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CAREER PROFILES Options and Insights

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Degree: When, where, what, and what in?

I received my PhD in geological sciences in 1993 in a joint program between the Lamont-Doherty Earth Observatory (LDEO) of Columbia University and the American Museum of Natural History (AMNH). My thesis focused on the geochemistry of platinum group metals in igneous rocks. My research project was largely experimental in nature, but was motivated in part by a fascination with the phenomena of sulfide melt immiscibility observed in mid-ocean ridge basalts, the subject of my master's degree in oceanography from the University of Washington. My undergraduate work at the University of Virginia was in environmental sciences and culminated in a senior thesis on beach sediment transport, a project that inspired me to pursue graduate study in ocean sciences.

Did you stay in academia at all, and if so, for how long?

All phases of my career have been academic in nature, but my various positions have not always been at a college or university—the places that people typically think of when they use the word *academia*. For example, immediately after earning my PhD, I continued working as a researcher in the Earth and Planetary Sciences Department at AMNH for a couple of years, and subsequently took a position teaching oceanography at a small nonprofit organization, the Sea Education Association.

How did you go about searching for a job outside of the university setting?

Early in my PhD program, I discovered a love of teaching and pursued every opportunity to hone my skills as an educator. I taught at a local community college during the summer, participated in outreach programs at LDEO and the AMNH, and worked with local science teachers. After receiving my degree, having this experience on my CV made me much more competitive for teaching positions than I would have been otherwise. My job search after my PhD was as part of a "two-career couple" and was challenging, to say the least. While still in graduate school, my husband and I both received employment offers from oil companies in the Houston area, but after much deliberation, we turned the offers down to pursue what we really wanted with respect to long-term careers. It was a risky move at the time, but fortunately, we eventually both received offers at the same location, his at Woods Hole Oceanographic Institution, and mine as a faculty member at the Sea Education Association.

Is this the only job (post-academia) that you've had? If not, what else did you do?

My career consists of two main phases, my present position at Scripps Institution of Oceanography and my previous position at the Sea Education Association. SEA is a Woods Hole, MA, based nonprofit that specializes in field-based ocean education at sea. Students receive a full semester of undergraduate credit for the program through Boston University. The position at SEA is what I often refer to as the best possible teaching position a scientist can have, one in which students learn oceanographic research by doing oceanographic research, and the faculty member is a facilitator rather than a lecturer. As an oceanography faculty member, chief scientist at sea, and on two occasions interim dean, I found the position extremely rewarding professionally and personally. It is gratifying to see students that participated in SEA programs grow enormously, both intellectually and emotionally, during the program, and in some cases to see them pursue highly successful careers related to the ocean. And I learned right along with the students. As a geological oceanographer by training, my background in the other oceanographic disciplines was based on course work

rather than research experience. By working with students to collect, process, and analyze physical, chemical, and biological data at sea, I developed a much better understanding not only of each discipline but also of the ocean as a system.

What is your current job? What path did you take to get there?

I work at Scripps Institution of Oceanography at the University of California San Diego as Director of Scripps Educational Alliances, and I am also a Program Scientist at the Birch Aquarium at Scripps. My position is focused on supporting the interplay between science and education at Scripps, specifically spearheading new initiatives and partnerships in outreach and education, as well as incorporating aspects of Scripps research activities into high-quality education and outreach programs locally, regionally, and nationally. I continue to teach at the undergraduate level, including courses on Earth history and climate science.

The job change from SEA to Scripps was again part of a "two-career couple" move for my husband and me, and was influenced in part by the fact that we had started our family and were struggling with the logistics of both being seagoing scientists. The shift to working at a major research institution and large research university has proven to be one that has

provided many opportunities for me to apply my scientific and education training in a different but equally stimulating arena.

What did your oceanographic education (or academic career) give you that is useful in your current job?

My tenure as a PhD student has been invaluable in providing me with insight into the ocean science research enterprise and its importance to society, insight that I strive to communicate to the public so that they can understand, appreciate, and advocate for ocean science research. My teaching experiences have provided me with a much broader and deeper knowledge of a wide range of ocean science disciplines, with skill at communicating science to a variety of different audiences, and with the expertise required to help young scientists learn to communicate effectively. I also find that my time at sea as chief scientist taught me to be flexible. For any project or activity, I am not disconcerted when things don't go according to plan but rather find I am able to formulate an alternative plan quickly without being stressed about it.

Is the job satisfying? What aspects of the job do you like best/least?

My job is extremely satisfying and stimulating as I continue to be able to fulfill my passion for education in an environment where I can immerse myself in learning about the latest Earth, ocean, and atmospheric science research. Perhaps most deeply satisfying is working as a member of a team dedicated to improving public science literacy and promoting concern for the environment. I thoroughly enjoy the aspects of my job that require high-quality interactions with students, teachers, the public, and research scientists. I dislike most things administrative, and there is quite a bit of that at a large university. That said, I do get a certain degree of satisfaction from learning how to navigate the university system effectively.

Do you have any recommendations for new grads looking for jobs?

Take every opportunity to broaden your experience, as it will open up the range of potential career paths you can reasonably pursue. Have confidence in your abilities, but more importantly, in your ability to learn on the job. After all, that is what your training as a scientist has prepared you for—to work independently and figure things out for yourself. Don't necessarily look for the perfect fit for your credentials, look for something that inspires you. The steep part of the learning curve in any new position is somewhat anxiety ridden, but these are times in which you grow and learn the most, so go for it.

HEATHER DEESE | Vice-President, Strategic Development, Island Institute (hdeese@islandinstitute.org)

Degree: When, where, what, and what in?

I earned my Bachelor of Science degree in physics, with a minor in English, at Georgetown University and a master's degree in physical oceanography in 2001 from the MIT/WHOI Joint Program. I went on to earn my PhD in oceanography in 2009 from the University of Maine.

Did you stay in academia at all, and if so, for how long?

No, I didn't stay. I enjoy teaching, but found my real passion in working at the interface between scientists and those in the private and public sectors who need scientific information to inform their decision making.

How did you go about searching for a job outside of the university setting?

Networking, networking, networking. Every time I have looked for a job, I have done so through meeting with people I know, and then people they know, and then people they know. So many individuals have been generous with their time, insights, and connections. I try to return this favor now whenever I hear from other scientists or students who are looking into nontraditional options.

What is your current job? What path did you take to get there?

I am Vice President of Strategic Development at Island Institute, a 30-year-old community development nonprofit that works to sustain Maine's island and remote coastal communities and exchanges ideas and information to further the sustainability of communities in Maine and elsewhere. We set our priorities based on community needs and develop and implement programming in six portfolio areas: education, energy, marine, community development, economic development, and media.

After finishing my PhD, I came to the Institute as the Marine Programs Director, leading work to support fishermen and fisheries communities in partnership with researchers, business development groups, and state and federal fisheries managers. In the past four years, I have held a number of positions at the organization. For the last

year and a half, I have held my current job as VP Strategic Development. I work with the other members of the senior management team, our director team, and community members to set the direction for new programming and raise the funds to support our work.

The story of my unusual career in and around oceanography started with my acceptance to the joint program at MIT/WHOI. I was initially enrolled as PhD candidate directly after graduating from university with my bachelor's degree, but decided to instead complete a master's

research project and thesis once I realized that my research interests were not well aligned with my advisor and that I was interested in pursuing a career that would not be exclusively focused on research.

After leaving the MIT/WHOI program, I ended up living and working in Tasmania, Australia, for a few years, and through a series of networking interviews in Hobart, found a position working for the Commonwealth government in the National Oceans Office (NOO). The NOO was a relatively young, small agency charged with implementing Australia's National Oceans Policy. I greatly enjoyed working as part of a small science team within a broader policy group, especially the role we played in bringing the expertise of marine scientists throughout the country to bear on policy and regulatory decision making. While in Hobart, I also finagled my way onto an Antarctic resupply cruise as a volunteer scientist—an amazing experience.

Upon returning to the United States in 2003, my husband and I moved to Maine. By this time, and largely informed by my work in Australia, I had identified my central career interest, which has guided my work in the past decade. I am passionate about working at the interface between scientists and technical experts and the policymakers, managers, educators, business people, and nonprofit staff who need scientific information to make more informed practical decisions—particularly around the ocean, but also for other environmental and energy issues. After our move to Maine, I found work in this arena as a consultant to fisheries organizations and environmental nongovernmental organizations, and then decided to take time away from professional work to get my PhD.

A number of factors drove my decision to pursue a PhD, including the desire to better understand the inside of the research process, my interest in being able to lead on interdisciplinary research teams, and my awareness that the PhD is an important credential for anyone intending to speak as an authority on how scientific information should or should not be applied in a variety of situations. (In other words, the PhD matters for writing proposals, speaking to the press, interacting with politicians, and providing expert opinion in any number of other circumstances.)

I can say definitively that the PhD has been a critical credential for me in the last four years since it was awarded, and, as far as I can tell, it will continue to be so. Based on my own personal experience, I would say that the PhD, in combination with the variety of work experiences I had after finishing my master's degree and before starting the PhD, left me well prepared for a leadership role within an organization that regularly requires a variety of types of scientific information and advice for practical applications.

What did your oceanographic education (or academic career) give you that is useful in your current job?

My oceanographic education was a combination of what I learned during my two stints in graduate schools and the multiple jobs I held before, between, and since. I learned a tremendous amount about the ocean and how we relate to it, rely on it, and impact it as humans through my academic studies and research in university settings. But I learned at least as much, if not more, through work with government policymakers, regulators, and managers, fishermen, conservationists, and others who have spent decades either working at sea or learning about and making decisions related to the ocean. This work outside academia has also allowed me the opportunity to interact with far more marine scientists than has my work within academia. For example, in my role as a program officer with the Australian government, I met many scientists who served on expert review panels, advisory groups, and through our RFP processes.

Is the job satisfying? What aspects of the job do you like best/least?

I deeply enjoy working with scientists and technical experts of all stripes as well as community members, government staff, or others who are looking for scientific, technical, or other resources to address a concrete need. I realized relatively early in my graduate school work at MIT/WHOI that I enjoyed talking with other scientists about their research more than I enjoyed doing research myself, and for this reason I toyed for a while with the idea of becoming a science journalist. I do actually now write a regular column about marine science topics of interest for a general audience, but I realized my real passion was in applying science for practical purposes—I like seeing the information coming out of the scientific world being put to work in the "real" world, and I like even more when I am a part of making that happen.

Do you have any recommendations for new grads looking for jobs?

Practice public speaking, learn to write, and, ideally, take an improvisational acting course—or do all three. I cannot overemphasize the importance of being able to persuasively make an argument or present a compelling story around a set of data in person or through writing. These skills are absolutely essential to success as a researcher or in most nontraditional career paths for scientists that I know.

And once you have those skills, network, network, network. Don't be afraid to email someone you don't know who has a job that seems interesting to you and ask them to spend a few minutes talking with you. I always make time for these requests when I receive them, and so does almost every other professional I know. Hone your email request for a networking interview to a few short sentences that sum up who you are and what you think you might be interested in, and then doggedly pursue those discussions. As you talk with these people, think about the aspects of their jobs or other jobs or organizations they mention that sound interesting—and boldly ask them if they would be willing to put you in touch with their colleagues in that area or with those organizations. You will quickly create a web of contacts and connections and phone dates, and with strong quantitative and technical skills, you will likely be looking at a range of nonconventional ways to use your science degree.