



NATIONAL SCIENCE FOUNDATION  
OFFICE OF INSPECTOR GENERAL  
OFFICE OF INVESTIGATIONS

## CLOSEOUT MEMORANDUM

Case Number: A12110079

Page 1 of 1

NSF OIG received allegations that a graduate student<sup>1</sup> who conducted NSF-funded research<sup>2</sup> at an University<sup>3</sup> fabricated the existence of boat trips for zooplankton sample collections, the performance of experiments, and also fabricated and falsified data. During initiation of the University's investigation, the student admitted to the research misconduct. Per its policy, the university terminated its investigation and dismissed the student from the graduate program.

As part of our investigation we interviewed the student who accepted responsibility for the research misconduct. We concluded that she intentionally fabricated and falsified data and the research record and that her actions constituted a significant departure from accepted practices of the relevant research community. NSF concurred with the recommendations in our Report of Investigation (ROI), and made a finding of research misconduct and debarred the Subject for a period of three years. In addition, NSF prohibited the Subject from participating as a peer reviewer, advisor, or consultant for the three year debarment period. For an additional three years post-debarment, the Subject is required to submit certifications and assurances as well as certifications of adherence to a data management plan.

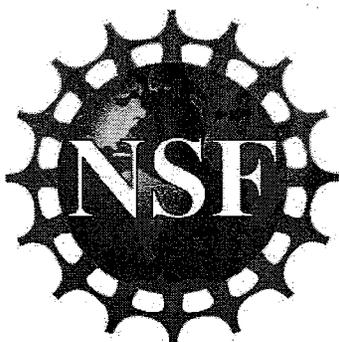
This memo, the attached ROI and the letters from the Office of the Deputy Director on the notice of research misconduct determination with a proposed debarment and the final debarment notice constitute the case closeout. Accordingly, this case is closed.

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# National Science Foundation Office of Inspector General



## Report of Investigation Case Number A12110079

February 11, 2014

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### Executive Summary

**Allegation:** A former graduate student that conducted NSF-funded research at a university intentionally fabricated the existence of field trips for sample collections, the performance of experiments and also fabricated and falsified data.

#### **University**

**Actions:** Per its policy, the University conducted a Preliminary Assessment and then an Inquiry but terminated the resulting Investigation as the Subject admitted to the research misconduct. The University dismissed the student from the graduate program.

#### **OIG Investigation:**

We interviewed the Subject and asked her to discuss her research misconduct admission and to provide additional information. The Subject took responsibility for the fabrication and falsification.

#### **OIG Assessment:**

- **The Act:** Subject fabricated the existence of field trips and fabricated experiments. The Subject fabricated and falsified data.
- **Intent:** The Subject acted intentionally.
- **Standard of Proof:** A preponderance of evidence supports a finding of research misconduct.
- **Significant Departure:** The Subject's actions represent a significant departure from accepted practices.
- **Pattern:** No pattern found.

#### **OIG Recommends:**

- Make a finding of research misconduct.
- Send a letter of reprimand.
- Require certification of responsible conduct of research training within 1 year of NSF's finding.
- Debar the Subject from receiving Federal funds or participating in any federally-funded project for a period of 3 years.

During the debarment period and for a period of 3 years immediately following the debarment period:

- Bar the Subject from participating as a peer reviewer, advisor, or consultant for NSF.
- Require certifications and assurances.
- Require submission of detailed data management plan with annual certifications of adherence.

University's Preliminary Assessment

The University<sup>1</sup> received allegations that a graduate student (Subject)<sup>2</sup>, who conducted NSF funded research<sup>3</sup>, committed research misconduct by engaging in data falsification and fabrication. The experiments involved the use of a rotating plankton wheel for a specified range of hours in which the collected samples (different concentrations of zooplankton prey with predator) are placed in bottles which are then either attached to racks via zip ties or metal ring clamps which are tightened by a screw. The Subject was listed as a project participant (MS graduate student) in an Annual Report<sup>4</sup> for the NSF Award and was specified to have "completed nine laboratory predation experiments related to substudy 2 in our proposal; these experiments have [led] to the development of her master[‘s] thesis".<sup>5</sup>

In accordance with the University's procedures,<sup>6</sup> the Research Integrity officer (RIO)<sup>7</sup> conducted a Preliminary Assessment<sup>8</sup> of the allegations received from the Subject's lab members: the PI,<sup>9</sup> a post-doctoral fellow<sup>10</sup> and a Ph.D. graduate student.<sup>11</sup> They alleged that the "experiments reportedly run on June 23, 2012, July 1, 2012, and July 17, 2012 were in fact, not performed [by the Subject]."<sup>12</sup> The experiments involved taking boat trips on a lake to collect various zooplankton species and an invasive crustacean predator<sup>13</sup> species by net, and then setting up experiments in the PI's lab to test several predator-prey behavioral relationships.

The RIO contacted the Subject and the three lab members, obtaining material and email exchanges related to the allegations. The lab members alleged<sup>14</sup> that it was highly implausible that in an hours long experiment for the plankton wheel and clamps to stop in the identical position from which it started and for no water to be splashed onto the floor. Photographs<sup>15</sup> of the plankton wheel show the clamps to have been in the same position before and after when

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1 [REDACTED]  
2 [REDACTED] then MS candidate in the Department of [REDACTED]  
3 Tab 1: NSF Award [REDACTED]  
4 Tab 2: NSF Award [REDACTED]  
5 Tab 2, pg 5 in the [REDACTED] section. (Note: throughout this report, page numbers noted in the Tabs are according to the page numbers of each page in the pdf document.)  
6 Tab 3: [REDACTED]  
7 [REDACTED]  
8 Tab 4: Inquiry Packet received by OIG on [REDACTED] with Exhibits. [REDACTED]  
9 [REDACTED]  
10 [REDACTED]  
11 [REDACTED]  
12 Tab 4, pg 55.  
13 [REDACTED]  
14 Tab 4, summaries on pgs 56 and 59-60.  
15 Tab 4, pgs 63 and 65.

experiments #12 and #13 were purportedly run by the Subject. The lab members also provided photographs<sup>16</sup> indicating the absence of samples that should have been present in either of two incubators in order to run experiment #12. In addition, comments<sup>17</sup> made by the Subject on a social media site, stated that she completed the three experiments by July 1.

The RIO subsequently interviewed the Subject where she stated<sup>18</sup> she took boat trips and conducted experiments as summarized in the table below:

Date of boat trip	Type of boat	Samples collected for experiment #	Experiment performed	length of experiment
June 22, 2012	Private individual	10	8 am on June 23, 2012	8 hours
June 29, 2012	Private individual	11	~6/7 am on June 30, 2012	8 hours
		12	~7/8 am on July 1, 2012	14 hours
July 16, 2012	NOAA <sup>19</sup> vessel	13	5 am on July 17, 2012	2 hours
		14	~8 pm on July 17, 2012	8 hours

Based on the evidence, the RIO concluded that there was no evidence<sup>20</sup> that the Subject was at the designated Field Station immediately preceding the experiment purportedly performed on June 23, 2012 (experiment #10). The boat trip from the Field Station was necessary to collect zooplankton samples for the experiment. The Subject proclaimed<sup>21</sup> she instead made arrangements with an individual<sup>22</sup> for free trips on a private boat without any other lab members accompanying her. However, the individual's phone number was found<sup>23</sup> to be out of service and the RIO could not contact him for confirmation.

During the Preliminary Assessment, the Subject also stated<sup>24</sup> that her exact manner of placing and removing the bottles on the wheel during the course of the experiment would not have resulted in a changed position of the wheel or metal rings. However, the RIO questioned<sup>25</sup> an undergraduate student<sup>26</sup> that worked with the Subject in operating the plankton wheel who

<sup>16</sup> Tab 4, pg 62.

<sup>17</sup> Tab 4, pg 72, [REDACTED]

<sup>18</sup> Tab 4, pgs 76-77.

<sup>19</sup> National Oceanic and Atmospheric Administration.

<sup>20</sup> Tab 4, pg 61 which is the summarized email exchanges between [REDACTED]

<sup>21</sup> Tab 4, pgs 74-77.

<sup>22</sup> [REDACTED] Tab 4, pg 76.

<sup>23</sup> Tab 4, pg 55 and pg 138, email correspondence between [REDACTED]

<sup>24</sup> Tab 4, pg 76.

<sup>25</sup> Tab 4, pg 56.

<sup>26</sup> [REDACTED]

believed the wheel would have not stopped in the exactly same spot as when the experiment began.

For experiment #14 purportedly performed on July 17, photographs<sup>27</sup> show that although the plankton wheel rotated, there was no presence of spilled water or the protective black mat on the floor beneath the wheel. Subject stated<sup>28</sup> that after discussion with one of the lab members,<sup>29</sup> she decided to change the time to start the experiment. Thus, the photograph<sup>30</sup> was taken outside the timeframe of the performed experiment. The Subject also stated<sup>31</sup> that her exact manner of removing the bottles prevented any spillage in the plankton wheel room.

As a result of the allegations, the Subject's samples and data were sequestered.<sup>32</sup> The PI reviewed data<sup>33</sup> received, which included the recorded counts of different species during the various behavioral experiments and the subsequent calculation of predation rates. The PI was concerned about the lack of detail in the data and methodology regarding the conduct of the experiments. Specifically, the data lacked adequate descriptions of the types of nets used for the sample collections, number of bottles and lids used for experiments, and timeframes of the sample collections and experiments performed. Specifically, the PI found several data and experimental details absent or inconsistent:

- “This is not a matting of [editing] files. It was a request for data and information that is supposed to be collected during experimental work.”<sup>34</sup>
- “the files sent [by the Subject] said [she] would go out to 45m or 100m. It does not say where the samples were actually collected in the end. Further, if [the Subject] were on a charter boat, how was the site determined, and how are we confident [the Subject was] at it?”<sup>35</sup>
- “[The Subject] claimed, in this order, that [she] used [ ] the big net, the small net [ ], the big and small net [ ], and then finally “the big net”.”<sup>36</sup>
- “the number of bottles [the Subject] has claimed to have used in the experiments are not in the labs”<sup>37</sup>
- “to do her experiment [#12] required 40 bottles. 32 on the wheel, 8 off. However, at present I only have 36 bottles in my laboratory and the vicinity [ ]. In addition we only have 31 lids [ ]”,

<sup>27</sup> Tab 4, pgs 66-67.

<sup>28</sup> Tab 4, pgs 56 and 77.

<sup>29</sup> [REDACTED]

<sup>30</sup> Tab 4, pg 67.

<sup>31</sup> Tab 4, pg 76.

<sup>32</sup> Tab 4, pgs 79-82 and pgs 162-165.

<sup>33</sup> Tab 4, pgs 84-121.

<sup>34</sup> Tab 4, pg 125 for [REDACTED] email from PI to Subject.

<sup>35</sup> Tab 4, pg 126 for [REDACTED] email from PI to Subject.

<sup>36</sup> Tab 4, pg 129 for [REDACTED] email from PI to RIO.

<sup>37</sup> Tab 4, pg 132 for [REDACTED] email from PI to RIO.

- “the [plankton] wheel was not used, given that the position of the wheel itself did not change (if used, it does not stop in the same place), and the position of the hose-clamps used to hold the bottles did not move”,
- “The [number] (and position) of hose-clamps on the wheel was not correct, but rather reflect the position and number that would have been used for an experiment [#9] last year” and
- “[t]he incubator was empty when it should have had organisms”.<sup>38</sup>

The PI also attempted to replicate the Subject’s experiment #12 as “her results were highly unlikely”<sup>39</sup> and concluded “how unlikely it seems that [the Subject] would have done an experiment like this on her own”.<sup>40</sup>

The Preliminary Assessment<sup>41</sup> concluded that the Subject’s alleged misconduct warranted an Inquiry.

The University convened<sup>42</sup> an Inquiry Panel and reviewed all the material obtained by the RIO, but did no independent review of the allegations. In the Inquiry Panel’s Final Report,<sup>43</sup> which supported moving to Investigation, the Inquiry Panel noted<sup>44</sup> important evidence to include:

“[the Subject’s] absent or inadequate written documentation (i.e., a lab notebook) of measurements for the specific experiments in question, conflicting statement by the [Subject] about which nets were used, and an insufficient number of bottles and lids on hand for the experiments.”

The Inquiry Panel emphasized<sup>45</sup> that the most important lines of evidence were:

- “The inability to contact the boat owner who allegedly took the [Subject] out on the June 22 and 29, [ ] 2012 sampling trips-or to identify any other witnesses of these sampling trips-raises the question of whether those sampling trips really took place.” and
- “The careful documentation of how research equipment (particularly the “plankton wheel”) that was essential to experiments showed no Evidence of use during the time on July 1, 2012 and July 17, 2012, when two of the experiments were supposed to be conducted, in combination with the lack of witnesses for these experiments and the unconvincing explanations provided by the [Subject]. a. The time-stamped

<sup>38</sup> Tab 4, pg 160 for [REDACTED] email from PI to RIO.

<sup>39</sup> Tab 4, pg 155.

<sup>40</sup> Tab 4, pg 160.

<sup>41</sup> Tab 4, [REDACTED] pgs 54-57.

<sup>42</sup> Tab 4, pgs 2-7.

<sup>43</sup> Tab 5: Inquiry Report from [REDACTED]

<sup>44</sup> Tab 5, pg 3.

<sup>45</sup> Tab 5, pg 3.

photographs of the plankton wheel show clearly how the equipment could not have been used and be returned with loose clamps in exactly the same positions. b. The time-stamped photographs of the incubator show no movement of items and samples. c. The experiments take too long to have been conducted overnight with no eyewitnesses.”

The Inquiry Panel concluded “that there is sufficient credible Evidence supporting the Allegation of Misconduct to warrant an Investigation”<sup>46</sup> and “that an Investigation Committee could reasonably conclude that Misconduct occurred.”<sup>47</sup>

### University’s Investigation

The RIO informed NSF OIG about the research misconduct allegations, the conclusion of the Inquiry process and the initiation of an Investigation.<sup>48</sup> We referred the matter to the University pending its Investigation and included a copy of the referral letter<sup>49</sup> for the University to provide to the Subject. Subsequently, the Subject admitted to the research misconduct in a letter<sup>50</sup> addressed to the University’s Vice-President for Research and Graduate Studies (VPRGS).<sup>51</sup> In the research misconduct admission letter, the Subject stated:

- “I admit to Research Misconduct in the form of Fabrication and Falsification for experiments done in [the PI]’s lab on the dates of June 23, June 30, and July 1 of 2012 (Experiments 10, 11, 12)”;
- “For experiments 10 and 11, I did not go out on the NOAA boat out of [ ]. These experiments were not performed and the data files and experiments summaries for these experiments are not correct”;
- “For experiment 12, I went out on the NOAA boat in [ ] with the undergraduate assistant [ ] on July 1st, 2012. The data collection activities for this trip are the same in the experiment summary file for experiment 12, but the data files are incorrect since this experiment was not performed”;
- “The vial samples from experiments 10, 11, and 12 were taken from the zooplankton tows that were obtained on the July 1<sup>st</sup>, 2012 boat trip. The zooplankton were put into the vials randomly and they were not counted”;
- “For experiments 10, 11, and 12, I did not perform the experiments. I fabricated data in excel spreadsheets for these 3 experiments and gave them to [the PI].”

In the letter,<sup>52</sup> the Subject presented the following explanations for her research misconduct:

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<sup>46</sup> Tab 5, pg 3.

<sup>47</sup> Tab 5, pg 4.

<sup>48</sup> Tab 6: Letter from RIO to NSF OIG dated [REDACTED]

<sup>49</sup> Tab 7: Referral Letter to University dated [REDACTED]

<sup>50</sup> Tab 8: Research Misconduct Admission letter from Subject dated [REDACTED]

<sup>51</sup> [REDACTED]  
<sup>52</sup> Tab 8.

- “During the early summer of 2012, I was working through family issues. I was also under stress due to the large number of experiments that were planned and the struggles I had with [the PI]”,
- “I have no good excuse for what I did. When I was confronted about the issue, I was scared and I panicked. Having never made this big a mistake, I lied when I should have been honest. Fabricating data and lying about it is not something that I thought I was capable of”.

The VPRGS accepted the Subject’s admission letter. Due to the Subject’s research misconduct admission, in accordance with the University’s procedures<sup>53</sup> and the Guide of Graduate Students Rights and Responsibilities,<sup>54</sup> the University terminated its investigation and proceeded to disciplinary action through the Dean of the Graduate School.

### University Adjudication

After reviewing the matter, the Dean<sup>55</sup> of the Graduate School dismissed<sup>56</sup> the Subject from the graduate program. The Subject did not appeal the decision.<sup>57</sup>

### OIG Investigation

We contacted the Subject regarding the signed admission letter and requested an interview in order to determine additional details of the research misconduct for the purported experiments #10-12. We also wanted her to discuss the integrity of experiments #13 and 14 given that she did not provide details on those experiments in her admission letter.

During our interview,<sup>58</sup> the Subject admitted that she fabricated information related to the boat trips, falsified and fabricated sample collections and fabricated experimental data for experiments #10-14. Specifically, prior to experiments #10 and 11, she did not go out on a boat to collect samples and she fabricated the data submitted for those experiments. She stated “[t]hat data just was [ ] generated in Excel. It wasn’t [ ] based on any data that I had collected”.<sup>59</sup> The Subject admitted<sup>60</sup> that the individual<sup>61</sup> that she originally claimed to have taken her out on the fictional boat trips did not exist. Thus, the Subject acknowledged<sup>62</sup> that she fabricated all the data for experiments #10 and 11 since no zooplankton samples were ever collected.

<sup>53</sup> Tab 3: [REDACTED]

<sup>54</sup> Tab 9: [REDACTED]

<sup>56</sup> Tab 10: Letter from Dean of the Graduate School to the Subject dated [REDACTED]

<sup>57</sup> Tab 11: Letter from Dean of the Graduate School to the Subject dated [REDACTED]

<sup>58</sup> Tab 12: Transcribed [REDACTED] phone interview of Subject.

<sup>59</sup> Tab 12, pg 5, lines 13-15.

<sup>60</sup> Tab 12, pg 8, lines 22-24.

<sup>61</sup> [REDACTED]

<sup>62</sup> Tab 12, pg 10, lines 20-23.

We also wanted her to explain the discrepancies surrounding the July 1, 2012 boat trip for experiment #12. She initially stated<sup>63</sup> to the RIO that she went on a personal boat to collect samples for experiment #12 but in her admission letter,<sup>64</sup> she claimed she went out on the NOAA boat with the undergraduate assistant.<sup>65</sup> During our interview, the Subject stated<sup>66</sup> that she embarked on a NOAA boat trip with the undergraduate assistant and brought the zooplankton specimens back to the laboratory. However, she stated “then we sorted them out [ ] and then I just never did the experiment [#12]”<sup>67</sup> and “never put [the species samples] on the plankton wheel.”<sup>68</sup> The Subject also admitted<sup>69</sup> that the specimens collected on July 1 trip were then used to falsely represent the specimens that were supposed to have been collected for experiments #10 and 11.

The Subject further admitted<sup>70</sup> to us that the July 17, 2012 experiments (#13 and 14) were never conducted. She acknowledged that “I never did an experiment at that time”<sup>71</sup> and further explained “after the July 1st, [the PI] had suspicions [ ] immediately after that, [ ] and so I never [ ] did any experiments beyond that.”<sup>72</sup> Regarding the overall use of the plankton wheel, the Subject also stated “for the experiments in 2012, that summer, the June and July [ ], I didn’t use it.”<sup>73</sup>

Regarding the fabrication of experiments, the Subject admitted that she “was not focused and did not [ ] hav[e] the time to [ ] do [the experiments]”<sup>74</sup> as she was “frustrated and [ ] stressed [ ] and overworked”.<sup>75</sup> The Subject indicated she voluntarily left the lab and the graduate program in August 2012 after her discussions with the RIO.<sup>76</sup>

### OIG’s Assessment

We assessed the University’s policies<sup>77</sup> and its actions and concluded that the University followed reasonable procedures.

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<sup>63</sup> Tab 4, pg 76.

<sup>64</sup> Tab 8.

<sup>65</sup> [REDACTED]

<sup>66</sup> Tab 12, Discussion spanned pg 10, lines 24-26 through pg 11, lines 1-25 until pg 12, lines 1-20.

<sup>67</sup> Tab 12, pg 11, lines 16-17.

<sup>68</sup> Tab 12, pg 12, lines 1-2.

<sup>69</sup> Tab 12, pg 21, lines 1-23.

<sup>70</sup> Tab 12, Discussion spanned pg 21, lines 24-25 until pg 22, lines 1-19.

<sup>71</sup> Tab 12, pg 22, lines 6-7.

<sup>72</sup> Tab 12, pg 22, lines 13-16.

<sup>73</sup> Tab 12, pg 25, lines 14-16.

<sup>74</sup> Tab 12, pg 13, lines 13-15.

<sup>75</sup> Tab 12, pg 13, lines 22-23.

<sup>76</sup> Tab 12, pg 23, lines 9-26.

<sup>77</sup> Tabs 3 and 9.

A finding of research misconduct by NSF requires that (1) there be a significant departure from accepted practices of the relevant research community, (2) the research misconduct be committed intentionally, or knowingly, or recklessly, and (3) the allegation be proven by a preponderance of the evidence.<sup>78</sup>

### The Acts

Specifically, the Subject admitted that:

- For experiments #10 and 11, she fabricated the voyage of lake boat trips. She falsified the sample collection by using the samples collected for experiment #12 as substitutes. She fabricated the performance of experiments by fabricating data and use of equipment.
- For experiment #12, she fabricated the performance of the experiment.
- For experiments #13 and 14, she fabricated the voyage of the boat trip, the collection of samples and the performance of the experiments.

The instances of the Subject's fabrication and falsification are tallied in the table below:

<b>For experiment #</b>	<b>Boat trip</b>	<b>Sample collection</b>	<b>Experiment performed</b>
10	fabricated	falsified	fabricated
11	fabricated	falsified	fabricated
12			fabricated
13	fabricated	fabricated	fabricated
14	fabricated	fabricated	fabricated

The Graduate School of the University maintains a multitude of resources on research and scholarly integrity.<sup>79</sup> The proper management of data records and the honest representation of data are basic tenets of research integrity, binding upon all who conduct scientific research. The Subject's actions meet the definition of research misconduct and are clearly a significant departure from accepted practices of the research community.

### Intent

The Subject acknowledged her actions stating "I admit to [r]esearch [m]isconduct in the form of [f]abrication and [f]alsification".<sup>80</sup> Her actions and admissions indicate she intentionally decided to fabricate the conduction of boat trips, fabricate and falsify the sample collections and fabricate the performance of the experiments and the resulting data as she had difficulty completing the planned experiments in time.

<sup>78</sup> 45 C.F.R. § 689.2(c).

<sup>79</sup> Website: [REDACTED]

<sup>80</sup> Tab 8.

Standard of Proof

Based on her own admission and documented evidence, the Subject fabricated and falsified data and the research record. OIG concludes that the Subject is found, by a preponderance of evidence, to have intentionally fabricated and falsified data and research materials, thereby committing an act of research misconduct.<sup>81</sup>

**OIG's Recommended Disposition**

When deciding what appropriate action to take upon a finding of misconduct, NSF must consider: (1) How serious the misconduct was; (2) The degree to which the misconduct was knowing, intentional, or reckless; (3) Whether it was an isolated event or part of a pattern; (4) Whether it had a significant impact on the research record, research subjects, other researchers, institutions or the public welfare; and (5) Other relevant circumstances.<sup>82</sup>

Seriousness

The Subject's actions are severe violations of scientific integrity and the standards of research ethics. The Subject intentionally engaged in egregious levels of deception for the purported performance of experiments #10-14. Not only did she fabricate the existence of lake boat trips, she invented a fictional person that she claimed took her out on the boat trips and gave a fictitious contact number for that individual. She fabricated and falsified the collection of the various zooplankton species necessary for the experiments. She fabricated the performance of the experiments themselves which entailed the sorting of the various zooplankton species, placing various concentrations (and also variable sizes and ages) of specific types of predator and prey species together in bottles for a defined length of time, then counting the number of organisms left in order to calculate the predation rate. She fabricated the use of lab equipment and the recorded data counts in Excel spreadsheets. The Subject's fabrication was further perpetuated when the false data counts were used to calculate predation rates. Use of the false data resulted in erroneous conclusions regarding the predatory behavior of various zooplankton species. The Subject's web of dishonesty unraveled only when lab members questioned and noted inconsistencies in the type, amount and timeframes of the lab equipment (nets, bottles, lids, plankton wheel) she claimed to have used. Further, the Subject only admitted her wrongdoing after the Inquiry Panel had recommended an Investigation.

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<sup>81</sup> 45 C.F.R. part 689.

<sup>82</sup> 45 C.F.R. § 689.3(b).

*Degree of Intent*

We found no evidence to mitigate our conclusion that the Subject intentionally fabricated and falsified data and the research record. Her actions and admission indicate her intentional fabrication and falsification were due to not being able to conduct the planned experiments in time. The Subject continued to lie after being confronted with the research misconduct issues by the RIO. She confessed to the research misconduct only after the Inquiry proceeded to Investigation.

As a graduate student, the Subject's actions violated the expectations of academic behavior when conducting research. The University expects that "[a]ll members of the University community share responsibility to assure that misconduct or fraud in research [ ] is dealt with effectively and that the University's high standards for scholarly integrity are preserved."<sup>83</sup> The Subject's actions are in opposition to the scholarly expectations of the academic research community and indicate a failure in safeguarding the integrity of research.

*Pattern of Behavior*

In the admission letter<sup>84</sup> and in the interview,<sup>85</sup> the Subject asserted that she did not fabricate and falsify data in experiments # 1-9. The PI did not question the integrity of experiments #1-9. We therefore do not find a pattern of fabrication and falsification beyond the research misconduct committed towards the end of June and beginning of July in 2012 corresponding to experiments #10-14.

*Impact on the Research Record and other Researchers*

The Subject indicated<sup>86</sup> that the results of her research experiments conducted during the course of her master's degree program were not being drafted for any pending manuscript. However, the Subject's actions adversely affected her immediate research community as her lab spent time, effort and resources attempting to replicate the Subject's experiments and documenting her claimed use of equipment in relation to the experiments. The PI obtained a one year no cost extension<sup>87</sup> to the awarded NSF proposal in order for the lab to provide additional effort in completing the studies and evaluating the research data once the graduate student left.

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<sup>83</sup> Tab 3, pg 2.

<sup>84</sup> Tab 8.

<sup>85</sup> Tab 12, pg 14, lines 22-26 through pg 15, lines 1-3.

<sup>86</sup> Tab 12, pg 17, lines 8-14 through pg 18, lines 1-17.

<sup>87</sup> Tab 13: [REDACTED]

Other Concerns

During the interview, the Subject indicated<sup>88</sup> that she never received formal training in the responsible conduct of research (RCR). NSF's RCR requirements<sup>89</sup> for institutions applied only to NSF proposals that were submitted or due on or after 1/4/10. Although the PI's awarded proposal was submitted and awarded<sup>90</sup> prior to that date, the Subject's Department<sup>91</sup> mandates that all lab personnel complete and document RCR training,<sup>92</sup> of which research misconduct is a required topic. The PI provided<sup>93</sup> the University the Subject's RCR training records which included assigned readings on research conduct. Thus, the Subject should have been cognizant of the principles in the responsible conduct of research.

The Subject was a master's degree graduate student at the University from June 2011<sup>94</sup> until her departure on August 2012.<sup>95</sup> The Subject was listed as the graduate student that would work closely with the undergraduate student for the summer of 2012 in the awarded REU (Research Experiences for Undergraduates) Supplement<sup>96</sup> to the awarded NSF proposal.<sup>97</sup> In an Annual Report<sup>98</sup> of the awarded NSF proposal, as part of outreach activities, the Subject was listed as teaching science to high school students. The Subject's lack of scientific integrity is of particular concern as she was providing instruction to and engaging with younger scientists.

**Subject's Response to Draft Report**

In the Subject's response<sup>99</sup> to our draft investigation report,<sup>100</sup> the Subject asserted that she fabricated the boat trip and falsified the sample collection for experiments #10 and 11. She also stated that for experiment #12, she did go out on a boat trip but did not perform the experiment. She contended that experiments #13 and 14 never happened as she did not attempt to carry out any experiments beyond #12. The fabrication of the performance of experiments

<sup>88</sup> Tab 12, pg 30, lines 14-26 through pg 31, lines 1-7.

<sup>89</sup> Part II, Award and Administration Guide, Chapter IV Grantee Standards. B. Responsible Conduct of Research and NSF 11-1, Part I Grant Proposal Guide, Chapter II Proposal Preparation Instructions, Part C. Proposal Contents, i.e. Proposal Certifications.

<sup>90</sup> See footnote #3.

<sup>91</sup> [REDACTED]

<sup>92</sup> Tab 14: [REDACTED]

<sup>93</sup> Tab 15: Subject's RCR training records dated [REDACTED]

<sup>94</sup> Tab 16: Subject's enrollment history at University.

<sup>95</sup> See footnote #76.

<sup>96</sup> Tab 17: NSF Award [REDACTED]

[REDACTED]

<sup>97</sup> Tab 18: NSF REU Supplement [REDACTED]

<sup>98</sup> Tab 2: NSF Award [REDACTED]

<sup>99</sup> Tab 19: Response from Subject dated [REDACTED]

<sup>100</sup> Tab 20: Letter to Subject with Draft ROI dated [REDACTED]

#13 and 14 on July 17, 2012 was apparent in the evidentiary material analyzed during the University's Preliminary Assessment regarding the use of the incubator (where samples were stored) and the Subject's claimed use of the plankton wheel.

In addition, the Subject asserted that she did not recall having received any RCR training despite the fact that training records provided by the University indicated she had received training. Whether or not she received RCR training, the honest representation of data is a basic tenet of all those who conduct scientific research and data manipulation in the scientific community cannot be defended. We conclude that the Subject's response does not alter our original determinations and recommendations.

### Recommendations

Based on the evidence, OIG recommends NSF to take the following actions:

- Send the Subject a letter of reprimand notifying her that NSF has made a finding of research misconduct.<sup>101</sup>
- Require the Subject to certify to the Assistant Inspector General for Investigations (AIGI) her completion of a responsible conduct of research training program and provide documentation of the program's content within 1 year of NSF's finding.<sup>102</sup> The instruction should be in an interactive format (e.g., an instructor-led course) and specifically address data fabrication and falsification.
- Debar the Subject for 3 years.<sup>103</sup>

During the debarment period and for a period of three years immediately following the debarment period:

- Bar the Subject from participating as a peer reviewer, advisor, or consultant for NSF.<sup>104</sup>
- Require for each document (proposal, report, etc.) to which the Subject contributes for submission to NSF (directly or through an institution),

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<sup>101</sup> A Group I action 45 C.F.R. 689.3(a)(1)(i).

<sup>102</sup> This action is similar to Group I actions 45 C.F.R. 689.3(a)(1).

<sup>103</sup> A Group III action 45 C.F.R. 689.3(a)(3)(iii).

<sup>104</sup> A Group III action 45 C.F.R. 689.3(a)(3)(ii).

- the Subject to submit a contemporaneous certification to the AIGI that the document does not contain plagiarism, falsification, or fabrication.<sup>105</sup>
- the Subject to submit a contemporaneous assurance from a responsible official of his employer to the AIGI that the document does not contain plagiarism, falsification, or fabrication.<sup>106</sup>
- Require the Subject to submit to the AIGI for each NSF proposal a detailed data management plan including requirements for notebooks and data archiving to be adhered to during the course of any resulting award, and to provide annual certifications that this plan is being implemented.<sup>107</sup>

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<sup>105</sup> This action is similar to 45 C.F.R. 689.3(a)(1)(iii).

<sup>106</sup> A Group I action 45 C.F.R. 689.3(a)(1)(iii).

<sup>107</sup> This action is similar to a Group II action 45 C.F.R. 689.3(a)(2)(ii).

NATIONAL SCIENCE FOUNDATION  
4201 WILSON BOULEVARD  
ARLINGTON, VIRGINIA 22230



OFFICE OF THE  
DEPUTY DIRECTOR



**CERTIFIED MAIL -RETURN RECEIPT REQUESTED**



*Re: Notice of Proposed Debarment and Notice of Research Misconduct  
Determination*

Dear 

As a masters student in the Department of  ("University"), while performing NSF-funded research, you fabricated and falsified data and research materials. This research misconduct is documented in the attached Investigative Report prepared by NSF's Office of Inspector General ("OIG").

In light of your misconduct, this letter serves as formal notice that NSF is proposing to debar you from directly or indirectly obtaining the benefits of Federal grants for three years. During your period of debarment, you will be precluded from receiving Federal financial and non-financial assistance and benefits under non-procurement Federal programs and activities. In addition, you will be prohibited from receiving any Federal contracts or approved subcontracts under the Federal Acquisition Regulations ("FAR"). Lastly, during your debarment period, you will be barred from having supervisory responsibility, primary management, substantive control over, or critical influence on, a grant, contract, or cooperative agreement with any agency of the Executive Branch of the Federal Government.

In addition to your debarment, I am prohibiting you from serving as an NSF reviewer, advisor, or consultant to NSF until   Furthermore, for three years after the expiration of your debarment period, until , I am requiring that you submit certifications, and that a responsible official of your employer submit assurances, that any proposals or reports you submit

to NSF do not contain plagiarized, falsified, or fabricated material. Moreover, by [REDACTED] 2015, you must certify the completion of a comprehensive responsible conduct of research training course, and provide documentation of the program's content. Lastly, for three years after the expiration of your debarment period, until [REDACTED], you are required to submit a detailed management plan in conjunction with each proposal submitted to NSF, including requirements for notebooks and data archiving.

### **Research Misconduct**

Under NSF's regulations, "research misconduct" is defined as "fabrication, falsification, or plagiarism in proposing or performing research funded by NSF ..." 45 CFR § 689.1(a). NSF defines "fabrication" as "making up data or results and recording or reporting them." 45 CFR § 689.1(a)(1). "Falsification" is defined as "manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record" 45 CFR § 689.1(a)(2).

A finding of research misconduct requires that:

- (1) There be a significant departure from accepted practices of the relevant research community; and
- (2) The research misconduct be committed intentionally, or knowingly, or recklessly; and
- (3) The allegation be proven by a preponderance of evidence.

45 CFR § 689.2(c)

Your admission of data fabrication and falsification permits me to conclude that your actions meet the applicable definitions of fabrication and falsification, as set forth in NSF's regulations.

Pursuant to NSF's regulations, the Foundation must also determine whether to make a *finding* of research misconduct based on a preponderance of the evidence. 45 CFR § 689.2(c). After reviewing the OIG Investigative Report and your admission of data falsification and fabrication, NSF has determined that, based on a preponderance of the evidence, your falsification and fabrication of data was committed intentionally and constituted a significant departure from accepted practices of the relevant research community. I am, therefore, issuing a finding of research misconduct against you.

NSF's regulations establish three categories of actions (Group I, II, and III) that can be taken in response to a finding of misconduct. 45 CFR § 689.3(a). Group I actions include issuing a letter of reprimand; conditioning awards on prior approval of particular activities from NSF; requiring that an institutional representative certify as to the accuracy of reports or certifications of compliance with particular requirements. 45 CFR § 689.3(a)(1). Group II actions include award suspension or restrictions on designated activities or expenditures; requiring special reviews of

requests for funding; and requiring correction to the research record. 45 CFR § 689.3(a)(2). Group III actions include suspension or termination of awards; prohibitions on participation as NSF reviewers, advisors or consultants; and debarment or suspension from participation in NSF programs. 45 CFR § 689.3(a)(3).

In determining the severity of the sanction to impose for research misconduct, I have considered the seriousness of the misconduct; my determination that it was committed intentionally; the fact that the misconduct had no impact on the research record; and the fact that the misconduct was an isolated incident. I have also considered other relevant circumstances. *See* 45 CFR § 689.3(b).

Based on the foregoing, I am imposing the following actions on you:

- For three years after the expiration of your debarment period, until [REDACTED], you are required to submit certifications that any proposals or reports you submit to NSF do not contain plagiarized, falsified, or fabricated material.
- For three years after the expiration of your debarment period, until [REDACTED] [REDACTED], you are required to submit assurances by a responsible official of your employer that any proposals or reports you submit to NSF do not contain plagiarized, falsified, or fabricated material.
- From the date of this letter through [REDACTED] [REDACTED], you are prohibited from serving as an NSF reviewer, advisor, or consultant.
- You are required to complete a comprehensive responsible conduct of research training course by [REDACTED] 2015, and provide documentation of the program's content. The instruction should be in an interactive format (e.g., an instructor-led course, workshop, etc.) and should include a discussion of data falsification and fabrication.
- For three years after the expiration of your debarment period, until [REDACTED] you are required to submit a detailed management plan in conjunction with each proposal submitted to NSF. The plan must include requirements for notebooks and data archiving to be adhered to during the course of any resulting award. You must also provide annual certifications that this plan is being implemented.

All certifications, assurances, training documentation, and data management plans should be submitted in writing to NSF's Office of the Inspector General, Associate Inspector General for Investigations, 4201 Wilson Boulevard, Arlington, Virginia 22230.

## **Debarment**

### *Regulatory Basis for Debarment*

Pursuant to 2 CFR § 180.800, debarment may be imposed for:

- (b) Violation of the terms of a public agreement or transaction so serious as to affect the integrity of the agency program, such as –
  - (1) A willful failure to perform in accordance with the terms of one or more public agreements or transactions;
  - ...
  - (3) A willful violation of a statutory or regulatory provision or requirement applicable to a public agreement or transaction; or
- (d) Any other cause of so serious or compelling a nature that it affects your present responsibility.

In any debarment action, the government must establish the cause for debarment by a preponderance of the evidence. 2 CFR § 180.850. In this case, you admitted that you intentionally falsified and fabricated data while conducting NSF-funded research. Thus, your action supports a cause for debarment under 2 CFR §§ 180.800(b) and (d).

### *Length of Debarment*

Debarment must be for a period commensurate with the seriousness of the causes upon which an individual's debarment is based. 2 CFR § 180.865. Having considered the seriousness of your actions, as well as the relevant aggravating and mitigating factors set forth in 2 CFR § 180.860, we are proposing your debarment for three years.

## **Appeal Procedures for finding of Research Misconduct and Procedures Governing Proposed Debarment**

### *Appeal Procedures for Finding of Research Misconduct*

Under NSF's regulations, you have 30 days after receipt of this letter to submit an appeal of this finding, in writing, to the Director of the Foundation. 45 CFR § 689.10(a). Any appeal should be addressed to the Director at the National Science Foundation, 4201 Wilson Boulevard, Arlington, Virginia 22230. If we do not receive your appeal within the 30-day period, the decision on the finding of research misconduct will become final. For your information, we are attaching a copy of the applicable regulations.

*Procedures Governing Proposed Debarment*

The provisions of 2 CFR Sections 180.800 through 180.885 govern debarment procedures and decision-making. Under our regulations, you have 30 days after receipt of this notice to submit, in person or in writing, or through a representative, information and argument in opposition to this debarment. 2 CFR § 180.820. Comment submitted within the 30-day period will receive full consideration and may lead to a revision of the recommended disposition. If NSF does not receive a response to this notice within the 30-day period, this debarment will become final. Any response should be addressed to Lawrence Rudolph, General Counsel, National Science Foundation, Office of the General Counsel, 4201 Wilson Boulevard, Room 1265, Arlington, Virginia 22230. For your information, I am attaching a copy of the Foundation's regulations on non-procurement debarment and FAR Subpart 9.4.

Should you have any questions about the foregoing, please contact [REDACTED], Assistant General Counsel, at (703) 292-[REDACTED]

Sincerely,



Cora B. Marrett  
Deputy Director

Enclosures:  
Investigative Report  
Nonprocurement Debarment Regulations  
FAR Regulations  
45 CFR Part 689

NATIONAL SCIENCE FOUNDATION  
4201 WILSON BOULEVARD  
ARLINGTON, VIRGINIA 22230



OFFICE OF THE  
DIRECTOR



**CERTIFIED MAIL -RETURN RECEIPT REQUESTED**



*Re: Research Misconduct and Debarment Determination*

Dear [REDACTED]

On [REDACTED], the National Science Foundation ("NSF") issued you a Notice of Proposed Debarment and Notice of Research Misconduct Determination ("Notice"). As reflected in the Notice, NSF concluded that while you were a masters student in the Department of [REDACTED] [REDACTED] ("University"), and while performing NSF funded research, you fabricated and falsified data and research materials. Accordingly, NSF proposed to debar you from directly or indirectly obtaining the benefits of Federal grants for three years and also took the actions described below. Please note that NSF has recalculated the dates for the debarment and actions below to more accurately reflect the date of the Notice.

- For three years, until [REDACTED], you are debarred from directly or indirectly obtaining the benefits of Federal grants.
- For three years after the expiration of your debarment period, until [REDACTED], you are required to submit certifications that any proposals or reports you submit to NSF do not contain plagiarized, falsified, or fabricated material.
- For three years after the expiration of your debarment period, until [REDACTED], you are required to submit assurances by a responsible official of your employer that any proposals or reports you submit to NSF do not contain plagiarized, falsified, or fabricated material.

- For three years from the date of the Notice, until [REDACTED], you are prohibited from serving as an NSF reviewer, advisor, or consultant.
- You are required to complete a comprehensive responsible conduct of research training course by [REDACTED] 2015, and provide documentation of the program's content. The instruction should be in an interactive format (e.g., an instructor-led course, workshop, etc.) and should include a discussion of data falsification and fabrication.
- For three years after the expiration of your debarment period, until [REDACTED], you are required to submit a detailed management plan in conjunction with each proposal submitted to NSF. The plan must include requirements for notebooks and data archiving to be adhered to during the course of any resulting award. You must also provide annual certifications that this plan is being implemented.

Debarment precludes you from receiving federal financial and non-financial assistance and benefits under non-procurement federal programs and activities unless an agency head or authorized designee makes a determination to grant an exception in accordance with 2 CFR 180.135. Non-procurement transactions include grants, cooperative agreements, scholarships, fellowships, contracts of assistance, loans, loan guarantees, subsidies, insurance, payments for specified use, and donation agreements.

In addition, you are prohibited from receiving federal contracts or approved subcontracts under the Federal Acquisition Regulations at 48 CFR subpart 9.4 for the period of this debarment. 2 CFR 180.925. During the debarment period, you may not have supervisory responsibility, primary management, substantive control over, or critical influence on, a grant, contract, or cooperative agreement with any agency of the Executive Branch of the Federal Government.

In the Notice, NSF provided you with thirty days to respond to the proposed actions and proposed debarment. The period for submitting a response to NSF has elapsed, and NSF has not received a response from you. Accordingly, the determination of research misconduct, debarment, and accompanying actions are now final. You should proceed to undertake those actions within the timeframes specified.

Should you have any questions about the foregoing, please contact [REDACTED], Assistant General Counsel, at (703) 292-[REDACTED]

Sincerely,



Richard O. Buckius  
Acting Chief Operating Officer