Research Associate

Julie Huber

Post-doctoral Research Associate

Deep-Sea Oceanographer or Marine Microbiologist or Geomicrobiologist or Astrobiologist!

NASA Ames Research Center

I am a researcher who studies the microbiology of deep-sea hydrothermal vents as part of NASA's Astrobiology Institute. This means that I spend most of my time in a lab studying microorganisms and samples collected from underwater volcanoes or other areas of the ocean where warm fluids are leaking out of the crust. I also get to spend about a month a year at sea on a large research vessel. While at sea, we collect samples with remotely operated vehicles that are tethered to the ship and controlled by people on the ship, as well as manned submersibles which have people in them and are free to roam the seafloor unattached to the ship. I also spend a lot of time reading papers, analyzing data, writing, and going to conferences or meetings all over the place.

My areas of expertise

- Oceanography
- Microbiology
- Molecular Biology
- Marine Chemistry
- Marine Geology

How I first became interested in this profession

I have always wanted to study the ocean--since I was about 5 years old--but didn't become specifically interested in microbiology and the deep sea until college. I was just getting into the field when the paper claiming life in a Martian meteorite came out, and at that point, I became very interested in astrobiology as well.

What helped prepare me for this job

I took a lot of general science classes, including physics, chemistry, math, and biology as an undergraduate student, and I also participated in geomicrobiology research in the Bahamas looking at the interaction between microbes and carbonate sands. I then specialized in the "ocean side" of these topics, including marine geology, marine chemistry, and biological oceanography, while in graduate school. I also continued to broaden my background through the Astrobiology Program--this included courses about planetary formation, early Earth, and space engineering.

Two other things helped me prepare for this career. First, it is extremely important to be able to communicate your findings to others, so whenever I have the chance to give a talk or lecture or write a paper, I take it. Second, it really helps to get your hands dirty--volunteer at a local lab or aquarium, participate in science fairs, go to an oceanography or marine science camp, anything to get yourself learning by doing--it's the best way! More than all the classes I've taken (and I've taken a lot!) it is the times when I got involved hands-on that helped me prepare for this career the most.

My role models or inspirations

Major inspiration: Rachel Carson--marine biologist, author, environmentalist. She was driven by her fascination and passion for the natural world. She stepped outside of the "typical" scientist role by writing for the public, and through her books, she introduced millions to the beauty of the natural world and its creatures, and the importance of appreciating and protecting that beauty. One of my favorite quotes from her, in 1954: "The more clearly we can focus our attention on the wonders and realities of the universe about us, the less taste we shall have for destruction."

My education and training

- Bachelor of Science in Marine Science
- Minor in Chemistry from Eckerd College in St. Petersburg, FL
- Master of Science and Doctor of Philosophy in Biological Oceanography Certificate in Astrobiology at University of Washington in Seattle, WA

My career path

Right after the Ph.D. I took this position as an NRC/NAI Postdoctoral Research Fellow in Woods Hole.

What I like about my job

I love that my field is so interdisciplinary. I can go to a seminar about seafloor eruptions, then talk to a colleague who studies hydrothermal circulation and read a paper about genomic methods, and it all contributes to my research and educational development. I also really enjoy doing fieldwork--sometimes after many months in the lab, staring at little dots under microscope, pipetting DNA you never see, and writing until your fingers ache--it is just wonderful to get out to sea and reconnect to the environment you are studying. It is such a team effort to do research cruises--from all the scientists to the captain of the ship to the submersible engineers to the chef--and I love being a part of that team.

What I don't like about my job

It can be very slow and frustrating at times. It sometimes takes many failures before a single success. The hours can get a little long at times, too. It is important to strike a good balance between work and fun. Leave the lab every once in awhile! Read papers outside!

My advice to anyone interested in this occupation

Make a lifetime commitment to learning. Don't focus too soon, keep an open mind and read anything you can get your hands on. Wandering a little and figuring out exactly what you want to do should be fun. Don't get hung up on the details.