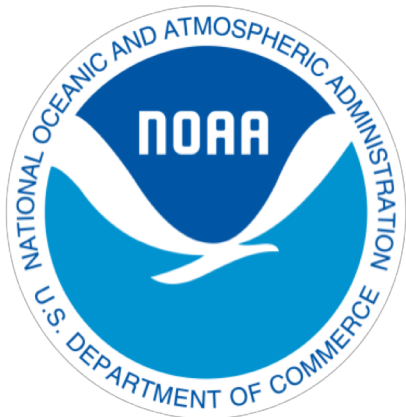




Participation of women in NOAA Mission Sciences

March 11, 2019



Marlene Kaplan

NOAA Office of Education

marlene.kaplan@noaa.gov

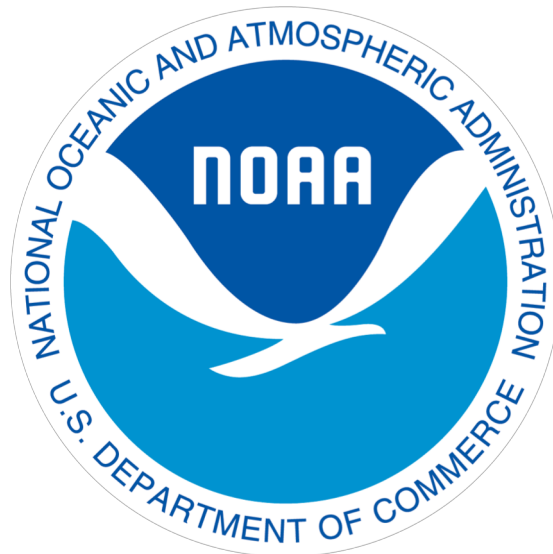
www.noaa.gov/education



Who we are

\$5.4 Billion Agency working in areas of:

- Weather
- Marine Fisheries
- Oceans and Coasts
- Satellites
- Research





Marine and Environmental Science Degrees

Figure 1: Bachelor Degrees in Marine and Environmental Science from 1995-2017

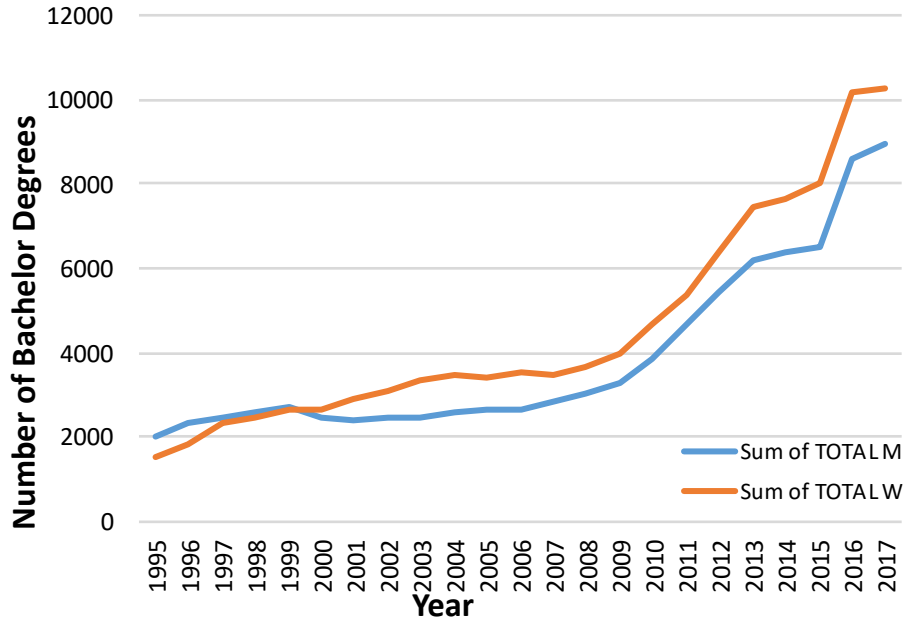
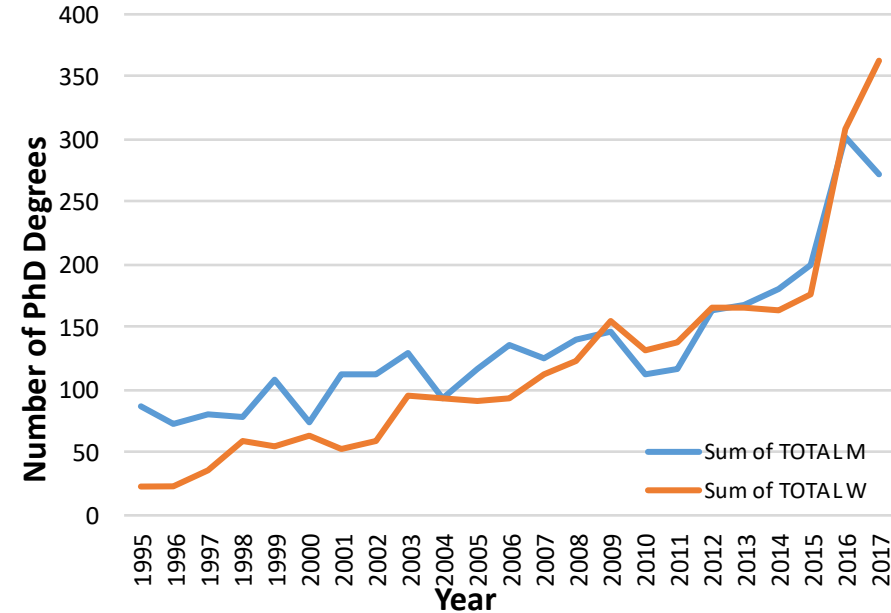


Figure 2: PhD Degrees in Marine and Environmental Science from 1995-2017



*Department of Education IPEDS data including: Aquatic Biology/Limnology, Environmental Science, Fishing and Fisheries Science and Management, Marine Biology and Biological Oceanography, Marine Sciences, Marine/Aquatic Biology, Natural Resources (Conservation, Management and Policy), and Wildlife, Fish, and Wildlands Science and Management



Meteorology and Atmospheric Science Degrees

Figure 1: Bachelor Degrees in Meteorology and Atmospheric Science from 1995-2017

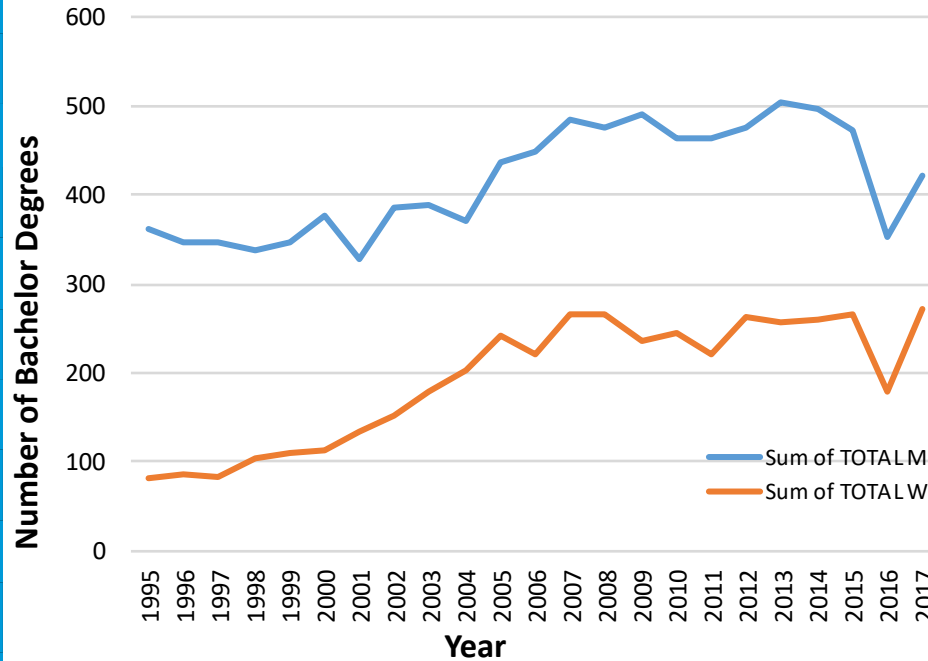
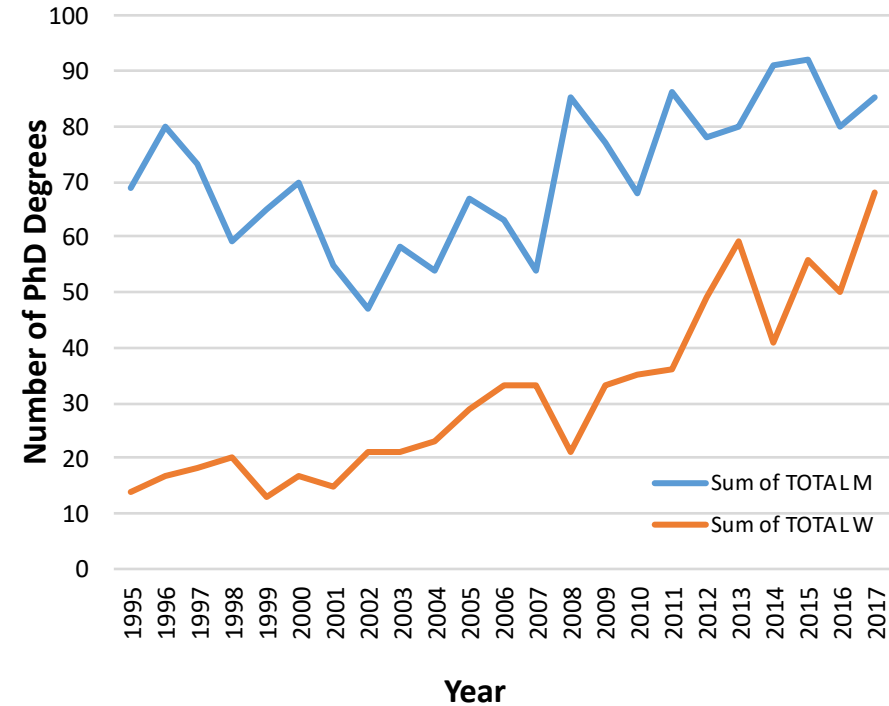


Figure 2: PhD Degrees in Meteorology and Atmospheric Science from 1995-2017



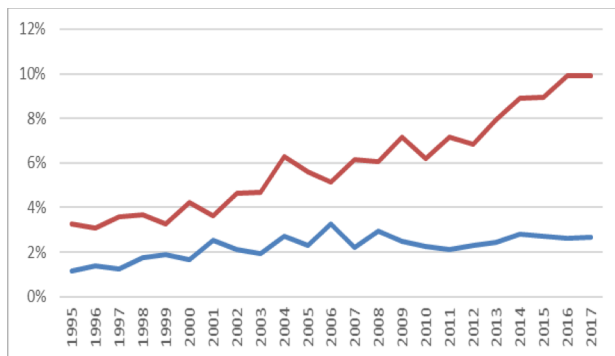
*Department of Education IPEDS data including: Atmospheric Physics and Dynamics, Atmospheric Sciences and Meteorology (General), Atmospheric Sciences and Meteorology (Other), and Meteorology



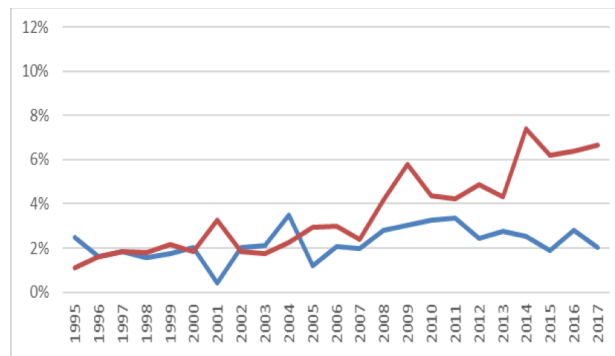
BS Degrees Awarded in NOAA Fields



Environmental Science

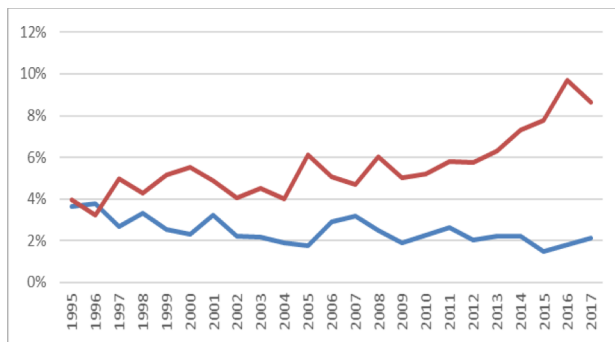


Atmospheric Science/Meteorology

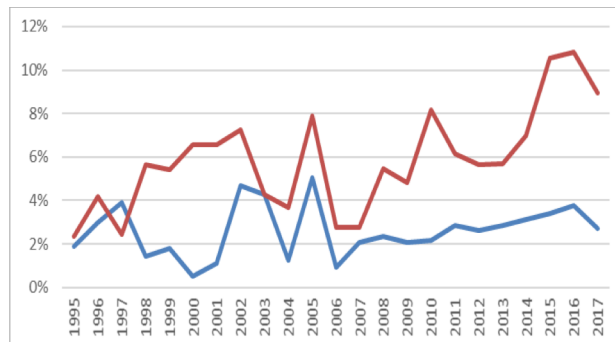


— Black
— Hispanic

Marine Science



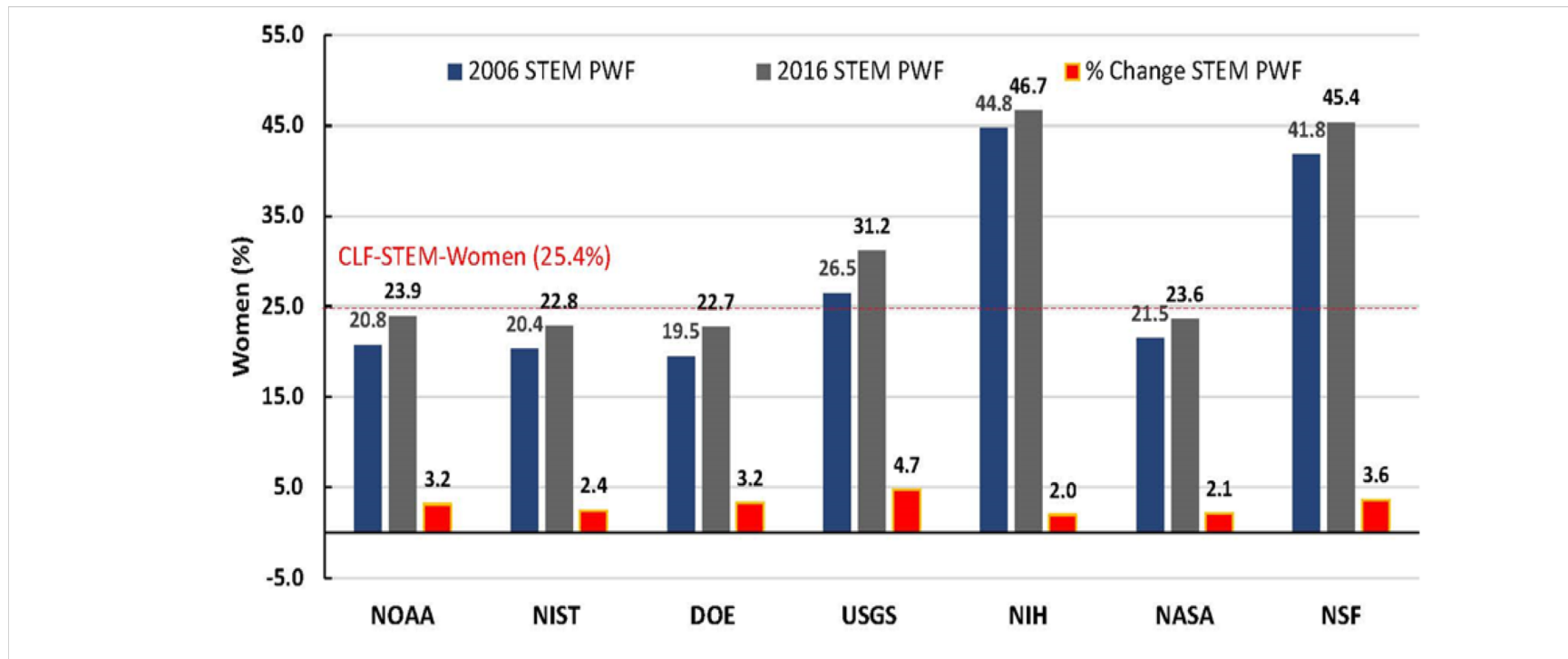
Oceanography



Source: Department of Education IPEDS data



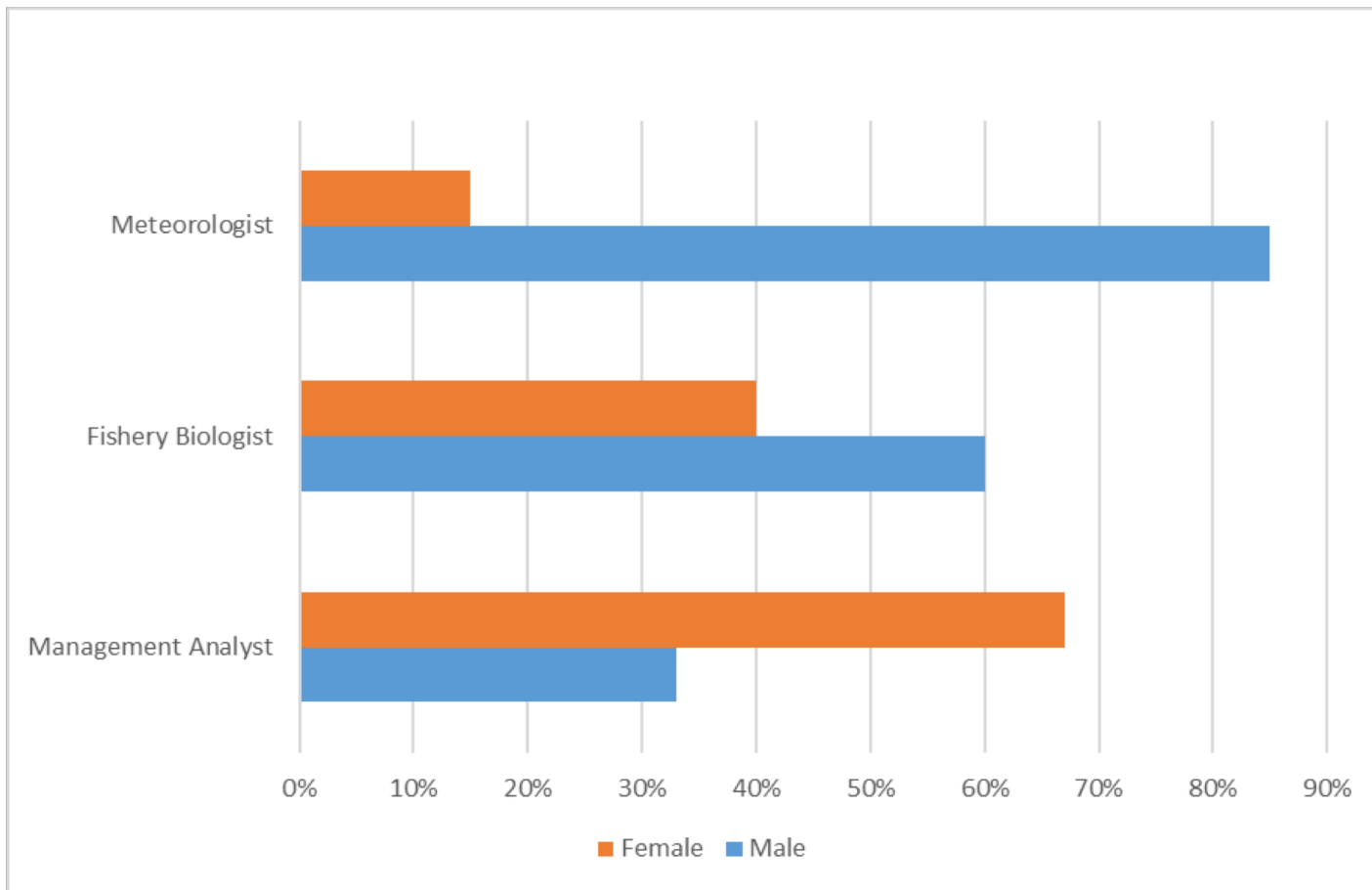
Women in the Federal STEM Workforce



Source: www.fedscope.opm.gov; D. Melendez; A. Young and D. Carlis, NOAA



Women in the NOAA Workforce





Hollings and EPP Undergraduate Scholarships

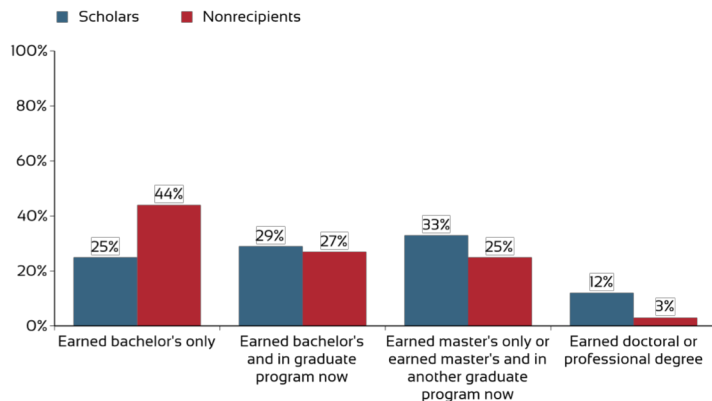


- Generous scholarship and paid internships at NOAA
- 130 - 160 students per year
- 10% underrepresented groups
- Assessed outcomes through evaluation & longitudinal data



Scholarship Evaluation* Outcomes

- 75% go to graduate school
- 86% want to work at NOAA
- 60% applied because of the internship
- Scholars had more publications and presentations

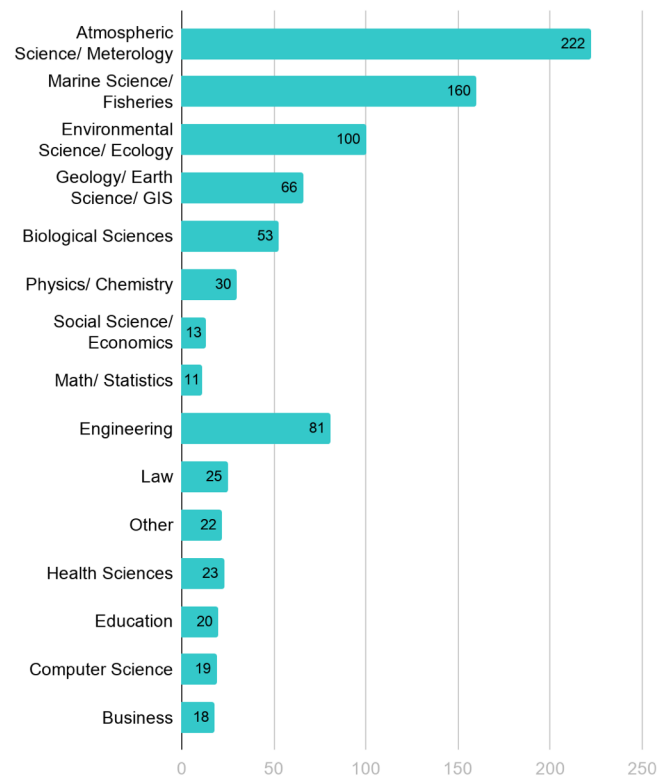




Hollings Scholar Outcomes

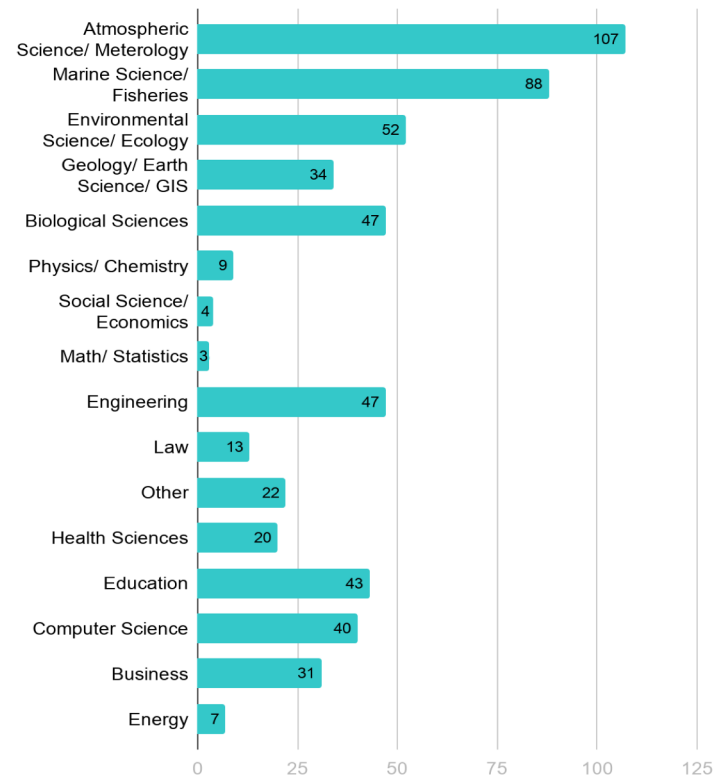


Hollings Alumni: Graduate Degrees by Field



$N = 863$

Hollings Alumni: Fields of Employment



$N = 557$

EPP Scholar Outcomes

Figure 1: EPP scholar fields of study in graduate school

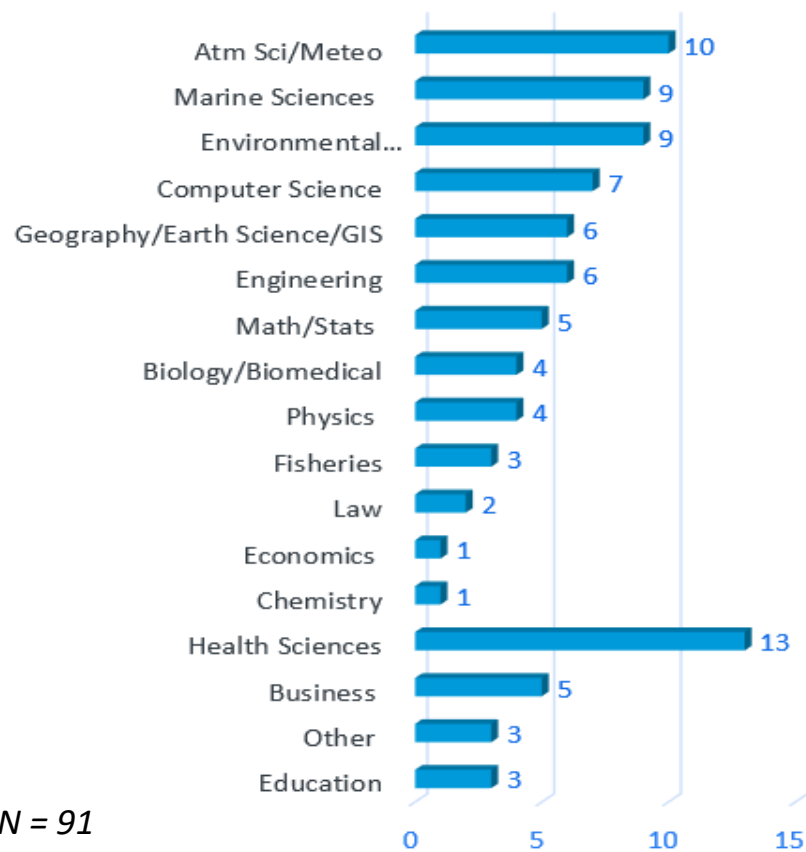
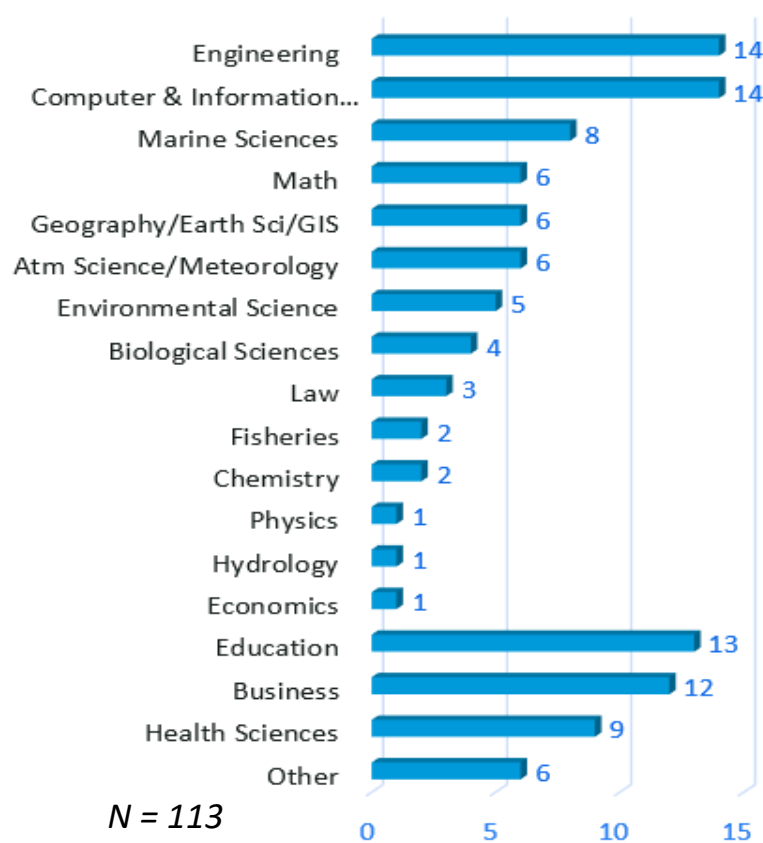


Figure 2: EPP scholar fields of employment



Breaking down barriers

- Broadened allowable recommendations
- Included implicit bias statement to reviewers
- Began freshman prep programs
- Recruited at conferences
- Targeted recruitment





This career compass provides options, tips, suggestions, and strategies for how a student can obtain critical skills, experiences, and competencies in order to launch their geoscience career based on their academic standing. The content herein is based on data from the U.S. Bureau of Labor Statistics, interviews with personnel in the occupation, and research on available student opportunities.

Job Summary

Oceanographers study the motion and circulation of ocean waters; the physical and chemical properties of the oceans; and how these properties affect coastal areas, climate, and weather. Oceanographers plan, organize, conduct, and administer seagoing and land-based student and research of ocean phenomena for interpreting, predicting, utilizing, and controlling ocean forces and events.

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Undergraduate

- Clubs, student government, or geoscience professional societies
- Hone skills through courses, community involvement, and conference presentations
- Geoscience professional society conference
- NOAA's Hollings Undergraduate Scholarship Program
- American Meteorological Society Scholarships (Freshman, Senior, and Minority)
- SOARS program, Research Experience for Undergraduates, NCAR/UCAR summer internships
- NOAA's Pathway Program, Educational Partnership Program with Minority-Serving Institutions
- Undergrad Scholarship Program internship, Woods Hole Partnership Program
- Marine Advanced Technology Education Internship, Naval Research Enterprise Internship
- Research and field experience
- Degree in environmental science, geoscience, ocean sciences, or atmospheric science
- Coursework in math or computer science and courses with significant writing component
- Write a senior thesis

Graduate/Master's

- Present research at conference
- Publish research
- Events, activities, and technical sessions at professional society conference
- Geoscience professional society conference
- Departmental committee, Clubs, student government, or geoscience professional societies
- NOAA's Chesapeake Bay and National Centers for Environmental Prediction internships, NOAA-NSF Graduate Research Internship
- Naval Research Enterprise Internship
- NOAA Pathways Program
- NOAA's Nancy Foster Scholarship
- NOAA's Knauss Fellowship, Coastal Management
- NCAR's Advanced Study Program Graduate Student Fellowship
- American Meteorological Society Graduate Fellowships
- Degree in geoscience, oceanography, or atmospheric science
- Master's thesis related to ocean sciences

Also applicable at Ph.D. level

Ph.D./Post-doc

- Events, activities, and technical sessions at professional society conference
- Departmental committees, geoscience professional society
- Consortium for Ocean Leadership Marine Geoscience Leadership Symposium
- Present research at conference
- Publish research
- Geoscience professional society conference
- NCAR's Advanced Study Program Postdoctoral Fellowship program
- Presidential Management Fellowship
- NOAA/National Research Council Postdoctoral Program, NOAA Climate and Global Change Postdoctoral fellowship, Postdocs Applying Climate Expertise (PACE) Postdoctoral Fellowship
- Degree in geoscience, oceanography, or atmospheric science
- Dissertation topic(s) related to ocean sciences

Symbol Key

- Attend
- Communicate
- Network
- Participate
- Leadership
- Internship
- Scholarship
- Fellowship
- Academics



Conclusion and Recommendations



- Scholarship programs are effective
- Champion students earlier in the process
- Connect across programs
- Work as a community
- Use data to inform programs

