



## 600 Miles from the Atlantic

I can't say for sure when I decided that I would be a marine biologist. All I know is that it's been an accepted fact for almost as long as I can remember. What I *am* certain about is that I never expected to be fulfilling my goal in the middle of Indiana, 643 miles from the nearest coast. Despite the unlikely surroundings, I'm leaving IU with an education in marine biology that I consider to be on par with some of the most high-powered coastal universities in the country. After four years at IU I've been a part of research or conservation work in five countries, including the U.S.; a claim many graduate students wouldn't be able to make. Thanks to the incredible flexibility of the IMP I was able to incorporate courses from almost a dozen schools at IU to complete a comprehensive degree program and fulfill an ambition that started when I was just a child...

It's very possible that my first grade teacher was at the root of my dream to become a marine biologist; twice a week, story time was replaced with whale time, when we learned about the dolphins and whales of the world with rubber figurines as visual aids. For a long time I thought that marine biology was synonymous with dolphin training, as most kids do. In third grade I'd incorporated sharks into the dream, as our career poster illustrated: my allotted square was filled mostly with a shark (an unidentifiable species, naturally); a small corner left to a lonely scuba diver.

By high school I had come to understand that marine biology was *far* from the glamorous life of a dolphin trainer, but it wasn't difficult to accept. My love for the ocean had only grown with frequent trips to the Caribbean and my first time scuba diving. My rejection letter from UC San Diego wasn't encouraging, to say the least. Studying marine biology at Scripps Institute was my dream, and unfortunately it had not come true. I resigned to come to Indiana University where I had an older brother and a cousin at school already, but no oceans in sight. Little did I know that

my third choice of colleges would open up some of the greatest opportunities of my life.

It was something about the graduate student's broken English and the 9 AM class time that prompted me to drop calculus freshman year. Introduction to Scientific Scuba Diving just looked so much more appealing. I couldn't believe that landlocked IU had a scuba diving course, and that here I was, lucky enough to be taking it my first semester of freshman year. I walked in the second day of class and was immediately chastised for my tardiness by one Charles Beeker, the man who has had the single most influence on my schooling here at IU.

After numerous apologies it appeared that I was back in his good graces enough to talk to him about my desire to study marine biology. He immediately recommended that I look into the Individualized Major Program and that I get in touch with Claudia Johnson, the second most influential person in my college career. There's no reason to get into the details of my IMP meetings, but by the middle of second semester freshman year I was the first student to officially be studying marine biology in the history of IU (I've come to realize these firsts are pretty standard for the IMP). By the end of second semester I had also completed *four* college level courses in *scuba diving*. This was a fact that my parents certainly looked upon with apprehension, and that many would scoff at as a waste of an education, but the scientific scuba courses that I would continue to take literally opened up the door to the world of professional marine biology.

When a biologist, ecologist, conservationist, or any scientist goes into the field to collect data, they have techniques. They take notes, measurements, and samples, but the actual processes through which these data are collected – writing in a notebook, measuring the circumference of a tree – are typically given little to no thought. If you ask that same scientist to collect the same data *underwater*, a whole new level of complexity is added; data collection is no longer as simple as recording notes in a field notebook, dragging a tape measure from one tree to another, or dipping a bottle into a stream for a water sample. Underwater science involves collecting data in dynamic environments, where holding still to take a measurement often depends on the weather or the strength of a tide; coordinating with a fellow

researcher depends on the visibility, often less than six feet; and taking notes underwater is limited to five or six pages of waterproof paper clipped to your person. Consequently, a curriculum incorporating extensive underwater data collection techniques is truly an essential part of a degree in marine biology.

Thanks to my two semesters of training and my status as an IMP marine biology student, I was the only freshman on the Office of Underwater Science's 2007 research project to the Dominican Republic. I had just completed a similar project in the Florida Keys where I did my first real research dives. Being a part of research and surveys was a dream come true. The diving was exhilarating: conducting surveys for the Florida Keys National Marine Sanctuary also meant diving on some world famous shipwrecks. The Dominican Republic was a whole different story. This was my first time out of the country for *work* and not vacation. It was also one of my first times in a developing country, and the *field* in fieldwork started to take on a whole new meaning. I was in a foreign country where traffic signs were suggestions and English was a rarity, and I couldn't have been happier about it. Over the next 3 years I would return to the Dominican five times, for as long as a month at a time, conducting research on the Guadalupe Underwater Archaeological Preserve for my final project.

The benefit of working with an office specializing in underwater archaeology is that while my focus was on the biological aspects of the marine reserves we worked in, I also was involved in everything from excavating 17<sup>th</sup> century shipwrecks to rigging buoy lines to recovering the bones of sloths extinct for thousands of years. My degree in marine biology has truly incorporated all aspects of underwater resource management.

By the end of my sophomore year I had received my Divemaster rating, the first professional certification a diver can hold. This came in handy during my semester abroad junior year in Australia. The primary purpose of my study abroad year was to fill in the blanks that IU couldn't offer. By attending James Cook University in Northern Queensland, one of the world's best marine biology universities, I could take the core marine biology courses that weren't available to me in the middle of the country. It just so happened that the Great Barrier Reef was

also on my doorstep. Diving in what is probably the best managed marine reserve on the planet literally blew my mind. To see what proper management could do after experiencing the ravished remains of the Caribbean Sea was inspiring, to say the least. However, the GBR is further off the coast of Australia than I had expected, so my diving was limited by the cost and time required to charter a boat. So you can imagine I jumped at the opportunity to work as a research assistant on a tropical island smack in the middle of the northern GBR for a month.

To conduct research on the GBR, the GBR Marine Park Authority requires that you have a professional diving certification. When my professor mentioned in a lecture that he needed a research assistant for one of his honors students, I was one of only a few students eligible for the job. I have to admit that, being a study abroad student, I was also less reluctant to take a month off from classes than some of the Australians. So a little over three weeks later I was sitting in a tiny prop plane, flying over the Reef to an island essentially in the middle of nowhere. For a month I assisted with a study on behavioral trends in larval reef fish. While I kept up with my lectures online, I learned far more about marine biology and research than any of the courses could possibly have taught me. I also found that studying fish the size of my pinky nail for as many as 8 hours a day was not on my list of career goals.

My return from Australia was sobering, and the reefs of the Caribbean never seemed quite the same again. However, this direct comparison was the best lesson I've ever learned about the plight of the world's marine ecosystems, highlighted by the degradation seen right in our back yard. Nonetheless, I've certainly done my fair share of exploring the Caribbean, working as a research assistant in Bonaire and an intern in the Cayman Islands and the Florida Keys. Even the difference between well-protected Bonarian reefs and unmanaged Dominican reefs was a striking illustration of the importance of conservation.

Each of these experiences and glimpses of the future of the environment I've loved since childhood pushed me further and further down the path toward marine conservation. Left to our own devices, humans will literally destroy these critical habitats. One of the greatest hindrances to progress on this front is a lack of education. In most cases the problem is not that people don't care about these

important issues, it's that we simply do not know they exist. In today's world much of our educational information is absorbed through television and film: documentaries on Discovery and National Geographic and the news media to name a few examples. Whether this is good or bad is irrelevant – the fact is that film and television hold what is perhaps the largest captive audience on the planet! One of my primary interests is exploring how this can be used as a conservation tool in the future. My first experiment, if you will, was a documentary in Sulawesi, Indonesia sponsored by Australian Geographic and Indiana University, along with 7 additional independent sponsors, highlighting the effects of modernization on marine ecosystems. I'm currently working on post-production and hopefully this will be my first step in educating the general public about critical conservation and environmental issues.

It is certainly worth noting that all of us – my sponsors, committee members, and myself – had some questions about how this degree would be regarded outside of IU. I believe the ultimate validation of the degree came with my acceptance as the 2010 Rolex Scholar of the Our World-Underwater Scholarship Society this March. For the next year I will be traveling around North America and other parts of the world working with the leaders of various fields relating to marine science, from marine biology to hyperbaric medicine. The goal of the scholarship is to aid me in finding a career path which best suits my ambitions and abilities and will have the greatest impact on my main area of interest: marine conservation.

I have to thank the IMP and my faculty sponsors for their dedication and assistance throughout my four years here at IU. The incredibly broad range of experiences I've had during my studies paved the way for the upcoming year which will no doubt launch me into an incredibly fulfilling and rewarding career in marine science. I could not have done it without the constant reinforcement of my goals and abilities by such a caring and dedicated group of people. There is no doubt in my mind that the education I received at IU through the IMP was as good as any that I could have received anywhere in the world.