

Marine science includes more subjects than you probably realize! It is a multi-disciplinary field that integrates biological, chemical, physical and geological sciences. And, computer sciences, engineering, business and education also play critical roles in our understanding of the sea. To become a successful marine scientist means developing a well-rounded understanding of many subjects.

In addition to research and academic positions in marine science, there are crucial support positions that may require different technical schooling and skills. Research teams include not only scientists, but also depend on technicians, mechanics and engineers, computer specialists, chefs, photographers, story tellers, marine trades, and business administrators.

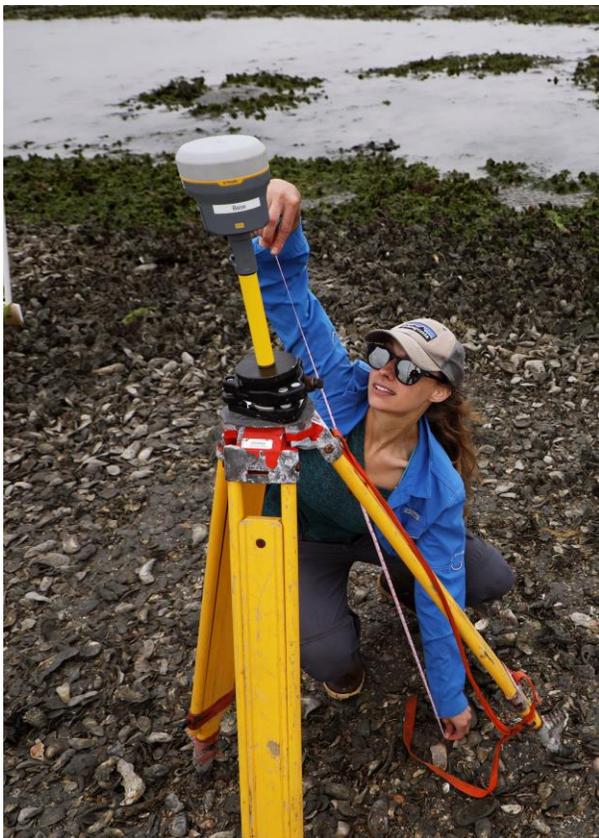


Photo | Aileen Devlin | Virginia Sea Grant

Thinking about a career in marine science?

Biological Oceanography (Marine Biology):

Biological oceanographers and marine biologists study the many kinds of life in the ocean, from bacteria to whales. Some focus on behavior and adaptations of living things, their roles in the food web, and human effects on them. Examples are: fisheries biologist, mammalogist, toxicologist, aquaculture microbiologist, marine ecologist, plankton ecologist, phycologist, aquarist.



Photo | Aileen Devlin | Virginia Sea Grant

Chemical Oceanography: Chemical oceanographers study the make up of the seawater and seafloor sediments and how chemicals in the ocean affect or are affected by biological, geological and physical factors. They may also investigate the effects of natural or man-made chemicals on the ocean environment. Examples: environmental scientist, aquatic chemist, biochemist.

Geological Oceanography: Geological oceanographers look at the minerals, formation and changes of the sea floor and shorelines. Some might specialize in ancient marine life or in human interactions with coasts. Examples: seismologist, geophysicist, coastal geologist, paleontologist, marine archaeologist, sedimentologist.

Physical Oceanography: Physical oceanographers study the movement of the ocean caused by the forces of winds, waves, currents and tides. Some conduct research on ocean temperature and salinity, or the relationship between the sea, weather and climate. Examples: ocean modeler, hurricane forecaster, climatologist, physical oceanographer.

Ocean Engineering: Marine engineers design scientific instruments for research, tools like remotely operated vehicles, depth sounders, submarines and off-shore drilling rigs. They may work with satellite systems or create ways to protect the coastline from erosion.

Environmental Science: Environmental scientists study human impacts on the ocean, its habitats and marine life. They also study the effects that come full circle and impact people who depend on the ocean and coasts. Examples: environmental biology, environmental chemistry, biochemistry and toxicology, resource management and marine policy.

Ship Captain & Crew: Ship based research plays an important role in our understanding of both nearshore and offshore environments. A research ship's crew provides vital support to scientists as they aim to answer complex questions about our oceans. Examples: captain & officers, engineer & motormen, bosun & able seamen, cooks & steward/ess.

Marine Education & Outreach: Educators and storytellers help translate and share marine research with the world. This can be in both a formal classroom setting or an informal setting. Examples: classroom teacher, college professor, museum interpreter, storyteller, artist, photographer, journalist, social media specialist.

How can I prepare to be a marine scientist?

In middle school, focus on science, math and language arts classes. These prepare you for high school.

In high school, you have two tracks to choose from: academic or vocational. Both paths can lead to a career in marine science. If you think you'd prefer having a trade that works in the ocean or out-of-it, try the vocational route. Mechanics, carpenters, even chefs are needed in marine industries. For a more academic track, math, science, English composition, computer science and other college-prep courses are useful.

In college, concentrate on the fundamental courses of math, chemistry and physics first! These provide the framework and background for advanced and specialized courses. Becoming thoroughly grounded in the

fundamentals, including writing and computers, will make the road ahead much easier. Often, selecting an undergraduate major such as geology, biology or chemistry (if marine science is not available) can be very helpful to a future career in marine science.

Many students opt for an advanced degree in marine science. If graduate school is on the horizon, do your research. Choose a graduate school that has programs in your areas of interest, seek out potential faculty advisors, communicate early and often. Seek out undergraduate opportunities for research experience and internships. This indicates motivation and shows dedication on graduate applications.

More About Marine Science Careers

These sites will link you to additional resources about marine careers.

<http://www.vims.edu/bridge/>

Select "Guiding Students," then "Marine Careers." Links to marine career sites. Virginia Institute of Marine Science

<http://oceanexplorer.noaa.gov/edu/oceanage/>

OceanAGE Careers, Ocean Explorers, National Oceanic & Atmospheric Administration

<http://www.marinecareers.net>

National Sea Grant College Program

<http://www.oceancareers.com/>

Centers for Ocean Sciences Excellence (COSEE)

<http://tos.org/career-profiles>

The Oceanography Society, Career Profiles of marine scientists

<https://www.navy.com/careers/information-and-technology/meteorology-oceanography.html#ft-training-&-advancement>

Oceanography & Meteorology careers in the US Navy



Photo by Lisa Sadler | Virginia Sea Grant

Undergraduate Programs in the Marine Sciences

Virginia

George Mason University
Hampton University
Old Dominion University
William & Mary (minor only)

Mid-Atlantic Region

Duke University
University of Delaware
University of Maryland
University of North Carolina at Chapel Hill
University of North Carolina at Wilmington

Other US-Based Undergraduate Programs

Alabama State University
Alaska Pacific University
Auburn University
Ave Maria University
Barry University
Boston University
Brown University
California State University Monterey Bay
California State University, Long Beach
Coastal Carolina University
College of Charleston
Cornell University
East Stroudsburg University
Eckerd College
Fairleigh Dickinson University
Florida Atlantic University
Florida Institute of Technology
Florida International University
Florida State University
Hawai'i Pacific University
Hofstra University
Humboldt State University
Maine Maritime Academy
Massachusetts Institute of Technology
Millersville University
Nicholls State University
Northeastern University
Nova Southeastern University
Oregon State University
Rider University
Roger Williams University
Rutgers State University
Salem State College
San Diego State University
San Francisco State University
San Jose State University
Savannah State University
Seattle Pacific University
Sonoma State University
State University of New York at Stony Brook
Stockton State University

Suffolk University
Texas A&M Corpus Christi
Texas A&M Galveston
Texas State
University of Alabama
University of Alaska at Fairbanks
University of Alaska Southeast
University of California at Berkeley
University of California at San Diego
University of California at Santa Barbara
University of California at Santa Cruz
University of Connecticut
University of Florida
University of Georgia
University of Guam
University of Hawai'i at Hilo
University of Hawai'i at Mānoa
University of Maine
University of Maryland
University of Massachusetts Dartmouth
University of Miami
University of New England
University of New Hampshire
University of New Haven
University of Oregon
University of Rhode Island
University of South Carolina
University of Southern Mississippi
University of Texas at Austin
University of the Virgin Islands
University of Washington
Western Washington University



Photo | Aileen Devlin | Virginia Sea Grant



Photo | Aileen Devlin | Virginia Sea Grant