

# Performance Audit of Incurred Costs - Woods Hole Oceanographic Institution

NATIONAL SCIENCE FOUNDATION  
OFFICE OF INSPECTOR GENERAL

June 11, 2019  
OIG 19-1-015





## AT A GLANCE

### Performance Audit of Incurred Costs - Woods Hole Oceanographic Institution

Report No. OIG 19-1-015

June 11, 2019

#### WHY WE DID THIS AUDIT

We received an anonymous complaint alleging that Woods Hole Oceanographic Institution (WHOI) leadership was mismanaging and misusing Government funds related to its [REDACTED] division. The complaint alleged that Government-funded personnel and equipment were being used improperly on non-Government projects. The objective of the audit was to determine if NSF funds are being appropriately used and managed to support NSF awards for the period January 1, 2014, to December 31, 2016.

#### WHAT WE FOUND

WHOI claimed more than \$59.2 million to NSF during the audit period under 12 sponsored agreements. WHOI generally complied with Federal and WHOI requirements for managing and using Federal funding. However, we found that the location and availability of Major Overhaul Stabilization Account (MOSA) funds were not in accordance with the sponsored agreement terms and conditions. In response to a July 2018 alert memorandum advising NSF of our MOSA concerns, WHOI established a MOSA reserve account of more than \$ [REDACTED] dollars and is now in compliance with the sponsored agreement terms and conditions for MOSA. We also found the invoicing process in WHOI's [REDACTED] division lacked sufficient segregation of duties.

#### WHAT WE RECOMMEND

We recommend NSF direct WHOI to strengthen internal controls related to proper segregation of duties for the invoicing process in the [REDACTED] division.

#### AWARD RECIPIENT'S RESPONSE

WHOI acknowledges the need for segregation of duties and plans to ensure that the individual who prepares and submits invoices is also not the approving official. We have included WHOI's response to this report in its entirety in Appendix A.

FOR FURTHER INFORMATION, CONTACT US AT [OIGPUBLICAFFAIRS@NSF.GOV](mailto:OIGPUBLICAFFAIRS@NSF.GOV).



**National Science Foundation • Office of Inspector General**  
2415 Eisenhower Avenue, Alexandria, Virginia 22314

**MEMORANDUM**

**DATE:** June 11, 2019

**TO:** Dale Bell  
Director  
Division of Institution and Award Support

Jamie French  
Director  
Division of Grants and Agreements

**FROM:** Mark Bell [REDACTED]  
Assistant Inspector General  
Office of Audits

**SUBJECT:** Final Report No. 19-1-015, *Performance Audit of Incurred Costs – Woods Hole Oceanographic Institution*

Attached is the final report for the audit of costs charged by the Woods Hole Oceanographic Institution (WHOI) to 12 sponsored agreements with the National Science Foundation during the period January 1, 2014 to December 31, 2016. The audit encompassed more than \$59 million in costs claimed to NSF during the period. The objective of the audit was to determine if NSF funds are being appropriately used and managed to support NSF awards. We have included WHOI's response to the report as an appendix.

Please coordinate with our office during the 6-month resolution period, as specified by Office of Management and Budget Circular A-50, to develop a mutually agreeable resolution of the audit findings. The findings should not be closed until NSF determines that all recommendations have been adequately addressed and the proposed corrective actions have been satisfactorily implemented.

We appreciate the courtesies and assistance that was extended during this audit. If you have questions, please contact Keith Nackerud, Audit Manager, at 703.292.7100 or [oispublicaffairs@nsf.gov](mailto:oispublicaffairs@nsf.gov).

cc:

Anneila Sargent	Fae Korsmo	Rochelle Ray	Ken Lish
John Veysey	Teresa Grancorvitz	Carrie Davison	Jennifer Kendrick
Ann Bushmiller	William Easterling	Allison Lerner	Louise Nelson
Christina Sarris	James Ulvestad	Lisa Vonder Haar	Karen Scott
Fleming Crim	Rose Dufour	Ken Chason	
Pamela Hawkins	Alex Wynnyk	Dan Buchtel	



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## ABBREVIATIONS

ACM\$	Award Cash Management Service
ARF	U.S. Academic Research Fleet
MOSA	Major Overhaul Stabilization Account
R/V	Research Vessel
WHOI	Woods Hole Oceanographic Institution



## Background

The National Science Foundation funds activities at Woods Hole Oceanographic Institution (WHOI). WHOI is a non-profit organization dedicated to research and education to advance understanding of the ocean and its interaction with the Earth system, and to communicate this understanding for the benefit of society. In 2016, WHOI reported that it received \$192.2 million in sponsored research funding. WHOI operates the Research Vessel (R/V) *Atlantis* and the R/V *Neil Armstrong*, which are part of the U.S. Academic Research Fleet (ARF) fleet. WHOI also operates the *Alvin*, *Jason*, and *Sentry* submersibles in its National Deep Submergence Facility.

The U.S. Government Accountability Office forwarded to our office an anonymous complaint it had received alleging WHOI leadership was mismanaging and misusing Government funds related to its [REDACTED] division. The complaint alleged that Government funded personnel and equipment were being used improperly on non-Government projects. Based on the information provided in the complaint, we identified 12 awards for further review. The audit examined more than \$59.2 million of expenditures from the 12 NSF awards during the period January 1, 2014, through December 31, 2016. The objective of the audit was to determine if NSF funds are being appropriately used and managed to support NSF awards.

## Results of Audit

WHOI generally complied with Federal and WHOI requirements for managing and using Federal funds. During our audit fieldwork, we found WHOI could not provide evidence that it was managing its Major Overhaul Stabilization Account (MOSA) reserve funds in accordance with award requirements. We advised NSF of our concerns by way of an Alert Memorandum.<sup>1</sup> NSF took action on the Alert Memorandum, working with WHOI to address our concerns. As a result, WHOI established a MOSA reserve account with an opening balance of more than \$[REDACTED]. We found WHOI's NSF awards, for the most part, do not require direct reimbursement of specific costs, but rather provide for reimbursement based on negotiated daily use rates for the ships and submersibles. The application of day rates complicated the audit by making it difficult to match NSF disbursements to actual WHOI expenditures. Finally, we discovered a lack of segregation of duties over the invoicing process in WHOI's [REDACTED] division. We recommended NSF act to ensure proper segregation of duties over WHOI invoicing.

### MOSA

MOSA is a reserve account to fund overhaul expenses to keep the ships and submersibles operationally ready. As required by the NSF sponsored agreements, WHOI charges a daily usage rate to all users of the ships and submersibles. For one submersible and the two research ships, a portion of the day rate funds MOSA. As part of our audit, we examined WHOI's compliance with MOSA requirements

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<sup>1</sup> *Alert Memo Regarding Woods Hole Oceanographic Institution Major and Overhaul (sic) Stabilization Account*, OIG Report No. 18-6-001, July 12, 2018 and reissued on September 14, 2018.





established by its NSF awards. We found WHOI's accounting system accurately tracked and reported MOSA expenditures and balances; however, WHOI did not demonstrate that the MOSA balances, as reported in the accounting system, were available and earning interest as required.

When we compared WHOI's accounting system MOSA balances for each ship and submersible with WHOI's bank account balance as of December 31, 2016, we found the bank account was almost \$ [REDACTED] short of the amount that should have been available. We asked WHOI personnel about the availability of MOSA funds, and they replied that WHOI could draw on a line of credit for the MOSA expenses. This was concerning because the MOSA funds were not readily available in WHOI's bank account. Relying on a line of credit to fund MOSA costs is not consistent with the terms and conditions of WHOI's awards. The awards required MOSA funds be kept in an interest-bearing account, with interest added to the account to fund future overhaul expenses. The terms and conditions did not require a separate bank account, but the NSF Program Officer told us the implied expectation was MOSA funds should be available for expenditure. In July 2018, NSF updated the sponsored agreement terms and conditions to explicitly state that MOSA should be treated as a savings structure for long-term planned maintenance and reserves must be deposited in a separate, interest-bearing account.

We communicated our concerns about availability of MOSA funds to NSF in an Alert Memorandum, dated July 12, 2018, and NSF worked with WHOI to address the issue. WHOI established a separate bank account, with an opening balance of more than \$ [REDACTED], to hold the MOSA reserve funds. The opening balance was based on WHOI's calculation of MOSA day rate and interest deposits that should have been in the account as of the date it was established. We reviewed WHOI's calculation of the opening balance and found it reasonable. NSF provided a written response to our Alert Memorandum detailing the steps taken to resolve our concerns, and we reissued the Memorandum, including NSF's full response, on September 14, 2018. Based on the information provided, it appears WHOI is now in compliance with the sponsored agreement terms and conditions for MOSA.

## Accounting for Day Rates

We reconciled the award expenses in WHOI's accounting system to WHOI's drawdowns in NSF's Award Cash Management Service (ACM\$). The reconciliation involved six awards that receive NSF funds based on day rates, totaling \$56.9 million, and six awards that receive NSF funds based on actual WHOI expenditures, totaling \$2.3 million.

In the case of the day rate awards, WHOI draws funds from NSF based on a day rate, rather than actual incurred costs. NSF and other Federal agencies, as appropriate, negotiate day rates annually with WHOI on behalf of all ARF ship users. The day rate is established by dividing the expected annual operating cost of the vessel, including a provision for a MOSA reserve if applicable, by the expected number of days the ship will be in use during the year. WHOI draws funds from its NSF awards based on the actual NSF usage days.<sup>2</sup> The day rate charges for NSF awards were tracked in WHOI's accounting system. Separately, actual incurred expenses were pooled into a different account. The cooperative agreements

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<sup>2</sup> WHOI follows the same process of charging funds based on day rates to its other funding sources. Our audit only examined day rate charges made to NSF awards.



require WHOI to initially calculate the day rate based on estimates and again, later in the year, based on actual amounts. If WHOI finds that the pooled expenses deviate by 5 percent or more from the day rate charges, WHOI adjusts the day rate.

The complexity of WHOI's day rate process made it difficult to assess allocability of actual expenses to NSF awards.<sup>3</sup> Because WHOI records drawdowns in its accounting system based on day rate usage, while actual expenses are pooled in a separate account for NSF and all other ship users, we could not reasonably determine whether a given expense was allocable to a particular NSF award. Instead, our audit of the day rate awards focused on (1) determining whether NSF ship usage supported ACM\$ drawdowns and (2) assessing reasonableness and allowability of selected expenses in the pooled account. With the exception of the questioned transaction discussed in the following section, we did not find problems with the NSF drawdowns or unallowable or unreasonable expenses.

## Segregation of Duties

WHOI rented [REDACTED] from [REDACTED]. The [REDACTED] was used to support a project related to [REDACTED]. WHOI claimed \$[REDACTED],000 for the rental as a charge to NSF Award No. [REDACTED]. WHOI provided documents adequately supporting the [REDACTED] rental; however, we discovered a concerning lack of segregation of duties over the invoicing process in WHOI's [REDACTED] division. The \$[REDACTED],000 invoice was generated by a WHOI employee on behalf of [REDACTED]. This same WHOI employee also approved the invoice for payment on behalf of WHOI.

Although evidence of wrongdoing was not found in this instance, this lack of segregation of duties increases the risk of fraud and conflicts of interest. In 2015, WHOI conducted an internal review of procurement practices and policy. The review noted that, "concentration of purchase requests, receipt, and payment approval in certain individuals," was a risk area. The review also suggested segregation of duties as a best practice. Without proper segregation of duties over invoices in the [REDACTED] division, there is an increased risk of error, fraud, conflict of interest, and improper management override. In order to further safeguard Federal funds, WHOI should ensure proper segregation of duties are documented in policy and followed.

## Recommendation

We recommend that NSF's Director of the Division of Institution and Award Support:

1. Direct WHOI to strengthen internal controls related to proper segregation of duties for the invoicing process in the [REDACTED] division.

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<sup>3</sup> 2 CFR 200.405(a) states, "A cost is allocable to a particular Federal award or other cost objective if the goods or services involved are chargeable or assignable to that Federal award or cost objective in accordance with relative benefits received."



## OIG Evaluation of WHOI's Response

WHOI acknowledges the need for segregation of duties and notes various steps that are to be implemented. The steps include ensuring that the individual who prepares and submits invoices is also not the approving official. We have included WHOI's response to this report in its entirety in Appendix A.





## Appendix A: WHOI's Response



May 3, 2019

Mr. Keith Nackerud  
Audit Manager & Contracting Officer's Representative  
National Science Foundation  
Office of Inspector General

Dear Keith,

Enclosed is WHOI's written response to the Performance Audit of Incurred Costs – Woods Hole Oceanographic Institutions report dated April 19, 2019:

### Segregation of Duties

The Institution acknowledges the need for a separation of duties over the invoicing process in the [REDACTED] division. Without a more robust separation of duties NSF's concern of an increased risk of; error, fraud, conflict of interest, or improper management override may occur.

Steps to be implemented by WHOI:

- Vice President for [REDACTED] will prepare the [REDACTED] invoices
- Vice President for [REDACTED] will submit invoices for approval to the pertinent Principle Investigator overseeing the project
- If Principle Investigator unavailable (example; at sea) Controller will approve invoice

If you have any questions please contact Laurie Murphy at 508-289-2366 or [REDACTED]@whoi.edu.

Sincerely, [REDACTED]

Laurie Murphy  
Director Treasury Operations



## Appendix B: Objective, Scope, and Methodology

The objective of this performance audit was to determine if NSF funds were appropriately used and managed to support NSF awards, in response to an anonymous complaint that was forwarded to OIG alleging misuse of NSF funds. To accomplish this objective, we examined 12 awards that supported operations described in the complaint and for which costs were reported to NSF during the period of January 1, 2014, through December 31, 2016. This provided an audit universe of \$59.2 million in costs claimed by WHOI under the 12 awards. Our work required reliance on computer-processed data obtained from WHOI and NSF. WHOI provided detailed transaction data for examined costs charged to NSF awards during the audit period. We obtained NSF data by directly accessing NSF's data systems.

In assessing the allowability of costs WHOI reported to NSF, we also gained an understanding of the internal control structure applicable to the scope of this audit through interviewing WHOI staff, reviewing policies and procedures, conducting site visits, and reviewing ledger transactions and accounting system documentation. We assessed WHOI's compliance with its internal policies and procedures, as well as the following:

- Office of Management and Budget Circular A-122, Cost Principles for Non-Profit Organizations (2 CFR, Part 230)
- Office of Management and Budget Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (2 CFR, Part 200)
- National Science Foundation *Proposal and Award Policies and Procedures Guide, Part II: Award & Administration Guide*
- Award-specific terms and conditions

We conducted this performance audit between June 2017 and February 2019, in accordance with Generally Accepted Government Auditing Standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions, based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions.



## Appendix C: OIG Staff Acknowledgments

Daniel Buchtel, Deputy Assistant Inspector General for Audits; Keith Nackerud, Audit Manager; Jeanette Hyatt; Auditor; Billy McCain, Audit Manager; Elizabeth Argeris Lewis, Communications Analyst/Executive Officer; Heather Gallagher, Communications Analyst; and Wendell Reid, Independent Report Referencer, made key contributions to this report.



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