



RBML Internship Report 2023

Alec Witham

10/29/2023

Introduction

Hello! My name is Alec Witham. I am from Blue Hill, Maine and am currently studying marine biology at Maine Maritime Academy. This past summer I was presented with the opportunity to travel to Washington state with my professor Dr. Alan Verde and my classmate Makenna Middleton to take part in a scientific diver in training internship in cooperation with the Rosario Beach Marine Laboratory owned and operated by faculty of Walla Walla university. As part of this internship, we would be obtaining several dive certifications, collecting marine organisms for classes and graduate research taking place at the laboratory, and becoming acquainted with the natural marine world of the Pacific Northwest. The experience I gained this summer is invaluable for moving forward in my academic career and was made possible by the funds provided by Quahog Bay Conservancy, and for that I am deeply thankful.



PADI Courses

Going into this internship my dive experience was very limited. The extent of my diving had been three warm water dives in the Dominican Republic to obtain my PADI basic open water. By the time I left Washington I had obtained my PADI advanced open water diver, PADI dry suit diver, PADI NITROX enriched air diver, and my DAN DFA certification as well as the online portion of my rescue diver certification. In total I ended the summer with 51 dives worth of experience. This opportunity gave me the ability to gain a huge amount of experience in a relatively short period of time and greatly strengthened my ability and confidence as a diver. In addition to the number of dives, the cold water and intense currents helped to further my experience and force me to become a more competent diver in a short period of time.



Red Octopus Research

Part of my duties as a scientific diver in training was to collect organisms for classes and research being taking place at the laboratory. One of the main specimens we would collect were ruby octopus (*Octopus rubescense*) which were being used in a sex determination study by a graduate student at the laboratory. Their study was based around based on genetic evidence whether the sex of ruby octopus was determined primarily by the conditions which they were subject to or genetically. The picture on the left is the student and their professor extracting a tissue sample from a ruby octopus specimen. The dive team was tasked with collecting specimens from driftwood park dive site near the Port Townsend ferry terminal, where we would find the octopus inside glass bottles which were their preferred habitat. Once we had found the octopus, we would insure it had no eggs present in the bottle. We would then bring the octopus in the bottle to the surface and transfer the octopus into red Nalgene bottles, as seen in the picture to the right, in the parking lot of the dive site. We would then return the bottles to the dive site.



Other Duties

In addition to the research taking place at the laboratory, there were also several students living at the lab attending summer classes. The scientific dive team was tasked with collecting subtidal organisms for some of these classes including general biology and the marine invertebrate's class. The picture on the right is of Mak and I receiving a list of organisms from that Dr. David Cowles that he wanted us to find for his marine invertebrate's class. Additionally, at one point during our visit we were tasked with finding scallops for a feeding study. This study was being done with a Giant Pacific Octopus (GPO) which was found while tide pooling near by the laboratory. The study was intended to explore whether the GPO had a feeding preference between scallops that were encrusted with a sponge and those that were not. This simple study revealed that while the octopus fed indiscriminately for the most part, its preference trended toward unencrusted scallops. We also removed biofouling from the sea water intakes which were being physically dragged to the surface by kelp making the system prone to failure.



Exploring PNW

As part of my time at Rosario, I was also offered the opportunity to attend various trips with the general biology class. The first was a deepwater trawl to collect organisms for observation. The picture on the right is a photo of me with a ratfish which was caught in the trawl. Along with the ratfish we observed various types of shrimp, sea stars, and urchins along with many other types of bottom fish such as flounder. Another trip which I was able to attend was a five-day camping trip to the outer coast of the Olympic peninsula. The main goal of this trip was to increase our familiarity with the intertidal communities of the PNW. I was blown away by the diversity of the area compared to my home, Maine. We explored the many beaches along the outer coast and Neah Bay where we learned about the native population's history and traditions at the museum there. We also went to the Hoh Rainforest and explored the terrestrial side of the Olympic peninsula.



Making Connections

In addition to the diving experience I received this summer, one of the most valuable takeaways for me were the connections I made throughout the summer. These connections were made through the laboratory but also through the dive community throughout Washington. All of the connections I made were facilitated by my professor Dr. Alan Verde, to whom I am very thankful. Through the laboratory I met many of the biology department staff of Walla Walla university including Dr. Jim Nestler pictured on the left and Jesse Humbert, a former Walla Walla masters student pictured with me on the right. I was also introduced to the dive safety officers (DSOs) of many institutions along the coast of Washington including the Tacoma and Seattle Aquariums, Western Washington University and University of Washington marine labs, and the former DSO of NOAA. I was amazed by the generosity and kindness of the individuals I had the pleasure of working with this summer and I know that the connections I made will be invaluable in developing my niche in the marine biology community as I move into my graduate studies.



Acknowledgements

This summer would not have been possible without so many people who made it possible. First, I would like to thank my professor Dr. Verde for planning and organizing this trip. Thank you to the staff at Rosario Beach Marine laboratory for giving me a reason to dive, and for providing resources and advice as I developed as a diver. Thank you to Mak for always being a great dive buddy and sharing my passion for the ocean and diving. Finally, I would like to thank Quahog Bay Conservancy for providing the funds to make this experience possible. Without them, I would likely have been struggling to provide funds for myself, or putting financial burden on family to facilitate an experience which is priceless in my personal journey as a developing scientist in the field of marine biology.

