

OCTOBER 1, 2017 — MARCH 31, 2018

SEMIANNUAL REPORT TO CONGRESS



NATIONAL SCIENCE FOUNDATION | OFFICE OF INSPECTOR GENERAL

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by Congress in 1950 “to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense....” NSF consists of the National Science Board (NSB) and the Director, which establish agency policies and provides oversight of its activities. NSF is vital because it supports basic research and people to create knowledge that transforms the future.

With an annual budget of approximately \$7.5 billion in FY 2017, it is the funding source for approximately 24 percent of all federally supported basic research conducted by America’s colleges and universities. In many fields such as mathematics, computer science, and the social sciences, NSF is the major source of Federal backing.

ABOUT THE OFFICE OF INSPECTOR GENERAL

NSF’s Office of Inspector General (OIG) promotes effectiveness, efficiency, and economy in administering the Foundation’s programs; detects and prevents fraud, waste, and abuse within NSF or by individuals that receive NSF funding; and identifies and helps to resolve cases of research misconduct. OIG was established in 1989, in compliance with the *Inspector General Act of 1978*, as amended. Because the Inspector General reports directly to the NSB and Congress, the Office is organizationally independent from the Foundation.

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FROM THE INSPECTOR GENERAL

I am pleased to present our semiannual report, which summarizes the work and accomplishments of our office during the first half of fiscal year 2018.

In this report, we focus on the impact of our work on the Foundation and how our findings have inspired action to improve the Foundation's efforts to promote the progress of science; to advance the national health, prosperity, and welfare; and to secure the national defense. Highlights this reporting period include:

- Independent auditors issued an unmodified opinion on NSF's FY 2017 financial statements and noted that the FY 2016 finding on NSF's information technology (IT) control environment was no longer considered a significant deficiency.
- An FY 2017 audit required by the *Federal Information Security Modernization Act of 2014* (FISMA) determined that NSF implemented corrective actions to address four of the five findings in the FY 2016 FISMA report but still needs to address shortfalls in select IT security controls.
- Auditors reviewed NSF's second quarter FY 2017 spending data as required by the *Digital Accountability and Transparency Act of 2014* (DATA Act) and found that NSF had taken many steps to implement and use the Government-wide data standards, but that the spending data NSF submitted did not meet the quality requirements.
- OIG contractors identified more than \$400,000 of questioned costs during audits of two NSF awardees that expended about \$128 million of NSF funds. Looking ahead, we will continue to use and improve our data analytics process to identify high-risk awardees, as well as explore the root causes of why questionable costs were charged to NSF awards.
- OIG investigators found that an NSF Principal Investigator (PI) falsified Institutional Review Board approvals in his proposals involving human subjects research. The PI settled with the U.S. Department of Justice (DOJ) and agreed to pay more than \$130,000 and be voluntarily excluded from applying for or participating in any Federal grants for about 19 months.
- As a result of a previous OIG investigation into a researcher engaged in unauthorized mining of bitcoin on two NSF-funded supercomputers, the bitcoin was recently auctioned, resulting in almost \$820,000 returned to NSF.
- Several OIG investigations involving the high-risk Small Business Innovation Research/Small Business Technology Transfer programs have been accepted for prosecution by DOJ. In one case, a PI was indicted on multiple counts of false statements, false claims, wire fraud, and conspiracy. Based on our recommendation, the agency suspended Government-wide the PI and his companies.
- OIG investigative scientists found that a former graduate student fabricated and falsified the results of NSF-supported research in two papers, the student's dissertation, a draft

manuscript, a patent, and proposals submitted to another agency. The university revoked the student's Ph.D. and we recommended the agency debar the student for 1 year.

Finally, the *Inspector General Act*, as amended, requires that we report any instance of whistleblower retaliation and actions taken by the Foundation to hold the offender(s) accountable. The U.S. Office of Special Counsel found that there were reasonable grounds to believe that two instances of whistleblower retaliation had occurred at NSF in violation of the *Whistleblower Protection Act*. Its findings were grounded, in part, on the employee's perceived contact with our office. We engaged with NSF senior leadership to ensure the Foundation took clear and public steps to deter and prevent whistleblower retaliation and to mitigate any concerns NSF staff might have about reporting waste, fraud, or abuse to our office. NSF has also demonstrated its commitment to enhanced training on prohibited personnel practices across all levels at the Foundation. We are encouraged by NSF's response and believe its actions will help deter any future acts of retaliation and overcome any chilling effect the reported retaliation may have had on NSF employees.

Our work reflects our sustained commitment to helping NSF be an effective steward of taxpayer dollars and benefits from the support of NSF management and staff from across the Foundation. We look forward to our continued partnership with NSF, the NSB, and Congress to fulfill this goal.

Allison C. Arnes

AUDITS AND REVIEWS

The Office of Audits is responsible for auditing grants, contracts, and cooperative agreements funded by the Foundation. We review NSF programs and operations and ensure that financial, administrative, and programmatic aspects of NSF operations are conducted economically and efficiently. By providing independent and objective assessments of NSF's program and financial performance, we are committed to improving NSF's business policies and practices to better support NSF in promoting science and engineering research and education.

FY 2017 FISMA AUDIT: IMPROVEMENTS MADE BUT TWO NEW FINDINGS AND ONE MODIFIED-REPEAT FINDING IDENTIFIED

NSF depends on computerized information systems to process, maintain, and report essential information. Reliability of computerized data and systems is essential, and protecting information systems continues to be a challenge for NSF. NSF has taken corrective actions in response to IT recommendations in prior periods. However, as reported in an FY 2017 audit¹ required by the *Federal Information Security Modernization Act of 2014*,² NSF continues to have IT security challenges.

Kearney & Company (Kearney), under a contract with OIG, performed the FY 2017 FISMA audit. It determined that although NSF has an established information security program and has implemented appropriate corrective actions to address four of the five findings in the FY 2016 FISMA report, additional work is needed to address shortfalls in select IT security controls. Kearney identified two new findings in the areas of configuration management and U.S. Antarctic Program (USAP) contingency planning, and one modified-repeat finding on USAP accreditation packages.

Kearney made five recommendations, which, if implemented, will improve NSF's IT Security Program. The new recommendations included developing an updated business impact analysis for the USAP IT environment and updating security configurations. In addition, Kearney repeated a prior-year recommendation to update system security plans at least annually. NSF has provided a corrective action plan that, if implemented, should address the recommendations.

Following the issuance of the FY 2017 FISMA report, we closed the six recommendations in the FY 2016 report, including one that was modified and repeated in the FY 2017 report. Thus, the only FISMA recommendations currently open are the five in the FY 2017 report.

FY 2017 FINANCIAL STATEMENT AUDIT RESULTS IN UNMODIFIED OPINION AND NO SIGNIFICANT DEFICIENCY IN INTERNAL CONTROL OVER FINANCIAL REPORTING

Establishing and maintaining sound financial management is a top priority for the Federal Government because agencies need accurate and timely information to make sound decisions about budget, policy, and operations. NSF is required to prepare annual financial statements, which must be audited by an independent entity.

¹ OIG 18-2-004, *Performance Audit of the National Science Foundation's Information Security Program for FY 2017*, November 30, 2017

² Pub. L. No. 113-283

Kearney, under a contract with OIG, audited NSF's FY 2017 financial statements.³ It issued an unmodified opinion on the financial statements and noted that the FY 2016 finding on NSF's IT control environment was no longer considered a significant deficiency. Kearney identified no instances of noncompliance or other matters that are required to be reported under Government Auditing Standards.

Following the issuance of the FY 2017 audit, the three recommendations in the FY 2016 report were closed. The FY 2017 audit had no recommendations, so there are no open recommendations for NSF's financial statements audits. However, in performing the FY 2017 audit, Kearney noted matters involving internal control over financial reporting, which did not rise to the level of a significant deficiency. It reported these matters to NSF in a separate management letter. We no longer track management letter recommendations; however, auditors will review the status of these matters as part of the FY 2018 audit.

SPENDING DATA FOR THE DATA ACT DID NOT MEET QUALITY REQUIREMENTS

The DATA Act⁴ requires Federal agencies, including NSF, to report financial and payment data in accordance with data standards, definitions, and guidance established by the U.S. Department of Treasury and the Office of Management and Budget.

Under a contract with OIG, Kearney conducted a performance audit⁵ of NSF's second quarter FY 2017 spending data submitted under the DATA Act, which was the first quarter Federal agencies were required to report. The objectives of the audit were to assess the accuracy, completeness, timeliness, and quality of NSF's financial and payment data reported to the public through USASpending.gov and to assess NSF's implementation and use of the Government-wide financial data standards.

Kearney found that the spending data NSF submitted did not meet the quality requirements. Following OMB guidance to calculate the error rate at the transaction level rather than the data element level, Kearney identified inaccuracies in one or more data elements for 62.2 percent of transactions tested; specifically, 43.3 percent of transactions tested had errors due to NSF's reporting and 18.9 percent had errors due to Government-wide reporting issues. Kearney also identified that 98.8 percent of transactions omitted one or more of the required data elements, with 41.7 percent of the omissions due to NSF's reporting and 57.1 percent due to Government-wide reporting issues. Finally, Kearney identified that 0.8 percent of transactions were untimely. NSF disagreed with the percentage of the NSF-attributed errors and with calculating the error rate at the transaction level, rather than at the data element level.

Kearney made four recommendations to improve the accuracy, completeness, timeliness, and quality of NSF's data reported through USASpending.gov. NSF generally agreed with the recommendations. However, regarding the recommendation that it expand and improve on existing quality control procedures to confirm the accuracy and integrity of data prior to submission, NSF responded that it has sufficient reconciliation and quality control procedures in its data submission process. It said that some errors were due to NSF proactively submitting optional fields that Treasury was unable to process, and others were due to differences between NSF and Kearney in

³ OIG 18-2-002, November 14, 2017

⁴ Pub. L. No. 113-101

⁵ OIG 18-2-001, November 17, 2017

the interpretation of applicable Federal guidance and NSF business practices. NSF agreed to take corrective action on the findings, and all four recommendations have been resolved. When we agree that NSF has implemented the corrective actions, the recommendations can be closed.

AUDITS OF NSF AWARDEES

OIG contractors completed audits of two NSF awardees that had expended more than \$128 million of NSF funds during the respective audit periods. The audits assessed the allowability, allocability, and reasonableness of costs charged to NSF.

The two audits identified, in total, more than \$400,000 of questioned costs. The auditors recommended that NSF recover the questioned amounts from the University of Kansas Center for Research⁶ (\$329,049) and Texas A&M Engineering Experiment Station⁷ (\$80,055). The auditors also recommended that the awardees strengthen controls over the areas that led to the questioned costs. The findings included questioned equipment, travel, salary, and participant support costs; purchases either prior to the effective date of the award or at the end of the award; and inappropriately allocated indirect costs.

Three previous audits of awardees were resolved this period. NSF sustained the following amounts questioned in the respective audit reports: \$86,853 for the University of California-Davis,⁸ \$3,002 for the audit of the research vessel *Oceanus* at Oregon State University,⁹ and \$20,117 for the Georgia Tech Research Corporation.¹⁰ During resolution, Oregon State University provided Major Overhaul and Stabilization Account expense documentation that allowed NSF to verify that the audit determined \$315,016 funds put to better use were expended as intended. As a result, NSF did not agree with our determination.

In addition, recommendations for two audits of awardees were closed this period. There were no questioned costs in either audit. For the first, *Independent Audit of Association of Universities for Research in Astronomy (AURA) Cost Book Evaluation for the Rebaselined ATST/DKIST*,¹¹ our recommendation that AURA correct significant estimating and incurred cost deficiencies was resolved and closed; we agreed that conducting an audit of the estimating system for the construction of the DKIST telescope was no longer beneficial. We also recommended AURA give NSF annual incurred cost submissions. AURA provided the submissions, and the recommendation was closed. However, NSF did not agree with the \$11,714,680 of funds put to better use that we identified in this audit.

For the second closed audit, *NSF's Management of Costs Proposed for the Large Synoptic Survey Telescope Construction Project*,¹² our recommendation that NSF audit AURA's estimating system was resolved and closed. We agreed with NSF's decision not to audit AURA's estimating system because AURA has a pending reorganization. There were no monetary findings in this report.

⁶ OIG 18-1-001, October 19, 2017

⁷ OIG 18-1-002, March 28, 2018

⁸ OIG 17-1-002, February 27, 2017

⁹ OIG 17-1-004, March 23, 2017

¹⁰ OIG 17-1-008, September 28, 2017

¹¹ OIG 14-1-005, September 30, 2014

¹² OIG 14-3-002, September 30, 2014

QUALITY OF SINGLE AUDITS DECREASES FROM PRIOR PERIOD

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance)¹³ provides audit requirements for state and local governments, colleges and universities, and non-profit organizations receiving Federal awards. Under the guidance, covered entities that expend \$750,000 or more a year in Federal awards must obtain an annual organization-wide audit that includes opinions on the entity's financial statements and compliance with Federal award requirements. Non-Federal auditors, such as public accounting firms and state auditors, conduct these single audits. We review the resulting audit reporting packages to ensure that they comply with the requirements of the Uniform Guidance and applicable Government and non-Government auditing standards.

The audit findings in Single Audit reports are useful to NSF in planning advanced monitoring site visits and other post-award monitoring efforts. Because of the importance of Single Audit reports to this oversight process, we conduct desk reviews on all reporting packages for which NSF is the cognizant or oversight agency for audit, and provide guidance to awardees and auditors to improve audit quality in future reporting packages. In addition, we return to the awardees reporting packages that are deemed inadequate so the awardees can work with the audit firms to take corrective action.

During the period, we conducted desk reviews of 41 audit reporting packages,¹⁴ in total covering more than \$294 million in NSF direct expenditures. As shown in Figure 1, we found that 27 (66 percent) fully met Federal reporting requirements. This is a decrease from the last semiannual period (ending September 30, 2017), when 70 percent of reports fully met Federal reporting requirements. However, the percentage for this reporting period is the same as the average of reports that fully met Federal reporting requirements over the last 5 years.

FIGURE 1. PERCENTAGE OF SINGLE AUDITS THAT MET FEDERAL REPORTING REQUIREMENTS



Source: NSF OIG Semiannual Reports

¹³ 2 C.F.R. Pt. 200

¹⁴ The audits were conducted by 33 different independent public accounting firms.

Regarding the 14 reports (34 percent) this period that did not fully meet Federal reporting requirements, we found that:

- 6 reports were not submitted to the Federal Audit Clearinghouse in a timely manner;
- 4 auditors' reports contained audit findings that did not include all the required elements;
- 3 reporting packages contained the Schedules of Expenditures of Federal Awards that did not include required information to allow for identification of awards received from or passed-through to other non-Federal entities and/or did not adequately describe the significant accounting policies used to prepare the schedule;
- 3 reporting packages contained an inaccurate Summary of Auditors' Results;
- 3 reporting packages were submitted to the Federal Audit Clearinghouse with an inaccurate Data Collection Form (Form SF-SAC);
- 1 reporting package included an incomplete Corrective Action Plan to address the audit recommendations; and
- 1 audit report incorrectly reflected the results of the audit.

For errors that potentially impacted the reliability of the audit reports, we contacted the auditors and awardees, as appropriate, for explanations of each of the potential errors. The auditors and awardees provided adequate explanations and/or additional information to demonstrate compliance with Federal reporting requirements. After we completed our review of the reports, we issued a letter to each auditor and awardee informing them of the results of our review and the specific issues on which they should work to improve the quality and reliability of future reports.

INVESTIGATIONS

The Office of Investigations is dedicated to promoting efficiency and effectiveness in NSF programs and operations. We investigate wrongdoing involving organizations or individuals that receive awards from, conduct business with, or work for NSF. We assess the seriousness of misconduct and recommend proportionate action. We work in partnership with agencies and awardees to resolve issues when possible.

PROGRAM INTEGRITY INVESTIGATIONS

As part of our mission, we investigate allegations concerning misuse of NSF funds, false statements in documents submitted to NSF, and employee misconduct. When we identify a violation of a criminal or civil statute, we refer our investigations to DOJ for criminal prosecution or civil action. When appropriate, we also refer matters to NSF for administrative action, such as award termination and Government-wide suspension/debarment.

NON-PROFIT FINANCIAL DIRECTOR INDICTED FOR THEFT, MONEY LAUNDERING, AND FILING A FALSE TAX RETURN

The former financial director of a non-profit corporation was indicted on three counts of theft from a Government program, one count of money laundering, and three counts of filing a false tax return. The former director allegedly defrauded NSF and the U.S. Environmental Protection Agency by stealing grant funds for personal enrichment. The former director allegedly used the names of other people to create corporations to conceal the true beneficiary of the stolen funds. Further, the former director allegedly failed to file accurate tax returns. This joint investigation is ongoing.

PI WHO FALSIFIED MULTIPLE IRB APPROVALS ENTERS CIVIL SETTLEMENT AGREEMENT

A PI created and submitted false Institutional Review Board (IRB) approvals for four proposals involving human subject research. The four awarded NSF grants totaled more than \$2.3 million. The PI's university uncovered one of the falsified IRB approvals during a routine audit, informed our office, and returned the associated \$1.6 million award. Our subsequent investigation identified three additional falsified IRB approvals, including one in which the PI altered a previous IRB approval by electronically placing a text box containing a new title over the original title.

Without admitting liability, the PI agreed to settle allegations that he violated the *False Claims Act*¹⁵ by submitting false documents to NSF to obtain Federal research grants and making false certifications in his awards' annual reports. The settlement with DOJ required the PI to pay more than \$130,000; be voluntarily excluded from applying for or participating in any Federal grants for approximately 19 months; withdraw from any pending applications for Federal funding; provide certifications to NSF for 5 years; provide assurances to NSF for 3 years; and not serve as an NSF reviewer, advisor, or consultant for 3 years.

¹⁵ 31 U.S.C. §§ 3729-3733

COLLEGE SETTLES INVESTIGATION FOR MORE THAN \$160,000

A college agreed to settle allegations that it failed to maintain adequate records to support expenditures under an NSF award. Our investigation identified duplicate charges for equipment, an electronics purchase supported by an online shopping cart printout but never actually purchased, and lack of documentation for stipend payments to students. The settlement with DOJ required payment of more than \$160,000 and required the college to implement a 5-year compliance plan to ensure proper oversight of NSF awards in the future.

SBIR COMPANY CO-FOUNDER VIOLATES PROGRAM REQUIREMENTS

Our investigation found that a university professor who is also the founder of a Small Business Innovation Research (SBIR) company falsely certified he would be primarily employed by the company during a Phase I award. Contrary to this representation, the professor remained a full-time university employee during the award, in violation of the SBIR program requirements. The company also received a Phase IB supplement on which the professor was PI, and similarly not eligible. Based on our recommendation, NSF permanently withheld the award final payment of almost \$50,000.

UNIVERSITY RETURNS FUNDS FOR EFFORT VARIANCES

We investigated allegations concerning misuse of NSF funds by an SBIR awardee and a university but did not substantiate the allegations. However, during our investigation, the university identified almost \$23,000 in effort variances related to two individuals who worked on an NSF award. The university credited this amount back to the NSF award.

UNIVERSITY TAKES ACTIONS IN RESPONSE TO INVESTIGATION FINDINGS

We investigated allegations that a PI at a university was charging more than 100 percent effort across several awards, and misusing NSF award funds. Most of the allegations were not substantiated; a program income issue involving less than \$2,000 in NSF funds will be addressed by the NSF program office. Our investigation did identify weaknesses in the university's time and effort system and program income procedures and we provided the university with our findings. As a result, the university is revising its time and effort reporting system to ensure faculty salaries are not augmented by reporting more than 100 percent of charged time. In addition, the university plans to include additional training related to program income during its next series of grant training sessions.

MANAGEMENT ADVISORIES ISSUED TO NSF

We issued three Management Advisories (MA) to NSF recommending increased oversight over awards in its I-Corps and Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) programs, and an update to its *Conflicts of Interest and Standards of Ethical Conduct Manual* (the Manual).

We conducted a Proactive Review of NSF SBIR/STTR awardees that were graduates of NSF's I-Corps Program. I-Corps awards are small grants made to universities and may result in the formation of companies to commercialize research. We preliminarily looked at 150 NSF SBIR/STTR

I-Corps graduate companies. We conducted additional inquiry into four of those companies and opened a full investigation of one. In our MA, we recommended to the I-Corps Program that training be given to I-Corps awardees concerning SBIR/STTR PI primary employment requirements in the event the I-Corps awardees subsequently apply for SBIR/STTR funding. In a separate MA, we also recommended to the SBIR/STTR Program that a marker be included on the SBIR/STTR proposal cover page to alert the program officer of prospective awardee companies' university affiliation. In response to our MA recommendations, NSF's I-Corps Program will provide SBIR/STTR PI primary employment training at the end of an I-Corps cohort and maintain training attendance records. The response from NSF's SBIR/STTR Program is pending.

In a separate investigation, we reviewed a former NSF employee's financial disclosure reports and identified potential failures to report required information on those forms. During our investigation, we determined the Manual had not been updated to include the annually revised penalties for violations of the *Ethics in Government Act of 1978*, as amended,¹⁶ found in the *Federal Civil Penalties Inflation Adjustment Act of 1990*.¹⁷ We sent an MA to NSF addressing our concerns. In response to our MA recommendation, NSF updated the Manual's section on penalties.

ACTIONS RESULTING FROM PREVIOUSLY REPORTED PROGRAM INTEGRITY INVESTIGATIONS

SBIR COMPANY OWNER SENTENCED FOR SUBMITTING FALSE STATEMENT

We previously reported¹⁸ the indictment and Government-wide suspension of a company owner who had (1) submitted proposals containing endorsements of people without their knowledge or permission and (2) budgeted funds for subcontractors without their knowledge and without providing them the budgeted funds. During this period, the company owner pled guilty to one count of submitting false statements. He was sentenced to 12 months of probation and 30 hours of community service. In addition, he agreed not to contest more than \$180,000 in seized/forfeited funds.

CO-CONSPIRATORS PLEAD GUILTY TO CHARGES INVOLVING SBIR FRAUD

We previously reported the arrest¹⁹ and Government-wide suspension²⁰ of three alleged co-conspirators who had submitted SBIR grant proposals, correspondence, and reports that bolstered their proposals with falsified letters of support and who had misrepresented, among other things, the identity of their employees and the existence of outside investments. During this period, two of the alleged co-conspirators entered guilty pleas — one for conspiracy to defraud the United States and the other for wire fraud conspiracy and money laundering conspiracy. A company belonging to the third co-conspirator pled guilty to submitting a false statement and agreed to forfeit almost \$520,000.

¹⁶ 5 U.S.C. appendix §§ 101-505 (2012)

¹⁷ 28 U.S.C. § 2461 note

¹⁸ September 2017 Semiannual Report, p. 13

¹⁹ March 2016 Semiannual Report, p. 20

²⁰ September 2016 Semiannual Report, p. 18

SBIR/STTR COMPANY FOUNDER AND UNIVERSITY PROFESSOR INDICTED ON FRAUD CHARGES

We previously reported²¹ that a university professor who is also the founder of two SBIR/STTR companies was arrested on a charge that he conspired with others to defraud the Federal Government. During this reporting period, the founder and a company PI were indicted on charges of false statements, false claims, wire fraud, and conspiracy. The indictments alleged, among other things, that they submitted SBIR/STTR applications with the intention of spending the funds on other projects; failed to maintain an adequate timekeeping system, despite representations they would do so; failed to pay a subcontractor its budgeted funds; and failed to report the founder's ongoing affiliation with an overseas research entity. The founder was also indicted for obstruction. Based on our recommendation, the agency suspended the founder and his companies Government-wide. This joint investigation is ongoing.

SBIR/STTR PI AND COMPANY AGREE TO PAY \$100,000 TO RESOLVE FALSE CLAIMS ACT ALLEGATIONS

As previously reported,²² a joint investigation found that an SBIR/STTR company PI had inflated his approved labor rate and paid himself significantly more than what was budgeted. Further, the company paid employees for work unsupported by timesheets and charged NSF awards for expenditures incurred after the Final Reports were submitted and approved. Based on our recommendation, NSF withheld the final payment for one of the company's awards. During this reporting period, the company and PI entered into a settlement with DOJ to pay \$100,000 to resolve allegations they violated the *False Claims Act*.

INELIGIBLE SMALL BUSINESS RETURNS FUNDS

We previously reported²³ our recommendation to NSF to seek recovery of erroneous SBIR payments made to an ineligible small business. The U.S. Small Business Administration had determined that the company did not meet the size eligibility criteria to receive an SBIR Phase I award. During this period, NSF reached a settlement agreement with the small business, resulting in repayment of more than \$100,000.

RESEARCH MISCONDUCT INVESTIGATIONS

Research misconduct damages the scientific enterprise, is a potential misuse of public funds, and undermines the trust of citizens in Government-funded research. It is imperative to the integrity of research funded with taxpayer dollars that NSF-funded researchers carry out their projects with the highest ethical standards. Pursuing allegations of research misconduct — plagiarism, data fabrication, and data falsification — by NSF-funded researchers continues to be a focus of our investigative work.

NSF takes research misconduct seriously, as do NSF's awardee institutions. During this reporting period, institutions took actions against individuals found to have committed research misconduct, ranging from issuing letters of reprimand to nullifying a student's dissertation and revoking his Ph.D. degree. In each case described below, we recommended that NSF make a finding of research

²¹ September 2017 Semiannual Report, p. 13

²² September 2014 Semiannual Report, p. 20

²³ March 2016 Semiannual Report, p. 22

misconduct, issue a letter of reprimand, and require the subject to complete a Responsible Conduct of Research (RCR) training program. We also recommended additional significant actions as noted. Unless otherwise specified, NSF's decisions are pending.

FORMER GRADUATE STUDENT FABRICATED AND FALSIFIED DATA AND FIGURES

A former graduate student fabricated and falsified the results of his NSF-supported research that appeared in two papers, his dissertation, a draft manuscript, a patent, and proposals submitted to another agency. The data was first called into question shortly before his dissertation defense. Despite not being able to produce the original data, the school allowed him to graduate without resolving the matter. Subsequently, an anonymous allegation to a journal resulted in the retraction of one of the papers. An anonymous allegation to another journal led the co-authors to repeat some of the experiments and publish a correction. The university then initiated an investigation into 28 allegations of fabrication and falsification.

During the investigation, the student was once again unable to provide original data supporting his research, nor was he able to identify the original data from the research materials archived in due course by the university. Ultimately, the investigation committee determined that 26 of the 28 allegations of research misconduct were substantiated. The university found the student committed research misconduct and revoked his Ph.D.

We concurred with the university's findings and recommended NSF debar the student for 1 year. We further recommended that for 4 years, NSF require certifications and assurances; require submission of a detailed data management plan with annual certifications of adherence for any new awards; and bar the student from participating as an NSF peer reviewer, advisor, or consultant.

A PI SERVING AS A PROGRAM OFFICER AT ANOTHER FEDERAL AGENCY COPIES TEXT FROM UNPUBLISHED PAPER

A PI submitted a proposal to NSF after having served as a program officer at another Federal agency. While the PI was serving as a program officer at the other agency, a junior scientist had developed and submitted a white paper to him. The junior scientist had provided the paper to the program officer in confidence, and in the hope of receiving future funding. Following his service as a program officer, the PI copied text from the junior scientist's white paper into a proposal he submitted to NSF. The PI claimed that he submitted the wrong version of the proposal to NSF and that he was only using the white paper's text as a placeholder.

The university investigation found the PI's retention and use of a document he received while serving as a program officer constituted a clear violation of acceptable practices. It concluded that the PI intentionally committed plagiarism and that the PI's actions "had a significant, adverse impact" on the university and other researchers. The university immediately barred the PI from applying for Federal funding and from mentoring postdocs, appointed a substitute PI for the PI's active NSF award, and appointed substitute mentors for postdocs funded by that award. The university did not terminate the PI because he had already resigned.

We recommended NSF debar the PI for 1 year. We further recommend that NSF require the PI to provide certifications and assurances, and bar him from participating as a peer reviewer, advisor, or consultant for NSF for 4 years.

PI PLAGIARIZES NEARLY HALF OF HIS 15-PAGE PROJECT DESCRIPTION

A PI at a college submitted a proposal in which he plagiarized 7 pages of the 15-page project description and part of the data management plan. In some instances, the PI removed quotation marks and bolded the copied text for emphasis. The college did not have a research misconduct regulation, so we conducted the investigation. The PI, who as Department Chair was responsible for handling allegations of plagiarism within his academic department, exhibited an understanding of plagiarism, yet said he had cut and pasted literature into his proposals without proper citation or annotation. We reviewed two other submitted NSF proposals for plagiarism, and found copied text in both.

Our investigation determined that the PI knowingly committed plagiarism in three NSF proposals. We recommended NSF require the PI to submit certifications and assurances, and bar the PI from participating as an NSF peer reviewer, advisor, or consultant for 3 years.

PI ADMITS TO PLAGIARIZING MATERIAL IN AN NSF PROPOSAL

A PI submitted an NSF proposal containing plagiarism. During the university's investigation, the PI provided university officials with a letter of admission stating that she had used numerous sources in her proposal. The university concluded its process based on the letter of admission; it determined that the PI committed plagiarism recklessly or knowingly, and that the plagiarism deviated from the university's accepted practices. The university required the PI to enroll in a RCR course, be provided a faculty mentor group, and have all her research program's documents examined for plagiarism for 3 years. It also recommended that her department head provide research misconduct training and mentoring, and provide university officials with annual reports of the PI's progress for 3 years.

We adopted the university's findings in part, but further investigation clarified the PI's level of intent and the accepted practices of the relevant research community. Our investigation determined that the PI knowingly committed plagiarism, which was a significant departure from accepted practices of her academic field.

We recommended NSF require the PI to submit certifications and assurances, and bar the PI from participating as an NSF peer reviewer, advisor, or consultant for 3 years.

PI PLAGIARIZED; UNIVERSITY FAILED TO FOLLOW ITS OWN POLICY IN NOT MAKING A FINDING

A university PI submitted a proposal to NSF that contained plagiarized text. The PI explained that his students were responsible for the copied text but provided no evidence to support his assertions. Therefore, we asked his university to investigate the matter.

The university's investigation was lengthy and ultimately found no evidence the PI's students were responsible for the plagiarism. Nevertheless, the university did not make a finding because, contrary to its own policy, it applied a higher standard of proof than preponderance of the evidence in determining the act. Further, its assessment of intent was not consistent with the evidence reviewed by the investigation committee. Although the university did not make a finding of research misconduct, it still required the PI to take an RCR course and retract any published papers that contained significant plagiarism.

We concluded the PI knowingly plagiarized, and therefore committed research misconduct. Because the university required the PI to retract papers with significant plagiarism within 6 months, we recommended NSF require the PI to notify NSF of any NSF-supported papers that are retracted. Additionally, we recommended that NSF bar the PI for 1 year from participating as a peer reviewer, advisor, or consultant for NSF and require a certification and assurance for each document (proposal, report, etc.) to which the PI contributes for submission to NSF (directly or through his institution).

GRADUATE STUDENT FALSIFIED DATA IN DISSERTATION

A former graduate student falsified data in his dissertation research supported by NSF. The university investigation committee determined the student misrepresented the technique used to calculate data represented in a figure. It also determined the student's methodology for selecting raw data was inconsistent and inaccurately described. Thus, the student's actions represented falsification by omission. The university investigation committee recommended that his dissertation be retracted; however, the deciding official imposed a retraction of the single chapter containing the falsified data.

We agreed with the university committee's conclusion and recommended that NSF require certifications and assurances, and bar the student from serving as an NSF peer reviewer, advisor, or consultant for 3 years. NSF made a finding of research misconduct in this matter but did not impose any additional actions.

ACTIONS BY NSF MANAGEMENT ON PREVIOUSLY REPORTED RESEARCH MISCONDUCT INVESTIGATIONS

NSF adjudicated on our recommendations from nine research misconduct cases reported in previous semiannual reports. Except where noted, each case resulted in NSF making a finding of research misconduct, issuing a letter of reprimand, and requiring RCR training. NSF also took additional significant actions in response to our recommendations, as summarized below.

- In the case of an NSF-supported graduate student who committed data falsification, plagiarism, and other ethical violations in preparing and submitting a manuscript,²⁴ NSF debarred the student for 3 years. NSF also required the student to submit certifications and assurances, and barred the student from serving as an NSF reviewer, advisor, or consultant for 6 years.
- In the case of a co-PI who fabricated interview data and, when questions from his colleagues arose, misled them about the existence of the data,²⁵ NSF debarred the co-PI for 3 years. NSF also required the co-PI to submit certifications and assurances, and barred the co-PI from serving as an NSF reviewer, advisor, or consultant for 6 years.
- In the case of an NSF-supported postdoctoral fellow who fabricated and falsified data in 4 publications and 3 unpublished manuscripts,²⁶ NSF debarred the fellow for 3 years. In addition, NSF required the fellow to submit certifications and assurances and detailed data

²⁴ September 2017 Semiannual Report, p. 18

²⁵ September 2017 Semiannual Report, p. 17

²⁶ September 2017 Semiannual Report, p. 17

management plans with annual certifications of adherence for any resulting awards for 8 years. Finally, NSF prohibited the fellow from participating as an NSF peer reviewer, advisor, or consultant for 8 years.

- In the case of a graduate student who fabricated data in an NSF proposal and in two submitted manuscripts,²⁷ NSF imposed a 1-year debarment concurrent with 4 years of required certifications and assurances; submission of a detailed data management plan with annual certifications of adherence for any resulting awards; and a prohibition from participating as an NSF peer reviewer, advisor, or consultant.
- In the case of a graduate student who falsified experiments,²⁸ NSF debarred the graduate student for 1 year. NSF also required 3 years of certifications and assurances, and the submission of detailed data management plans with annual certifications of adherence. Finally, NSF barred the graduate student from serving as an NSF reviewer, advisor, or consultant for 3 years.
- In the case of a graduate student who falsified data in a published paper,²⁹ NSF debarred the graduate student for 1 year. NSF also required the graduate student to submit certifications, assurances, and detailed data management plans with annual certifications of adherence. Further, NSF barred the graduate student from serving as an NSF reviewer, advisor, or consultant for 4 years.
- In the case of a PI who plagiarized into an NSF proposal,³⁰ NSF required the PI to submit certifications for 2 years and prohibited the PI from serving as a reviewer, advisor, or consultant for 2 years. A co-PI had provided the PI with a small amount of plagiarized text, with an ambiguous suggestion that the PI should rewrite the text, which the PI did not do. We sent the co-PI a questionable practice letter advising him to properly cite all verbatim text to its source.
- In the case of the assistant professor³¹ who argued that citations were sufficient to distinguish copied text from original text, NSF required the professor to submit certifications and assurances for 3 years, and prohibited the professor from serving as an NSF reviewer, advisor, or consultant for 1 year. The assistant professor has appealed the agency's decision.
- In the case of a PI who plagiarized both text and figures into an NSF proposal,³² NSF required the PI to certify compliance with the requirements his university imposed based on its plagiarism finding, and prohibited him from participating as an NSF peer reviewer, advisor, or consultant for 1 year. NSF did not require the PI to submit certifications or assurances, as we had recommended.

²⁷ September 2017 Semiannual Report, p. 19

²⁸ September 2017 Semiannual Report, p. 19

²⁹ September 2017 Semiannual Report, pp. 18-19

³⁰ September 2017 Semiannual Report, pp. 19-20

³¹ September 2017 Semiannual Report, p. 20

³² September 2017 Semiannual Report, p. 21

ADMINISTRATIVE INVESTIGATIONS

Our office investigates a wide variety of allegations that are not pursued as criminal or civil matters or do not meet the strict definition of research misconduct. These cases, which are resolved administratively, include (but are not limited to) misallocation of grant funds, violations of human and animal subject regulations, violations of peer review confidentiality, conflicts of interest, and employee misconduct.

PI TRANSFERRED EQUIPMENT TO NEW UNIVERSITY WITHOUT NSF APPROVAL

In an investigation involving two universities, we determined that one university inappropriately used funds to purchase research equipment for a second university. The NSF funds were originally intended to upgrade research equipment at the first university. However, when the PI transferred to the second university, the equipment was purchased and directly shipped to the second university without first seeking NSF approval. The university that purchased the equipment returned more than \$100,000 to NSF. The investigation of the recipient university's use of NSF award funds is continuing.

CYBER CURRENCY CONVERTED INTO FUNDS FOR BETTER USE

Previously, we reported³³ that a researcher engaged in unauthorized mining of cyber currency on two NSF-funded supercomputers. The researcher entered into an agreement with NSF, which included a voluntary exclusion of 18 months and required 100 hours of community service. In this reporting period, the cyber currency was converted to cash, resulting in almost \$820,000 in funds being returned to NSF.

³³ March 2014 Semiannual Report, pp. 29-30; September 2014 Semiannual Report, p. 18; March 2016 Semiannual Report, p. 25

PEER REVIEW

OFFICE OF AUDITS

During this semiannual period, the Office of Audits successfully passed external peer review for the year ending September 30, 2017. The review was conducted by the Smithsonian Institution OIG, which found that the Office's quality control system provided reasonable assurance that it complied with professional standards and applicable legal and regulatory requirements.

Federal audit organizations performing work in accordance with Government Auditing Standards must have an external peer review by reviewers independent of the organization every 3 years. The reviews are conducted in accordance with guidelines established by the Council of the Inspectors General on Integrity and Efficiency (CIGIE) and focus on the audit organization's quality control system. A quality control system includes the office's organizational structure as well as policies and procedures that facilitate compliance with Government Auditing Standards. On external peer reviews, audit organizations can receive a rating of pass, pass with deficiencies, or fail. The Office of Audits received a rating of pass. A copy of the final peer review report is posted on our website.³⁴

OFFICE OF INVESTIGATIONS

Every 3 years, the investigative operations of each OIG with law enforcement authority undergoes an independent external peer review to evaluate quality control of investigative operations and compliance with professional standards in conjunction with legal and regulatory requirements. The Qualitative Assessment Reviews (QAR) are conducted with guidelines established by CIGIE and are intended to ensure compliance with the CIGIE Quality Standards of Investigations (QSI) and applicable law enforcement powers authorized by the IG Act as amended and the Attorney General guidelines.

During this reporting period, we completed a peer review of the U.S. Securities and Exchange Commission (SEC) OIG's investigative operations for the year ending February 28, 2017. We determined the system of internal safeguards and management procedures for the investigative function was in compliance with the CIGIE QSI and the other applicable guidelines and statutes. These safeguards and procedures provide reasonable assurance that SEC OIG is conforming with the professional standards in the planning, execution, and reporting of its investigations.

Also during this period, the U.S. Office of Personnel Management (OPM) OIG conducted a QAR of our investigative operations for the period October 1, 2016, to September 30, 2017, and found that the Office of Investigations was in full compliance with the quality standards established by CIGIE and applicable law enforcement powers. OPM OIG reviewed the Office's policies, procedures, closed investigation cases, and conducted interviews of staff. OPM OIG made two observations which resulted in minor revisions to our Investigation Manual. OPM OIG also identified several best practices such as the evaluation of received complaints during our intake process; the creation of investigative teams based on essential expertise; and exemplary internal cooperation between investigative scientists, investigative attorneys, and special agents in investigations.

³⁴ https://www.nsf.gov/oig/_pdf/NSF_OIG_Peer_Review.pdf

INSTANCES OF WHISTLEBLOWER RETALIATION

OSC ISSUES REPORT AND RESOLVES ALLEGATIONS OF NSF WHISTLEBLOWER RETALIATION

The *Inspector General Act*, as amended, requires that we report any instance of whistleblower retaliation and actions taken by the agency to hold the offender(s) accountable. In accordance with this requirement, we report the following, which is based on a U.S. Office of Special Counsel (OSC) report that OSC publicly released (in redacted form) in March 2018.³⁵

OSC found that there were reasonable grounds to believe that two instances of whistleblower retaliation had occurred at NSF in violation of the *Whistleblower Protection Act* – namely, 5 U.S.C. § 2302(b)(8), which prohibits retaliation for making a protected disclosure; and 5 U.S.C. § 2302(b)(9), which prohibits retaliation for engaging in protected activity, including cooperation with the OIG. OSC found that the first instance occurred when the whistleblower’s supervisor recommended, but later changed, his selection for a career appointment in a supervisory position (he was placed in a 3-year term appointment). According to OSC, this change took place after the supervisor met with senior leadership, and it was based on a perception that the whistleblower had a history of bringing allegations. The report quotes an NSF official who characterized the perception as “a concern that [the whistleblower] is someone who runs to the IG or General Counsel if there is an issue about something.”

OSC found that the whistleblower made a protected disclosure regarding a potential conflict of interest. At the end of his term appointment, the whistleblower applied for the career position, and his supervisor determined the whistleblower was the best candidate. OSC concluded that a member of NSF senior leadership influenced the supervisor to choose a candidate other than the whistleblower. OSC’s investigation found that this action was taken in retaliation for the whistleblower’s protected disclosure and owing to his reputation as a whistleblower, including a “reputation for going to the IG.” In its discussion, OSC remarked that certain senior officials within the whistleblower’s directorate were aware of the hostility directed at the whistleblower and did not try to protect him by “address[ing] the perception . . . that [he] had done something wrong.”

OSC reported that it did not seek disciplinary action because, in part, the responsible officials left Federal service. OSC requested that NSF settle with the whistleblower to “make him whole,” and that “NSF leadership and staff receive OSC-provided training on the prohibited personnel practices and the merit system principles to ensure that such violations as described [in the report] do not occur again.” OSC’s press release, dated March 20, 2018, states that it had resolved the matter with NSF, “which took actions consistent with OSC’s recommendations.”

We take whistleblower retaliation issues very seriously. Accordingly, we engaged with NSF senior leadership to ensure the Foundation acted to further deter and prevent whistleblower retaliation. On April 9, 2018, NSF reissued a memorandum from the NSF Director to all staff relating to cooperation with our office, adding a specific reference to whistleblower protection. Additionally, on April 23, 2018, NSF transmitted a second memorandum from the NSF Director and Chief Operating Officer to all staff further emphasizing that “employees are encouraged to identify and report risks or instances of fraud, waste, and abuse to the Office of Inspector General . . . or other officials,

³⁵<https://osc.gov/Resources/National%20Science%20%20Foundation%20Redacted%20PPP%20Report%20for%20Website%20Publication.pdf>

without fear of retaliation.” The memorandum also references the OSC case, and assures staff “that retaliation against whistleblowers will not be tolerated at NSF, and that we will pursue any violations to the maximum extent.”

We are committed to continuing conversations with Foundation leadership to help overcome any chilling effect the reported retaliation may have had on NSF employees. For example, we will be meeting with NSF senior managers and the heads of science directorates to ensure they understand their obligations under the *Whistleblower Protection Act* and create an open environment where employees feel comfortable reporting fraud, waste, and abuse. We will also be working with the Foundation to ensure these concepts are reinforced in its training programs.

STATISTICAL DATA

AUDIT DATA

Table 1. Audit Reports Issued with Recommendations for Better Use of Funds

		Dollar Value
A.	For which no management decision has been made by the commencement of the reporting period	\$12,029,696
B.	Recommendations that were issued during the reporting period	\$0
C.	Adjustments related to prior recommendations	\$0
Subtotal of A+B+C		\$12,029,696
D.	For which a management decision was made during the reporting period	\$12,029,696
	i: Dollar value of management decisions that were consistent with OIG recommendations	\$0
	ii: Dollar value of recommendations that were not agreed to by management	\$12,029,696
E.	For which no management decision had been made by the end of the reporting period	\$0
F.	For which no management decision was made within 6 months of issuance	\$0

Table 2. Audit Reports Issued with Questioned Costs

		Number of Reports	Questioned Costs	Unsupported Costs
A.	For which no management decision has been made by the commencement of the reporting period	11	\$8,394,824	\$438,424
B.	That were issued during the reporting period	2	\$409,104	\$22,740
C.	Adjustment related to prior recommendations	0	\$0	\$0
Subtotal of A+B+C		13	\$8,803,928	\$461,164
D.	For which a management decision was made during the reporting period	3	\$2,402,390	\$0
	i. Dollar value of disallowed costs	N/A	\$109,972	N/A
	ii: Dollar value of costs not disallowed	N/A	\$2,292,418	N/A
E.	For which no management decision had been made by the end of the reporting period	10	\$6,401,538	\$461,164
F.	For which no management decision was made within 6 months of issuance	8	\$5,992,434	\$438,424

Table 3. List of Reports: OIG- and IPA-Performed³⁶ Projects³⁷

Report Number	Subject	Questioned Costs	Unsupported Costs	Better Use of Funds
18-1-001	University of Kansas Center for Research	\$329,049	\$14,055	\$0
18-1-002	Texas A&M Engineering Experiment Station (TEES)	\$80,055	\$8,685	\$0
18-2-001	FY 2017 DATA Act Audit	\$0	\$0	\$0
18-2-002	FY 2017 Financial Statement Audit	\$0	\$0	\$0
18-2-004	FY 2017 FISMA Audit	\$0	\$0	\$0
N/A	FY 2017 Financial Statement Management Letter	\$0	\$0	\$0
Total		\$409,104	\$22,740	\$0

Table 4. Reports Issued before 10/1/17³⁸ with Unimplemented Recommendations as of 3/31/18 (Summary Table)

Year	Number of Reports with Unimplemented Recommendations	Number of Unimplemented Recommendations	Dollar Value of Aggregate Potential Cost Savings ³⁹
2006	1	2	N/A
2007	2	2	N/A
2012	1	1	N/A
2015	2	17	\$70,040
2016	4	47	\$4,713,347
2017	14	86	\$1,389,059
Total	24	155	\$6,172,446

³⁶ In Table 3, IPA refers to independent public accounting firm.

³⁷ The Office issued 6 reports this semiannual period.

³⁸NSF has commented on all reports within 60 days of receipt.

³⁹Aggregate potential savings are **Questioned Costs** if the recommendations have not been resolved, and **Sustained Costs** if the recommendations have been resolved.

Table 5. Reports Issued before 10/1/17, for Which No Management Decision Has Been Made by 3/31/18, Including the Aggregate Potential Cost Savings of Those Recommendations (Detailed Table)⁴⁰

Report No.	Issued	Title	Summary	No. of Recs without Mgmt. Decision	Why Mgmt. Decision Has Not Been Made	Desired Timetable for Mgmt. Decision	Aggregate Potential Cost Savings
16-1-004	2/11/16	University of Washington	Incurred Cost Audit	14	Draft management decisions require additional review and revision.	9/30/18	\$2,003,109
16-1-023	9/29/16	University of Michigan	Incurred Cost Audit	24	Questioned cost transactions and complex issues require additional documentation from the University and coordination within NSF.	5/31/18	\$2,710.238
16-3-001	12/10/15	NSF's Oversight of the Large Synoptic Survey Telescope Construction Project	Unfunded liability issue	1	This recommendation was closed 4/4/18, just after the end of the semiannual period.	4/4/18	N/A

⁴⁰This table shows only recommendations that are unimplemented because they are **unresolved**, either because NSF has not provided corrective action plans, or NSF and OIG have not agreed on the adequacy of the proposed corrective actions. Table 4 includes additional reports/recommendations because it includes the reports with unresolved recommendations shown in this table, plus reports with resolved recommendations that have not yet been implemented.

Report No.	Issued	Title	Summary	No. of Recs without Mgmt. Decision	Why Mgmt. Decision Has Not Been Made	Desired Timetable for Mgmt. Decision	Aggregate Potential Cost Savings
17-1-003	3/20/17	Purdue University	Incurring Cost Audit	8	Questioned cost transactions and complex issues require additional documentation from the University and coordination within NSF.	6/30/18	\$91,281
17-1-005	3/23/17	Scripps Institution of Oceanography, UC San Diego	Incurring Cost Audit	8	Questioned cost transactions and complex issues require additional documentation from the University and coordination within NSF.	6/30/18	\$111,516
17-1-006	3/29/17	UC-San Diego	Incurring Cost Audit	10	Questioned cost transactions and complex issues require additional documentation from the University and coordination within NSF.	6/30/18	\$283,801
17-1-007	9/14/17	Raytheon BBN Technologies	Incurring Cost Audit	2	All recommendations in this report were resolved 4/9/18, after the close of the semiannual period.	4/9/18	\$96,106

Report No.	Issued	Title	Summary	No. of Recs without Mgmt. Decision	Why Mgmt. Decision Has Not Been Made	Desired Timetable for Mgmt, Decision	Aggregate Potential Cost Savings
17-1-009	9/29/17	University of Southern California	Incurred Cost Audit	15	Draft management decisions require additional review and revision.	9/30/18	\$639,479
17-1-010	9/28/17 ⁴¹	University of Arizona	Incurred Cost Audit	11	Questioned cost transactions require additional documentation from the University and review by NSF.	6/30/18	\$56,904
Total				93			\$5,992,434

⁴¹ Report was revised and reissued 10/3/17.

INVESTIGATIONS DATA
 October 1, 2017 – March 31, 2018

Table 6. Investigative Case Activities

Referrals ⁴² to DOJ Criminal Prosecutors	2
Referrals to Criminal State/Local Authorities	0
Indictments/Criminal Informations	2
Arrests	0
Criminal Convictions/Pleas	4
Referrals to DOJ Civil Prosecutors	
Referrals to DOJ Civil Prosecutors	6
Referrals to Civil State/Local Authorities	0
Civil Settlements/Judgements/Compliance Plans	4
Investigative Reports Issued to NSF Management for Action⁴³	
Investigative Reports Issued to NSF Management for Action ⁴³	8
Research Misconduct Findings Issued by NSF	8
Government-wide Suspensions/Debarments/ Voluntary Exclusions	11
Administrative Actions taken by NSF ⁴⁴	40
Total Investigative Recoveries⁴⁵	
Total Investigative Recoveries ⁴⁵	\$1,530,205
Substantiated Whistleblower Retaliation⁴⁶	
Substantiated Whistleblower Retaliation ⁴⁶	1
Substantiated Agency Interference	0

Table 7. Investigative Case Statistics

	Preliminaries	Investigations
Cases Active at Beginning of Period	3	189
Cases Opened this Period	8	51
Cases Closed this Period	9	56
Cases Active at End of Period	2	184

⁴² We count referrals of individuals and entities separately.

⁴³ We count only Investigative Reports issued to NSF that include recommendations for administrative action (e.g. findings of Research Misconduct, imposition of Government-wide Suspension or Debarment, or suspension/terminations of awards). We count recommendations for each individual and entity separately.

⁴⁴ This includes sanctions related to findings of Research Misconduct, suspension/termination of awards or employee misconduct.

⁴⁵ This includes funds returned to NSF, restitution, fees, and funds put to better use.

⁴⁶ A discussion of this finding can be found on page 18.

RESEARCH MISCONDUCT (RM) STATISTICS
 FY 2008 through FY 2017 and the First Half of 2018

Table 8. Allegations and Investigations

FY	RM Allegations Received ⁴⁷				RM Allegations Investigated ⁴⁸			
	P/IT	Fab	Fal	Total ⁴⁹	P/IT	Fab	Fal	Total ⁵⁰
2008	130	7	9	146	97	5	6	108
2009	108	0	11	119	83	0	10	93
2010	90	4	10	104	70	3	3	76
2011	85	17	15	117	58	15	8	81
2012	96	9	8	113	80	7	5	92
2013	84	10	11	105	80	8	10	98
2014	38	7	5	50	36	7	5	48
2015	67	9	12	88	67	9	12	88
2016	35	10	11	56	24	6	9	39
2017	38	1	8	47	27	1	6	34
1 st half 2018	24	2	3	29	19	1	2	22
Totals	795	76	103	974	641	62	76	779

These tables only provide information about allegations that come to our office’s attention and those we investigate. Accordingly, they do not reflect the total universe of research misconduct related to NSF proposals or awards, only a subset.

Note: some of the figures in the tables may differ from previous semiannual reports due to additional allegations being identified during an investigation.

⁴⁷ Key to allegations: P/IT = Plagiarism and/or Intellectual Theft; Fab = Fabrication; Fal = Falsification. Allegations were made against both funded and declined NSF proposals.

⁴⁸ We count allegations investigated if any investigative activity occurs, including case activity defined as “Inquiry” in the RM regulation.

⁴⁹ Over the reporting period FYs 2008–2018, we used three different methods of capturing allegation data. The periods were: FY 2008 through FY 2012; then FY 2013, when we were granted Statutory Law Enforcement authority, through FY 2015; and finally, FY 2016 onward, when we switched to a new Investigative case management system. For this reason, one cannot make a meaningful comparison or identify trends related to allegations across the entire reporting period. A further limitation on the ability to identify such trends arises from the fact that we ran several proactive assessments looking for plagiarism over the years encompassed in the tables, which inflated the number of plagiarism allegations we had in some years. We ran the last such proactive in 2013, but allegations resulting from it were still being identified in 2014.

⁵⁰ There are a small number of allegation involving RM which result in Criminal or Civil investigations. We have not included those allegations in this report.

Table 9. Investigative Outcomes⁵¹

FY ⁵²	Total RM Findings				Included Debarment ⁵³
	P	Fab/Fal	Multi ⁵⁴	Total	
2008	9	2	1	12	5
2009	16	0	1	17	5
2010	9	1	1	11	2
2011	14	3	0	17	5
2012	18	0	0	18	2
2013	13	3	0	16	6
2014	19	5	2	26	7
2015	9	2	0	11	6
2016	11	5	0	16	4
2017	5	8	0	13	5
2018	3	2	1	6	5
Totals	126	31	6	163	52

⁵¹ The outcomes reported in this table cannot be linked to the allegations and investigations by fiscal year, due to the varying amount of time it takes to investigate and adjudicate allegations of RM.

⁵² These data reflect RM findings by NSF in the fiscal year of the finding.

⁵³ The debarment action taken by NSF typically lags NSF's RM finding (debarment is a multi-step process with a separate appeal), but in this display we link the debarment data to the date of the RM finding.

⁵⁴ "Multi" indicates that an allegation of plagiarism and either fabrication or falsification was substantiated in our investigation. NSF makes a single finding of RM, even if we refer multiple allegations to them.



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