

Grey Jones  
Summer 2016

For my summer internship, I was a research assistant for Dr. Russell Fielding. He is an Environmental Sustainability professor at Sewanee. He began doing research on whaling in graduate school and this was the first time he brought students along with him to help out. At the beginning of our internship, we went to St. Vincent Island, a small volcanic island in the Caribbean, where the local villages rely on whales and dolphin as a food source. The rugged terrain makes raising livestock difficult, so the people turn to the ocean to find their protein. Unlike the other fish they catch, there is no export market for whale meat, making it the cheapest fish to buy on the island. Unfortunately, due to anthropogenic causes, the mercury levels in our oceans are our rising. Mercury and methyl-mercury biomagnifies in large marine mammals, such as the ones caught for human consumption in St. Vincent. These unnaturally high levels of mercury pose a health threat to the local fishing communities on the island. Specifically, mercury is known to cause neurological damage among children. Our goal for the two-week internship was collect whale tissue samples, and analyze the amount of mercury they possessed.

Explaining to the local people why we were there was tricky. If we publish results that say the mercury levels are dangerously high, it could hurt the livelihood of these fishermen, many of which who have been whaling their entire life. The whaling tradition is engraved in their culture and has socioeconomic roots throughout the island, making it a delicate subject to discuss with the locals. In the future, we hope that our mercury reports will not only deter people from eating

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whale meat for their own health, but also in turn have a positive effect on conservation of the whales. Although it could have a negative effect on these local fisherman, the public health of the bigger community is more important.

After we arrived in St. Vincent, we drove the winding, hilly roads to the little whaling village. We met multiple whalers, and one invited the other intern and I out the next day on a whaling trip. I was thrilled. We woke up at 4:00 in the morning, loaded the gear into a small, wooden, handmade, three-person boat, and headed out to sea. They use a harpoon rigged to the end of a shotgun as their weapon. It was a very unique experience and I was able to better understand what hard work, patience, and determination these whalers possess. After hours of scanning the horizon and multiple humpback whale sightings, we came back to shore with empty hands. They told us the catch has been slim the last few months, making me wonder about the negative impacts of whaling to the cetacean population. After we collected our samples from St. Vincent, we flew back to Barbados where we began processing them in a lab at the University of the West Indies.

In the lab, the other student and I prepped the samples for analysis. The lab work was meticulous, but rewarding. Each set of samples had a 16-hour incubation period, leaving us time to explore Barbados and go to the beaches, making our day the perfect balance of work and play. It was really nice to be able to apply the skills and techniques I have learned in organic chemistry and biochemistry labs at Sewanee to real-life research. In my classroom labs, we usually know the result we

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should get before the lab even begins, but it was exciting not knowing amount of mercury we would find in the different type of whale tissue and blubber.

Because of a machine malfunction, we were not able to process all of the samples and are hoping to import them into the U.S. Dr. Fielding is working on the logistics and permits for these samples so we can continue this research throughout the year. Once we are able to process all the results, we plan to write a report and intend to publish them in a scientific journal.

This internship taught me about all of the hard work that goes into publishing a scientific primary research article. Dr. Fielding has been doing this research for years and it has been a long road. He had to first develop relationships with the fisherman, gain their trust, and find the best way to collect samples from their daily catch. Getting permits to transport the samples was not an easy process. We went to the Department of Fisheries, and met with the Minister of Fisheries who helped us get our permits signed. It taught me about the cultural importance behind fieldwork in foreign countries and that the relationships and impressions you make are extremely important -it is not just about the work that is done in lab.

This internship gave me guidance and clarity towards my future career goals. I have always been interested in environmental science, but wasn't sure if I wanted to pursue a career in the field. I discovered I have a passion for fieldwork and research and want to go to graduate school and hopefully get my PhD in a related field. Dr. Fielding has provided me with excellent advice and I am so thankful that I

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am able to be on his research team. I can't wait to get our results and continue working with him over the course of the next year. This summer has given me a taste of what a career would be like in the field.