

ERIKA MONTAGUE | Consultant (erika@liquidlabsllc.com)***Degree: When, where, what, and what in?***

I earned my BS and MS (2001) degrees in biology at California Polytechnic State University, San Luis Obispo, specializing in molecular biology as an undergraduate and marine biology during my graduate studies. My master's thesis focused on spatial and temporal variability of planktonic bioluminescent species in coastal regions. I received my PhD in oceanography in 2007 from Johns Hopkins University while conducting research at Harbor Branch Oceanographic Institution (HBOI). My PhD thesis involved the development of non-invasive instrumentation to study species in remote and extreme marine environments.

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

After completing my PhD, I went on to a two-year postdoc in the Engineering Department at Monterey Bay Aquarium Research Institute (MBARI). Toward the end of my formal MBARI postdoc, I received fellowship funding from both NOAA and the Schmidt Ocean Institute, which allowed me to stay on for an additional two years. Although the bulk of my time and focus was spent on research and development during those four years at MBARI, I was also a part-time instructor at the local community college.

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

During my postdoc it became evident that my interests were increasingly focused on the "interface" between science, technology, operations, and the private sector. I had developed a large network of people from many different sectors of the ocean industry, and leveraged that network to find new positions and projects. Tools like LinkedIn allowed me to see positions available in my area and the people in my network who were connected to those

organizations. I also contacted companies I was wanted to work with and asked about consulting and full-time work. Finally, organizations such as the Marine Technology Society further expanded my networking circles and introduced me to other specialties in marine technology.

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

I started consulting after my time at MBARI and have continued to do so during my other positions and expeditionary work. I was the Director of Science and Technology at OceanGate Inc., a private company that offers manned submersibles for hire, where I served as the chief scientist and project manager for research and development, assisting clients with the implementation of existing and new technologies to meet their specific needs. In 2012, I was selected as a member of James Cameron's DEEPSEA CHALLENGE expedition, and worked with the lander and manned submersible teams to maintain and deploy critical scientific instruments and sampling devices during the test-dive phase of the expedition. Additionally, I was the Director of California Operations at a STEM education organization, Science from Scientists, helping to deliver STEM education into the classroom through real-world science and technology professionals.

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

Currently, I consult for foundations, companies, and private interest groups to help navigate funding, development, and implementation of ocean-related projects aiming to bridge the gap between diversified stakeholders. Someone recently called me a matchmaker in the marine industry, which I think accurately describes a lot of my work. My broad background in multiple areas has enabled me to see the bigger



picture and seek out the correct experts required for each task. This type of work has been cultivated over years of field experience combined with a social network of industry members.

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

Mentors, mentors, mentors. These people give insight into the past and often forecast into the future. They will provide you with knowledge and connections that cannot be gained from a book, and if you choose wisely, opportunities in the field and at meetings. My three primary academic mentors offered advice that dictated my education. Mark Moline, then at Cal Poly, understood how the funding landscape was changing and involved his graduate students, myself included, in proposal preparation, exposing us to a wide range of resources (government, private, and corporate). Not only did this help me understand the funding landscape and proposal processes, but it also prepared me for consulting work with foundations and private groups. While deciding on a PhD program, Edie Widder's advice on communication between disciplines resonated with me and put into words a path that I was already gravitating toward. She noted how there were many excellent scientists and talented engineers in our field but very few people who were capable of understanding the needs and language of both.

Because my interests were in both science and technology, I took engineering courses and worked side-by-side with the engineers on our projects. The third piece of critical advice came during my first day at Johns Hopkins from Tom Osborn who explained first and foremost above any ocean-specific courses, “a student should master the core subjects, such as, physics, chemistry, biology, mathematics (and so on).” He was absolutely correct. Topics I struggled with during my oceanography degree were directly related to my lack of depth in the root subject, and I found myself always turning back to the basics in order to work out a problem.

Is there any course or other training you would like to have had as part of your graduate education to meet the demands of the job market?

Many universities now offer interdisciplinary courses, combining science, law, engineering, and/or business, which I think is fantastic. Although I took both science and engineering courses and had a lot of “learn by doing” experiences, I would have enjoyed taking an Ocean Engineering for Scientists course earlier in my program. Project management and business development are critical components in most projects, both within and outside of academia. Understanding budgets, timelines, and staff allocation are all essential skills for a successful project; however, many scientists and engineers do not get this in their academic training.

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

From deep-sea exploration to vetting proposals for foundations interested in sustainability and tech development, my career has covered a wide range of projects and disciplines, but the consistent theme has always been discovery. Seeing or learning something new about the ocean through my own experiences or the eyes of a colleague piques my interest and motivates me to push the boundaries of marine technology. Going to sea is

my biggest *reward* in this job, even when it comes with a heavy load of work and little sleep, but my biggest *joy* has been realized by sharing those experiences with others. Because my ultimate goal is to bridge the gap between the marine industry and other sectors, the more I am able to communicate about an ocean phenomenon, process, or tech/data/sampling need, the more valuable those conversations become.

Doing anything ocean related comes with many challenges, and, unfortunately, equipment failure is part of that deal, but limited time and budgets make the sting of equipment malfunction more acute.

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

Join networking organizations and groups both within and outside of your specific industry while continuing to reach out to people in your existing and new networks. Jobs, funding, and projects are always changing so keep checking in with people and companies. Don't be afraid to ask lots of questions and find value in each conversation with other professionals. Lastly, keep other students and young professionals in mind when you find an open position that may not be suited for you but could be for another colleague. It will help them out and someday the favor may be returned. ☺