

Hannah-Marie Garcia
Summer 2016
Dr. Fielding's Caribbean Research

This summer, I spent two weeks studying environmental contaminants in Caribbean cetacean-based food sources for a project Dr. Fielding, an Environmental Studies Professor, has been working on for several years now. This was his first trip where he accepted two interns to take with him in order to assist him in collecting samples and analyzing those samples in a laboratory provided by the University of the West Indies. This was a two-week, unpaid assistantship that was offered through the Department of Earth & Environmental Systems and was specifically related to the Environment & Sustainability major. He has been traveling to St. Vincent and Barbados for several years now in order to build relationships and connections with the local government and fisherman. Specifically, we were studying the tissue samples of legally obtained marine mammals, such as whale and dolphin. Whaling is a legal tradition and livelihood for these fisherman, and the work Dr. Fielding has been conducting is focused on the way the contaminants found within the food source threaten the health of the individuals consuming the cetacean-based food source. The goal of his research is to provide an analysis of the amount of mercury in the food source and then report that number to the Ministries of Fisheries in order to find the next step in either alerting the people or providing regulations on how much of this food source is consumed. The high levels of mercury found in the tissue samples is enough to raise concern, and Dr. Fielding's project has been focused on measuring the exact levels of the environmental

contaminants in order to begin understanding the health consequences. That was our focus during the two weeks spent collecting and analyzing marine mammal tissue.

My responsibilities included transporting samples and conducting analysis on the tissue samples collected. Since the project involved two student researchers, we each worked alongside each other to ensure the analysis remained on schedule. Specifically, I focused my efforts on the contaminants likely to be found in the lean muscle tissue samples and organs, as opposed to samples from the blubber. It was important to note the physical differences among these tissues because each attracts and accumulates different quantities of environmental contamination. I had to familiarize myself with the methods of measuring the concentration of Mercury found in lean cetacean muscle tissue. During the analysis phase, I also led the recording and organization of the data we produced. Upon returning to Sewanee, I will also be responsible for organizing my section of the scientific paper we will publish upon completion of the project. My part in the research contributed to a broader purpose of the project because each of the different tissue types is processed into food for human consumption locally in St. Vincent. However, the food products are not consumed equally by all of the island's demographic groups. So, in using existing social-demographic and food safety data, the data we collected as a team in the laboratory, helped us draw conclusions regarding the healthfulness of lean cetacean muscle and organ tissue as a source of food for human consumption in St. Vincent at a fine human-geographical scale. My research and contributions in the lab and interacting with the locals helped better our understanding of the larger issues of food safety, environmental degradation, and cetacean conservation

in the Caribbean. Once we are all back at Sewanee, we will combine the findings from the various parts of this research to make a report, which will we deliver to the Ministry of Fisheries and the Ministry of Health & the Environment in St. Vincent, where we expect there to be a real impact in the progress toward both improved human health and marine mammal conservation. We will also produce a scientific paper for peer-review and publication where I will be listed as a co-author.

This was a wonderful opportunity for me to practice my field and laboratory skills in a unique setting while learning about the international application of environmental science to real problems of conservation, culture, and human health. I got the opportunity to work alongside foreign scientists, policymakers, and tradesmen toward the common goal of understanding more about the relationship between human society and the natural environment. I gained a lot of experience in understanding the delicate dance it takes to study something that not only is affecting the environmental but also the lives of so many individuals. In the end, we still have some research left to finish and I hope to be back one day soon. This internship confirmed my passion and love for Environmental Studies. I will never fail to be in awe of the places it takes me and I will continue to love how so much of it is science but also an understanding of culture. For, this is our world and what we do impacts every aspect of the ecosystem around us. I hope to continue to learn more ways I can help cultures and communities become more sustainable and aware of their impact on the Earth.