SUPPLEMENTARY MATERIALS FOR

THE NSF GRADUATE FELLOWSHIP PROGRAM

AN ANALYSIS OF AWARDS IN THE OCEAN SCIENCES BY GENDER AND CAREER STAGE, 1996–2021

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METHODS

DETERMINING THE CAREER STAGE (UNDERGRADUATE OR GRADUATE) OF APPLICANTS RECEIVING THE FELLOWSHIP AWARD

Two hundred and seventy-eight of the 515 awardees (54%) listed current institutions that differed from their baccalaureate institutions. These awardees were either first- or second-year graduate students at the time of application. They were placed into the graduate applicant pool. Next, we placed 120 individuals who were not in school (no current institution) at the time of application into the undergraduate pool. Although they had received their baccalaureate degrees, they were not enrolled in a graduate program when they applied.[1]

The remaining 117 (23%) listed the same institution for baccalaureate and current institution in their applications. These individuals were most likely undergraduates still enrolled in their baccalaureate programs at the time of application but could also include individuals who have enrolled in the same institution's graduate program and who applied to GRFP as graduate students. To learn more about these cases, we used an additional criterion: whether the institution listed for the match is one of the 84 nationally recognized ocean sciences graduate programs that is either a member of the Consortium for Ocean Leadership's OSER community or is listed as an ocean science program in the federal government's Integrated Postsecondary Education Data System (IPEDS) database (Cook et al., 2016).

Sixty-three (63) of the awardees listed the same baccalaureate and current institution with no ocean science graduate program, and therefore could be placed in our undergraduate/post baccalaureate awardee pool. The 54 remaining awardees listed an institution with a nationally recognized ocean science program as both their baccalaureate and current institution. For 23 of these awardees, clear evidence (curricula vitae, LinkedIn profiles, or other web documents) indicated that they had moved on from their baccalaureate institution to a different ocean science program for graduate work. Because their graduate programs differed from the listed current institution, we included these individuals in our undergraduate/post baccalaureate awardee pool.

Twenty-four awardees were enrolled in graduate programs at the same institution where they obtained their undergraduate degrees. To determine if these awardees applied as undergraduate or graduate students, we compared their GRFP award dates with online biographical information about graduate program enrollment dates. The eight individuals who received their awards in years when they were enrolled in graduate degree programs were added to the graduate pool. Enrollment dates for the remaining 16 awardees were the same as the GRFP award year; these were placed in our undergraduate/post baccalaureate pool. For the remaining seven awardees, we could not locate a post-baccalaureate educational pathway in our searches, and these were considered undergraduates at the time they applied.

[1] This category may include a small number of individuals with master's degrees who have been out of graduate school for two or more years because this is allowed by the program eligibility guidelines.

TABLE S1. Number of GRFP awardees in each of the six primary GRFP ocean sciences fields of study in five-year cohorts; 2021 is a single year.

	FIELD OF STUDY	1996–2000	2001–2005	2006–2010	2011–2015	2016–2020	2021	1996–2021
Biological Oceanography	Total	14	21	28	35	42	9	**149**
	Women	12	13	19	25	32	7	**108**
	Men	2	8	9	10	10	2	**41**
Chemical Oceanography	Total	3	13	21	24	25	2	**88**
	Women	3	6	18	16	16	2	**61**
	Men	0	7	3	8	9	0	**27**
Marine Biology	Total	22	45	62	73	60	13	**275**
	Women	12	32	42	55	40	10	**191**
	Men	10	13	20	18	20	3	**84**
Marine Geology and Geophysics	Total	2	4	8	10	10	2	**36**
	Women	2	2	6	6	8	2	**26**
	Men	0	2	2	4	2	0	**10**
Ocean Engineering	Total	6	5	4	13	12	1	**41**
	Women	4	4	2	8	6	1	**25**
	Men	2	1	2	5	6	0	**16**
Physical Oceanography	Total	9	5	9	18	18	4	**63**
	Women	7	2	7	13	12	2	**43**
	Men	2	3	2	5	6	2	**20**
	Grand Total	**56**	**93**	**132**	**173**	**167**	**31**	**652**
	Total Women	**40**	**59**	**94**	**123**	**114**	**24**	**454**
	Total Men	**16**	**34**	**38**	**50**	**53**	**7**	**198**

TABLE S2. This table describes how we calculated degree completion data for the 1996–2000 GRFP awardee cohort and used the percentages to estimate the contribution of the 2011–2015 GRFP cohort to the overall data for 2017–2021 ocean-focused PhD recipients (NCSES, 2021b).

CALCULATIONS FOR THE 1996–2000 COHORT

(a) Degrees obtained by awardees with oceanographic fields of study

	Obtained MS degree	Obtained PhD degree	Grad work but no degree info	No Information found	Cohort total
Number of women	4	28	3	2	37
Number of men	1	12	1	2	16
Total	**5**	**40**	**4**	**4**	**53**

(b) Percentage degree completion

	MS	PhD	MS and PhD	Unknown/ not completed
Women	10.8%	75.7%	86.5%	13.5%
Men	6.3%	75.0%	81.3%	18.8%
Total	**9.4%**	**75.5%**	**84.9%**	**15.1%**

APPLYING THE DEGREE COMPLETION PERCENTAGES OF THE 1996–2000 COHORT TO 2011–2016 COHORT OF AWARDEES TO ESTIMATE NUMBER IN THIS COHORT RECEIVING THE DOCTORATE

	Total number of awardees 2011–2015 cohort	Number of ocean engineering and marine geology awardees in cohort	Cohort total minus ocean engineering and marine geology awardees	Percent completing PhD	Estimated number of NCSES comparable completions
Women	123	15	108	75.7%	82
Men	50	10	40	75.0%	30
Total	**173**	**25**	**148**	**75.5%**	**112**

COMPARING ESTIMATED DOCTORAL DEGREE COMPLETIONS FOR 2011–2015 COHORT TO NCSES DOCTORAL DEGREES FOR 2017–2021 DATA

	Number of NCSES PhDs (includes non-US citizens and non-permanent residents)	Estimated number of GRFP PhDs	Percentage of GRFP PhDs	Percentage of contribution of PhDs from GRFP
Women	459	82	17.8%	
Men	353	30	8.5%	
Total	**811**	**112**		**13.8%**

NOTES. Calculations are for GRFP awardees with fields of study comparable to the NCSES categories of marine biology/biological oceanography and chemical/physical oceanography. Awardees in ocean engineering and marine geology and geophysics were excluded. Data used in estimating average percentage completion come from ProQuest Dissertations and Theses Global, LinkedIn and other online sources. The 2011–2015 GRFP cohort is compared to 5 years of NCSES data beginning in 2017 and ending in 2021 because the average time between award year and degree completion (degree year – award year) for the 1996–2000 cohort was 6 years. We calculated the 2021 NCSES number as the average of the 2017 through 2020 numbers because the number of relevant doctorates in 2021 is not yet available on the NCSES website.