Two of the main factors that drove my decision of which college to go to for my undergraduate degree were the opportunities to study science and get hands on research experience in Marine Biology. Ultimately, I chose Boston University for the programs that it offered, allowing me hands on experience while also studying abroad and getting to explore new countries and cultures. It is my hope to continue to follow my passion for Marine Biology in BU’s Master’s Program.

While I have been interested in science and participating in research since I was much younger, my interest in coral reefs specifically is newer, and it is this passion that I plan to pursue throughout my graduate degree. Coral reefs are a vital ecosystem for many reasons, as they afford both scientific and public opportunities. Coral reefs are able to capture and sometimes even hold the attention of non-scientists, providing an opportunity to get those who would normally not be interested in conservation efforts engaged. For example, many serve as nurseries for commercially strategic fish operations. The reefs also contain charismatic animals which are interesting and photogenic, making them prime options for the focus of conservation efforts. They are dynamic ecosystems that are becoming more studied, but are still not understood. With the many threats to them, such as climate change, pollution, and other damage caused by tourists, understanding how the reefs change over time will contribute to conservation efforts.

Throughout my undergraduate career, BU continued to nurture my passion for marine biology, while also giving me the opportunity to expand my interests, including my passion for coral reef conservation. BU’s programs included a wide variety of experiences, including the Science Abroad program in Madrid, the Marine Semester, and the Tropical Ecology Program in Ecuador. These programs gave me many opportunities, including going to Belize and the Galapagos Islands, working at a research station, and conducting actual research on the fore- and back reefs of Calabash Caye. After those experiences, I continued related research on the data we collected as a Coral Research Intern at the New England Aquarium, where I first began officially working with my mentor and PI, Dr. Randi Rotjan, of the Rotjan Marine Ecology Lab.

With the goal of expanding upon my classroom experiences, I followed my PI back to BU as a research assistant and began working on a project analyzing the photodata from the Phoenix Island Protected Area with the goal of understanding of how reefs change over time. To that end, I initiated the analysis of photomosaics in the lab and was instrumental in developing the project protocols. In this capacity, I taught myself the necessary techniques, rewrote the protocol to be easily understandable and easily followed, and began to teach other students to analyze the data as well. Following my graduation, I stayed in the lab as a research assistant, continuing to move the project forward, supervise and train undergraduate students, and developed a workflow to further streamline the workflow and decrease the time spent on each site.

Since I joined this lab in 2015, we have moved the project in a new direction, with an improved method of compiling the data into mosaics that will increase accuracy and the ability to analyze more types of data. The project that I am currently working on, and hope to continue as a master’s student, focuses on how various sites change over time and tracking individual corals through the time points. Using photo-analysis of 3D maps of various reefs in the Phoenix Islands Protected Area, we analyze the fate of various coral species and individual colonies, as well as how crustose coralline algae and halimeda can change the fate of perturbed reefs. We also closely track coral growth and gain a better understanding of succession in reefs. The project increases our understanding of how reefs change over time and sheds light on how enforcing a no-take zone can impact the potential recovery of a reef. Knowing how conservation efforts can help or harm a reef will be instrumental in guiding future conservation work in this discipline.

It is my goal to continue working on this project as a graduate student, while also conducting my own independent research on succession and stable states in reef environments. I can avoid the startup time that is included in new projects, and I am already familiar with all the people working on the project. The classes available at BU will help me round out my knowledge base and increase my abilities in subjects such as statistics and computer programming that so I can continue to contribute to the fields of Marine Biology and Conservation. The program at BU will allow me to continue my research, while expanding my skill set and helping me bring other students into the research community through teaching and mentorship; increasing both my ability to grow knowledge about coral reefs and BU’s pool of engaged and able researchers.