Summer with Sharks

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This summer, I spent two months interning with the South African Shark Conservancy in Hermanus, South Africa, a little town about an hour and 15 minutes outside of Cape Town. Spending my summer there taught me so much about not only biology, but also about a culture I knew little to nothing about. My summer internship was a great way to gain work experience, while also having the study abroad experience, leaving my academic year for more traditional science study. This internship really brought to life the scientific process and all the ups and downs that come with it. I had the opportunity to design an experiment, but also many other aspects of scientific study that we don’t have a responsibility for in academic settings. These include deploying a baited canister underwater to record the marine life of the area, whale watching, cage diving with great whites, collecting and analyzing marine debris, and exploring the wildlife of South Africa.

In my cohort, we worked mostly with shysharks. These are small sharks that are typically no more than 0.75m in length. They’re endemic to South Africa and since they are not as glamorous as other sharks, such as great whites, not too much is known about them. The purpose of the study my group designed was to determine the healthy ration size of the sharks; essentially how much food they preferred to eat. This is important because it can help scientists know how much to feed them, so they may be held in captivity for longer. We started out with 6 sharks that we caught ourselves either by fishing or snorkeling. In order for their hunger to be roughly equal at the start of the experiment, they were not fed for seven days. Once we began feeding them, 3-6g of squid would be put on a feeding stick and placed within two centimeters of the shark’s mouth for ten seconds. If the shark ate it, the next piece was presented. If the shark did not eat after ten seconds, the piece was removed and then replaced in front of the mouth for another ten seconds. We decided that after five presentations of no eating, the shark was full and done eating for the day. Sharks have a feeding cycle that involves eating a large amount of food at once and then resting for an extended period of time. We also looked at environmental factors, such as the temperature, pH, salinity, moon phases, etc., to see if these were in any way correlated with how hungry the sharks were that day.

Originally, our experiment looked at many more factors, but our protocols changed as we learned more about what does and does not work. No experiment is perfect in the first trial, no matter how hard you try to make that happen. Our first procedure required that we count, collect, and weigh any feces we could find every morning. In theory, it made sense, because it would help us calculate how much food was actually being digested. However, we quickly discovered that there was no way to find every single piece of excrement every day. It was also too light to give any accurate weight measurements. After a few weeks, we abandoned this protocol and focused more on their feeding cycles. At first, we had such a broad spectrum, looking at tons of measurements and data. We soon found it difficult to analyze all of this information, especially when some of it is unreliable. Therefore, instead of answering all our questions at once, we found it much easier and less stressful to answer them one at a time.

Analyzing the data was a very difficult, but rewarding aspect of the experiment. We figured out how to quantify the appetite of the shark in order to compare it to different variables. In the end, we found that sharks are very efficient at converting their food into energy. They only eat about 1.2-1.8% of their body weight per day in comparison to the average human who eats about 3-4 pounds per day. If the average person weighing about 177 pounds lived on a shark’s diet, he/she would only consume about 2.6 pounds of food per day. As the sharks got bigger, their overall appetite decreased. This, of course, does not happen to humans, unfortunately.

Doing an internship abroad gave me the best of the world of science and the natural worlds of South Africa, at the same time. I now have a broader understanding of the scientific process and the role of the scientist. Previously, I had no idea how creative and resourceful scientists need to be. I also think interacting with the natural resources of South Africa deepened my commitment to my group project. I am more excited than ever to become the best scientist I can be.

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