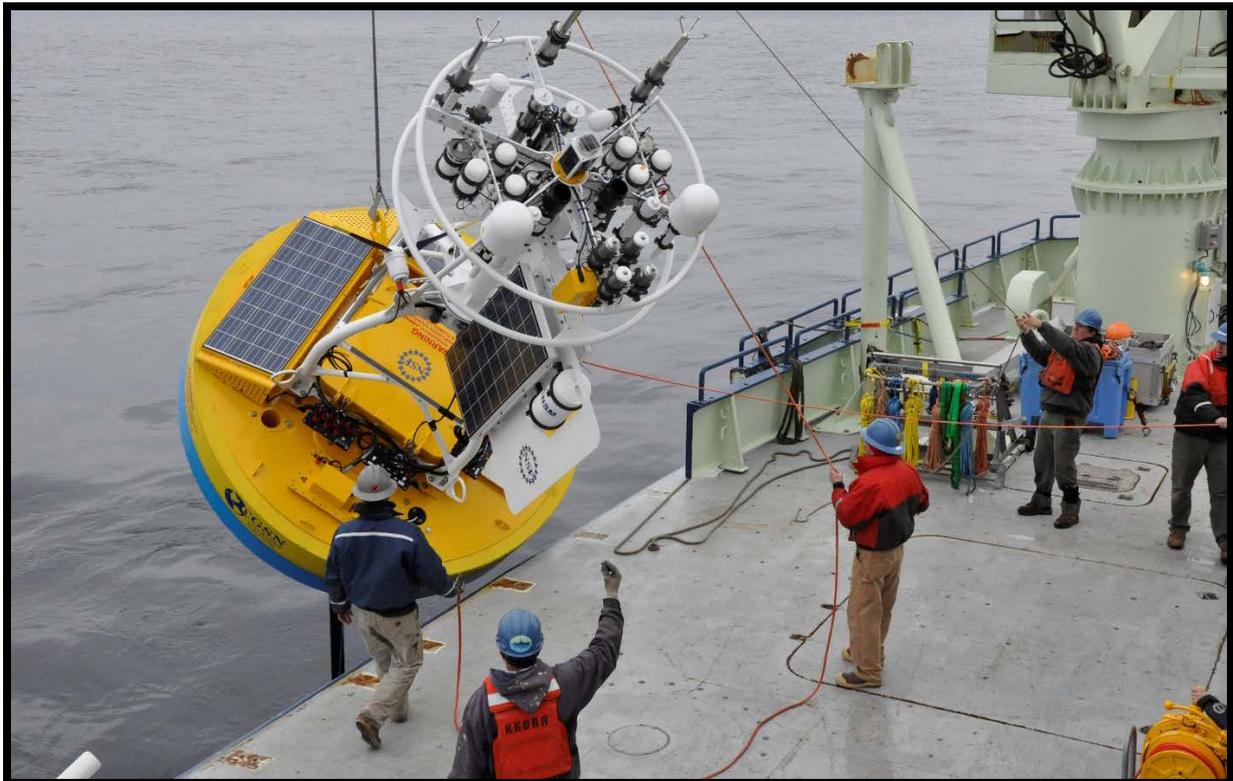


Figure 2. Researchers with OOI recover a coastal surface mooring buoy onboard the R/V Knorr. Credit: Photo by Elizabeth Caporelli, ©Woods Hole Oceanographic Institution



Oversight of the Antarctic Infrastructure Modernization for Science (AIMS) Project

The AIMS project will replace major United States Antarctic Program facilities at McMurdo station. Leidos Innovations Corporation (Leidos), holder of NSF's \$2.3 billion Antarctic Support Contract, is the primary contractor for AIMS. The entire project is expected to cost about \$410 million, up from the \$355 million original estimate. As the project is envisioned to last 10 years (March 2019 through February 2029), NSF is issuing AIMS as phased modifications to the Antarctic Support Contract to ensure that costs are more realistic at the time of each phase. Leidos issued a subcontract on May 8, 2019, for the first phases of construction. In its FY 2020 Budget Request, NSF requested nearly \$98 million to continue site preparation, procure construction materials, and start construction. A major construction risk will be the long supply chain to move labor and material to Antarctica as they are needed. We will assess whether NSF is effectively overseeing the AIMS project, including the project's prime contractor. Due to the inherent risk of the AIMS project, we may perform a series of audits throughout the project's lifecycle.

Divestment of NSF Major Facilities

NSF funds the construction, management, and operation of major research facilities, which are shared-use infrastructure accessible to a broad community of researchers and educators. NSF's major facilities typically have construction costs greater than \$70 million, with total construction costs ranging from one hundred to several hundred million dollars over a multi-year period. Once construction is complete, NSF facilities may operate for 20 to 40 years with annual operations and maintenance budgets ranging between 6 and 10 percent of the original construction cost. The *American Innovation and Competitiveness Act* (Pub. L. No. 114–329) requires NSF to address divestment as part of the lifecycle plans for its major facilities. At a time of shrinking budgets and rising costs, divestment is an essential part of NSF's responsibilities for managing its major facilities. We will assess the adequacy of NSF's processes for identifying, planning for, and managing divestment of its major facilities.

Mid-Scale Projects

The *American Innovation and Competitiveness Act* directed NSF to evaluate existing and future needs for mid-scale projects, which includes equipment and upgrades to major research facilities that cost more than the major research instrumentation program funds but less than the major research equipment and facilities construction program funds. In its FY 2020 Budget Request, NSF requested a total of \$75 million for its mid-scale projects, which cost between \$6 and \$70 million. NSF's *Major Facilities Guide*, updated in May 2019, provides guidance for these projects. In our audits, we may review management requirements in mid-scale solicitations, controls for mid-scale projects, and training and experience of NSF staff responsible for making and overseeing mid-scale awards.

Use of In-House Conference Space

NSF hosts a variety of conferences, such as staff retreats, merit review panels, and advisory committee and Committee of Visitors meetings. NSF's headquarters in Alexandria, Virginia, has 56 percent more conference rooms and 47 percent more seating than its former headquarters in Arlington, Virginia.



According to Federal and NSF guidance, NSF must minimize conference expenses. We will assess whether NSF is minimizing spending on conferences since moving to its new headquarters.

Audits of NSF Award Recipients

We will continue to audit NSF award recipients at various universities, non-profits, and for-profit entities to detect improper spending or noncompliance with Federal and NSF requirements. We will conduct some of the audits, and independent public accounting firms with whom we contract will conduct the rest. The audits may focus on areas such as internal controls, accounting systems, or incurred costs. We also will continue Compliance Analytics Desk Audits, which we initiated in FY 2019. In these audits, we focus on smaller entities for which regular audits are not cost effective.

Review of the Quality of Single Audits

Award recipients that spend \$750,000 or more of Federal funds in a year are required to obtain a single audit, which is an important oversight tool. We will continue to review the quality of single audits of NSF award recipients for which NSF has audit cognizance or oversight — defined generally as those institutions that receive the majority of their Federal funding from NSF — as well as other award recipients when we have concerns regarding the NSF-related information contained in the reports. The purpose of our reviews is to determine whether the audits comply with Federal requirements and professional audit standards. In FY 2020, we plan to conduct desk reviews of approximately 100 single audit report packages and conduct quality control reviews of 2 single audits.

Projects We Are Monitoring

Pending additional background research and resource availability, we will monitor the following projects as potential future audits.

Regional Class Research Vessels

The Regional Class Research Vessel project is part of a plan to modernize the U.S. Academic Research Fleet. The estimated total project cost for three ships is more than \$350 million over 9 fiscal years. Appropriations in FYs 2017 – 2019 were sufficient for the construction of all of them. Oregon State University, the lead institution, has contracted with a shipyard to construct the vessels. NSF did not request any additional funding for the project in FY 2020 and estimates no additional request for funds until FY 2022, when it will need operational funds from the Research and Related Activities account. Until construction is completed, technical risks, such as vessel subsystems not meeting performance requirements, remain. In FY 2020, we will continue to monitor NSF's oversight of the project's construction.

National Center for Optical/Infrared Astronomy

In collaboration with NSF, the Association of Universities for Research in Astronomy, Inc. (AURA) developed a plan to establish the National Center for Optical-Infrared Astronomy (NCOA). NCOA is



expected to be the structural hub of the U.S. ground-based optical-infrared astronomy system and will integrate the programs and activities associated with the operations of the National Optical Astronomy Observatory, the Gemini Observatory, and the Large Synoptic Survey Telescope into a single center. In February 2018, the NSB approved the formation of NCOA, and in November 2018, NSF funded a 2-year award to AURA for the NCOA Transition Project. NCOA is expected to launch in FY 2020.

National Center for Atmospheric Research

The National Center for Atmospheric Research (NCAR) is a Federally Funded Research and Development Center sponsored by NSF and managed by the University Corporation for Atmospheric Research (UCAR). UCAR currently has \$1.4 billion in active NSF awards — the second-largest dollar amount of NSF awards. Funding for the management and operation of NCAR was provided by a cooperative support agreement issued in 2008 and subsequently renewed through September 30, 2018. NSF expects to extend this award through September 30, 2020, to allow for the completion of planned and approved activities. Following an open re-competition and NSB review and authorization, NSF issued a successor award, effective October 1, 2018. As of September 30, 2019, the unliquidated balance under the prior award was \$54 million, approximately 5 percent of the total obligated amount of \$1.1 billion. Given the large amount of unliquidated funds and the existence of an open successor award, we will continue to monitor the spend down of the award due to expire on September 30, 2020.

NSF's Implementation of Requirements in the *American Innovation and Competitiveness Act*

According to the *American Innovation and Competitiveness Act*, signed into law in 2017, NSF must brief Congress periodically on its progress in improving oversight of its major multi-user research facilities. NSF also must report the costs associated with employing temporary personnel (rotators), its efforts to control those costs, and its response to our recommendations that NSF reduce these costs. In FY 2020 we will continue to monitor NSF's compliance with the Act.

Graduate Research Fellowship Program

NSF's Graduate Research Fellowship Program recognizes and supports outstanding graduate students in NSF-supported STEM disciplines who are pursuing research-based master's and doctoral degrees at accredited institutions. Each fellow receives a 3-year annual stipend of \$34,000 and a cost of education allowance of \$12,000 for tuition and fees; NSF provides both the stipend and allowance to the institution to distribute to the fellow. For FY 2020, NSF requested more than \$250 million to support 1,600 new fellowships. In FY 20 we will perform background research to determine if an audit is warranted.



About NSF OIG

We promote effectiveness, efficiency, and economy in administering the Foundation's programs; detect and prevent fraud, waste, and abuse within NSF or by individuals who receive NSF funding; and identify and help to resolve cases of research misconduct. NSF OIG was established in 1989, in compliance with the *Inspector General Act of 1978*, as amended. Because the Inspector General reports directly to the National Science Board and Congress, the Office is organizationally independent from the National Science Foundation.

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